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MYANMAR COUNTRY ENVIRONMENTAL ANALYSIS

Sustainability, Peace, and Prosperity:

Forests, Fisheries, and Environmental Management

FOREST RESOURCES SECTOR REPORT

MONREC

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Support by

PROFOR
INNOVATION AND ACTION FOR FORESTS

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ABBREVIATIONS AND ACRONYMS

AAC	Annual Allowable Cut
ADB	Asian Development Bank
BEWG	Burma Environmental Working Group
CBFM	Community-Based Forest Management
CBT	Community-Based Tourism
CCA	Community Conserved Area
CFE	Community Forestry Enterprises
CFI	Community Forest Instruction
CFUG	Community Forest User Group
CPA	Community Protected Area
CSO	Civil Society Organization
DALMS	Department of Agricultural Land Management and Statistics
DFMP	District Forest Management Plans
DOF	Department of Fisheries
DZGD	Dry Zone Greening Department
EAG	Ethnic Armed Group
ECD	Environmental Conservation Department
EIA	Environmental Impact Assessment
EITI	Extractive Industries Transparency Initiative
EU	European Union
FAO	Food and Agriculture Organization
FD	Forest Department
FLEGT	Forest Law Enforcement, Governance and Trade
GDP	Gross Domestic Product
GoM	Government of Myanmar
GZDZ	Greening of Central Dry Zone
ICCA	Indigenous and Community Conserved Area
IFC	International Finance Corporation
INBAR	International Network for Bamboo and Rattan
JICA	Japan International Cooperation Agency
KBA	Key Biodiversity Area
KNU	Karen National Union
LSMS	Living Standards Measurement Survey
MCCSAP	Myanmar Climate Change Strategy and Action Plan
MEITI	Myanmar Extractive Industries Transparency Initiative
MFF	Mangroves for the Future
MOALI	Ministry of Agriculture, Livestock and Irrigation
MoEA	Ministry for Ethnic Affairs
MOECAF	Ministry of Environmental Conservation and Forestry
MONREC	Ministry of Natural Resources and Environmental Conservation
MoPF	Ministry of Planning and Finance
MRRP	Myanmar Reforestation and Rehabilitation Program
MSS	Myanmar Selection System
MTE	Myanmar Timber Enterprise
MTLAS	Myanmar Timber Legality Assurance System
NBSAP	National Biodiversity Strategy and Action Plan
NCB	National Coordinating Body
NCFWG	National Community Forestry Working Group
NCRMC	National Coastal Resources Management Committee
NDC	National Determined Contribution
NGO	Nongovernmental Organization
NLUP	National Land-Use Policy
NTFP	Non-Timber Forest Product
PA	Protected Area
PES	Payment for Ecosystem Services
PFE	Permanent Forest Estate
PPF	Protected Public Forest
PROFOR	Program on Forest
REDD+	Reducing Emissions from Deforestation and Degradation
SEA	Strategic Environmental Assessment
SMEs	Small and Medium Enterprises
TNI	TransNational Institute
UNDP	United Nations Development Programme
VFV	Vacant, Fallow, and Virgin
VPA	Voluntary Partnership Agreement
WC	Working Circle

EXECUTIVE SUMMARY

Myanmar's forest and timber sector has been central to the country's economy and society, particularly over the last century. Myanmar's forests contain some of the most valued species in the world—particularly rosewood, ironwood, and teak. Myanmar also has one of the most longstanding forest management systems in the tropics. Today, despite reduced timber extraction revenues, wood industry still generates over 8 percent of formal government revenues. Beyond timber, rural society largely depends on non-timber forest products (NTFPs) and agroforestry for food, medicine, and wood fuel, which is by far the most important energy source in rural Myanmar, with between 60 percent and 80 percent of communities relying on this source. Some of Myanmar's forests also form some of the world's most critically important biodiversity 'hotspots'.

The importance of Myanmar's forests is not limited to their wood products alone:

- **Forest governance and the peace process are directly intertwined:** Two-thirds of Myanmar's remaining forested areas are managed by ethnic groups, in many cases through customary tenure systems, with much of this forest located in conflict areas. It is evident that inclusive forest governance and natural resource management and empowering local agents will contribute to the national peace-building process and reduce conflict.
- **Community forestry (CF) and smallholder plantations are financially and socially viable** and can meaningfully contribute to rural income generation, provided the appropriate institutions, rights, incentives, and technical support are in place. Community-based forestry programs represent international best practice, providing tenure to communities to stimulate investments and creating trust, income, and business opportunities.
- **Wood processing can enhance exports and rural jobs creation.** Myanmar currently loses economic value from limited or wasteful low-quality timber processing of some of the world's most valuable timber. Looking to other countries in the region, Vietnam invested heavily in high value-added processing and forest small and medium enterprises (SMEs) over the last 10 years, and today is the fifth largest exporter of wood products with revenue exceeding that of Myanmar more than twentyfold in value. The looming global supply gap for wood products will most likely boost this sector even more in the future.
- **At the same time, forests and mangroves provide significant ecosystem services** for water catchment, habitat for flora and fauna, carbon storage, soil nutrient recovery, and increasingly important disaster risk protection. With accelerating climate change, forests' role in both mitigation and, more crucially, adaptation will be increasingly essential (improving basin-level hydrological functions, especially maintaining moisture recycling and rainfall and reducing droughts and floods), especially for downstream/lowland populations.

In the years before the democratic transition, forest areas were largely over-logged to maximize timber revenues with little consideration for sustainability, which resulted in widespread degradation of the Permanent Forest Estate (PFE). Illegal logging and corrupt practices are still ongoing, but in 2014, a log export ban (alongside other policy measures) was imposed to stop the plundering of production forests. Since then, the forest and timber sector is undergoing a series of reforms to better control and manage the resources in a more socially inclusive and transparent way. Although the current direction is positive, and there is high political ownership by the government and society, progress is still slow. After several years of isolation, the sector still has to deal with historic legacy issues and lacks the

financial and human resources to accelerate sector reforms and implementation of programs, attract the needed private capital and technology, and develop an inclusive enabling environment for forest communities and private sector to generate jobs and income.

Increased transparency, dialogue, and social inclusion are some of the key elements of Myanmar's forest reform process. The Myanmar Reforestation and Rehabilitation Program (MRRP) and the revised CF Instructions provide the framework for a long-needed program that has the potential to address a lot of the social shortcomings from the past. The MRRP sets clear targets for forest restoration, and implementation is largely on track. If implementation continues as planned, it would be a significant step forward.

However, despite progress made, there is much room for improvement and for higher ambition:

- **The main drivers of deforestation and forest degradation to be addressed are outside the PFE.** Land-use conversion due to agricultural expansion, mainly through commercial concessions, but also small-scale encroachment, conversion for infrastructure, timber theft and logging are the main causes of forest cover loss and degradation. It will be essential for the Ministry of Agriculture, Livestock and Irrigation (MOALI), Ministry of Natural Resources and Environmental Conservation (MONREC), and the Ministry for Ethnic Affairs (MoEA) to agree on a pragmatic way forward to guarantee that forested land, mostly protected by communities, can continue to be managed appropriately. The current national and international concern over the 'Vacant, Fallow, and Virgin' (VFV) Law Amendment shows that a review of overall land management and its resources is needed.
- **Wood fuel is used by 60 – 80 percent of rural population and represents the main source of energy,** but conclusive data is still lacking, and it is not widely recognized as a priority area for action. A concerted cross-sectoral response is needed, involving incentives for wood fuel plantations, technology solutions, and fuel substitution (by extension of the National Grid, off-grid electricity provision) to manage this issue.
- **More diverse ways of recognizing and enabling existing forms of community-based forest management and enabling new community engagement are needed.** CF should be mainstreamed within the PFE. Outside PFE, existing forms of customary forest management should receive legal recognition and, where necessary, technical support.
- **The targets for private plantations in the MRRP (within the PFE) could be increased manifold** if the right enabling environment is created for attracting reputable high-tech integrated industry that can facilitate technology transfer, sustainable practices, and outgrower schemes to become a driving engine for a modern, sustainable, and competitive wood-based industry.

This report analyzes the underlying challenges, builds on international best practice, and makes recommendations, key of which are summarized below:

(1) **Create delivery mechanisms to scale up CF within the PFE.** There is limited capacity to handle the increasing demand for CF. The Forest Department (FD) will need to simplify and accelerate the hand-over processes for CF establishment, improve community organization support to safeguards against local elite capture, enable effective local management, and develop an efficient delivery mechanism to manage the scale-up of CF establishment and implementation. Apart from creating the needed support system at the FD level, the FD would need to (a) collaborate with all partners to provide adequate capacity building to CF user groups; (b) support business development for CF enterprises through incubators and support to financial services; and (c) assess and promote expansion of smallholder, outgrower, and other private

sector smallholder partnership models to encourage mutually beneficial enterprise partnerships with private sector. Finally, CF also has the potential to be rolled out across different land classifications, including in Reserved Forests and in mangrove forests. More efforts should be made to offer CF services to ethnic communities.

(2) **Despite high degradation of production forests, sustainable forest management is still viable in some areas but needs a critical stock-taking effort.** The FD should consider (a) reviewing reserved forest and protected public forests (PPFs) on the quality of forest stocks through site-specific inventories and developing management plans, through private/community/public efforts; (b) improving Timber Legality Assurance System to create investment climate for high-value production and export; (c) strengthening planning and control mechanisms and leading a cross-agency dialogue on law enforcement; and (d) reforming the Myanmar Timber Enterprise (MTE) with consideration of the entire value chain.

(3) **Promote enabling environment for private plantations** to attract reputable and chain of custody-certified private companies that can boost the plantation sector and at the same time, promote technology transfer, set high environmental standards, and engage with community through support for community-controlled forest enterprises and outgrower schemes. Myanmar would benefit from the preparation of an Industrial and Commercial Plantation Strategy, in close cooperation with wood-based industry, that should address constraints related to transparent licensing, safeguards, competitive partnership agreements (public-private partnerships), fiscal incentives, and enabling environment for forest SMEs.

(4) **Increase protected forests area to 10 percent of total land area**—Myanmar's Protected Area (PA) network area has not yet reached its target of forest land under protection (National Forestry Sector Master Plan of 2000). The planning, management, and gazettement process of PAs should continue taking into account community preexisting rights. The FD should consider (a) creating an effective management framework to promote ecotourism; (b) restoring mangroves as a priority and use all possible measures to put mangroves under protection; and (c) assessing the possibility of Payment for Environmental Services (PES) and REDD+[1] to support financial feasibility of PAs and watershed restoration.

(5) **Finally, to implement the challenging reform process, the FD will need additional skills, budget, technology support, and civil society support.** The FD is engaging more and more with community groups and private entities in the implementation of programs. This would need additional skills for bottom-up planning, community engagement, and facilitation, as well as expertise on livelihoods and business development. To strengthen private sector partnerships, the FD will need to enhance its licensing and control processes of concessions.

1 Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks.

photo: ©Oliver Springate

1 WHY ARE FORESTS IMPORTANT?

WHY ARE FORESTS IMPORTANT?

Economic significance

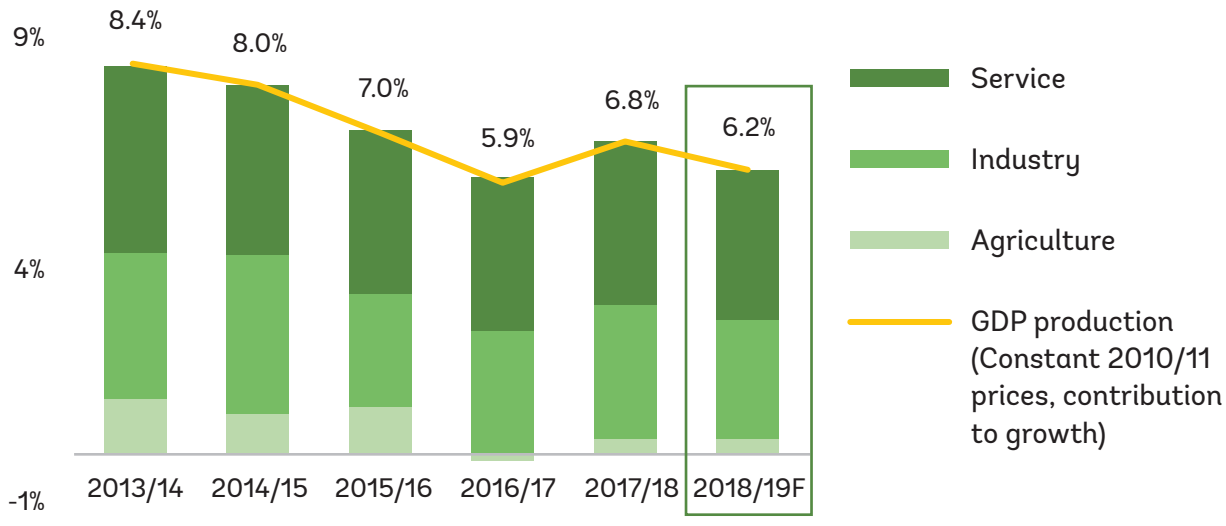
1. Myanmar's forests contribute to the overall economy in a number of significant ways. They support basic household needs and livelihoods, commercial production, export earnings, and employment. They also contribute indirectly through a range of ecosystem services, particularly hydrological functions at the river basin level, storm protection on coastlines, pollination, soil nutrient recovery, biodiversity habitat including for fisheries, and increasingly important disaster risk protection.

2. **Myanmar's gross domestic product (GDP) was US$67 billion in 2017.[2] Real GDP growth has been declining from a relatively high rate of 8.4 percent in 2013/14 and is expected to be 6.2 percent in the 2018/19 fiscal year.[3]** The proportion of the contribution of agriculture, including forestry, to GDP has declined significantly over the same period (Figure 1).

3. **The forestry sector has traditionally played a major economic role, dominated by commercial teak exports.** Commercial timber has been extracted in huge volumes over the last century, especially in the period between 2010 and 2014. Today, forestry is less prominent in formal GDP estimates. In 2015/16, it accounted for just 0.2 percent of GDP, and forest exports earned US$207 million or 1.9 percent of total export earnings.[4]

Figure 1

Myanmar real GDP growth and sector contribution



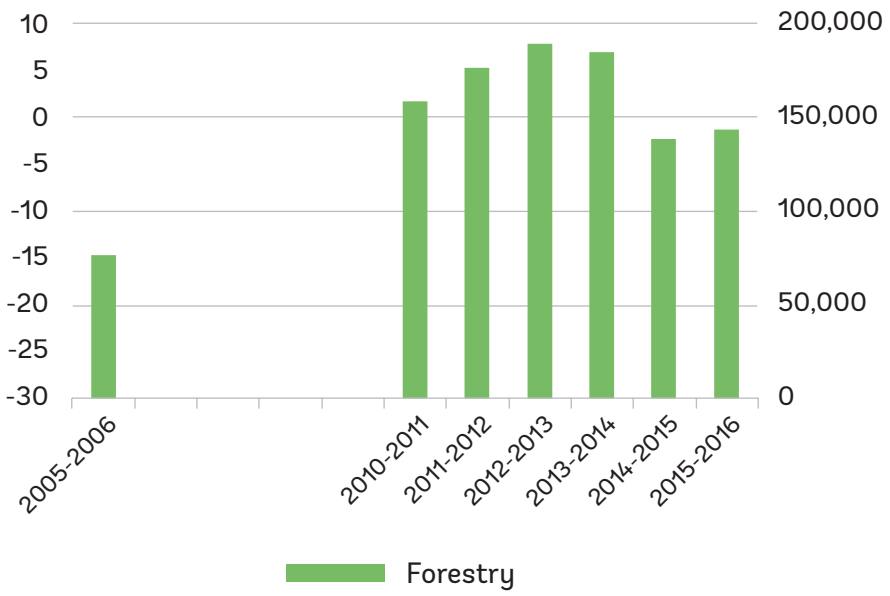
Source: World Bank 2018.

2 https://data.worldbank.org/country/myanmar.
3 Beck et al. 2018.
4 Data for 2016 reported by Myanmar's Central Statistical Organization.

4. **Contributions of the forestry sector to the GDP were significant in many ways but have fluctuated widely over recent years due to Myanmar's changing forest policy environment.** The Ministry of Planning and Finance (MoPF) data show a significant fluctuation and declining trend over the final five-year period for which data are available. This can be explained by three interlinked factors: (a) forest exhaustion due to overharvesting and the reduced allowable cut; (b) the one-year logging ban introduced in 2015; (c) the 10-year logging ban in Bago Yoma, the important teak producing region; and (d) the log export ban introduced in 2014 requiring processing of wood products before export. The log export ban required establishment of additional sawing capacity before resuming exports. The spike in extraction before the introduction of the log export ban seems to be explained by increased extraction of logs in anticipation of the ban.

Figure 2

Contribution of Forestry to GDP (million MMK)



Source: MoPF 2017

5. **In terms of employment, the forest sector is estimated to contribute around 4.1 percent of Myanmar's overall employment (MEITI 2019), the majority being labor work.** It provided as many as 886,000 formal jobs in 2015/16 and generated up to MMK 143 billion in wage earnings in 2016. This number of jobs is relatively high but still does not account for informal employment linked to the non-timber forest products (NTFPs) and other forest-related informal businesses.

6. **Total state receipts from the forestry sector are significant, representing 8.3 percent of total state receipts in FY2015/2016 (MEITI 2019)**. Revenue from the forestry sector is primarily from timber. The revenue collection from NTFPs is less than 1 percent. Revenues come from direct timber sales by the Myanmar Timber Enterprise (MTE) (62 percent), taxation on timber sales (36 percent), and sales of confiscated timber by the Forest Department (FD) (2 percent) (Table 1).Timber is now sold both at local or national open tender auctions by the MTE, although until recently the MTE would also engage in direct export. Logs sold at auctions may also be exported; if sold as logs, they must now be processed before export. The total volume of timber sales in 2015/16 was US$ 296.45 million (a drop from US$402.46 million in 2014/15) (Table 2) (MEITI 2019).

Table 1

Government collection of forestry revenues (2015/16)

in MMK million

	Revenues received from forestry sector					
	MTE	IRD	FD	MCD	Total	%
Timber sub-sector	**362,849**	**209,690**	**8,895**	**355**	**581,790**	**99%**
Sale of the state's share of production	362,725		4,686		**367,411**	63%
MTE		204,620			**204,620**	35%
Companies	124	5,070	4,210	355	**9,758**	2%
NTFP sub-sector			**3,151**	**0**	**3,151**	**0%**
Sale of the state's share of production			36		**36**	1%
Companies			3,115		**3,115**	99%
Total **%**	**362,849** **62%**	**209,690** **36%**	**12,046** **2%**	**355** **0%**	**584,941** **100%**	**100%**

Source: MEITI 2018.

Table 2

Total volume of timber sales by forest products 2015/16

Type	Quantity	Unit	US$ million	%
Teak Log	113,395	Hoppus Tons	140.06	51%
Hardwood Log	296,657	Hoppus Tons	135.29	49%
Total Local	**410,052**	**Hoppus Tons**	**275.34**	**93%**
Teak conversion	8,562	Cubic Tons	10.72	51%
Hardwood conversion	4,184	Cubic Tons	7.73	37%
Woodbase	3,163	Cubic Tons	2.66	13%
Total Local/Export	**15,909**	**Cubic Tons**	**21.10**	**7%**
		Total Sales	**296.45**	**100%**

Source: MEITI 2019.

7. **Despite the high significance of revenue collection, the actual revenues are probably much higher.** High level of timber theft, irregularities, and underreporting result in a loss of revenues. There is further room for improvement of revenue management system (MEITI 2019). The importance of NTFPs for the rural society is largely underestimated as they are mostly traded in local markets and not registered.

8. **Wood product export data was found to often be inconsistent.** UN Comtrade estimated wood export to represent 3.21 percent of Myanmar's official exports, or US$374 million. The Food and Agriculture Organization (FAO) estimated the official total value of all forest product export during the same period to be higher than UN Comtrade database, at US$443 million (Table 3) (FAOSTAT 2018). The FAO estimated that almost half of official wood exports for 2015/16 from Myanmar were 'roundwood' despite a log export ban introduced in 2014, whereas one would have expected roundwood export values to fall to zero. Presumably, this originated from a delay in introduction and perhaps (illegal) export to China overland.

Table 3

Wood exports by value, 2016

Item	Value (US$ million)
Industrial Roundwood	209
Sawnwood	112
Veneer sheets	97
Wood charcoal	15
Plywood	10
TOTAL	**443**

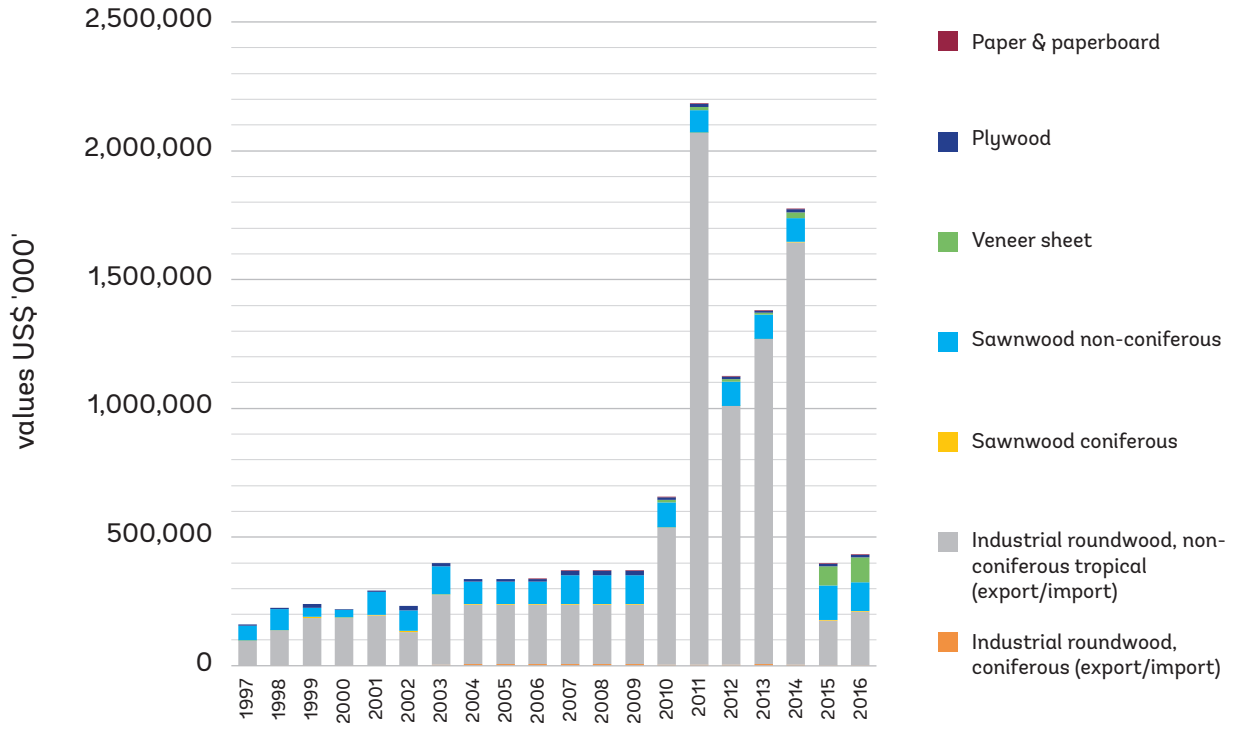
Source: FAOSTAT 2018.

9. The recent Myanmar Extractive Industries Transparency Initiative (MEITI) 2019 report stated an export value of US$207 million for the same period, less than half of the FAO figure (FAOSTAT 2016, Figure 3). The discrepancy in reporting shows the need for more accurate data collection.

10. Figure 3 displays the trend of timber and wood product exports over the last 20 years (according to FAO data). It shows a steady level until 2009, composed of mainly roundwood with some sawn-wood and other products. After 2009, round-wood export peaked for five years between 2010–2014, with an extreme peak in wood exports in 2011 at close to US$2.2 billion. Decline in availability, the log export ban, and reduced Annual Allowable Cut (AAC) were responsible for the fall in export values.

Figure 3

Myanmar timber and wood product exports 1997–2016



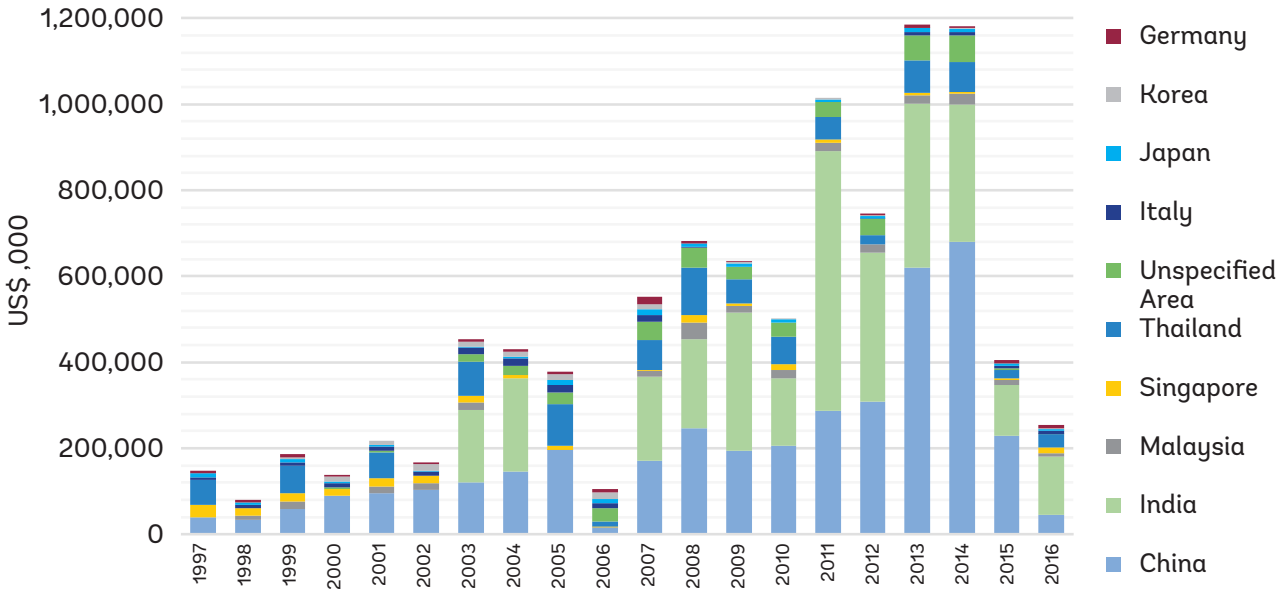
Source: FAOSTAT 2018.

11. Timber can be exported legally only through Yangon (with a minor concession from Myeik port in southern Tanintharyi). In recent years, India and China have become the two major importers of Myanmar's timber, as shown in Figure 4.

Vietnam is a major exporter of wood and timber products. Vietnam has become a major forest product processor in a relatively short time. Main factors that contributed to the economic growth were emphasising value addition and export earnings orientation, strong enabling policy environment for SME growth, and strong community-based forest management for small-scale wood production. Furniture, particle boards, artificial wood boards, melamine-faced chipboards, and wood pellets are the most exported wood products from Vietnam. The export of these wood products reached a value of US$8 billion in 2017, representing nearly 4 percent of Vietnam's GDP. Forest industry generates more than 450,000 jobs but could add 244,000 jobs by 2040 and US$5 billion to Vietnam's GDP if further reforms are undertaken, especially related to state-owned enterprises and smallholder plantations.

Figure 4

Myanmar Timber and wood product export values for main importing countries (over US$10 million for one year) for 1997–2016



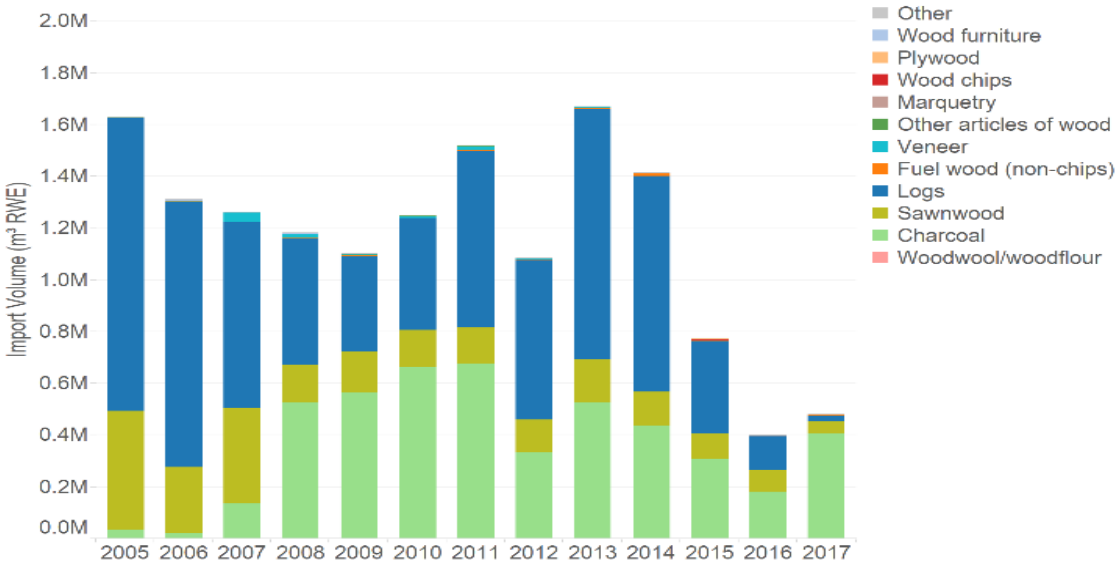
Source: FAOSTAT 2018.

12. The FAOSTAT database reconciles any differences between export levels stated by the Government of Myanmar (GoM) for specific countries and import levels by destination countries. For 2011, this unattributed adjustment category reached as high as US$1.2 billion, suggesting a fundamental problem with reconciliation of the official Myanmar government accounts.

13. India has also become a major (official) importer country in recent years. However, if unofficial trade is considered, China is likely to be the major importer of wood products, including charcoal.

Figure 5

China's imports of timber products from Myanmar (2005–2017)



In 2013, 94 percent of Myanmar's timber product exports to China were registered in Kunming, the capital of Yunnan, a landlocked Chinese province bordering Kachin State in Myanmar. It is likely that all Myanmar timber imports registered in Kunming were transported overland through trade posts along the Yunnan border (MEITI 2019).

14. China maintains customs statistics, and these appear to indicate a virtual end of overland illegal import of logs in the last two years (although continuity of charcoal import) (Figure 5). There has also been other reporting that this unofficial route is now effectively closed. A confidential agreement has been made between China and Myanmar governments in 2017 in relation to the illegal border export trade. It is not certain if illegal trade of logs was included in the agreement, as it is evident that illegal flow of logs to China continues (Figure 5).

15. **The overall contribution of the forest sector to Myanmar's economy is underestimated because of its high level of informality.** The exact numbers in monetary terms are difficult to assess due to a combination of factors[5]:

- **GDP refers only to the formal economy, but the non-timber and wood fuel[6] industry largely operates in the informal sector.** Overall economic value of NTFPs is highly underestimated as most of the collection and marketing is informal. Wood fuel remains the country's major energy source, and it is reported to be used for cooking and heating by up to 80 percent of households (although there is evidence that this is declining with the spread of electrification); it is also an important source of energy for small-scale (cottage) industries. These very significant sectoral contributions are not included in the GDP calculations mainly because of lack of data.
- **Irregularities and noncompliance.** FAOSTAT states that China accounted for (presumably illegal) imports from Myanmar of US$443 million in 2016/17 alone. In contrast, timber export from Myanmar was reported to amount to US$207 million during the same period. Large volumes of timber have been

5 Available data is often not consistent between various published information sources. One example: According to MEITI 2019, timber production in 2014 as per figures published by ITTO (about 4.2 million cubic tons of logs) was at least four times of the figures reported by both MTE and FD (less than one million cubic tons).

6 Includes charcoal and fuel wood.

reported to be exported illegally to China through the Ruili route which partially explains the discrepancy of export data. Large volumes of timber were also not accounted for in formal logging activities of subcontractors (EIA 2019). Estimates put the value of unlicensed or illegal timber exports at four times the documented value (Raitzer et al 2015; UNODC 2015). Conversion timber and so-called 'salvage logging' from infrastructure development and land conversion has also not always been accurately monitored (various sources).

- **Furthermore, wood processing may be included in 'industry' rather than 'primary sector -forestry' data categories** and so neglected if we take the category at face value. A more nuanced assessment of the forest sector and its contribution to the GDP should include industrial processing and value chain aspects.

16. **Consequently, it is virtually impossible to put an accurate value on this 'shadow timber economy'** but it is likely to be significantly higher than the value of the formal trade. A more comprehensive assessment would be warranted to better understand the economic value of wood products, including through the informal sector.

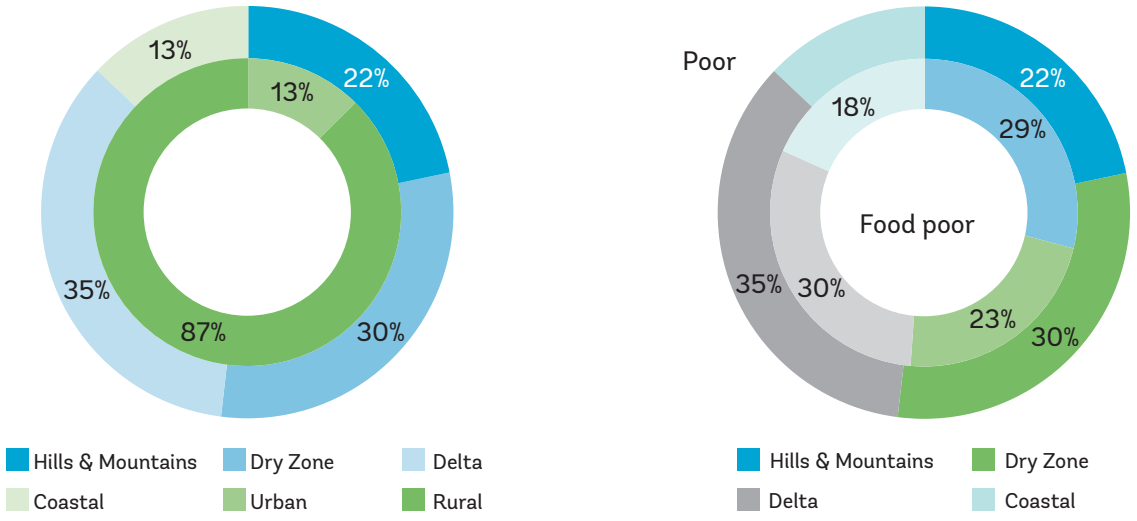
Social importance

Rural poverty

17. **An updated poverty assessment in 2017 concluded that the headcount poverty level is 32.1 percent in 2015, declining from 48.2 percent in 2004/05** (World Bank 2017). This means that about one-third (or 16.98 million people) of the current estimated population of 52.89 million are poor. Around 10 percent are food poor. Poverty is significantly higher in rural areas (38.8 percent of population), compared to urban areas, where it is now around 14.5 percent and declining more rapidly. About 35 percent of Myanmar's population is rural. This means that 87 percent of all poor are in rural areas, compared to 13 percent in urban areas.

Figure 6

Poor and food poor by location and zone



Source: WBG 2017

18. According to the approach applied, 35 percent of the poor are reported to be located in the Delta, 30 percent in the dry zone, 22 percent in the hills, and 13 percent in coastal areas. The incidence of poverty is higher in hill areas and coastal areas at around 40 percent, and one in six people struggles to fulfil basic food needs. Virtually all rural poor depend on forests to some extent. The poorest townships in Myanmar are found mainly in upland forests areas: Naga, Northern Kachin, Shan, and Karen areas, as well as northern Rakhine and the Delta.

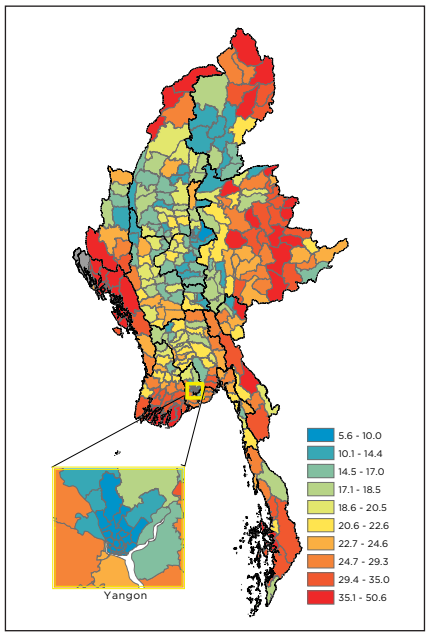
> *In the coastal and hills and mountains areas of Myanmar, we estimate that four in ten of the population are poor and one in six struggle to meet their basic food needs. Despite a lower share of the population living in these areas, they account for 47 percent of the food poor and 38 percent of those in the bottom quintile of the expenditure distribution (World Bank 2017).*

Forest poverty links

19. There are no clear studies of how many people are living in and around forests and how many of these specifically are poor. There is obviously a spectrum from those living within forests, to those living near, to those living further away. Data have been quoted of 520,000 households in and around forests in 2012 (Emerton and Aung 2013).

Figure 7

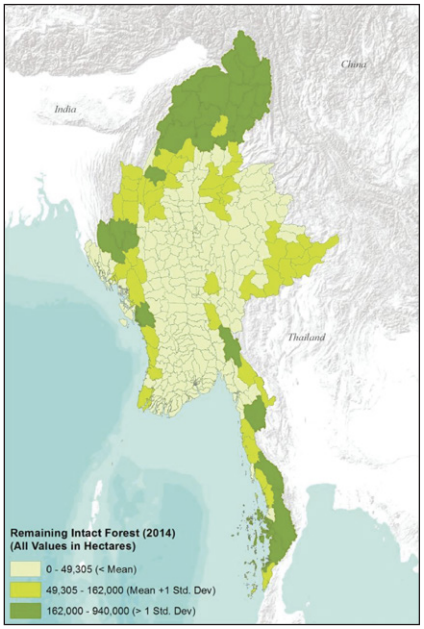
Prevalence of poverty by township



Source: World Bank 2017; author calculations.

Figure 8

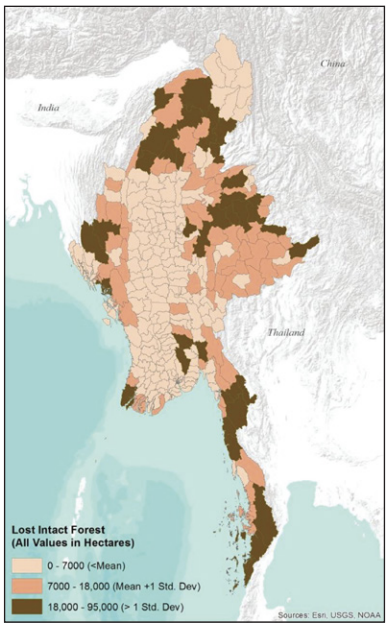
Remaining intact forests (2014)



Source: Bhagwat et al. 2017.

Figure 9

Lost intact forests (ha) for Myanmar townships between 2002 and 2014



Source: ALARM 2016.

20. **There appears to be strong correlation between poverty and forest cover** at the township level, particularly in ethnic majority upland states, as a large majority of all rural households rely on fuelwood and 63 percent of rural land is either forest or woodland. The World Bank poverty study produced data of percentage poverty by township, which allows the mapping of townships with greater, average, and lower-than-average percentage of poverty (in Figure 7, greater than average percentage of poverty is marked red). The 'forest poverty paradox' (Peluso 1994) is relevant to Myanmar, including its following aspects:

- **Remoteness and physical, economic, and political marginality:** Upland areas with weak access and remote from political centers.
- **'Resource curse':** State appropriation of forests and their management has restricted local people from benefiting from forests.
- **Conflict:** Where the main land use is forest and where there is high-value timber, forest resources can and have attracted powerful outsider interest that seeks to control the benefit flows.

Livelihoods

21. **Rural households depend on forests for a range of material benefits, ecosystem services, and cultural values (Tint 2011).**

Wood fuel: this remains the primary fuel source for as much as 95 percent of rural domestic energy needs in the absence of electrification or other affordable/accessible sources of household energy. Estimations range between 60-80 percent of total energy consumption coming from wood fuel. There is an urgent need to address wood fuel extraction within sustainable levels, this is explored further in section on Land-use conversion (under 'Issues and Drivers of Degradation').

Land for shifting cultivation: Shifting cultivation forms the primary basis for food security across many upland areas. It is widespread particularly in areas classified as 'other wooded land' rather than 'forests' by the FAO. However, the extent of shifting cultivation seems to be gradually declining, as with improved road access to markets, there is a clear pattern of moving toward cash cropping for sale and purchasing rice in markets with the proceeds.

Construction timber and poles: Essential for housing, farming, and agricultural implements.

Bamboo and rattans: There is a lot of bamboo in many forest stands; the FD estimates that bamboo production stands at 63.2 million poles annually. Rattans are also widespread and can provide significant incomes through extraction and weaving.

Fodder and forage for animals: Mainly in grassland and forest areas.

Wild foods, bush meat, medicines, and other NTFPs: Collected for own use and sale.

Wood extraction, processing, and sale: Employment opportunities in rural areas are limited, so engaging in forest extraction as labor is often an attractive opportunity for income generation (including woodfuel and timber extraction). The costs of doing this have come down significantly, and efficiency increased with easy access to chainsaws, scooters, and vehicles for transport.

Cultural values: Forested landscapes also have a strong cultural value particularly for ethnic minority groups. Many have sacred forests, 'nat' forest areas, and burial grounds in forests. Hunting in forests can be part of cultural traditions.

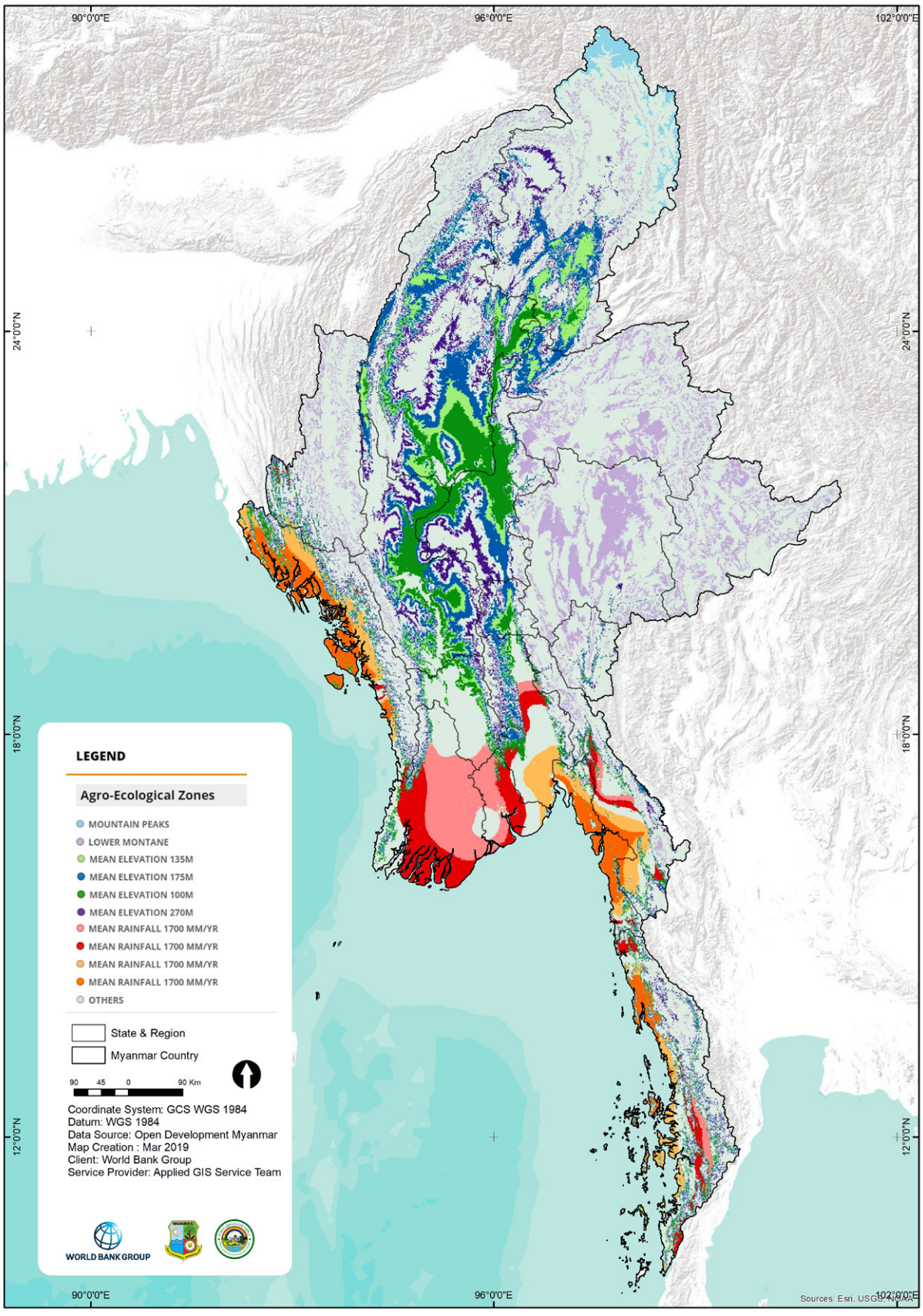
22. There are thus far no comprehensive studies of forest livelihoods in Myanmar[7], though several regional studies illustrate the importance of forests as major components of livelihoods across the various agroecological zones (Figure 10):

- **Uplands:** Have a range of forest uses, including shifting cultivation and agroforestry, hunting, and gathering (Vicol 2018).
- **Dry Zone:** Pastoralism is more frequent, so forage and fodder is critically important. There is also a wood fuel deficit so there can be an illicit trade from the edges of the dry zone, putting extra pressure on resources there. With perceived increasing aridity, forests play important local ecosystem service functions for the local microclimate (Forsyth 2018; Zin et al. 2019).
- **Coastal areas:** Mangrove forests play a range of roles, including maintaining juvenile fish habitats, protecting the coastal zone, and providing particular forest products, including roofing (nypa palm leaves) and smokeless charcoal. A recent study on livelihood use of mangroves in community forests (Feurer et al. 2018) found significant overall dependency on forests, particularly by the poorest, especially for fuelwood and timber.

7 This gap could be filled by using the Living Standards Measurement Survey (LSMS) forestry modules and the LSMS-Integrated Surveys on Agriculture (trees on farm) module which is especially useful for the agriculture-related perennial agroforestry activities.

Figure 10

Agroecological zones



Non-Timber Forest Products

23. **There are numerous commercial NTFPs but availability of data on these varies,** because the collection is so atomized and mostly taking place in the informal economy. The most extensive data are provided in the draft MEITI Report FY2014/15[8] (see Table 4). Each NTFP has a specific production and marketing profile, and detailed assessment could lead to identification of opportunities for their further commercial development.

24. **The annual value of NTFPs per household was estimated by Emerton and Aung (2013) to be around MMK 166,000 per year.** This would accrue to households in and around forests (estimated to number around 520,000 in 2012), giving an overall NTFP value of MMK 472,717 million (or US$487 million) to rural society for NTFP harvesting from terrestrial forests. Transferring evidence from other countries in the region for mangrove benefits, Emerton estimates around MMK 44,000 per ha per year, giving a total of around MMK 9,237 million (US$20 million) for benefits from mangrove forests.

Table 4

NTFP production fiscal year FY2014/15

Product	Unit	Target	Production
Bamboo	Num (000)	184,490	173,678
Bark (for tanning)	Viss	1,447,900	1,227,286
Bat's Guano	Viss	289,230	285,013
Bee-Wax	Viss	1,193	1,193
Bomma-Yaza (*Rauvolfia serpentina*)	Viss	33,285	31,140
Charcoal	Cubic Ton	260,085	233,273
Cutch	Viss	398,400	153,350
Dani/Thetke (Thatch)	Byit	83,498	64,702
Edible Bird's Nest	Viss	1,185	1,512
Firewood	Cubic Ton	321,780	289,056
Hardwood	Cubic Ton	0	112,625
Honey	Viss	17,607	17,302
Indwe/Pwenyet	Viss	284,550	259,759
Kalamet (Red Sandalwood)	Viss	5,200	7,715
Kanyin Resin (Resin of Dipterocarp)	Viss	675	675
Lac	Viss	102,905	66,368
Lacquer (Thitsi)	Viss	33,245	33,360
Phalar (Cardamon)	Viss	1,040,000	57,918
Pole (Teak & Hardwood)	Num	134,720	51,780
Post (Teak & Hardwood)	Num	88,445	50,481
Rattan	Num (000)	10,385	7,035
Shaw (Fibre)	Viss	80,860	76,532
Te (*Diospyros burmanica*)	Viss	1,300	1,295
Teak	Cubic Ton	0	39,120
Thanatkha (*Limonia acidissima*)	Viss	291,920	249,450
Thinbaung (*Phoenix paludosa*)	Num (000)	94	94
Turpentine	Viss	0	602

Source: MEITI 2019.

8 https://myanmareiti.org/sites/myanmareiti.org/files/publication_docs/myanmar_forestry_eiti_report_2014-15_draft.pdf

Gender

25. In Myanmar, women's roles in relation to the forest sector vary across the country, depending on local cultural traditions and also livelihood transitions, as commercialization increases. Hence, it is important to be cautious in assuming gendered rural forest use. However, it is generally fair to say that rural women tend to be more engaged in subsistence forest product collection for domestic use, especially fuelwood and fodder collection. Men are often more focused on cash generation and employment and may even migrate away in pursuit of income opportunities, leaving women-headed households with a 'double burden' of domestic tasks and farm management. In many areas, men tend to be more involved in dealing with outsiders, including FD staff (for example, village 'headman'), and anecdotal evidence suggests planning and species choices in community forestry (CF) may not always adequately reflect women's aspirations.

26. Gender-sensitive approach to the forest sector would require measures which better incorporate women's specific concerns into local forest management. Community outreach could be particularly valuable to facilitate women's involvement. Village-level consultations, for instance, in relation to CF planning and management, should specifically engage women focus groups. These would go a long way toward ensuring women's specific product collection roles are best expressed in forest management plans, rather than neglecting them in favor of commercialization priorities. In community consultations over forests management, women's preferences should be sought carefully, especially from poorer households, as they are more likely to depend on forests and less likely to express views openly. Tree species preferences can differ significantly by gender roles.

27. Consultations indicated that women require more formal identification in the membership of Community Forest User Groups (CFUGs) and other community forest management models rather than just 'head of household'. Community-based forest management (CBFM) facilitation—in outreach (including staff of community-based organizations, nongovernmental organizations [NGOs], and FD field staff)—should ensure engagement with women. There is potential for women entrepreneurship in Community Forestry Enterprises (CFEs), especially in ecotourism activities and NTFP processing.

28. There is a risk of oversimplifying these gender roles. Globally, there has been a general assumption that rural women are more engaged with subsistence-related forest use whereas men may be more engaged for commercial purpose, but a recent study indicated this may not necessarily be the case, emphasizing a greater role for men in subsistence collection of forest produce (Sunderland et al. 2014).

29. Although there is already good representation of women in the forest administration, it would be beneficial to ensure more gender equity through more women working in the forest sector, both in government (for example, FD) and private sector. Formal rights and tenure are other important aspects. Community outreach could be particularly valuable to facilitate women's involvement.

The Government of Côte d'Ivoire promoted several changes in its forest livelihood programs and to increase efficiency, the following gender-related actions have been identified and implemented:

- Support for the development of participatory community forest management plans that must include women in leadership positions in all committees.
- Training and technical assistance earmarked for women and youth associations engaged in forest restoration activities.
- Establishment of performance-based contracts, signed by both women and men, for planting and protecting trees on-farm near and inside gazetted forests.
- Inclusion of a requirement that 50 percent of incentive-based subproject funds must be directed to targeted gender activities.
- Inclusion of a technical assistance component that includes sharing knowledge between women about agroforestry species that meet their needs.

- Specification that the project implementation and monitoring and evaluation manuals must include sections detailing the (a) actions and indicators aimed at addressing gender gaps identified during project preparation, (b) gender-based violence risk related to project implementation, and (c) a grievance redress mechanism for addressing gender-based violence.

Source: PROFOR Brief on Gender in Forest Landscapes (www.profor.info).

Ecosystem services

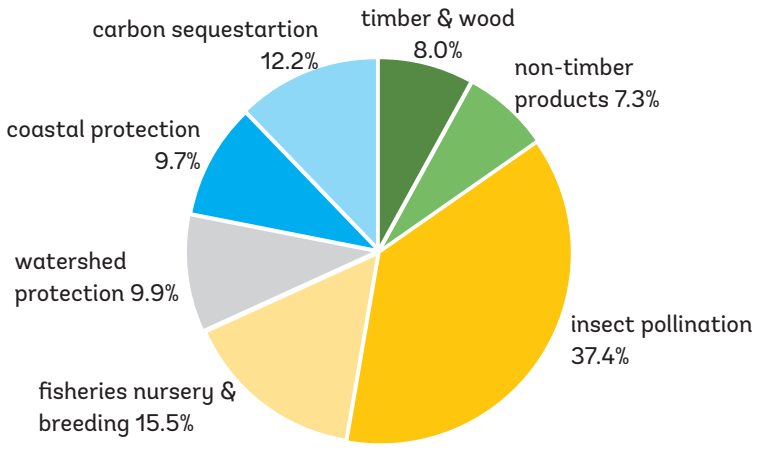
30. Myanmar's forests provide a wide range of non-provisioning 'ecosystem services'. Methodologically, it is very difficult to develop an accurate assessment; nevertheless, it is important to recognize and attempt estimation of the importance of these services. There is a need to improve technical understanding of forest ecosystem services, particularly the marginal benefits and costs, rather than at aggregate. Forests and hydrology and associated local climate change mitigation functions are particularly important.

Overall value of forest ecosystem services

31. **Emerton and Aung (2013) estimate that the annual value of forest ecosystem services is extremely high: MMK 7 trillion or US$7.3 billion.** The largest contributions come from (a) insect pollination supporting agriculture (37.4 percent) and (b) mangrove fishery nurseries (15.5 percent) (Figure 11). The authors make the point that ecosystem service benefits are recurrent in perpetuity, whereas short-term overharvesting only increases benefit flows in the short term, at the same time undermining long-term flows. On the other hand, forest conservation may limit the short-term benefits to protect and improve the recurrent benefits. Other forest ecosystem services include arbon sequestration and nature-based recreation and tourism.

Figure 11

Ecosystem services of forests



Source: Emerton and Aung 2013.

Table 5

Baseline values of forest ecosystem services

Ecosystem service	MMK billion	US$ million
Timber & wood products	565.2	582.1
Non-timber forest products	492.0	506.6
Forest elephants	20.0	20.6
Terrestrial forest watershed protection	700.1	721.0
Mangrove coastal protection	686.6	707.1
Forest carbon sequestration	863.9	889.7
Mangrove fisheries nursery & breeding habitat	1,097.6	1,130.4
Insect pollination	2,649.2	2,728.3
Nature-based recreation & tourism	8.6	8.8
Total forest sector Of which:	7.083.0	7,294.6
Direct forest income	1,057	1,088.7
Value-added to production in other sectors	3,755	3,867.5
Domestic costs and damages avoided	1,407	1,448.6
Global costs and damages avoided	864	889.7

Source: Emerton and Aung 2013.

Watershed protection

32. The value of watershed protection services is estimated to be around MMK700,085 million or US$721 million (Emerton and Aung 2013). Mitigating seasonal river flow fluctuations and maintaining water quality are of particular importance in Myanmar. Watershed forests play an important role in reducing disaster risk by absorbing precipitation and releasing it more slowly, thereby mitigating flooding in the rainy season, mitigating water shortages, and ensuring base flows in the dry season. Forests also retain soils and reduce river silt loads, helping prevent siltation of channels and flood plains.

33. As a result of flooding of the Ayeyarwady basin in 2015, at least 121 people died and estimated damages of around MKK 146 were sustained (Myanmar Business Today 2015). This may be due to the more extreme weather, but the upper Ayeyarwady catchment has suffered deforestation in recent years (especially upper Sagaing and Kachin), exacerbating flooding. There has been significant subsequent flooding again in 2016 and 2018.

> *Benefits of appropriate watershed management were demonstrated in a watershed upstream of Jebba Lake, Nigeria, where reforestation of the watersheds and other natural interventions were introduced together with a cost analysis of implementing the selected erosion control measures. The results showed that reforestation in critical zones of the watershed reduced the sediment yield, in some cases up to 65.6 percent, while the financial analysis of implementing reforestation revealed 70.5–84.9 percent reduction in the costs to be incurred if sediments are allowed to accumulate in the dam.*
>
> Source: Adeogun 2018.

Mangroves coastal protection and storm mitigation

34. Mangroves can be found in three main coastal regions in Myanmar: Rakhine State, Ayeyarwaddy Region, and Tanintharyi Region. Mangroves provide a range of production and protection services, including timber, wood fuel, NTFPs, nursery and breeding grounds for fish, and protection from cyclones and storm surges.

35. Emerton and Aung (2013) estimate the value of mangrove services related to protection against coastal erosion at MMK 946,000 per ha per year and to protection against storms, tidal surges, and extreme weather events at MMK 621,000 per ha per year. Existing mangroves (467,300 ha in 2011), thus, provide services worth MMK 687 billion (US$707 million) annually. According to existing estimates for 2000–2014 (Estoque et al. 2108), 14,619 ha of mangroves are lost per year, an economic loss of US$2.4 million per year in mangrove ecosystem services values.

36. The importance of coastal mangroves in coastal protection ("natural infrastructure") is widely recognized. Myanmar is considered one of the most at-risk countries from a range of threats, including tropical cyclones, floods, earthquakes landslides, and tsunamis. Myanmar ranks third out of 187 countries in the 2018 Global Climate Risk Index[9] and has the fourth highest level of natural risk out of 191 countries in the INFORM Index for Risk Management.[10] It was estimated that Myanmar had average annual loss of US$2 billion (3 percent of the GDP) related to natural disasters. For example, the estimated cost of the damage from floods and landslides in July–August 2015 was US$1.51 billion (World Bank Group 2015). Mangroves effectively protected coastal communities against the impacts of typhoons. Tropical Cyclone Nargis, a category 5 storm in 2008, was the worst natural disaster in Myanmar's recent history, killing approximately 140,000 people (Swiss Re 2009), displacing over 800,000, and causing over US$10 billion in damage. Some 90–95 percent of buildings, livestock, farmland, and fisheries in affected areas were lost to storm surges and flooding.

37. Mangroves are crucial for maintaining fish stocks to support the major incomes source for coastal communities, as well as commercial incomes and export earnings. Data from other mangrove rich countries (Vietnam and Philippines) show that 80 percent of fish reproduction takes place in mangrove forests. In 2012–2013, the total catch is estimated as 2.2 million tons of fish, prawn, and other marine species. Emerton and Aung (2013) estimated a value of MMK 1,097,574 million (US$1,130 million) annually for these benefits related to fish stock.

Comparing costs of forest degradation and forest conservation

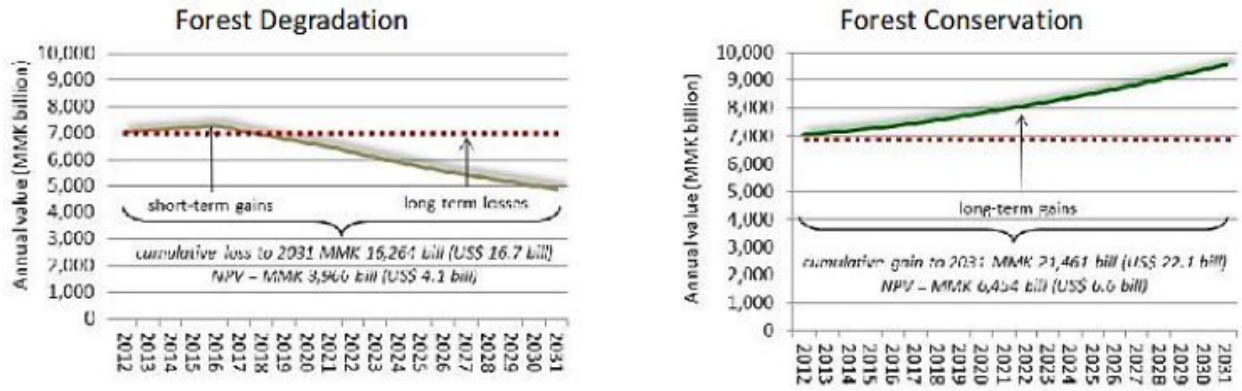
38. Emerton and Aung (2013) also compared the costs of forest conservation and forest degradation scenarios. There are short-term gains from converting, degrading, and exploiting forests, but these gains cannot be maintained over the longer term. If Myanmar continues to degrade and lose its forests, its economy could incur losses (in monetary and non-monetary values) of more than US$17 billion by 2031 over the current situation. However, should Myanmar choose a development pathway that allows for forest conservation, its economy could benefit by an additional US$22 billion by 2031.

39. This makes a clear case for treating ecologically healthy forests as crucial 'natural infrastructure' to be sustainably managed to generate recurrent benefits to the overall economy rather than just short-term gains.

9 https://www.germanwatch.org/sites/germanwatch.org/files/publication/20432.pdf. Accessed on March 17, 2017.
10 IASC and European Commission 2019.

Figure 12

Short-term gains, long-term losses from forest degradation



Source: Emerton and Aung 2013.

Conflict

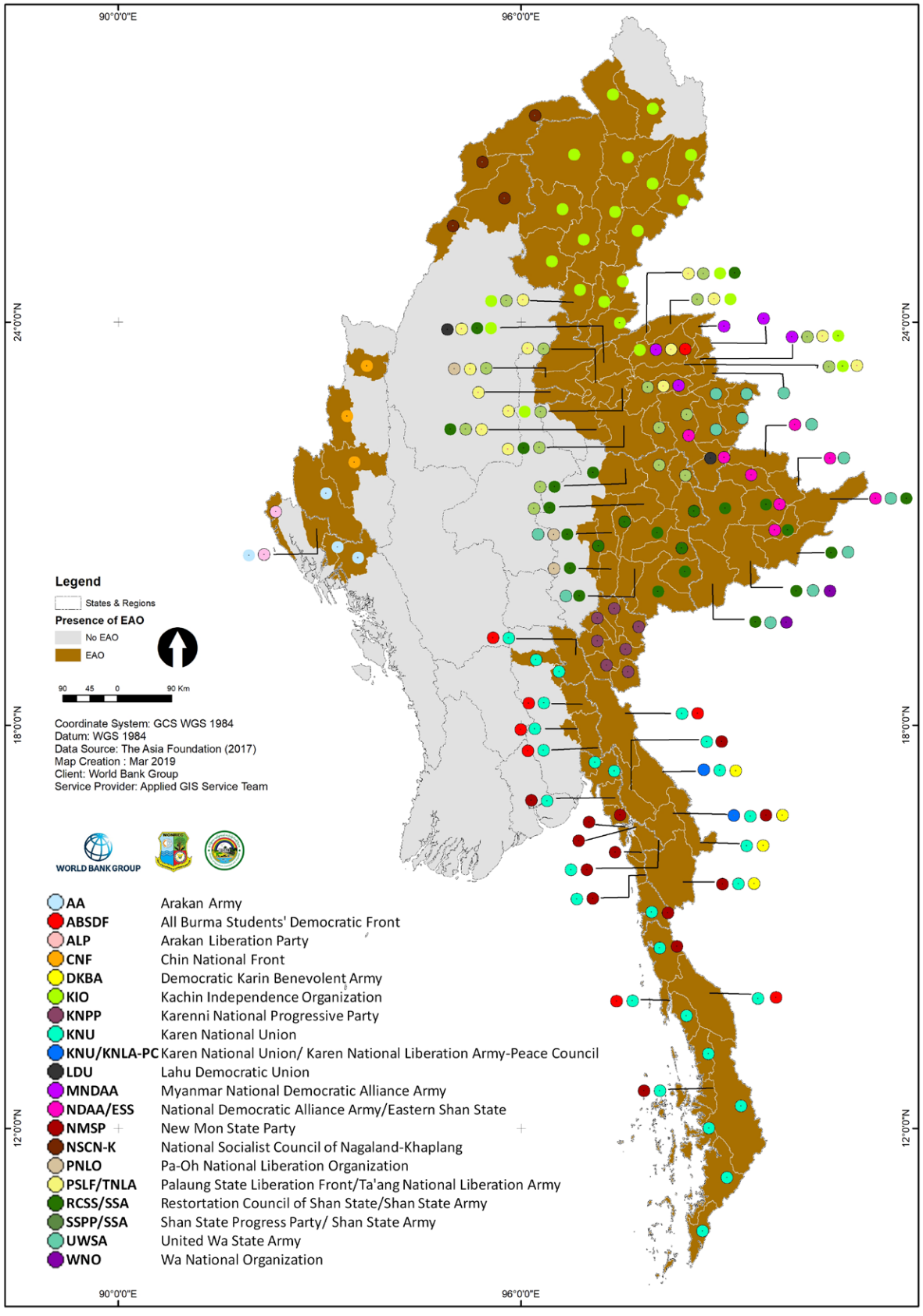
40. **Around two-thirds of remaining forests are in ethnic areas, and in most of these areas,** there are strong grievances over past and even ongoing abuses (BMI 2018). These areas mostly remain militarized, either by the Tatmadaw, militias, or Ethnic Armed Groups (EAGs). Ongoing armed conflict is concentrated in the Rakhine, Kachin, and Shan States. Kachin State and Shan State are areas with extensive intact forest. In 2016, it was estimated that 118 out of 330 townships in Myanmar had been affected by active or latent conflict (The Asia Foundation 2017). Conflicts and forest governance are interrelated, though in different ways in different situations; however, it is fair to make an observation that clearer recognition of forest tenure can reduce conflicts.

- **Forest resources can act as a 'resource curse'** attracting conflict over the control of benefit flows, eroding peacetime institutions, and undermining the rule of law.
- **Militarization of forestry in contested areas, especially of logging operations,** exacerbates conflict and makes it virtually impossible to monitor.
- **Military groups (including government) seek to generate funds** and unregulated logging can provide them.
- **Conflict has also undermined the investment climate** in ethnic areas, leading to both ethnic poverty and investment 'capture' in Bamar areas.

41. **Governance of forest and other natural resources is one among numerous issues in the peace process.** The key issues relate to ethnic groups aspiration for federal decentralization of forest governance and more equitable benefit sharing between the Union, state/region, and locality, already recognized in the Pyidaungsu Accord (National Reconciliation and Peace Center 2017).

Figure 13

Presence of EAGs in Myanmar



Source: The Asia Foundation 2017.

photo: ©Lesya Verheijen

2 STRUCTURE AND MANAGEMENT OF THE SECTOR

STRUCTURE AND MANAGEMENT OF THE SECTOR

Forest cover

42. In 2015, approximately 43 percent (29.39 million ha) of the land area was forested (Figure 13).[10] Of this, about 42 percent was closed forest and about 58 percent open forest (Table 7). Of the total forest area in 2015, 3.19 million ha (or 11 percent of the forests) was considered 'primary forest' (that is, forest with no visible indication of human activity), the rest was 'other naturally regenerated' where there is clear indication of human disturbance (FAO 2015).

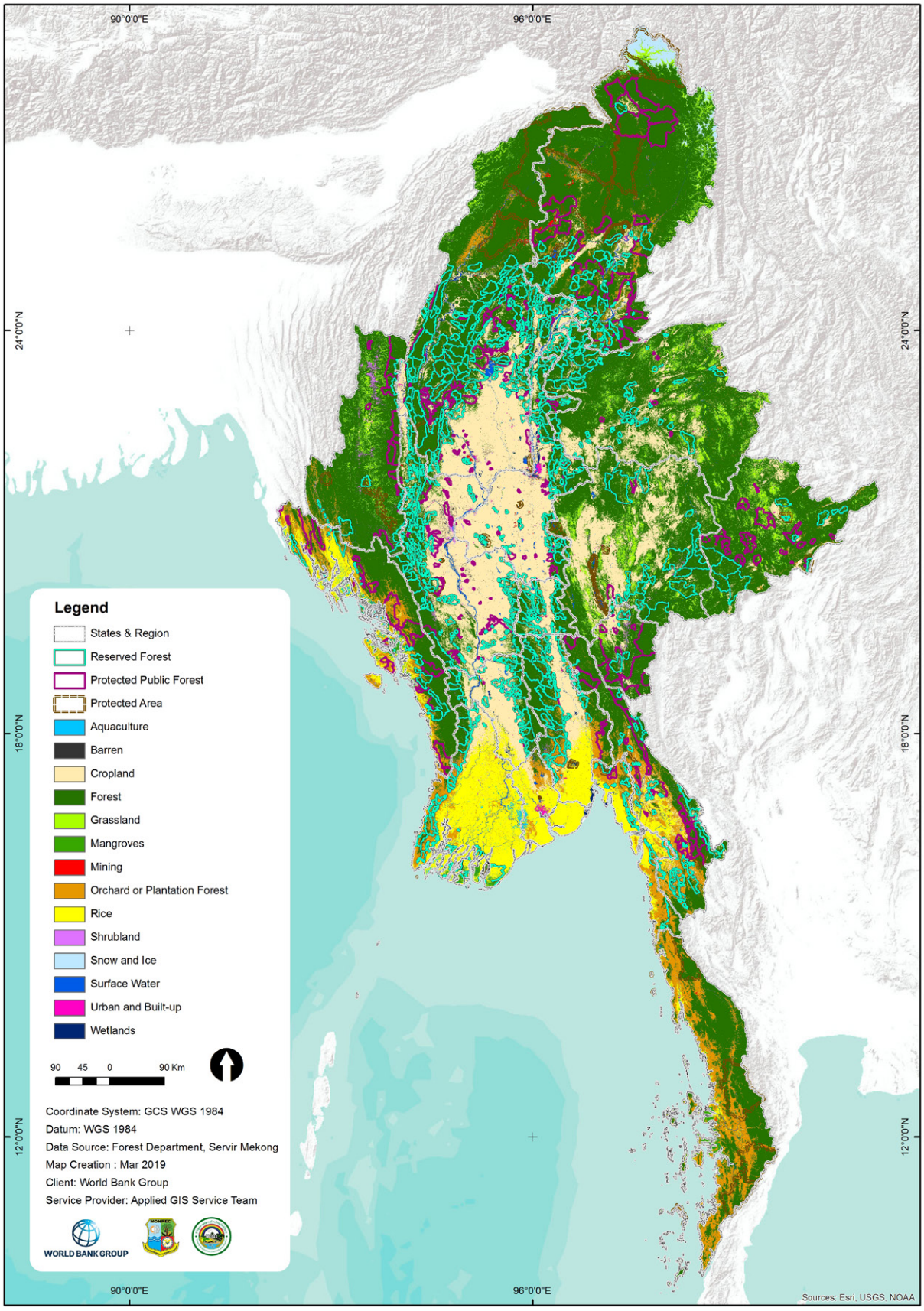
43. Myanmar's forest area is composed of a range of main types: hill and temperate evergreen forest (27 percent); mixed deciduous forest (38 percent) and Indaing (4 percent); dry forests (10 percent) and scrub (2 percent); tropical evergreen forest (17 percent); and mangroves (1.5 percent) (MOECAF 2011a).

44. An independent study led by Ecodev/ALARM (Bhagwat et al. 2017) found that, in 2014, only 38 percent of the country's forests could be considered 'intact' (over 80 percent canopy cover) (Figure 14).

11 The GoM follows the FAO's conventional definition of 'forest': Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use (FAO 2014). Forests are subcategorized into 'closed' (>40 percent canopy cover) and 'open (normally degraded)' (10–40 percent) (FAO 2015).

Figure 14

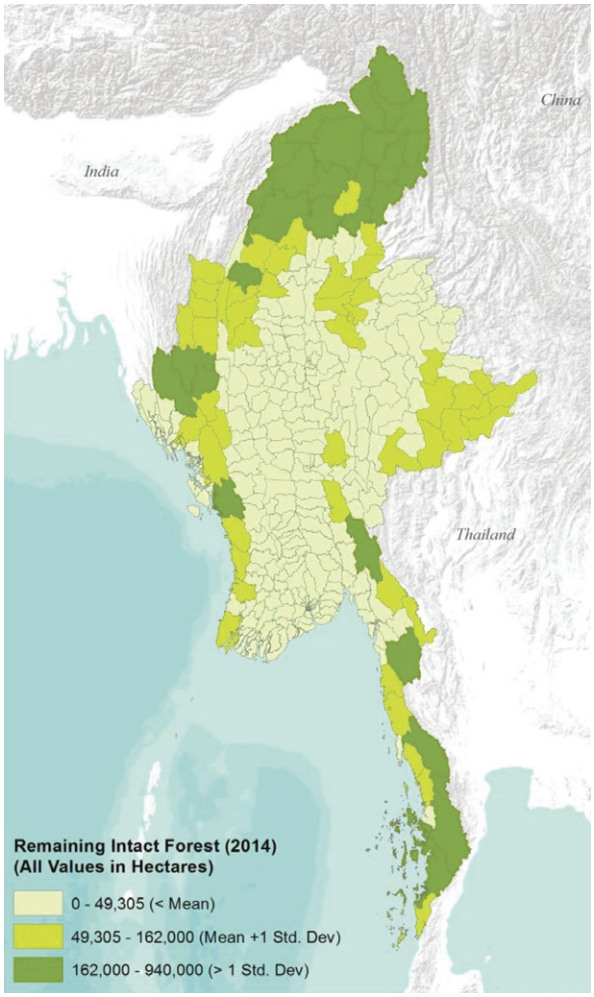
Forest and land-use 2017



Source: SERVIR-Mekong 2017.

Figure 15

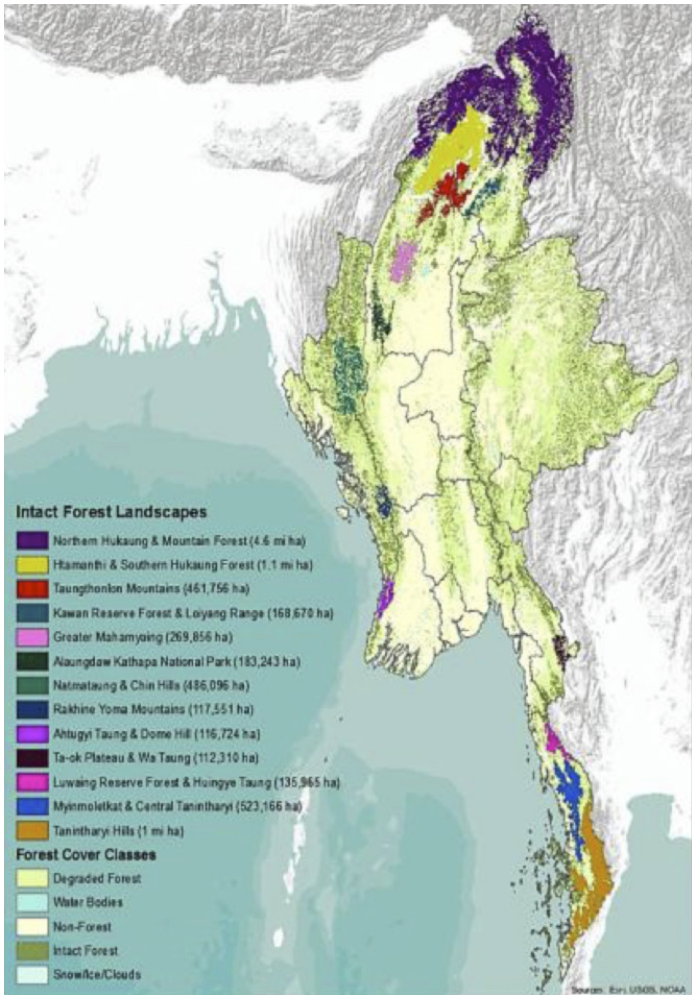
Remaining intact forests (2014)



Source: Bhagwat et al 2017.

Figure 16

Remaining large and intact forest landscape in Myanmar 2014



Source: Bhagwat et al 2017.

Forest stock and distribution

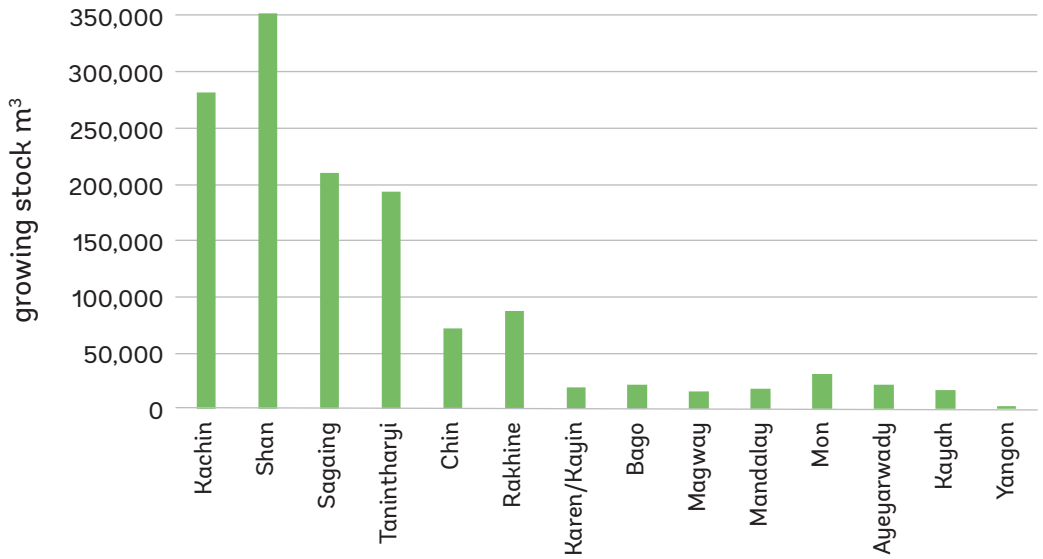
45. **Myanmar's forests were estimated to contain 1,342,118 m3 in growing stock in 2010 (FAO 2015)** (Figure 17). This is concentrated in just the four largest States / Regions (Kachin, Shan, Sagaing, and Tanintharyi), which represent around 78 percent of the entire growing stock.

46. Based on the growing stock data, Myanmar's forests are estimated to contain 3,300.57 million metric tons of forest biomass (over dry weight—including above ground) below ground and leaf litter (FAO 2015). This is estimated to represent 1,292.8 million metric tons of forest carbon.

47. Myanmar's administrative divisions are distinguished into predominantly non-Bamar ethnic 'States' and predominantly Bamar 'Regions'. Figure 18 shows the distribution of land and forest by state/region, with Figure 18a differentiating forest land versus other wooded land in 2015 as per FAO's conventional definition of forest, and Figure 18b differentiating the extent of closed and open forest in 2010 as per FAO's definition. The large extent of the 'other wooded land' category is partly explained by the prevalence of long fallows forest cultivation (shifting cultivation) in ethnic areas.

Figure 17

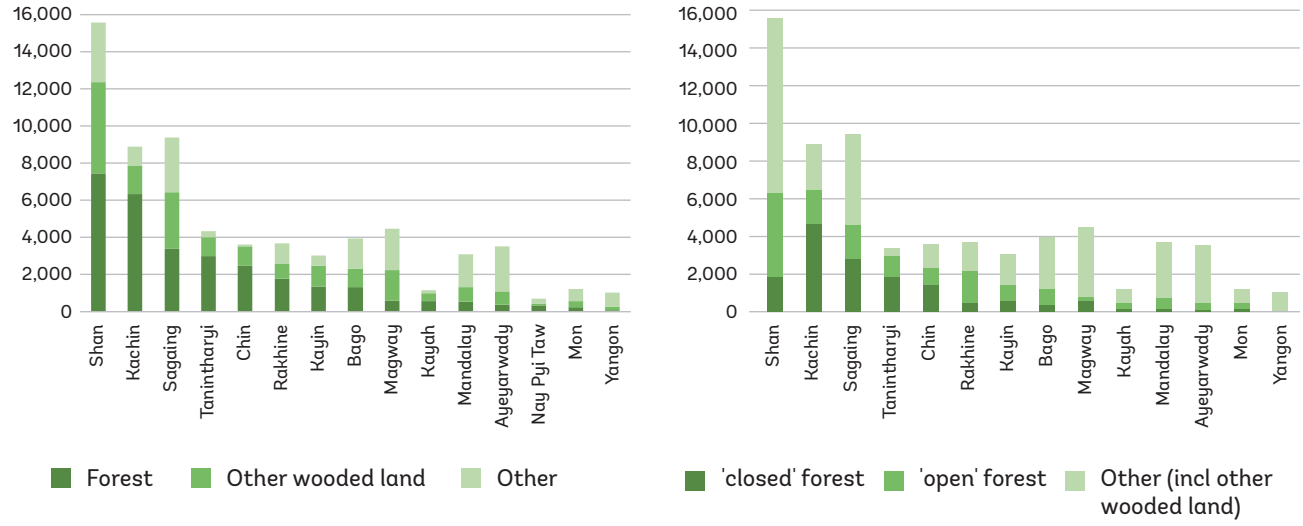
Growing stock volume (m3) by state/region (2010)



Source: FAO 2015.

Figure 18a and b

Forest extent by State/Region in 2015 and 2010, in ha



Source: FAO 2016a.

Source: Forest Department 2010.

48. **Based on FD 2010 data (and following the FAO thresholds for forests, open and closed), 65 percent of forests, almost two-thirds, are in ethnic minority States** (Figure 18b). This proportion is likely to be even higher in reality for four reasons. First, Tanintharyi, a major forest area, is categorized as a region although it is predominantly populated by ethnic groups beyond the coastal areas. Second, a significant proportion of forests in Sagaing are inhabited by the Naga ethnic group, under the Naga self-administered region, which is not accounted for in this division. Third, there are several other regions where ethnic groups predominate at the township level (for example, in Bago). And last, much of Shan, the largest division in the county, is categorized as 'other wooded land', as it is only just below the threshold to be classified as forest. If it were included, it would increase the amount of forests in ethnic areas significantly.

Forest classification

49. **Under the National Forest Policy, extensive areas of forested land have been gazetted to form the 'Permanent Forest Estate' (PFE).** The PFE is distinguished into: (a) Reserved Forest (priority areas for timber production); and (b) Public Protected Forest (lower timber priority, mainly for local use), together encompassing about 25 percent of Myanmar's land area (2018 data). In addition, Protected Areas (PAs) have been established for biodiversity conservation, on about 6 percent of Myanmar's land area (Figure 13). Table 6 provides the current status of PFE and progress toward achievement of the National Forestry Master Plan (NFMP) targets. The PFE areas are gradually increasing as more areas are being gazetted, although some forest areas, where there are settlements, are being de-gazetted.

Table 6

The status of the PFE

Category	Current Area, ha	Current area, % of land area	NFMP target, % of land area
Reserved forest	12,041,601[a]	17.80	30
PPF	5,041,364[a]	7.45	
PA system	3,510,685[12]	5.85	10

Note: a. Semiannual progress report for MRRP, April–October 2018

50. The process of gazettement of forests into public/government property began in the late 19th century and there remain extensive 'unclassified forest' areas. Large forest areas, particularly in what was once called 'upper Burma', have not been gazetted. Those areas have not been gazetted for several possible reasons:

- Lower value or priority from a timber point of view.
- Inaccessible due to conflict—the Union government may lack jurisdiction in these areas.
- Having strong local customary claims.

51. Of the total forest area of Myanmar (29 million ha), only 41 percent or 11.8 million ha are within the PFE (Myanmar REDD+ Strategy). Most of the forest outside the PFE lies on land designated as 'Vacant, Fallow, and Virgin' (VFV). Only 60.4 percent of the PFE has forest cover (closed plus open forest). The distribution of forest and nonforest land and the breakdown of PFE by management designation is shown in Table 7.

12 Source: Planning and Statistics Division, Forest Department, 2010, as cited in UN-REDD Programme (2013) UN REDD Myanmar REDD+ Readiness Road Map.

Table 7

Percentage breakdown of closed and open forest, inside and outside the PFE (2015 data) (Myanmar REDD+ Strategy)

Category	Cover Type	Area (ha)	% of country area
Inside PFE	Closed forest	5,229,115	7.7
	Open forest	6,570,123	9.7
	Total forest	11,799,238	17.4
	Other land use	7,526,245	11.1
	Water bodies	209,364	0.3
	Total area	19,534,847	28.9
Outside PFE	Closed forest	6,916,470	10.2
	Open forest	10,331,664	15.3
	Total forest	17,248,133	25.5
	Other land use	29,522,579	43.6
	Water bodies	1,352,409	2.0
	Total area	48,123,122	71.1
Total area	Closed forest	12,145,585	18.0
	Open forest	16,901,786	25.0
	Total forest	29,047,372	42.9
	Other land use	37,048,824	54.8
	Water bodies	1,561,773	2.3
	Total area	67,657,969	100.0

52. **Unclassified forests outside of the PFE have ambiguous tenure and so are vulnerable to informal extraction and land-use change.** Those under customary community management lack any ways for statutory recognition and so are vulnerable to conversion, including through appropriation for agricultural plantations through the VFV Land Law, particularly through the VFV Amendment 2018. There is an acute need for clear processes that can lead to statutory recognition of customary tenures, especially in ethnic areas.

Policy and legal framework and national programs

Policy and legal framework

53. **The key policy and legal framework in the forest sector** comprises primarily the 2008 Constitution of the Republic of Myanmar, the National Forest Policy (1995), the Forest Law (2018), Forest Rules (1995) and associated guidelines, CFI 1995 (revised in 2016 and 2019), and the Biodiversity and Conservation of Protected Areas Law.

54. Myanmar is a signatory to and active participant in the major international environmental agreements (for example, Convention on Biological Diversity 1992, Paris Agreement on Climate Change 2015).

- **2008 Constitution.** 'Forests' are included under Schedule 1 under Section 96, as a matter for Union legislation, rather than at the state/regional level.
- **Forest Policy (1995)** provides the framework within which forests are governed by the Union administration. A range of actions are recommended, including gazetting 30 percent of the total land area as RF and PPF, and 5 percent as PA.
- **Community Forestry Instructions (CFI), 2016** revised (from 1995). The CFI provides a detailed framework for establishment and functioning of CF. The 2016 revision particularly emphasizes enterprise development and provides for commercialization of timber and non-timber CF products and services. The recently amended CFI (2019) was released in May 2019 as the report was being finalized; its analysis is not included in the report.
- **Forest Law (2018), Rules (1995 - under revision), and associated guidelines** set out basic assertion of state control over the PFE, trees therein, and also management categories. The new Forest Law has partly liberalized the property right to timber, including teak, from private timber production, albeit subject to ministerial notification. Currently, the Rules of the Forest Law have been drafted and are under public consultations; they also may include incentives and procedures for private production.
- **Biodiversity and Conservation of Protected Areas Law (2018).** The objectives of this law include the following: to implement the government policy for PAs' conservation and to protect geophysically unique areas, endangered wildlife, and their natural habitats. The rules to guide implementation of the law have been developed, and public consultations have been conducted on draft Rules. Myanmar is a signatory to the United Nations Convention on Biological Diversity, through which the five-year National Biodiversity Strategy and Action Plans (NBSAPs) are developed. The current NBSAP 2015–2020 prioritizes:
  - Launching an initiative to restore millions of hectares of forest that are commercially exhausted and subject to conversion to plantations or agriculture;
  - Expanding the PA network to cover 15 percent of the country's coral reefs and key gaps in the terrestrial system, including mangrove forests, through both government land community-based approaches; and
  - Ensuring that national law recognizes customary tenure as a way to protect indigenous knowledge and genetic plant resources and provide a practical incentive for community participation in biodiversity conservation.
- **The Environmental Conservation Law (2012)** and **Rules (2014)** also contain relevant provisions for PAs and biodiversity conservation.

55. **National programs have been developed for the forestry sector** and are currently under implementation:

- **National Forest Master Plan (2001/2–2030/1)** was developed to cover all forest-related activities, including wildlife and nature conservation, for the whole country. It describes and discusses scope and objectives, policy/legislation and institutional strengthening, forest products and service needs, management of natural forests, forest plantations, forest protection, management of watersheds, participatory forestry, conservation of biodiversity, forest harvesting, wood-based industries, marketing and pricing, bioenergy, NTFP, forest resources from nonforest lands, human resource development, research and development, forestry extension, and monitoring and evaluation.
- **Integrated Plan for the Greening of Central Dry Zone (2001–2002/2030–2031)** covers current land-use status, soil management, development of water resources, reforestation, natural forest management, training/research/extension, development of fuelwood substitutes, infrastructure development and institutional strengthening, policy and legislative framework, and monitoring and evaluation.

- **The National Strategy and Action Plan for mangrove conservation and coastal management** and **Inle Lake Watershed Conservation Action Plan** also have relevance to forested areas.
- **National REDD+ Strategy.** This is currently under development. The strategy will lay out the management framework, drivers of deforestation and mitigation strategy for the implementation of "Reducing Emissions from Deforestation and Degradation/REDD+" as defined under the United Nations Framework Climate Change Convention. The draft strategy is currently under consultation and is expected to be finalized in mid-2019. It should guide the government and stakeholders on how to approach and manage the REDD+ market and other resources.
- **Nationally Determined Contributions:** The Myanmar Climate Change Strategy and Action Plan (MCCSAP), 2016 to 2030, and its National Determined Contribution (NDC) set in 2017, spell out a broad vision of how to address climate change. Forestry is a key pillar of Myanmar's NDC, for both protection against extreme events and preservation of biodiversity.

56. **Myanmar Sustainable Development Plan.** Forestry development is also important to achievement of goals under the Myanmar Sustainable Development Plan Pillar 3, People and Planet, in particular its Goal 5, Natural Resources and Environment for National Posterity.

57. **The Myanmar Reforestation and Rehabilitation Program (MRRP) developed by MONREC in 2016** sets out a government plan for achieving its objective to prevent deforestation and degradation of forests while enhancing efforts for reforestation, including the establishment of plantations, for the recovery of Myanmar's forest cover. The MRRP is implemented by the FD and Dry Zone Greening Department (DZGD) of MONREC and includes ambitious targets for CF. The 10-year MRRP aims to restore around 1 million ha of degraded and deforested land within PFE by 2026 (Table 8). This plan is to be achieved through a combination of plantations, CF, agroforestry, natural forest regeneration, and enrichment planting projects. Implementation of the MRRP has been under way for two years. Targets are set by each State / Region.

58. **The European Union Forest Law Enforcement, Governance and Trade (EU-FLEGT) process.** The EU-FLEGT Action Plan sets out seven measures that together prevent the importation of illegal timber into the EU, improve the supply of legal timber and increase demand for timber from responsibly managed forests. In January 2015, a Forest Law Enforcement, Governance and Trade (FLEGT) inception workshop took place and marked the beginning of Myanmar's FLEGT process. Currently, Myanmar is in preparation phase to establish strong foundations for a successful negotiation should Myanmar and the EU decide to negotiate a Voluntary Partnership Agreement (VPA).

59. **The Myanmar Forest Certification Committee** is set up to develop standards to ensure the sustainable management of Myanmar's forest resources. It serves as the national governing body of the Myanmar Timber Legality Assurance System (MTLAS) and the Myanmar Forest Certification Scheme.

Table 8

Targets of the MRRP

MRRP Target Area	Program Target	Achievement to Date (as of May 2019)	Achievement to Date (as of May 2019)
	Ha	Ha	%
Establishment of community-owned forests	311,875	63,834	21
Natural regeneration of natural forests	331,392	23,166	7
Establishment of private plantations	115,427	10,965	10
Commercial tree plantations	65,951	12,800	19
Enrichment planting of natural forests	59,623	11,099	19
Restoration of old plantations	45,084	5,550	12
Establishment of village supply plantations	42,333	4,373	10
Establishment of watershed plantations	14,002	2,476	18
Establishment of mangrove plantations	12,020	2,451	20
Establishment of greening plantations	3,239	283	9
Establishment of hill plantations	5,142	810	16
Establishment of agroforestry plantations	6,767	1,503	22
Total	**883,893**	**139,313**	

Note: *The MRRP also includes more specific targets on hillside plantations, restoration of ongoing plantations, and other technical activities as well as targets on capacity building, training and extension, institutional development, and fuelwood substitution (cook stoves).

Source: FD data.

Forests and land tenure

Forest governance is also closely linked to the land administration system and agricultural policy.

- **Master Plan for the Agriculture Sector (2000–2001 to 2030–2031)** aims to convert about 4 million ha of 'wasteland' for private industrial crop production, with rubber, oil palm, paddy, pulses, and sugarcane, primarily for export.
- **Farmland Law (2012)** provides legal basis for issue of tradeable private titles.
- **VFV Management Law (2012, amended 2018)** defines 'VFV' land, what was previously 'Land at Government Disposal' including the unclassified forest areas. It is a residual administrative category of lands not under private or state ownership but does not yet provide for recognition of prior customary rights, which is the prevalent de facto tenure system across ethnic areas. It also provides for long-term reallocation of these lands under leases to private companies of large areas up to 50,000 acres.
- **National Land-Use Policy (NLUP) (2016)** was developed through a consultative process to try to unify the policies and laws across the sector. Under Chapter 8, 'customary land rights' have been recognized. The National Land Law is currently under preparation.

60. As a large part of forests are in ethnic areas, resolving conflicts is crucial for achieving effective enabling conditions for productive and sustainable forest management. Groups such as the Kachin Independence Army, Karen National Union (KNU), and Karen National Liberation Army have strong presence on the ground. Due to the ongoing conflict, EAGs have developed administrative mechanisms. These have recently been formulated into polices as follows:

- KNU Land Policy 2015 (KNU 2015a)
- KNU Forest Policy 2015 (KNU 2015b)
- Karenni Land Policy 2016
- Kachinland Forest Policy (Draft state)

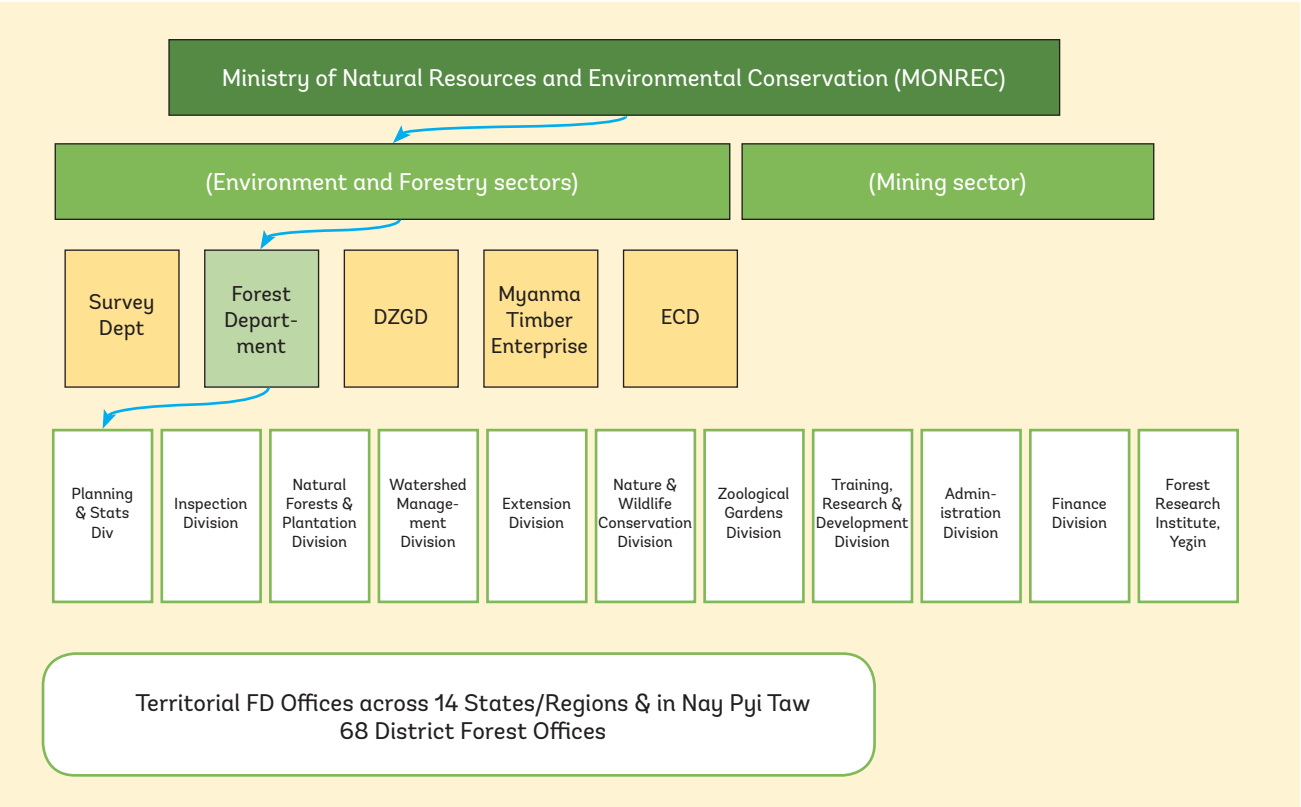
61. Some ethnic groups, in particular KNU, recognize CF and even have established community forests.

Institutional arrangements

62. The forest sector is under overall responsibility of the MONREC. Within this, the FD is the primary agency for forests. The FD has 10 divisions and the Forest Research Institute and also territorial offices across the country (see Figure 19).

Figure 19

Organigram of MONREC and FD

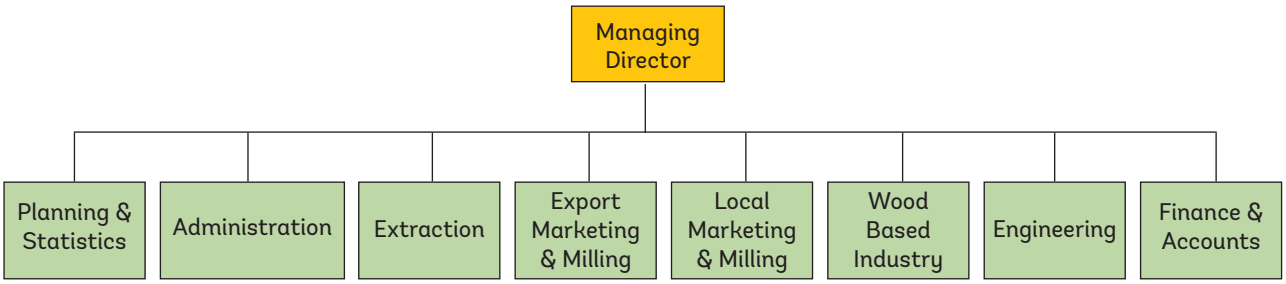


63. The roles and responsibilities of FD and other key departments in MONREC are as summarized here:

- **The FD** is responsible for sustainable forest management, biodiversity conservation, restoration of degraded forest ecosystems, watershed conservation, research and development. Within the divisions, there are several units (for example, FLEGT Unit, CF Unit, Settlement Unit and so on).
- **The FD State / Regional offices** are responsible for coordinating and implementing field activities within the respective State / Region.
- **MONREC Union Minister's Office** coordinates and facilitates the tasks of the FD, MTE, DZGD, Environmental Conservation Department (ECD), and Survey Department as well as other line ministries' institutions. It mainly deals with policy matters related to forestry.
- **MTE** is the only State-owned Economic Enterprise in the forest sector. It has the responsibilities of timber harvesting, milling and processing, and marketing (see Figure 20). The MTE has also recently initiated elephant conservation-based tourism activities. The MTE has been at the center of the official administration of timber harvesting and marketing.

Figure 20

Organization of MTE



Source: MEITI 2019.

- **DZGD** was formed in 1997 with the specific aim to implement greening of central dry zone of Myanmar, rehabilitation of degraded forest lands, protection and conservation of remaining natural forest, and restoration of the environment.

  According to a recent amendment, the working area of the DZGD includes three regions (Mandalay, lower Sagaing, and Magwe), 12 districts, and 54 townships (excluding Gangaw District), covering 20.17 million acres (or about 8.2 million ha) of dry land forest. DZGD Headquarters consist of Director General's office, Administrative Division, Planning Division, and Engineering Division. The territorial offices include regional director offices, district offices, and township offices. The department staff schedule is 3,231, including 137 officers and 3,094 staff. (Whittle 2017)

- **Survey Department** produces maps (topographical and project related) including for boundary demarcation and inspection.
- **ECD** is responsible for implementing National Environmental Policy, strategy, framework, planning, and action plan for the integration of environmental consideration into the national sustainable development process.

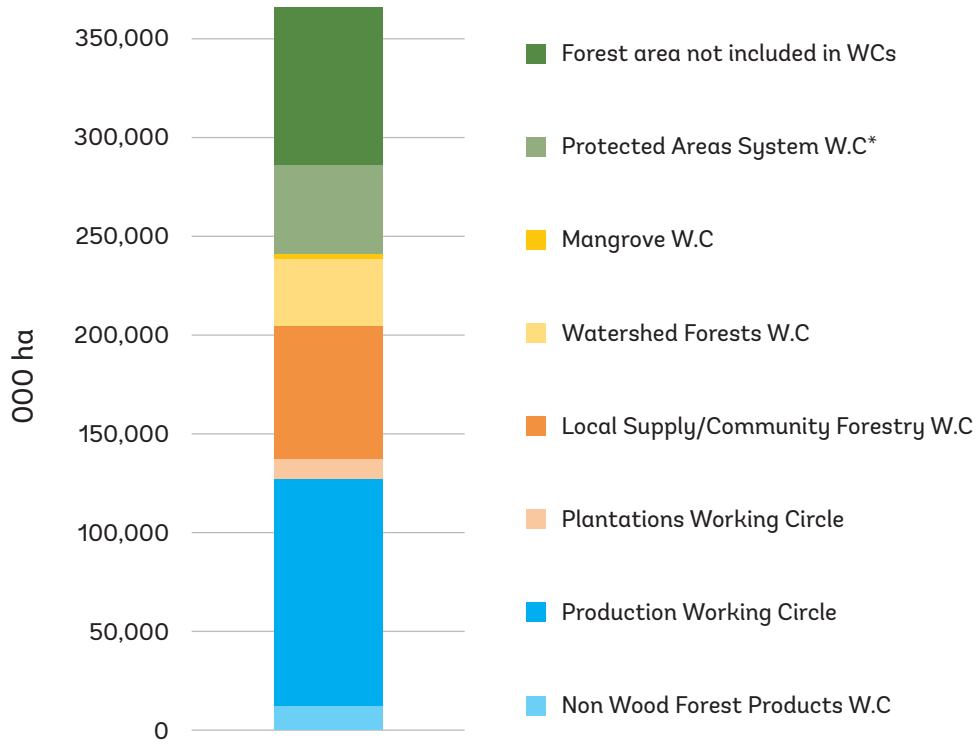
Working Circles (WCs)

64. **Forest areas are managed by forming Working Circles under the district Forest Management Plans.** The distribution of forest by WC is shown in Figure 21. The 'Production' WC has the largest allocation of forests (31.5 percent). Production WC—mainly natural RF managed for timber—is managed under the Myanmar Selection System (MSS).

65. The next largest category is local supply/ CF (18.5 percent). Those forest areas not included in a WC make up around 21.8 percent of all forests. Local Supply/CF WC—mainly PPF, although also RF, and sometimes even unclassified forests—are managed for local needs. Other WCs include PA, Mangrove WC, Watershed WC, and Non-Wood Forest Products WC.

Figure 21

FD working circle categories *including planned PAs



Source: FAO 2015.

photo: ©Lesya Verheijen

3 ISSUES AND DRIVERS OF DEGRADATION

ISSUES AND DRIVERS OF DEGRADATION

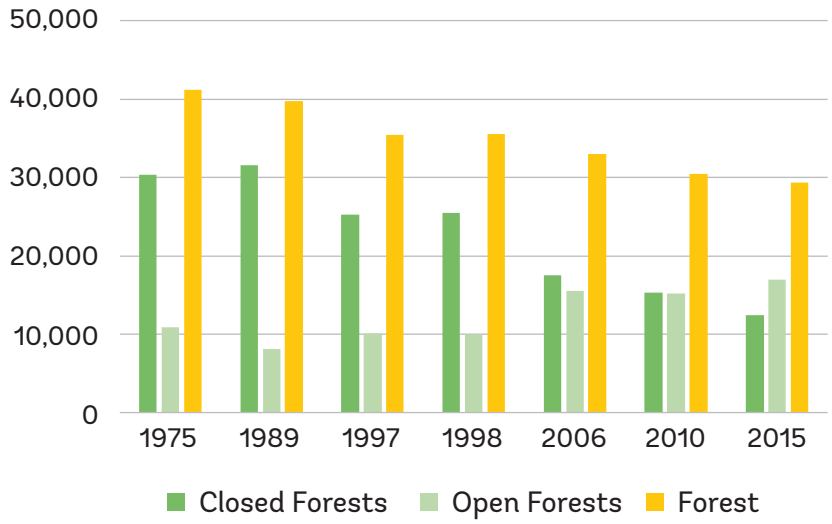
Forest loss

66. **Forest loss and land-use change have been poorly documented during the last 25 years.** There has clearly been extensive land-use change in the lower Ayeyarwady and delta areas from the late 19th century for expansion of commercial rice production. Furthermore, from the 1970s, heavy logging has started causing forest degradation. However, forests and woodlands still covered 74 percent of Myanmar's land in 1975 (FAO 2015 - Myanmar Country Report).

67. **According to FAO 2015 and FAO 2016a, forest cover has fallen from 41.196 million ha (61 percent of land area) to 29.388 million ha (43 percent of land area) from 1975–2015** (Figure 22). This represents a loss of 11.8 million ha in this period.

Figure 22

Forest cover and class changes, 1975–2015



Source: FAO 2015, FAO 2016a.

68. The FD/FAO reports differentiate 'Open' and 'Closed' forests. 'Closed forests' were in 1975 almost half of Myanmar's land use (45 percent), but have declined to less than half of that, around 18.3 percent in 2015, reflecting severe forest degradation.

69. Between 1990 and 2015, the forest cover has been declining at an average rate of 1.2 percent a year (FAO 2015). Rate of forest loss increased in 2010–2015 to 1.8 percent annually (approximately 407,000 ha), which places Myanmar as the country with the third largest absolute forest loss globally during this period.

- –1.2 percent for 1990–2000
- –0.9 percent for 2000–2010
- –1.8 percent, for 2010–2015

70. The trend in decline in 'intact forests' (over 80 percent density) has been 0.94 percent per year between 2002 and 2014, equaling over 2 million ha forest loss (Bhagwat et al. 2017).

71. Bhagwat et al. (2017) show that forest loss is widespread, but there are also concentrated cases in specific areas, particularly Northern Shan, Kachin, Tanintharyi, Southern Chin, Southern Bago, and Southern Rakhine.

72. Changes appear to be most extreme in conflict areas in Kachin and Shan but also in Sagaing, where there has been extremely heavy logging pressure Between 2000–2014: 11.73 percent of forests outside reserves degraded, compared to 10.31 percent inside reserves (Treue, Springate-Baginski, and Htun 2016).

73. The study estimates that overextraction accounts for around 23 percent of loss of 'intact forests', whereas 50 percent of loss is accounted for by land-use change to mining, agriculture, and infrastructure, and 27 percent by large-scale plantation crops (oil palm, rubber, and sugar).

Mangroves

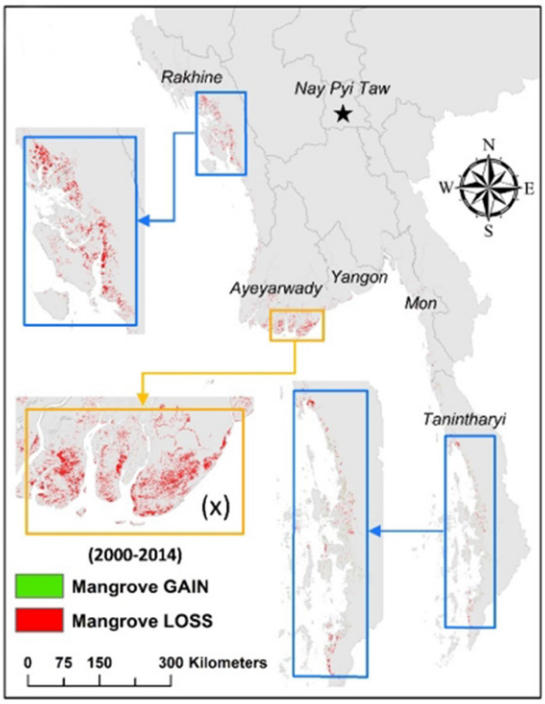
74. Mangrove forest cover loss is of particular concern.

75. Myanmar had a net mangrove loss of 191,122 ha over 2000–2014 (Treue, Springate-Baginski, and Htun 2016). Since 2000, Myanmar has been losing mangrove forest cover at an alarming rate of 14,619 ha per year (2.2 percent per year). The loss was predominant in Rakhine State and Ayeyarwady Region. The observed mangrove forest cover loss has resulted in decreased evapotranspiration, carbon stock, and tree cover.

76. Expansion of rice cultivation is estimated to account for 87.6 percent of mangrove loss between 2000 and 2012 (Richards and Fries 2016), and only 1.6 percent of mangrove deforestation could be attributed to aquaculture.

Figure 23

Mangrove change 2000–2014



Source: Estoque et al. 2018.

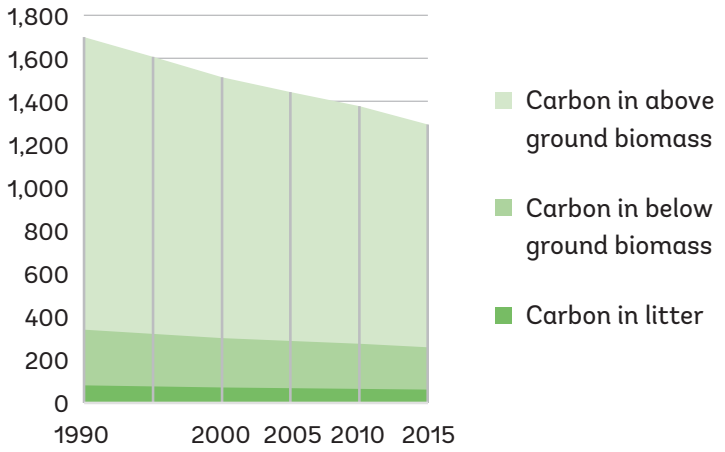
Biomass and carbon loss

77. FAO 2015 indicates a biomass level of 4,342 million tons in 1990 and a decline in 3,301 million tons in 2015, reflecting a loss of 24 percent biomass over the period (Figure 24). This translates into a decline in forest carbon from 2,122 million tons to 1,615 million tons or a 24 percent decline. The greenhouse gas emissions from land-use change and forests are estimated to be the single highest sector contribution to overall national greenhouse gas emissions. The World Resources Institute Climate Watch cites figures of 105.11 million tCO_2 equivalent annually from land-use change and forestry, with the next greatest contribution at 66.51 million tCO_2 equivalent for agriculture.

78. Myanmar's Forest Reference Emission Level (MONREC 2018) estimates an (deforestation only) emission level of 48,607,511 tCO_2 per year for 2000–2015.

Figure 24

Changes in forest carbon (million tons)



Source: FAO 2015.

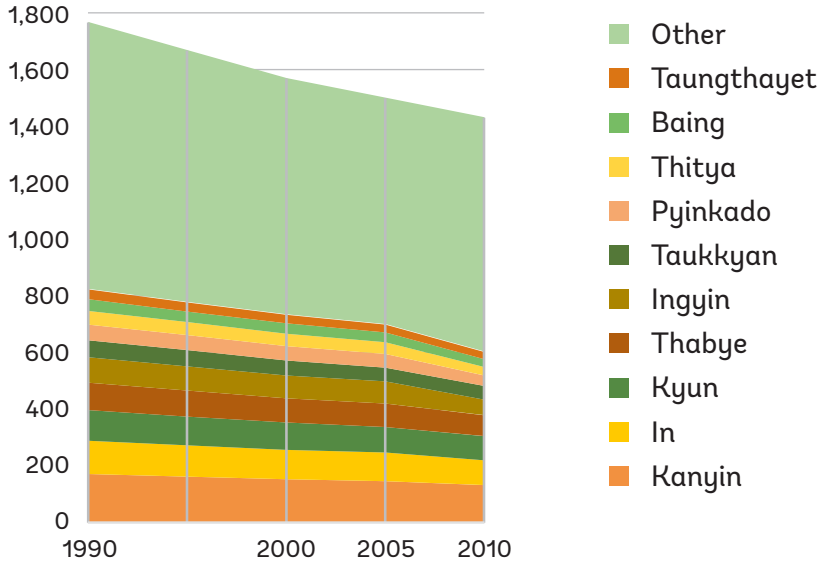
Timber growing stocks

79. The pattern of forest degradation and deforestation is inevitably linked to the decline of tree stocks, specifically those timber-bearing trees which are the focus of heavy logging. Ten main timber species represented 47 percent of stock in 1990 and only about 15 percent by 2009 (Htun 2009).

80. The trend may even have accelerated after this, although FAO 2015 shows a steady decline for most species between 1990 and 2010 rather than such a dramatic collapse (Figure 25).

Figure 25

Estimated growing stock: Species trend over time (million m^3) (1990–2010)



Drivers of Deforestation

81. The primary drivers of forest loss are the following:

- **Land-use conversion.** Primarily for agriculture and mining, around 1 million ha, both in and out of the PFE, is estimated to have been converted for commercial plantations and mining between 2002 and 2014 (Lim et al. 2017).
- **Development of roads and other infrastructure** in closed forest and high priority conservation areas.

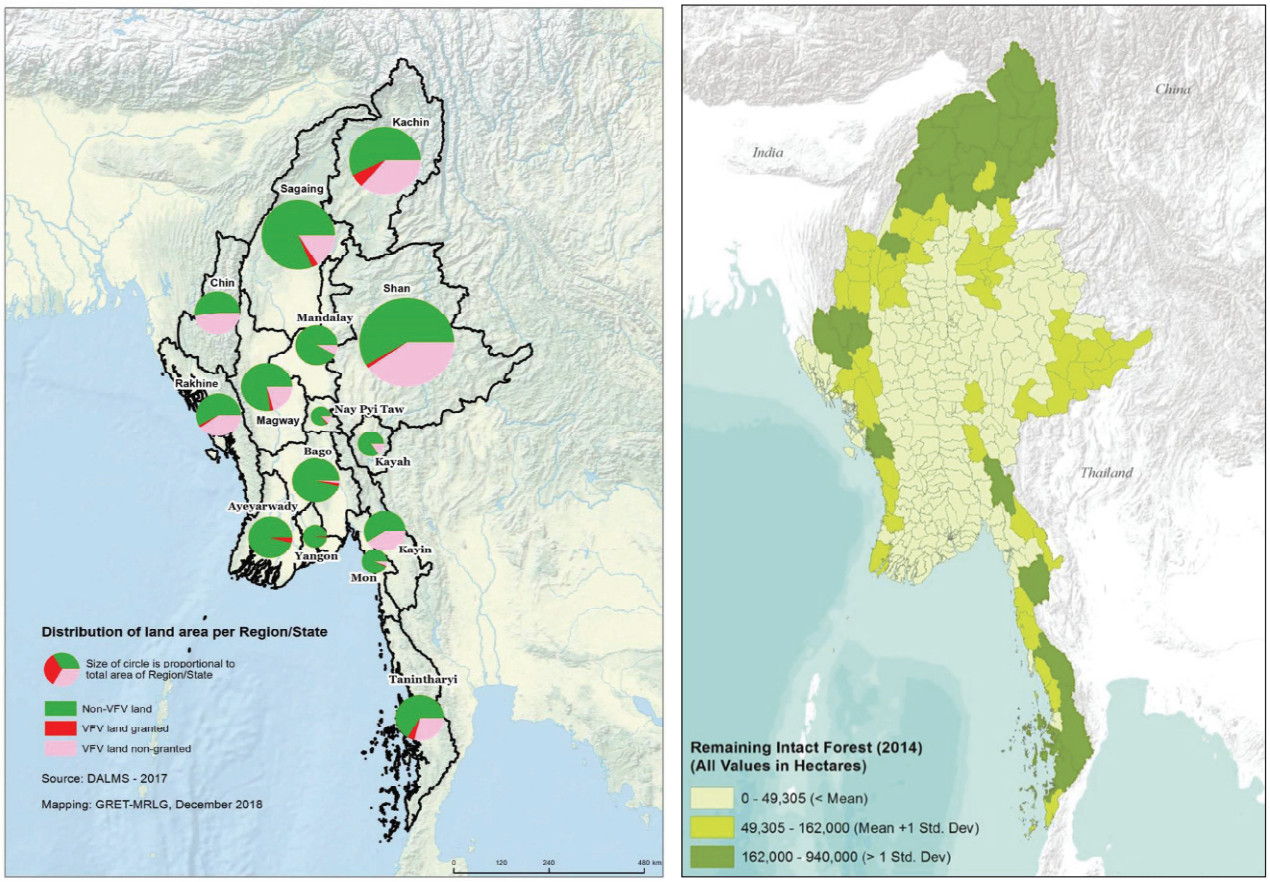
Land-use conversion

82. **Currently, the statutory framework of Myanmar provides the following three administrative categories for rural land beyond settlements:** (a) Permanent Agriculture (Department of Agricultural Land Management and Statistics [DALMS] jurisdiction), (b) PFE (FD jurisdiction), and (c) VFV land (DALMS) jurisdiction—also considered unclassified forest by FD and mostly customary land by communities.

83. **Most of the remaining forests today is located outside the PFE on VFV lands** and a large part of those forests are still under customary management. There is currently no 'customary land' category that provides for recognition of customary tenure rights. Recognizing customary tenure or providing other acceptable types of tenure security will be essential for the protection of the remaining forests outside the PFE (see Figure 25).

Figure 26

Distribution of land classified as VFV and remaining intact forest



Source: Groupe de Recherches et d'Echanges Technologiques (GRET) / Mekong Region Land Governance (MRLG) 2018 and Bharwat et al. 2017.

84. **Inconsistencies remain between policies and laws across different sectoral ministries in relationship to so-called 'VFV' lands.** For example, there are competing policy targets for VFV land between the DALMS in the Ministry of Agriculture, Livestock and Irrigation (MOALI) encouraging agricultural land use and the FD seeking expansion of the PFE. This is a particular challenge in Kachin State.

85. **The VFV Lands Management Law (2018) is primarily aimed at encouraging investment in commercial agricultural projects.** It is estimated that 1 million ha of the 2 million ha of intact forest losses (over 2002–2014) can be explained through conversion to non-forest land, uses such as mining, clear-cutting for agriculture, and infrastructure (Bhagwat et al. 2017). A further 0.54 million ha of the loss is attributed to plantation crops, such as oil palm, rubber, and sugarcane. Thus, in total 1.54 million ha of the 2.0 million ha lost can be accounted for by land-use change. There are two main land-use changes related to agriculture.

- **Large commercial land concessions (oil palm, rubber, sugar cane, banana, and other crops)** have been widely promoted by MOALI policies and the GAD and DALMS (formerly Settlements and Land Records Department) staff. The overall aim has been to promote the commercialization of the agricultural sector, particularly beyond rice production areas. However, land concessions have been promoted with poor reconciliation with forest policy. There are many cases of large-scale well-stocked forest being cleared and leading to illegal log marketing as well as land conversion. These concessions are concentrated around Myeik, largely for palm oil.
- **Small-scale agricultural expansion.** With the gradually growing population and in the absence of land development planning, small-scale agriculture has expanded ad hoc, including into many forested areas. Populations have also been displaced because of civil wars from the 1950s on, and these have sometimes moved into forest areas. Displacement due to conflicts still remains a problem.

86. While oil palm plantations are located only in Tanintharyi, other plantations such as rubber, betel nut, banana, and sugar cane are expanding throughout the country. Rubber has rapidly expanded throughout the region. MOALI estimates that in 2015–2016 total area planted with rubber was 652,105 ha. Mon, Tanintharyi, and Kayin account for 68 percent of rubber-growing area; Shan, Bago, and Kachin account for 24 percent.[13] Due to low rubber prices and also relatively low quality of Myanmar rubber products, area expansion has reduced. Many rubber plantations are inactive. With the recent price decline, rubber wood from old plantations is sold for woodchips and firewood use.

Mining

87. Mining accounts for at least an estimated 46,000 ha of forest loss (Connette 2016), almost all in Kachin, Sagaing, and Mandalay. Mining has been brought under MONREC, and a new policy and rules are being developed. Poor governance of the mining sector, particularly jade mining, has led not only to deforestation but also to pollution and in some cases, to social conflict. Open-pit mining in northern Myanmar, often along streams and rivers, is another major cause of intact forest decline. For example, most of the deforestation along the Uru and Chindwin Rivers in Homalin township was caused by illegal (and legal) surface mining. Mining has negative impacts on local communities and biodiversity (Bhagwat et al. 2017).

Development of roads and other infrastructure

88. There has been a general expansion of road networks in many forested areas in recent years. Expansion of the road network has enabled lower-cost extraction of wood, especially from hitherto remote areas, as well as improved access for settlement, thus accelerating land-use change.

13 Draft REDD+ Strategy for Myanmar.

89. The increase in dams and reservoirs has also had a negative effect on forests. Bhagwat et al. (2017) estimate hydropower dams and irrigation reservoirs account for about 70,000 ha of the 2 million ha of intact forest lost over 2002–2014 (Treue, Springate-Baginski, and Htun 2016). Most of these are small and medium multifunctional dams. However, there is concern that new dams under construction or planned threaten to inundate much greater areas. The International Finance Corporation (IFC) Strategic Environmental Assessment (SEA) 2016 estimated 139,400 ha will be inundated by dams currently under construction, and a further area of 253,300 ha is planned to be inundated.

90. In addition, uncontrolled conversion and conversion logging can lead to higher deforestation areas and invite illegal logs to be sold together with conversion timber. Conversion and salvage logs are considered legal and need to be appropriately licensed, monitored, and handled under the MTLAS.

Overarching and conflicting priorities

91. **During the years before the log export ban, the forest sector has been used as a source for revenues** with little consideration to sustainability, efficiency, or equity. Although, the situation has now largely improved, there are several challenges with forest governance in relation to timber theft, lack of capacity of planning and monitoring, insecure land and tree tenure for local people, and conflict in many upland areas.

92. In relation to the dialogue with other ministries, especially with MOALI, coordination between agriculture and forestry policy imperatives is needed and has significant bearing on forests, particularly in relation to the issue of 'Unclassified Forests' also termed 'Wastelands' by MOALI. There is evidently extensive land which may have the potential for intensified cropping.

93. The Master Plan for the Agriculture Sector (2001–2031) aims to expand cultivation by 4 million ha, into lands they term 'wasteland', which seems to be unclassified forest land, much of which is likely to be customary land. The policy became articulated through the VFV Law (2012, amended 2018). MOALI, FD, and communities lack agreement on clear procedures to manage these lands. The FD is now also seeking to gazette unclassified forests where it can. Yet without a statutory legal category of customary land, it seems impossible to resolve the appropriate land category within in many cases failing to recognize preexisting customary tenures.

Drivers of forest degradation

94. **The dynamics of land-use change** can be complex, sometimes abrupt and sometimes gradual. Conversion of forests to other uses is the main cause of deforestation, but it largely takes place in the already degraded forests. For degraded forests, overlogging is often the first stage, leading to degraded forests rendered accessible through opening up of logging roads. Informal extraction of timber and fuelwood can follow, continuing the degradation process (Treue, Springate-Baginski, and Htun 2016).

95. Forest degradation is driven mainly by

- **Unsustainable extraction of timber.** Formal commercial timber extraction volumes, especially of teak, had exceeded the estimated ACC until recent years since the 1970s;
- **Illegal logging.** A review of the export of unauthorized harvests indicated a 47.7 percent illegal logging rate between 2001–2013 (Enters 2017); and
- **Production of fuelwood.** The FAO estimate for total annual fuelwood consumption is 38.2 million m3 per year (FAOSTAT 2018). In 2011, poorly regulated fuelwood extraction accounted for around 80 percent of all wood extraction.[14]

14 FAO Stat data for 2017 for aggregated production data: http://www.fao.org/faostat/en/#data/FO.

96. Shifting cultivation is sometimes referred to in relation to forest degradation. However, under normal circumstances, there is little evidence to substantiate the assumption that shifting cultivation is contributing to net forest degradation rather than contributing to gross deforestation but also forest restoration. To the contrary, field assessment indicates that there is virtually no new shifting cultivation, and that almost all existing shifting cultivation systems either have apparently relatively stable fallow rotations (Heinimann et al. 2017) or that cultivators are moving away from shifting cultivation increasingly and rapidly toward niche agroforestry cash crops as rural markets have developed and domestic rice trading has become liberalized.

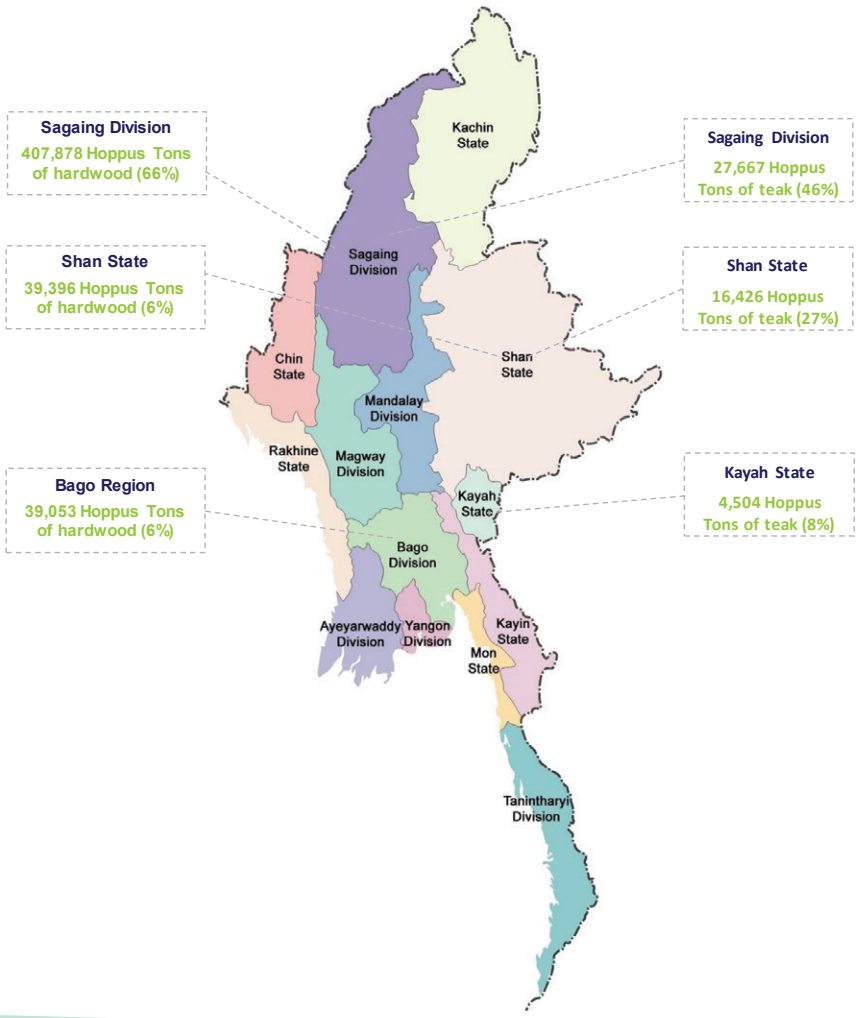
Unsustainable extraction of timber

97. **Commercial timber has been extracted in huge volumes over the last century, both teak and other timber species.** In recent decades, timber extraction has consistently exceeded the AAC. For 2015–2016, official extraction levels are stated as 60,052 hoppus tons for teak (just over 11 percent of the 2009/10 levels), and 619,742 hoppus tons for other tree species (around 23 percent of 2009/10 levels). Most of the recent extraction comes from (upper) Sagaing (66 percent of hardwoods and 46 percent of teak) (see Figure 27) (MEITI 2019).

98. **Teak has been the primary focus for commercial extraction in Myanmar.** FD data on extraction volumes indicate that 700,000 m^3 per year equivalent of teak was being official extracted already by the 1920s. These levels were not reached again until the 1980s, by which time they exceeded the AAC, even without estimations of wastage and illegal extraction included.

Figure 27

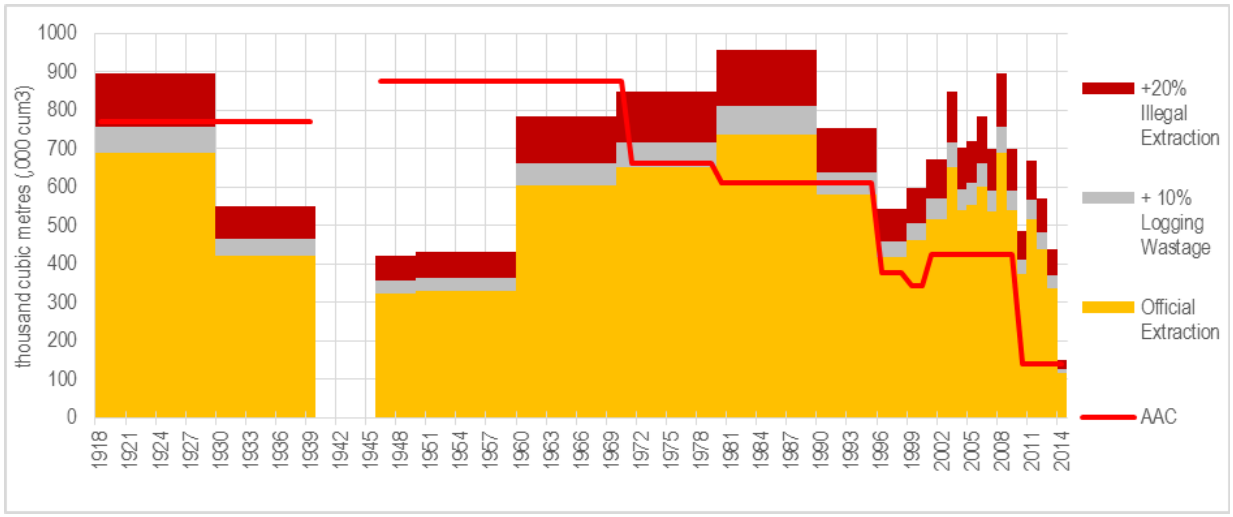
Main geographical distribution of production of hardwood and teak (FY 2015/16)



Source: MEITI 2019

Figure 28

Official teak extraction 1918/19 to 2014/15



Source: Treue et al. 2016

99. Figure 28 indicates severe overextraction, as the estimated AAC was being exceeded by official extraction almost continuously from 1970 onward for 45 years. When conservative estimates of wastage and illegal logging are included, the AAC is far exceeded. Extreme levels of over extraction beyond the AAC were officially sanctioned in more recent years before the start of democratic transition.

100. **'Other hardwoods'** category includes both very high-value timber like rosewood and low-value timber species. The extraction trend is different from teak due to the limited market development. Although total extraction levels are higher than teak, they have been below the AAC until recently. The extraction trend is different from teak due to the limited market development. Although total extraction levels are higher than teak, they have been below the AAC until recently. By the end of the 1990s, the AAC was revised significantly downwards. However, extraction accelerated.[15]

101. In 2009/10, official extraction levels reportedly peaked at 538,340 tons for teak and 2,725,700 tons for other hardwoods (MOECAF 2011a) and has subsequently declined. The quality of the timbers harvested is also likely to have declined severely.

Fuelwood production

102. **Some reports estimate that fuelwood extraction is by far the biggest single extraction demand on forest biomass, significantly greater than timber.** Natural forests are estimated to be the primary source for fuelwood, which is estimated to be around 80% percent of all wood extractions from forests based on aggregate FAO data of 2017.[16] The scale of wood extraction, to meet domestic as well as transborder demand for fuelwood and charcoal, is extremely concerning due to the severe pressure on forests, in the context of poor regulation (however, there are very limited up-to-date data on the situation, and it is unclear how reliable the estimates are as there are no published methods). Aged rubber plantations also serve as a (sustainable) source of fuelwood, although unclear to what extent.

15 Source: Forest Department information – unpublished.
16 Figure based on FAO stat 2017 data for aggregate national wood production for different products by ton or approximated at 0.75 ton/m3 for data comparison.

103. Fuelwood is the primary fuel for as much as 95 percent of rural domestic energy needs (cooking and heating needs), and estimations range between 60 percent and 80 percent of total energy consumption.

- In 1990, fuelwood accounted for some 80 percent of total energy consumption in Myanmar (FAO 1996).
- Biomass energy contributes more than 60 percent of total energy consumption in Myanmar and is used by more than 70 percent of the population; wood is the largest source of biomass energy, most of which is sourced from natural forests (ADB 2014).

104. **Timber products and volumes.** In 2017, the FAO aggregate estimated national wood extraction by different products; the largest item by far is wood fuel (81.6 percent), followed by roundwood and sawn wood (16 percent—comprising sawn and veneer logs), other industrial roundwood (3.8 percent). The FAO estimates current total annual wood fuel consumption at 38.3 million m3 per year (FAOSTAT 2018), indicating a per capita consumption of around 0.63 m^3.

105. However, total national demand for domestic fuelwood has not yet been assessed systematically.[17] Charcoal is heavily used in urban areas and supplied from surrounding hinterlands. There are no clear studies but much anecdotal evidence of heavy consumption including for export to China for industrial use (Freudenthal 2017). There is also fuelwood demand from the brickmaking sector, to support rapidly expanding urban construction for both urbanization and industrial expansion, in garment industry, brick industry, in tobacco and tea curing, in commercial food industry, and other cottage industries. No quantified information is available on these uses.

106. Fuelwood is likely to be collected mainly from unclassified forests and PPF as there are least sanctions against this. However, extraction from RFs is also observed. Fuelwood is collected by both the household users and also by self-employed fuelwood collectors.

107. It should be noted that data are deficient for this aspect, partly because it is largely an informal sector activity and also because the situation is dynamic, in relation to declining forests and expansion of the national grid. Improved evidence base would be extremely valuable.

17 The team understands there is currently a detailed wood flow study ongoing in Myanmar under the European Forest Institute, which should provide more accurate figures and perhaps insights how best to manage the issue.

photo: ©Thiri Aung

4 FOREST MANAGEMENT

FOREST MANAGEMENT

Timber production system

Timber management system

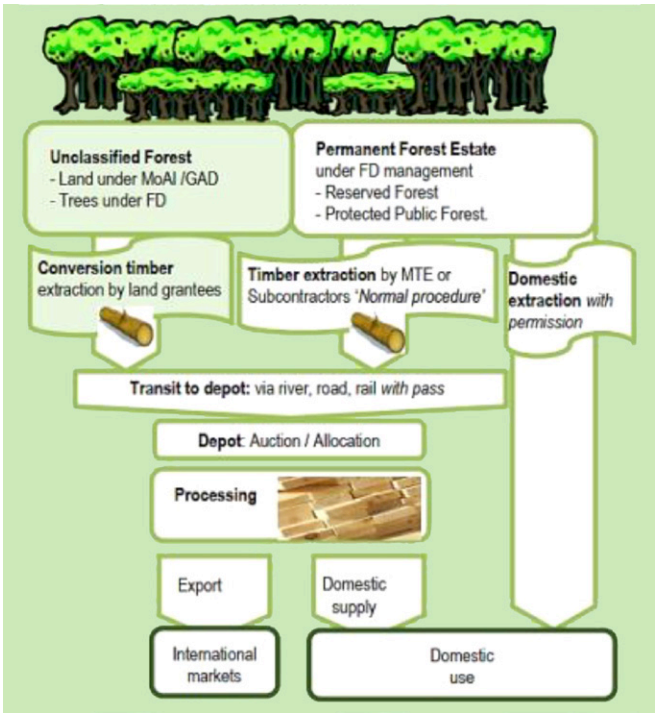
108. **The principal silvicultural system practiced in natural forests is the MSS,** which dates back to colonial times. For harvesting and export purposes, timber is classified into two categories—'teak' and 'other hardwoods'—a distinction significant in trade regulation. Figure 29 presents the simplified timber flow system.

109. Timber production in Myanmar is regulated based on the following rules and regulations:

- Logging Rules (1936)
- Extraction Manual (1948)
- State Timber Board Act (1950)
- Standing orders for Extraction Staff of MTE (1970)
- National Code of Forest Harvesting Practices (2000)

Figure 29

Simplified timber flow system



Source: Treue et al. 2016.

110. **The FD holds the mandate to manage land in the PFE and also to manage forest on land at the disposal of the Government.** Non-PFE land is administered by different agencies, including the MOALI, and the General Administration Department under the Ministry of Office of the Union Government (formerly under the Ministry of Home Affairs).

111. **Timber is extracted according to AAC prescribed in the 10-year District Forest Management Plans (DFMPs).** AACs are calculated based on systematic inventories of the forest stands.

112. **Natural production forests are managed under the MSS, first introduced in 1856 as Brandis Selection System, in which a 30-year felling cycle is adopted, exploitable firth limit is fixed, and felling series is divided into 30 annual coupes for timber harvesting.**

113. **The FD and MTE staff mark trees that have attained exploitable girth limit for felling.** Extraction has been the sole responsibility of the MTE, although extracting has often been undertaken by sub-contractors due to capacity constraints in the past.

114. **Overharvesting (beyond AAC) and lack of accurate site-specific inventories have led to unsustainable extraction of timber in some forest areas.**

115. **At the same time, lack of effective control mechanism led to the degradation of large areas of reserved forest.** As a consequence, there has been major loss of commercial revenues, livelihood benefits, and ecosystem services.

116. **Currently, FD is strengthening its National Forest Inventory** that can provide information on forest resources including growing stock, natural regeneration, and forest carbon, among other. Moreover, FD aims to develop a National Forest Monitoring System (NFMS) which would be based on a combination of remote sensing data and forest inventories in permanent sample plots. It would provide important information on the extent and quality of the forest resources and form the basis for good forest planning, management, and policy development.

Enforcement

117. **Myanmar has developed a legal framework and tracking system to control the timber trade,** under which all wood is considered legal if it has the hammer stamps of the MTE and is exported through Yangon's or Myeik's seaports (Woods 2013). However, the consistent application of the formal system has been eroded and undermined in recent decades for short-term revenue interests of the military dictatorship.

118. **In the past, the FD has not had the capacity to effectively control the resource.** Organized crime, politically well-connected cronies and illegal networks were and to some extent are still influential drivers (EIA 2019). As a result, many accessible forests have been stripped of their most valuable timber (both legally and illegally), and in some areas of almost all trees (for example, western areas of Bago Yoma). There are several regional well-known but difficult-to-tackle hotspots of illegal timber trade, for example, cross-border traffic from timber harvested in Sagaing and Kachin exported illegally to China. Wildlife and charcoal trade are other illegal activities affecting sustainable forest management. Conversion logging from infrastructure development has been another important area which would need more attention. Not properly licensed and controlled, it can increase illegality by causing the cutting of more timber than allowed or including other illegal wood.

MONREC plays one of the most important roles in relation to policing forestry crimes. In addition to the 68 district FD offices and 315 township FD Offices, there are also a number of inspection and revenue stations in forest areas across the country that are actively engaged in combating the illegal timber trade.

- **FD staff** perform a range of actions to police forest crimes, including patrols and collecting information from informants, the media and other stakeholders in the area of jurisdiction; investigations, surprise checks, searches and seizure; joint search and seizure operations are conducted with military and police units, village and ward administrators where security is restricted.
- **Myanmar Forestry Police.** Established in August 2014, the Forestry Police is a new branch of Myanmar Police Force. With a staff force of approximately 300, it is among the smaller specialized police forces in the country with the role to support the FD to uphold its policies, protect Myanmar's forests, protect wildlife from illicit trafficking, and investigate and prosecute illicit logging. The personnel of the Forestry Police have not yet received any specialized training related to wildlife and forest crime. As of October 2015, no case had been investigated and/or brought to court by the Forest Police.
- **Myanmar Customs Department** has no specific unit dedicated to timber trafficking; senior officials indicate that they work closely with other departments on the issue. The FD officials are present at major ports and crossing points to be able to assist in the inspection and identification of timber. In the case where a seizure of illegal timber is made by the Customs Department, the wood itself is handed over to the FD and any arrested suspects are handed over to the police.
- **Anti-Corruption Commission of Myanmar.** This commission is the key agency to enforce the Anti-Corruption Law (2013), and it became a fully functional body in early 2014.

119. **A series of important commitments have been made,** and despite continued challenges, current programs point toward progress and constructive solutions. High-level commitments also support and effectively trigger governance improvements. The forest inventory and better reporting and planning process to manage forest areas as well as promoting CF are critical steps forward toward a more transparent and inclusive forest management system.

120. **The GoM is also committed to implement the MTLAS** which will still require several changes to the current system, but the dialogue is ongoing and constructive. Other positive steps are defining national certification standards together with the creation of the necessary infrastructure to roll out a national certification scheme.

121. **Collaboration with the President's anticorruption initiative** offers channels for collaboration between the FD and NGOs and for advancing the national commitment to implement governance improvements recommended under the FLEGT initiatives. The inclusion of the wood industry into the Extractive Industry Transparency Initiative (EITI) demonstrates the commitment to increase transparency and collaboration with multistakeholder processes to find solutions to governance issues.

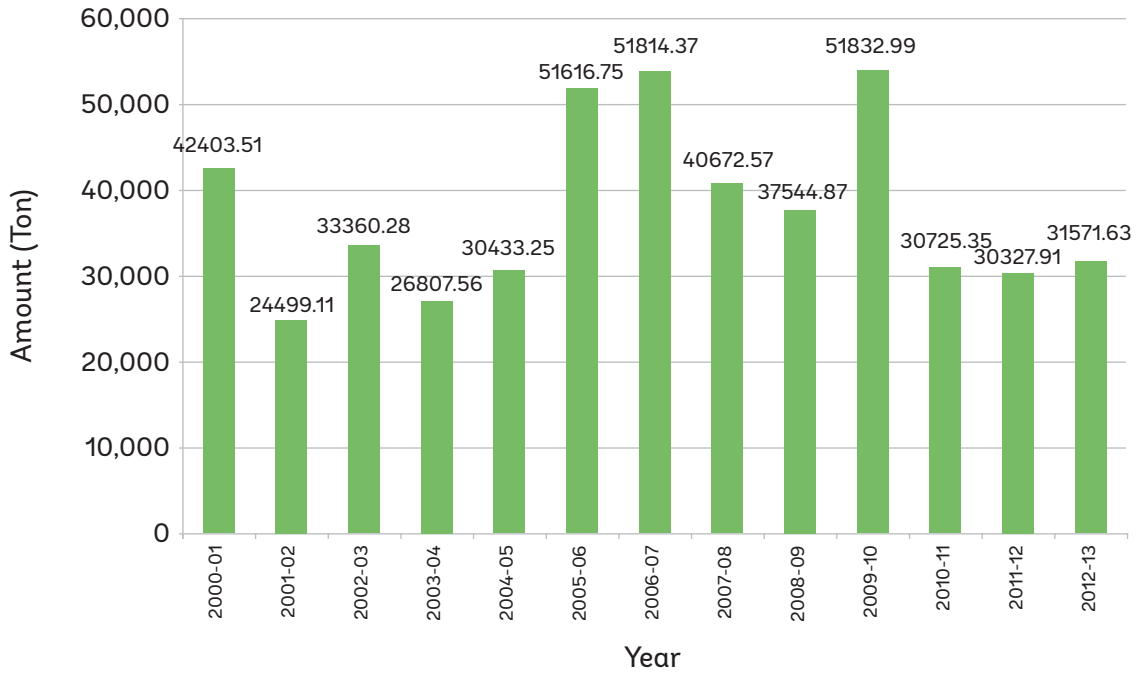
122. **More than 250,000 tons of teak and other hardwoods were seized over the past seven years, and 143,000 tons in the last 3 years alone (Irrawaddy 2019).** Despite such data on illegal timber confiscation, it is impossible to estimate what proportion of the illegal timber trade is actually being seized and if progress is made overall or not with combating the illegal timber trade. As a reference, FD data indicate a fluctuating level between 25 and 55,000 tons seized over the period 2000/01 to 2012/13, with no apparent trend[18]. More recent reports indicate increased volumes, with 160,000 tons seized in 2015.

123. **The FD staffing capacity is still low in relation to effective law enforcement.** The FD field staff were disarmed under the military, and lack capacity for enforcement and for self-defense.They lack vehicles and supporting technology for staff to detect, track, and ultimately transport confiscated timber. Effective control mechanisms will not only need additional field staff, logistical support, and training, but also need improvement

18 Source: Forest Department 2017 Presentation on illegal timber data – unpublished.

Figure 29

Seized illegal timber 2001/01 to 2012/13



Source: FD.

along the entire value chain; better information systems; including financial tracking; citizen engagement tools; strengthened collaboration with other national agencies (judiciary, customs, police, and communities); and support from international collaborators.

124. **Some countries in the subregion (for example, Vietnam),** are either in the process of signing VPAs with the European Union or have already started implementation of VPAs, committing them to assure that imported timber is legal. In China, major tropical timber organizations have recently created a Green Growth Platform to develop its own legality requirements for imported timber. This clearly demonstrates a trend that major consumer countries demand legal supply of tropical timber. Myanmar, with its high-value timber species, could largely benefit from this trend of increasing high-value markets.

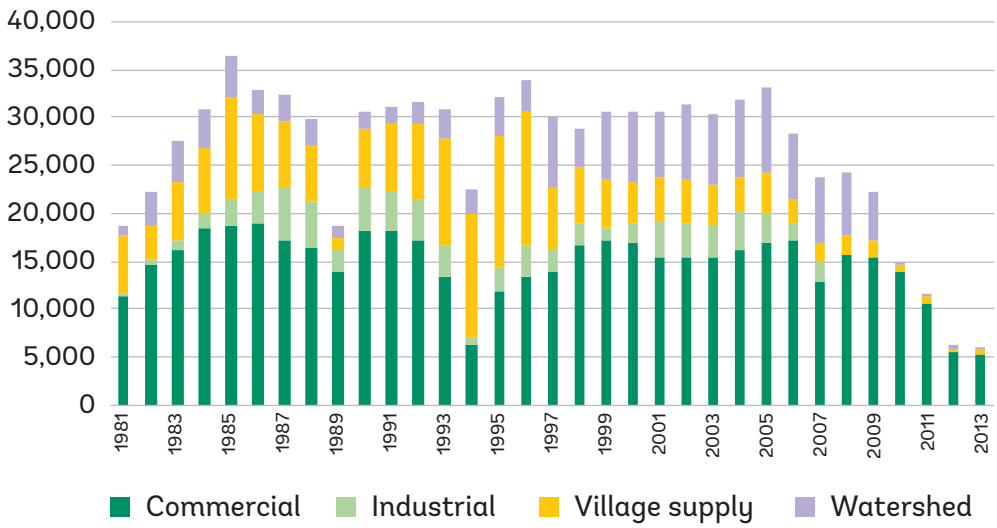
Plantation

125. Both global as well as domestic demand for wood products is growing. Planted forests provide attractive investment opportunities at commercial scale, while also contributing to national reforestation targets. Neighboring countries have achieved good results not only with hardwood plantations but also with fast-growing species, which offer good business opportunities for smallholders and favorable trends in price and market development. Commercial plantations have the potential to create rural jobs, boost exports, and provide secure timber supply to build a thriving and internationally competitive wood industry.

126. **Historic review.** Plantations have always been part of the FD long-term interest. However, as forested areas have progressively degraded, the urgency has increased, and the MRRP was launched setting specific targets for different types of plantations. There has been a strong emphasis on expanding timber plantations over the past years, including mobilizing the private sector. For instance, large areas of Sagaing are under teak plantations.

Figure 30

FD—acres planted and type (1981–2013)



Source: FAO 2015.

127. FD data is available for most of the last 30 years and shows that around 30,000 acres (about 12,100 ha) were planted per year (1981–2013) (Figure 30). Plantation effort declined after 2005, presumably due to under-resourcing, and focus began to shift to commercial plantation. For the overall period, village supply and watershed plantation made up 37 percent of plantation. The FD data indicate that plantation effort dropped to 7,600 acres (about 3,100 ha) in 2015.

128. Around 65,000 ha of special teak plantations were established in from 1998/99 to 2005/06, but the program was suspended after that. Most plantations were planted with teak, ironwood (Pyinkado), Padauk Gum Kino, Pine, Yamanei, and Eucalyptus. Inadequate long-term maintenance led to encroachments and high mortality rates.

129. **Recent plantation activities by the FD have increased maintenance efforts with more success,** but long rotation plantations (ironwood) still run the same survival risk, as long as forest management is not sufficiently budgeted throughout the years until harvest. Other possibilities to consider are partnerships with private sector or communities to provide incentives to maintain those existing plantations. Simple agreements on benefit-sharing mechanisms between local communities and the FD could reduce the risk of encroachment and timber theft. Other co-management models could be considered.

130. **Overall, recent plantation efforts undertaken by the FD are following high silviculture standards,** and many lessons from the past were effectively taken on board. But an internal debate about the role of private and community-based plantations will be needed on how to most effectively increase forest plantations, how best to involve communities and SMEs, to increase financial, environmental, and social benefits. There seems to be much more room for increasing the level of private initiatives in Myanmar. Given that teak and other commercial plantations of fast-growing species are financially feasible, a discussion is needed on the comparative advantages of private and community actors, incentives, and safeguards that should be put in place. Other strategic decisions include the need to determine where restoration efforts should be carried out by FD or by private investors taking into consideration their interests.

131. **Over the last decade, there has been increasing level of private sector investment in wood production, particularly private plantations.** Private forest plantations have been allowed since 2006 under long-term land leases from the State. Investors could plant teak, hardwood, rubber, palm, and industrial crops in the concession areas, up to a permissible limit set by MONREC. Beyond this limit, a bidding process was applied for land allocations for private forest plantations.

132. **There have been an estimated 567,000 ha of private forest plantations established in Myanmar, consisting of teak, hardwood, rubber, palm, and industrial crop plantations, by 2017.** Private plantations were allowed in natural forests which had been seriously degraded and were no longer possible to regenerate naturally, with the purpose of developing private businesses in the sector, supporting the environment, and conserving forest resources. However, more than 270,000 ha, or close to half of these plantation concessions, are assessed to be dormant and have been confiscated by the State. (Myat Moe Aung 2018, citing FD).

133. **There is interest in investments from private companies, but to tap into the full potential, policy reforms will need to be considered.** In consultations, private companies mentioned complex processes and regulations, inadequate infrastructure, political economy, land conflicts, lack of secure tenure, and lack of incentives as the main issues (National Export Strategy for Forestry Products, Ministry of Commerce). Land for private plantations is available either by PFE lease, VFV land lease or in large private landholdings (which are unlikely). The FD grants land leases for forest plantations on PFE. VFV leases are still highly controversial due to potential conflicts with customary rights.

134. **Lower-value fast-growing wood, fuelwood, and pulp.** Despite lower yields and financial returns, communities seem to prefer to produce lower quality but faster growing woods (like *Yemeni*) because they can produce yields more rapidly and at lower risk. However, they are often harvested before maturity to address fuelwood deficits or short-term revenue needs in the absence of long-term finance availability. Markets for fast-growing woods are expanding, and international prices are rapidly increasing, particularly for woodchips. Domestic wood fuel markets are also increasingly attractive and offer reducing transport costs, risks, and uncertainties.

135. **Small-scale timber production.** There are opportunities for scaling up private small-scale timber production, but the subsector and current constraints are not well documented and understood. A general comprehensive study for Myanmar would be helpful to clarify the nature and extent of private sector as well as community wood and non-wood production, harvesting, processing, marketing, and demand. Such study would provide important information on the type of assurance and operating arrangements that large private sector investors would need to establish outgrower schemes.

136. **There is one Chain of Custody certified company in Myanmar.** Myanmar's forest processing industry would certainly benefit from more leading, national, and international integrated companies to support technology transfer, train labor force, introduce good clonal techniques, and invest in high-tech processing facilities. Establishing links between plantation companies and outgrowers with CF, CFEs, and other smallholder plantations could create new economic opportunities in rural areas. To attract reputable industry leaders to the country and to enable national companies to invest in plantations, a longer-term vision on plantations should be developed based on discussions with relevant stakeholders.

137. **As part of the MRRP, the preparation of an industrial and commercial plantation strategy is envisaged** and expected to be done in close cooperation with the wood-based industry. Based on experiences from other countries, the following aspects could be taken into consideration:

- Identify appropriate land availability for public and private investors, identify clusters of CF and VFV areas where outgrower forest plantation schemes can be promoted.

- Assess competitive and transparent instruments to promote partnerships (for example, Public-Private People Partnership, called 'PPPP') to provide sufficiently secure and long-term tenure for private investors (including foreign) and community groups.
- Increase capacity to license, plan, and control partnerships in an effective and credible manner.
- Assess fiscal incentives for large-scale integrated (possibly CoC certified) timber industry, both domestic and foreign, to promote outgrower and community partnerships.
- Promote industry/public research platform to develop fast-growing clones, germplasm, and technology applications.
- Define training needs for silvicultural practices for smallholder plantations and strengthen extension services, possibly with additional support through third-party service providers.

Forest products and value chain issues

Timber processing

138. **Until early 2014, Myanmar had no restrictions on log exports,** and roundwood exports, especially teak, were the dominant commercial forest product in the country. With the log export ban entering in effect in April 2014, teak and other species need be processed before export. The Forest Product Strategy 2015–2019, developed by the Ministry of Commerce, lays out an action plan to improve processing capacity in support of export-oriented companies. The lack of reliability, pricing, and quality of upstream supplies, poor skills and capacity of the industry, lack of transparency, and changing taxes were identified as challenges.

139. **Teak and other high-value timbers.** Teak is the most obviously recognizable and relatively fast-growing species with significant, albeit long-term, investment opportunities. Over extraction and a global supply gap are driving high global demand and high prices internationally and nationally. However, there is concern over poor product quality and poor silvicultural practices. The quality of much plantation teak is deemed as significantly lower by buyers than teak from natural forests.

140. **The MTE owns several sawmills and wood processing mills with reportedly old and inefficient processing technology** in place, leading to high waste and inefficiencies (Dan Blessing, MTE report). The MTE has access to some of the highest-value trees in the world, and, therefore, improvements in material recovery and quality of outputs have the potential to return much additional value.

141. **At present, most of wood processing is undertaken by small- and medium-scale enterprises (SMEs).** Those smaller processing industries suffer from lack of a cohesive business environment, lack of credit financing, and regulatory complexity. Access to timber is challenging, market information is scarce, and productive infrastructure (labor, skills, logistics, and electrification) is still poor. Accessing timber through timber auctions (from plantations, conversion forests, and RF) provides uncertainty and challenges for long-term planning, as prices, quantities, and species are often unpredictable. Lack of research, access to technology, and trained labor are other issues that SMEs are struggling with. Going forward, procedures will need to be simplified and incentives introduced to encourage integrated industries (national and international) to invest in high-end technology and processing capacity in Myanmar. Additional research in priority areas is also needed (for example, lesser-used species technology development and market research).

142. **Bamboo and rattans.** Myanmar has around 1,783,800 ha of natural bamboo forest areas (either pure stands or mixed with forests). These are found particularly in Bago Yoma (estimated 819,500 ha), Rakhine (777,000 ha), and Tanintaryi (187,300 ha). Bamboo is also cultivated in many areas by farmers and grows widely in disturbed forest areas across the country. It is estimated that bamboo grows across a total of over 14,300,000 ha of the country. There are 18 species of commercial importance in Myanmar. Internationally, demand for bamboo is increasing for application in diversified products, for example, flooring, chop sticks, charcoal, and construction material.

143. The International Network for Bamboo and Rattan (INBAR) provides technical support for bamboo development, and there have been three international cooperation projects in Myanmar (Table 9).

Table 9

International cooperation on bamboo to date

Name of Projects	International Organization
Promoting Sustainability of Bamboo through Community Participation in Sustainable Forest Management) (2003–2006)	The International Tropical Timber Organization
Market Development of Bamboo and Rattan Products with Potential (2008–2010) (China, Bangladesh, Nepal, Myanmar)	INBAR and CFC
Promotion of Sustainable Management and Use of Bamboo Resources in Myanmar (2016–2018)	Thailand International Cooperation Agency

Source: Aung Zaw Moe 2018 – unpublished presentation.

144. **Other NTFPs.** There is a wide range of NTFPs which are widely consumed and sold at local markets. Many of them have great local market potential, which varies significantly by agroecological zone. Numerous products are already marketed formally—especially to Chinese and Indian traders. Some of the key NFTPs with high market potential include the following:

- **Elephant Foot Yam** - This has become a boom crop in Chin State, especially the south, where it grows well both in shade and open plots in mid hill areas.
- **Medicinal and aromatic plants,** especially where they can be domestically produced. Myanmar has herbal medical tradition, which has not been developed commercially yet.
- **Agar aromatic oil** - The commercial production of this aromatic product offers high potential, but its production requires further technical development.
- **Ornamental plants,** especially propagated orchids. There are extensive varieties suited to tissue culture propagation. Little investment has been made so far, but there has been much illicit export of orchids to China, contravening Convention on International Trade in Endangered Species of Wild Fauna and Flora.

145. **NTFP value chains currently face additional challenges associated with limited infrastructure and equipment.** Rural storage and processing infrastructure and equipment are very limited. Transport infrastructure to markets is also either costly or limited at competitive prices, particularly for those in remote areas. Moreover, rural people have limited knowledge and skills on how to use processing equipment, meet quality standards, and manage enterprises and lack of market information.

146. **Different types of NTFPs will require individual strategies and different enabling support.** These strategies should be based on differences in harvesting and processing methods, markets (domestic or international), and scale needed.

Community forestry

147. **CF is increasingly recognized by the GoM as a vehicle for protecting and sustainably managing existing forests, achieving forest area targets, and addressing rural poverty.** The NFMP (2001–2031) sets a target of 919,000 ha for community forests to be established by 2030/31.

148. The understanding of the role of CF has evolved significantly since the concept was first introduced in 1995 with the CFI, which forms the administrative basis for CF. While initial arrangements focused mainly on meeting subsistence needs and limited income generation from NTFPs, the evolution of CF now emphasizes commercialization of CF and enterprise development, recognizing that forest will only be protected if local communities can tangibly benefit from them. As part of strengthening the legislative foundations, systematic effort has been made to embed CF across land-use management in view of its potential for livelihood enhancement, poverty reduction, food security, and strengthened forest governance impact.

CF framework

149. **The early implementation of CF in Myanmar was limited by legislative and institutional challenges.** Uptake was weak, handover capacity limited, and approval of applications slow with low prioritization of CF in FD field offices. With limited emphasis on livelihood opportunities, one of the main motivations for CF at the time was that if offered about the only way to improve community land tenure security.[19]

150. **In recent years, significant changes have been made to the legal and policy framework supporting CF in Myanmar, resulting in a progressive enabling environment for the establishment of CF, CFUGs, and CFE in the country.** However, a constraining factor is that the CFUGs do not have legal status therefore limiting their ability to operate independently.

151. **The three legal instruments that make direct reference to and support the development of CF in Myanmar are the 2018 Forest Law, the Conservation of Biodiversity and Protected Areas Law (2018), and the revised CFI (2016).** The CFI has been recently revised to become fully aligned with the 2018 Forest Law. The CFI provides a detailed framework for the establishment and functioning of CF, CFUGs, and CFE. The 2016 revision of the CFI created the opportunity to increase the impact of CF in Myanmar by allowing for commercialization of CF. This means that that communities now have the possibility to benefit from the sale and value addition of timber, including high-value species such as teak and ironwood, as well as commercialization of NTFPs. The 2018 Forest Law explicitly recognizes the CFI, thus giving further weight to the commercialization of CF. [The recently amended CFI (2019) was released in May 2019 as the report was being finalized; its analysis is not included in the report].

152. The significant shift to enterprise development is also reflected in the 2017–2020 CF Strategy Action Plan, developed by the National Community Forestry Working Group (NCFWG), which sets a target to form and support 50 small-scale CF product-based enterprises per year. The NCFWG was formed in 2013 and involves government staff from multiple line ministries and NGOs and is chaired by the FD's Deputy Director General, with the FD's CF Unit serving as Secretariat. The NCFWG meets quarterly and is actively engaged in supporting CF implementation toward national targets.

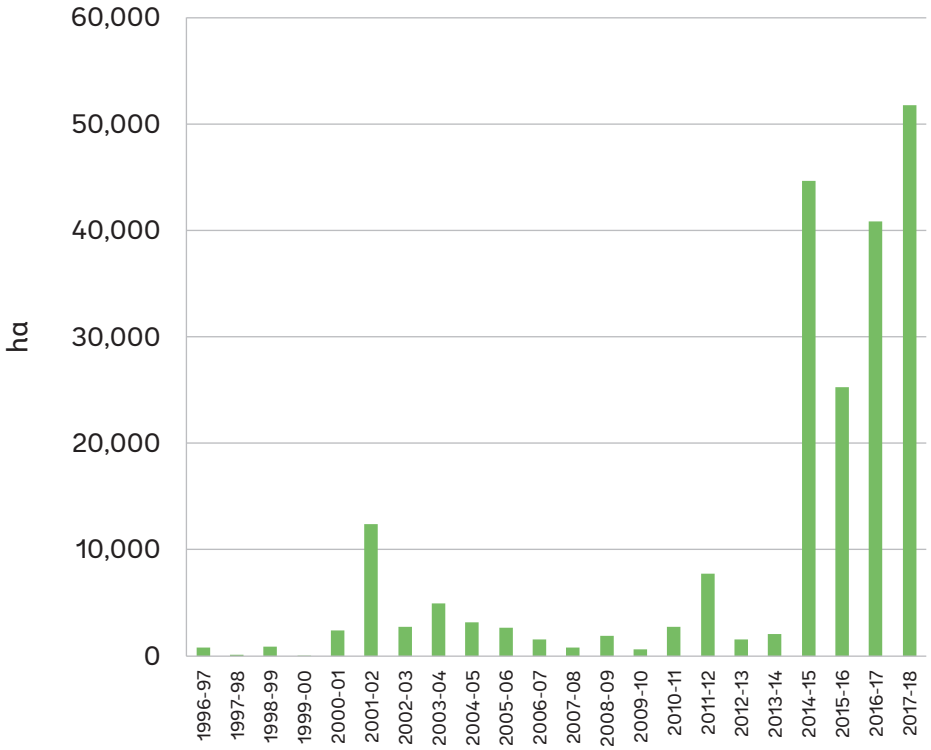
19 Improving tenure security in the face of land-grabbing threats still remains the major incentive for communities to participate in CF today. However, it is often considered a very imperfect solution as CF can also undermine the tenure security of traditional customary systems by extending the jurisdiction of the Union government into ethnic domain.

CF establishment process

153. **After its introduction, initial uptake of CF in Myanmar was proceeding very slowly resulting in establishment of just 114,296 ha of community forests by 2016—after almost 20 years of facilitation and implementation.** Initial CF implementation was supported by the United Nations Development Programme (UNDP) and Japan International Cooperation Agency (JICA), with a number of NGOs becoming involved as CF offered an important mechanism to improve community land tenure security.

Figure 31

Annual community forestry handover levels 1996–1997 to 2017–2018 (ha)



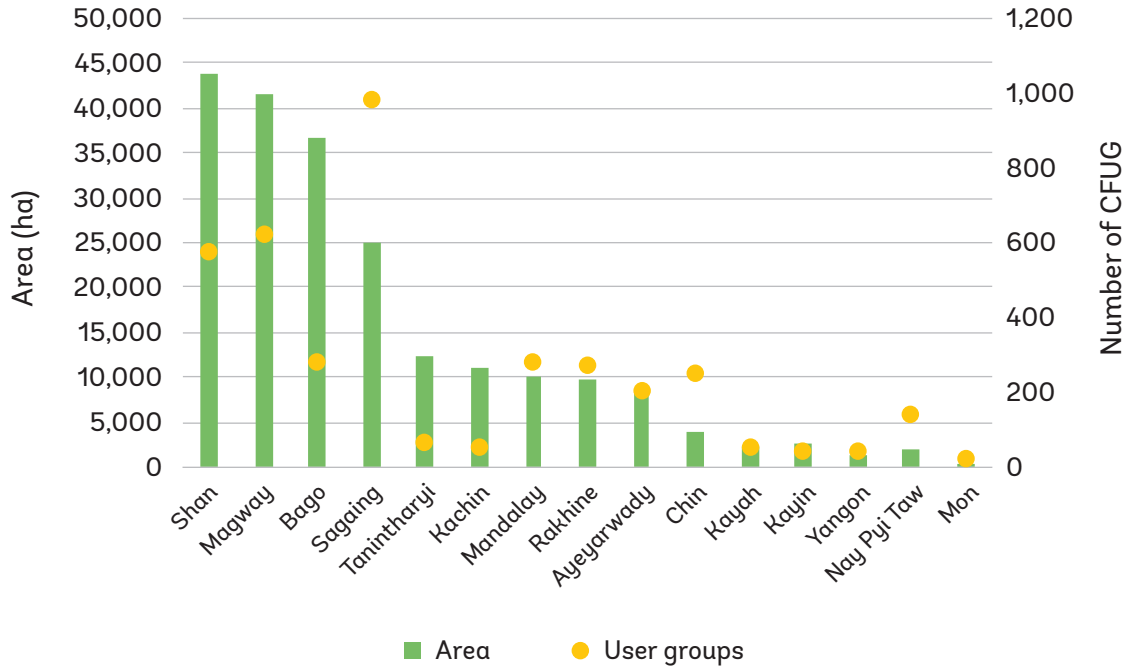
Source: CF Unit, FD.

154. A notable shift in progress has been made over the last few years since the revision of the CF instructions, with the area of community forests more than doubling since 2016. **As of February 2019, there were 248,967 ha of community forests in Myanmar, covering 4,711 CFUGs (119,985 households).** This represents a mean CF size of 52.8 ha, a mean CFUG membership of 25.4 members, and a mean of 2.1 ha of land per member.

155. **The recent growth of CF can be partly attributed to the strengthened legal and institutional foundations,** including the new emphasis on livelihood and community forestry enterprise development (for example, revision of the CFI in 2016, CF Strategy 2017–2020, and Forest Law 2018), recognition of CF in building resilience of rural communities to climate change (MCCSAP 2016–2030), as well as integration in multisectoral land-use management and governance initiatives (for example, Land-Use Policy [2016], MRRP [2017-2026]).

Figure 32

Area under CF and number of groups, by state/region



Source: CF Unit 2018.

156. **While this recent increase is impressive, overall progress continues to be significantly below the 2030/31 target of 919,000 ha.** There also remains uncertainty about the quality of the formations processes, and the level of subsequent activity and dynamism of the CFUGs that have been established, with no centralized data available on whether all the CFUGs have remained active after initial establishment, and whether they are able to operate in an equitable manner and in adherence with rules and guidelines, including with agreed community forest management plans. Earlier studies (for example, Tint et al. 2011) have indicated that perhaps as many of a quarter or more may stagnate due to weak formation processes and limited post-formation support as local FD field offices rarely have the capacity to support and facilitate CFUGs. Independent assessment of the current status of the CFUGs would be very helpful to clarify this issue.

CF challenges

157. **A more dynamic rollout and upkeep of CF has been hampered by limited capacity and financial resources of local FD as well as local civil society staff related to awareness on CF rights and regulations and lack of CF-related facilitation skill sets.** A recent assessment of 104 community forests established during 2015–2018 found that the CF establishment process (including initial village consultation, CFUG, and CF Management Committee formation, CF area identification, submission of CF application, CF management plan development, and issuance of CF certificate by FD) took on average 255 days to complete, involving 65 working days from FD and NGO staff, with a rough cost of about MMK5.75 million (roughly US$3,600)—not including the cost of FD and NGO staff time.

158. While time and costs depend on various factors, including the size and location of the proposed CF, these figures show that a more efficient delivery mechanism with significant changes and simplification to the current CF handover process is needed to increase CF more than threefold from current levels over the next decade to achieve national CF targets. In this context, it is worth noting that Myanmar's current CF target—which corresponds to just over 3 percent of total forest area—may be ambitious in the national context but is

still comparatively low based on international best practices. For example, globally, as much as 65 percent of the world's land is held under some form of community management, and around 15.5 percent of the world's forests (RRI 2015). In many countries, forest tenure rights have been handed back to communities as part of postcolonial reforms. For example, in Nepal, about 30 percent of forests are now under community management. In Indonesia, the government intends to create 12.5 million ha of social forests (including hutan adat/communal rights).

159. Although it is not broadly discussed, another challenge for CF rollout is the relationship between communities and FD field staff, which has often been strained by low level of trust, incidents of bribe seeking undermining credibility of FD field staff, and more general resentment at colonial legacy. Further, appropriation of lands around villages in the past and resultant restriction of routine local resource use (for example, for house construction) has further undermined trust, in particular in ethnic areas. An independent assessment of relationships between FD field staff and villages, including opportunities to improve dialogue and stakeholder interaction, would be helpful.

160. **To scale up CF in Myanmar, significant gaps in human capacity will need to be systematically addressed.** For example, the University of Forestry and Environmental Science, Yezin, currently does not have a social forestry degree program as part of its studies, though it is increasingly offering courses related to this topic (including courses on social forestry and participatory approaches). New competencies that emphasize social inclusion, community engagement and planning, livelihood development, and timber and NTFP enterprise development will be important at all levels, but particularly at state/region and township levels. These skills are equally important to be further developed as part of the growing pool of service providers, civil society facilitators, and community champions that are emerging to complement FD in support of CF expansion.

161. **The formation of network of the CFUGs and other forms of community-based forest management (for example, customary community conservation areas) at the district, regional, and national levels can further help to address capacity gaps of the CFUG members, including through peer-to-peer learning facilitated by the network.** Additional benefits include potential role that the CFUG network can play in providing a more coherent voice to input to subnational and national policy processes and to help address implementation issues in coordination with CF Unit and the CFWG that have been established at the district, regional, and national levels.

162. **A challenge to sustaining community commitment to CF is partly due to the quality of forest resources that have been dedicated for CF in Myanmar.** Communities have often been given tenure to degraded forests providing limited tangible short-term benefits. Moreover, CF extension services have often narrowly focused on forest rehabilitation, with CFMPs too focused on timber management rather than responding to local livelihoods (for example, through agroforestry and NTFPs).

163. **CF is currently implemented through a handover agreement, based on a 30-year lease to communities.** In practice, this has often led to a 30-year time horizon, and therefore, CFMPs with a 30-year plantation, restraining more diversified approaches to CF management. However, rural households need rapid returns that non-wood crops may offer before they can invest in more long-term revenues from reforestation or timber plantations. Agroforestry provides a good opportunity for short-term returns before longer-term revenues from timber production materialize. Growing fruit trees or integrating agricultural crops in CF has contributed to more resilient livelihood options and sustained more active community engagement in CF management. Furthermore, there is a need for a more constructive dialogue about long fallow forest cultivation systems ('shifting cultivation'), which in many areas provide basic food security. In Bago, for instance, many Karen communities have been cultivating hill rice between tree production cycles quite sustainably for over a century, under the famous 'Taungya forestry' system.

CF impact on livelihoods, social inclusion, and sustainable forest governance

While the full potential of CF in Myanmar has yet to be unlocked, CF has already shown to be a potent vehicle for promoting sustainable forest management and providing livelihood impact and social inclusion, including gender impact.

Recent studies have shown the significance of CF for people's livelihoods, with as many as 91 percent of households in Ayeyarwaddy Delta villages depending on mangrove CF products to varying degrees (Feuer et al. 2018). Both Feurer et al. (2018) and Lin et al. (2019) also emphasized the role of employment generation through CF, though they also recognized the seasonality of the work and the lack of job security. Substantial differences were found for CF's contribution to total income depending on CF membership and wealth. Nonmembers benefit mostly through subsistence products. The poorest households were found to get the highest income shares (36 percent) from CF. This leads to the conclusion that with an inclusive process to membership, CF has the potential to reduce poverty (Feurer et al. 2018). There is also evidence that CF provides significant potential to address livelihood challenges of landless families (Lin et al. 2019).

Livelihood development from CF in Myanmar is expected to grow over the medium term with increased capacities of communities engaged in CF and with the quality of forest improving in CFs over time (considering that most CFs thus far have been established in degraded forest areas with the objective of forest rehabilitation and reforestation).

Research has also emphasized the potential of CF for creating improved social assets, such as capacities for inclusive decision making, processes for social cohesion, effective benefit-sharing and grievance redress mechanisms. In a recent assessment, 89 percent of the respondents reported improved participation of women and other marginalized groups in decision making and resource sharing as a result of inclusive community decision making by CF Management Committee. Respondents further noted that women and people from minority groups, including those from poor households, were presented with opportunities to take a leadership role in decision-making processes through their participation in CF-related meetings and activities (RECOFTC 2018). CF has further led to increased knowledge and capacities of CF members and township-level government staff on issues revolving around land rights, with particular beneficiaries including the landless and women (Lin et al. 2019).

CF is often advocated as being an important vehicle for strengthening forest governance, through increased transparency and accountability (FAO 2016b; Sikor et al. 2013). Research has found that this is also the case in Myanmar with stakeholders at the national, subnational, and local levels emphasizing the value of CF in addressing the issues required for improved forest governance (Gritten et al. 2019; Maraseni et al. 2019). A much-researched topic is the direct correlation between forest tenure security and forest conditions as forest tenure security incentivizes communities to invest in their forest and to ensure their protection. Research in the Ayeyarwaddy delta confirmed that there was a significant decrease in reported illegal logging after villagers received tenure to their forests (Feurer et al. 2018). Perceptions of forest quality also improved significantly (in 2018, 83 percent respondents gave a positive response regarding perception of forest health, compared to 60 percent in 2016) with CF members citing tenure security, increased forest patrolling, clearly demarcated forest boundaries, and clear forest management rules and regulations, including for extraction (RECOFTC 2018).

CF and land classifications

164. **While legislative foundation for CF has improved significantly in recent years, some challenges remain during implementation.** According to the revised 2016 CFI, CF can be established on land within the PFE domain, more specifically RF, PPF, buffer zone in PA as well as on land at the disposal of the government, thus on VFV land. However, expansion of CF is at time competing with the designation of other land classification.

165. **For example, there has been insufficient coordination between the Nature and Wildlife Conservation Division and the CF Unit, both part of the FD, on land designation** resulting in overlaps of areas designated for expansion of PAs and for CF, respectively, as both have growth targets based on different policy and law.

166. **The FD has further been seeking to better align the PFE with the actual biophysical extent of forest, through both gazetting/reserving unclassed forest areas where possible, and also where necessary degazetting/dereserving areas where there are settlements within the PFE.** In many cases of degazettement, CFs are being created in the surrounding areas where communities are utilizing what has become designated as

the forest estate. However, little information or assessment is thus far available on how this process has been working on the ground.

167. **Inconsistencies also remain between policies and laws across different sectoral ministries.** For example, there are competing policy targets for so-called VFV land between the DALMS in MOALI encouraging agricultural land use and the FD seeking establishment of PPFs. This is a particular challenge in ethnic areas, including Kachin, Shan, Tanintharyi, Chin, and several other states. The lands being categorized as 'VFV' lands are often forested landscapes under customary or community management, mainly in ethnic states. The implementation of the VFV land law amendment (2018) may therefore override established customary community forest management and potentially lead to conflict.

168. **Finally, in nonstate actor controlled areas, questions remain related to institutional authority for registering interests in land and natural resources.** In these areas, households and communities may need registration certificates from either the GoM authorities and nonstate actors, in some cases both. For example, the KNU has developed its own forest and land policies, making establishment of Union CF in these areas difficult, but in these areas customary forest management tends to continue largely intact.

169. **Moreover, these lands are typically under customary tenure systems and considered hereditary domains, yet effectively categorized as VFV land, which can result in conflict over recognition of prior customary land claims.** Expanding CF on ethnic customary lands may thus be seen as extending the Union government's jurisdiction over ethnic areas and impinging on these (ECDF 2016).

170. Currently, the statutory framework of Myanmar provides the following three administrative categories for rural land:

- Permanent agriculture (DALMS jurisdiction: private tenure granted under Form 7 documentation)
- PFE (FD jurisdiction: use rights granted to 'Community Forest')
- VFV land (DALMS jurisdiction: use rights primarily granted to agribusiness without settling prior customary claims; also considered unclassed forest by FD and mostly customary land by communities)

171. As such, there is currently no 'customary land' category that provides for recognition of customary tenure rights, in particular in ethnic areas.

Community Forest Enterprises

172. **In recent years, CF has clearly been gathering momentum in Myanmar with the number of CFUGs rapidly increasing and some CFUGs readily embarking on CFE development.** The updated CFI (2016) promotes CFE development and offers the FD's support for commercialization of timber, NTFPs, and ecosystem services markets, such as for carbon sequestration or ecotourism. The current policy framework shows a firm commitment by the GoM to CF and CFEs. The Microfinance Business Law (2011) and the SME Development Law (2015) also provide strong foundations for the development of CFEs, although a number of issues, including access to finance, still need further work.

173. Forest products (and services) with high potential for enterprise development include bamboo, timber (including poles and posts), rattan, charcoal, and firewood. Other products for commercialization include a range of agroforestry-based production (for example, coffee, Sterculia gum, elephant foot yam starch) and services (for example, nature-based tourism). Across Myanmar, opportunities for CFE development vary according to location, reflecting, for example, the different agroecological conditions, tenure rights, security, capacities, livelihood needs, and markets. While there is significant potential for diversifying CFEs into a range of products, there is currently particular interest in bamboo and timber plantations (market assessment by Elson 2016 for Pyoepin).

Table 10

Potential commercial CF/CFE products

MRRP Classification	Commercial CF/CFE Product Development Options
Zone 1: Kayin, Tanintharyi, Mon	Ecosystem services (mangrove), rattan, bamboo, fuelwood/charcoal, timber
Zone 2: Rakhine, Ayeyarwaddy	Ecosystem services (mangrove, tourism), iron wood (*Xylia dolabriformis* or "Pyinkado"), rattan, bamboo, fuelwood/charcoal
Zone 3: Nay Pyi Taw, Bago, Yangon	Teak, bamboo, fuelwood/charcoal
Zone 4: Kachin, Chin, Sagaing	Elephant foot yam (Amorphophallus sp), teak, rattan, bamboo
Zone 5: Magway, Mandalay	Catechu (Acacia catechu), agroforestry, firewood, Thanaka (Limonia species), timber, Shaw Phyu resin (Sterculia versicolor)
Zone 6: Kayah, Shan	Ecosystem services (water - Inle Lake catchment), firewood, agroforestry (coffee, tea leaf, avocado)

174. **The foundations for livelihood development from CF, including CFE establishment, are becoming stronger.** However, challenges in access to finance (especially loans), access to market information, available resources (including technology), and markets is limiting communities' investments in their forests and in value addition for CF products and services. At the same time, alternative informal lending sources tend to have crippling interest rates. Limited access to finance is compounded by the fact that only 25 percent of rural dwelling adults have a bank account and only 19 percent of the CFUG members reported having savings, thus constraining their overall ability to invest (Lin et al. 2019).

175. **Lack of coherent community organization and lack of capacity are important issues to be addressed before CFEs can typically become successful.** It will be important to understand the level of organization and capacity as well as leadership structure of a CFUG and support community-based planning, and resource management planning as part of CFE development support. In Brazil, the setup process of extractive reserves, which are large CF areas, showed that commercial activities with NTFPs were more successful in those areas with good community organization.

176. **Competitive small-scale financing as well as wider business development support is urgently needed.** The establishment of associations or cooperatives between CFUGs could greatly facilitate the access to resources to increase efficiency in livelihood activities, while also strengthening the negotiating position of the members as they sell their CF products and services.

177. **Agroforestry or tree-based productive systems often involve agricultural value chains, for example, coffee, cassava, and other products.** It will be important to expand coordination with agricultural extension services and other technical service providers for small-scale agriculture to support models for agroforestry inside and outside CF areas.

178. **Another limiting factor for market opportunities is related to inadequate physical assets.** For example, many communities lack sealed road access to markets or access to the electricity grid for value addition for CF products. However, these obstacles are expected to be addressed through a number of ongoing and planned state- and nonstate-driven investments in road and energy infrastructure.

There are already several CFE initiatives, which indicate strong potential in production, processing, and value addition as well as marketing exist. Here are some examples:

- **Waingmaw Community Forest Association.** This association of around 13 CFUGs supported through Shalom (Nyein) Foundation and private sector partners initiated rattan processing support for members, both purchasing and preprocessing rattan raw materials, and also training hundreds of local people in rattan weaving. Although relatively low paid, this has enabled significant improvements in incomes. There has been recent branching out into furniture processing. There is an increasing number of CFUGs in Kachin which are eager to take advantage of improving market opportunities.
- **In 2014, Shalom (Nyein) Foundation initiated a project with the Myanmar Bamboo and Rattan Entrepreneurs' Association** to begin training in rattan processing. A rattan enterprise was established in Lamyang Village in Waing Maw Township which has benefited from an investment of US$40,000 (from PyoePin Program for training, processing machinery, and others).
- **The Waing Maw Community Forest Association Rattan Enterprise.** The enterprise, launched in 2016, is jointly owned by the CF Association of 11 CFUGs. The current enterprise facilitates two activities: (a) preprocessing of rattan, and (2) small item weaving.
- **Emerging Waing Maw CF Timber Processing Unit.** A new timber processing enterprise was established through collaboration between EcoDev and Kachin Conservation Working Group. The processing unit now comprises a sawmill, cutters, other machinery, and large building. The land, building, and machinery are now installed, and the unit is awaiting FD sawmill license. The business model is consolidating processing and marketing of produce from CF plantations.
- **Several other emerging CFEs,** for instance, in Western Shan and Chin.

Several organizations have been supporting the initial development of community-based enterprises, including the Forest Farm Facility and International Institute for Environment and Development.

179. **The revised CFI (2016) and the CF Strategic Action Plan (2017–2020) highlight the importance of private sector engagement in CF, specifically forming partnerships with CFE.** However, there is limited experience in building mutually beneficial partnership models for the CFUGs and private sector. The need to improve capacities from entrepreneurs at the field level is obvious, in particular, for identifying opportunities for close partnership with private sector.

180. **Yet, the reverse is also the case.** For example, one of the rattan traders interviewed mentioned that he preferred to work with his own network of communities and collectors, which can provide better control over the required supply.

Protection

Protected Areas

181. **Myanmar's forests are recognized globally for their biodiversity values.** Forests are considered to be integral to the stability of the environment. Myanmar's huge altitudinal range (from the sea to the Eastern Himalayas) and position between major biomes make it highly important for biodiversity and wildlife. Myanmar is one of the world's biodiversity 'hotspots' with, for example, over 300 mammal species, including at least five endemic mammal species, 144 globally threatened species,[20] and greatest diversity of bird species in South East Asia.

20 Myanmar CBD Country Profile: https://www.cbd.int/countries/default.shtml?country=mm.

182. **Environmental conservation has a long history in Myanmar,** from religious practices that ban hunting and fishing in sacred areas to traditional cultivation systems that protect riparian and watershed forests.

183. **The GoM has expressed its commitment to protect the country's biodiversity and expand protection of its natural forests.** Myanmar ratified the Convention on Biological Diversity in 1995. Myanmar's National Forest Policy has set important targets for expansion of the PA system, so it is representative of the full diversity of ecosystems and services in the country. Equally important is the use of Key Biodiversity 21 (KBAs) which extend well beyond the national PA system as a basis for establishing connectivity in biodiversity corridors and for protecting critical watersheds/catchments. KBAs now cover 41.2 percent of the country, comprising 194 sites. The National Biodiversity Strategy and Action Plan (2015–2020) provides a strategic framework for conservation of Myanmar's biodiversity and includes national targets and priority actions for the Aichi Targets (in particular Target 5 related to halving or bringing to zero the rate of loss of all natural habitats, including forests, and significantly reducing degradation and [habitat] fragmentation and Target 15 related to ecosystem conservation and restoration).

184. **The PAs system is under the authority of FD.** Established in 1918, it currently includes 43 Pas,[22] covering an area of about 3.9 million ha or 5.79 percent of the country's area. This is a low percentage of land area compared to other countries in the region—for example, in Cambodia, natural PAs cover 22 percent of the land area; in Thailand - 19 percent; in Lao PDR - 18 percent (SEA Biodiversity report). Starting in the mid-1990s, establishment of PAs shifted from a focus on protection of selected species to protection of entire landscapes and ecosystems. Fifteen new PAs were added between 1999 and 2014, increasing PA network area by close to 74 percent.

185. **Myanmar has an ambitious goal for expansion of its protected forest area,** as set out in the Forest Policy (1995) and the NFMP. The NFMP includes a target to increase the PAs cover to 10 percent of the land area by 2030. The NBSAP defines a strategy for establishing seven additional PAs taking total coverage from 5.75 percent to 7.82 percent by 2021. As a signatory to the Biodiversity Convention, the country has committed to protect 17 percent of its terrestrial areas and 10 percent of coastal areas—a commitment not yet reflected in the national policies or plans. The FD has already identified locations and tentative boundaries for proposed PAs to reach this target—however, funding constraints limit their ability to complete the public consultation and gazettement processes.

186. **Comprehensive management planning is important for guiding park conservation and enforcement activities.** Although the strategic and management plans were developed for some PAs in the past, currently only four PAs have operational management plans.[23] The FD intends to prepare another 4–5 plans with funding from Norway.

187. **PA network funding does not adequately cover all management needs.** In the last decade, both government and international funding for PAs has increased significantly, with government funding rising by about 50 percent in real terms between 2010 and 2015 and externally-funded grants and projects committing almost US$20 million in 2014 (NBSAP). However, funding gaps remain—only half of the PAs have a dedicated budget or staff. Even PAs that do receive regular funding are, for the most part, unable to cover the costs of basic infrastructure, equipment, maintenance, and operation. Comparative studies from other ASEAN countries suggest an annual budget of US$130 per 100 ha— three times the level of funding available to PA system in Myanmar in 2015 (NBSAP). Private funding of biodiversity conservation has been largely absent too, with a prominent exception of the Tanintharyi Nature Reserve, established in 2005. The reserve is funded by the gas companies that run three pipelines across the area; their main aim is to compensate for some impacts on biodiversity caused by the pipelines and support facilities.[24]

21 KBAs are sites of global significance with clearly defined boundaries. They are nationally identified using globally standardized criteria and thresholds and represent the most important sites for biodiversity conservation worldwide. Source: http://www.biodiversitya-z.org/content/key-biodiversity-areas-kba.
22 Among the current PAs, seven have been recognized as ASEAN Heritage Parks, tying Myanmar with the Philippines for the most in the region.
23 Management plans for Alaungdaw Kathapa National Park, Natmataung National Park, Lampi Marine National Park, and Tanintharyi Nature Reserve.
24 http://www.tnrpmoecaf.gov.mm/about.

PES in Mexico

Forested land provides a wide variety of benefits—they regulate water flows, sequester carbon, and harbor biodiversity. But farm communities receive monetary income from few of those benefits. Efforts to halve deforestation have usually focused on regulations banning deforestation. In recent years, however, a new approach has been tried. Instead of trying to force farm communities to conserve forests, they are being paid for the environmental services they provide by doing so. This PES approach was pioneered by Costa Rica and has become particularly common in Latin America.

Mexico has the largest such program in the region, with over 2 million ha of forest receiving conservation payments. To test whether Mexico's PES program is, in fact, reducing deforestation, an impact evaluation study was conducted in 2018, by measuring "additionality" of the program—whether the policy is actually generating additional benefits (forest cover) that would not have occurred otherwise. The evaluation found that Mexico's PES program has indeed reduced deforestation. Although the effect is not statistically significant in areas at low risk of deforestation, it is quite significant in areas at high risk of deforestation, where participants cut down 29 percent less forest than they otherwise would have. For those who have been in the program the longest, the effect is even larger—they cut down 38 percent less forest than they otherwise would have.

These results demonstrate that PES can be an effective way to reduce deforestation. Moreover, it does so without imposing costs on local communities.

188. **Tanintharyi Nature Reserve serves as an example for accessing alternative funding sources to maintaining PAs.** PES is another important mechanism that can be explored. Most important, the 2018 Biodiversity Law includes a provision for the FD to "determine a system for Payment for Ecosystem Services derived from the ecosystems within a PA." It will be important to provide the causal link between conservation and impact to argue for PES.

189. **Ecotourism is yet another important source for PAs** and many areas are highly attractive for ecotourism and cultural tourism. The greater Mekong subregion has received increasing volumes of ecotourists, and it will be important to put Myanmar's PAs on the map of tourism operators. At the same time, the appropriate management framework needs to be in place to take advantage of this potential income stream: (a) provide basic infrastructure, including water, access, and others; (b) build a revenue management stream, including benefit sharing; (c) support overall PA Governance; and (d) build capacity of rangers and local population.

Community-based tourism in Myanmar

Myaing is a small township in Magway region, along the Ayeyarwady River. Around 1,150 people live here, making a tough living on ya crops like sesame, sunflower, pigeon pea, and maize.

Myaing and four other surrounding villages is also a site of Myanmar's first-ever community-based tourism (CBT) project approved by the GoM. CBT enables travelers to experience the local culture while empowering the communities they visit to preserve their natural and cultural heritage.

This project was established in 2016 by the Action Aid Myanmar and an Australian travel company. A committee was established to oversee the project and a proportion of the funds (10 percent) is held in a community fund and distributed equally between the villages.

Since the project began in 2016, over 1,800 travelers have visited this quiet pocket of Myanmar, contributing over US$88,000 to the local economy.

The Myaing Project has been recognized within Myanmar as a 'gold standard' in CBT creation and received the first ASEAN CBT Standard certificate in Myanmar. But public accolades are only half the story. The real success belongs to the people of Myaing, who have welcomed strangers into their villages, shared their culture, and shown the government the real power of community tourism.

While there are a handful of good initiatives demonstrating the possibilities for CBT, more needs to be done to support community benefits through benefit-sharing mechanisms and active participation of communities in tourism activities.

190. **Current FD staff has limited capacity for managing the expanding network and enforcing against the illegal wildlife trade.** The Nature and Wildlife Conservation Division has about 500 staff, of which 450 are on the ground in only 23 of the existing 43 PAs.

191. **Communities have an important role in conserving forests.** The 2018 Biodiversity and Conservation of Protected Areas Law potentially enables a greater role for local community participation. The law recognizes, for the first time in Myanmar, 'community PAs' as a category of PA and requires the FD to provide technical coordination and support for management of community PAs.

192. **Existing PAs have a good potential for community co-management.** The 2018 Biodiversity Law states to "allow co-management…in collaboration with local community to maintain a balance between sustainable socioeconomic development of local communities and biodiversity conservation" and provides for the definition of "buffer zones to allow…local communities socio-economic development activities and ecotourism development activities without having adverse impacts on the core zone." These clauses apply to all PAs, not only community PAs. Community participation in the PAs management is also one of the NBSAP's targets; the NBSAP recognizes the important role the Indigenous and Community Conserved Areas can play in expansion of forest protection and sustainable management of natural forests.

193. However, civil society groups say the points they raised in consultations have not been incorporated in the law or rules, and so in practice, the law and rules fail to overcome community concerns that engagement would lead to further loss of customary rights and extension of Union government jurisdiction into contested areas. Therefore, since promulgation, there has been no inclination for communities and their civil society organizations (CSOs) and NGOs to participate and instead there is significant resistance to attempts to implement them—particularly in ethnic areas where most of the valued biodiversity remains. Instead, community interest in ethnic areas remains in achieving the recognition of preexisting customary rights. A review and revision of these legal provisions will be necessary if there is to be any significant implementation of community conserved areas (CCAs).

Mangroves

194. **Mangroves and coastal zones are typically extremely challenging to govern as they are dynamic and at the intersection of land and marine systems.** There are several specific challenges to governance of mangroves in Myanmar: 78 percent of Myanmar's mangroves, including 100 percent of mangroves in Tanintharyi, are outside the PFE. This means they are not under protection and at risk from encroachment from agricultural expansion (mainly aquaculture).

Table 11

Extent of mangrove 2015 in and out of PFE (ha)

	Total	Inside PFE	Outside PFE
Ayeyarwady	147,466	100,414	47,052
Rakhine	149,377	20,143	129,233
Tanintharyi	257,060	0	257,060
Total	**553,903**	**120,558**	**433,345**

195. Hamilton and Casey (2016) report that the total area of mangroves is significantly lower than other published estimates, but the trends are similar and show that the rate of mangrove loss outside the PFE is 5–10 times higher than inside the PFE.

Table 12

Change in Mangroves in and out of PFE 2000–2015 (ha)

	Inside PFE			Outside PFE		
State/Region	2000 (ha)	2000–2012 (%/year)	2012 (ha)	2000 (ha)	2000–2012 (%/year)	2012 (ha)
Ayeyarwady	10,696	-0.02%	10,676	17,299	-0.58%	16,823
Rakhine	14,526	-0.54%	13,585	81,185	-2.65%	59,075
Tanintharyi		-		204,631	-0.21%	199,521

196. Under current legislation, mangrove forests are classified either as "primary" or "secondary" forests. Mangrove forests that are classified as "secondary" forests can be converted for aquaculture uses.

197. **Rakhine has only one RF area with mangroves:** Wunbaik Reserved Forest in Kyauk Phyu District and one mangrove PPF (Min Gaung) which is adjacent to Wunbaik. None of the other areas of mangrove forest in Rakhine are currently under the direct control of the FD because they are unclassified secondary forests. They are under the jurisdiction of the Department of Fisheries (DOF). According to a recent report on mangroves in northern Rakhine (REACH 2015), the DOF identifies these areas as "degraded unclassified mangrove forests," and, therefore, they are considered to be eligible for aquaculture development.

198. There are numerous different policies intersecting around mangroves and coastal areas in Myanmar. The following partnerships and interventions have led to progress in the sustainable management of mangroves:

- **Mangroves for the Future (MFF)** is a partner-led initiative to promote investment in coastal conservation for sustainable development. In 2014, Myanmar joined MFF as the 11th member country. MFF's work in Myanmar is overseen by the National Coordinating Body (NCB), which is chaired by the Director General of the FD. While consolidating the NCB as the central committee for marine and coastal affairs, the NCB will address priority policy issues including sustainable mangrove use and management, marine protected area design and protecting near-shore fisheries for small-scale fishers.
- **National Strategy and Action Plan 2016.** Based on the partnership between MONREC, IUCN and the MFF, a plan was developed which specifies necessary changes and steps for the future. The five specified actions are (a) environmental profiling, (b) capacity development, (c) integrated coastal management, (d) policies and frameworks development, and (e) civil society engagement and management of marine protected areas.

199. **The National Coastal Resources Management Committee (NCRMC)** (chaired by MONREC) is playing a cross-sectoral coordinating role in terms of bringing together different line ministries for integrated coastal zone management. This structure is in place at different levels (national and local).

200. **There is growing evidence that marine conservation works best when local communities are responsible for the management of their resources.** This is particularly the case in low-income countries, where national capacity for enforcement of marine and fisheries legislation may be weak. Many coastal communities of Myanmar are poor, isolated, and highly depend on natural resources harvest for their subsistence. Given the low education level and limited alternative livelihoods, it is difficult for them to consider the long-term sustainability of resources on which they depend.

201. Further investments are needed to improve information as a basis for sustainable management and capacity building, including establishing a mangrove/Coastal Zone Unit or institute to improve monitoring and

research capacity to co-develop sustainable management methods and approaches. A systematic valuation approach should be applied to mangroves, to incorporate ecosystem services into development planning. This will help provide a basis for creating better aligned incentives to protect ecosystems and supporting sustainable use by local communities. Such a process can eventually lead to developing a policy framework for integrated coastal zone management.

Capacity - Staffing and budget

202. **Permanent staffing of the FD is** approximately 8,000 but the number planned in the organizational structure is more than 15,000, of which 7,400 positions are vacant (see Table 13). Staffing of the MTE is currently around 15,000. There are also thousands of forest laborers. The FD staffing is much lower than planned due to budgetary limitations.

Table 13

FD staffing, planned and current (2018)

	Number Planned in Organizational Structure	Currently Recruited	Vacant
Officer	538	482	56
Staff	14,911	7,554	7,357
Total	**15,449**	**8,036**	**7,413**

203. Given the new challenges that the FD will take based their ambitious national and international commitments, the FD will need to critically assess its staffing situation and skill requirements informing future composition, capacity building, and training plans. After decades of a highly centralized governance system and technical implementation of forest management by the FD, current programs will need to orient themselves more on partnership building with private sector, CSO, communities, ethnic minorities, and other stakeholders. This will demand a new set of skills, especially at state/region and local levels.

204. At the same time, the MTE's overcapacity represents a challenge for the MONREC and the MTE. With declining availability of viable forest management areas and reduced AAC, the demand for forest extracting and processing decreased.

Field management and new skill development

205. **Under the NFMP, the primary planning mechanism for field implementation is the set of 10-year DFMPs.** These are supposed to be developed based on inventories of the forest stands and categorization according to management objectives. Currently, DFMPs for 68 districts are under implementation for the period of 2016-7 to2025-26). These coordinate management according to the specific WCs . Five-year actions plans and annual work plans are derived from these.

206. FD field staff are mainly responsible for: (a) protection, (b) regulating harvesting, (c) silviculture, and (d) community extension. Rapid forest degradation and deforestation indicate that control of the resource is still challenging for several reasons. Conflicts in many forest areas prevent effective control and increase security risks for planning and law enforcement activities.

207. Technical capacity in field offices will need to be enhanced and possibilities for partnerships assessed.

- Enforcement (including lack of vehicles and fuel budget, equipment, staff time, technology use)
- Forest inventory and permanent sample plot management (partnerships with NGOs/INGOs, universities)
- Plantation management (assess FD-led plantations and partnership with private and community partnerships)
- CF outreach (staff time, transport, establish networks)
- Limited senior staff with international exposure and technical grasp of complex contemporary policy debate

208. In addition, the focus on CF development, farmland cultivation, and mixed agroforestry might require additional skills that are currently not sufficiently covered; here are some examples:

- Community development and agricultural and agroforestry extension skills
- Facilitation and communication skills with outside groups to meet increasing focus on participatory efforts
- Business skills in support to emerging CFE
- Working with private sector at the local level either needing support from technical expert groups or considerable reorientation of skills in the FD

209. Data managements systems would also largely help improve efficiency, as well as numerous new innovations in forest-related technology that could assist in monitoring and enforcement:

- Satellite- and drone-assisted inventory
- Video cameras at checkpoints
- Citizen smartphone-based illegal logging reporting/alerts
- GPS tracking devices to place on and track logs
- Satellite-based live monitoring of logging (legal and illegal), burning and so on (range of live data streamed through Google Earth engine)
- Night vision equipment

210. Overall, there will be a need to reassess skillsets, stategic staffing, and reform of the MTE to address the emerging new demands and challenges moving toward the creation of a new enabling environment to promote external parties to come in and support restoration and reforestaion targets (communities and private sector). The new targets for plantation management and restoration demand training and more field presence. Many aspects can certainly be addressed with increased use of information systems and new technology, for example, drone surveillance and cellphone-based communication systems and/or building partenships with external technical organizations. But, dialogue and technical work on the ground remains to be essential.

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5 CURRENT CONTEXT FOR ACTION

CURRENT CONTEXT FOR ACTION

211. **The forest sector in Myanmar is currently undergoing dynamic political and economic reform offering optimism that Myanmar's natural forest resources wealth can be leveraged for greater economic opportunity as well as the benefit of the rural poor.** The prospect of a shift to a more inclusive and people-centric approach to forest management could further result in critical contributions to the national process on peace and national cohesion in a country where about two-thirds of remaining forests are located in conflict areas.

212. **The gradual forest sector reform process is happening at a time when the government has also identified forestry as a key pillar of Myanmar's NDC,** for both increasing resilience against extreme events, including impact of floods and droughts as well as for the preservation of biodiversity.

213. **However, at present, Myanmar's forest resources still continue to be on the decline.** Myanmar had the third biggest annual loss of forest in absolute terms (estimated at 536,000 ha in 2010–2015) after Indonesia and Brazil. The situation has improved after introducing the log export ban and other governance reforms but due to lack of data, it is difficult to measure the impact over the last years.

214. **Cognizant of the significant investments needed to rehabilitate forest resources, the government initiated an ambitious US$500 million National Reforestation and Regeneration Program MRRP 2017–2026,** which not only aims to reverse deforestation and forest degradation trends but also enhance forest restoration in several regions and ecosystems, including through the establishment of state-owned and private plantations. The most progressive target of the program is the establishment of CF which will provide communities the capacity to plan and manage their forest resources according to an agreed management plan. Despite its relatively ambitious targets, the MRRP will only be able to offset about 15 percent of projected forest loss over the period of the program (assuming linear progression of current deforestation rates), underlining the importance for scaling up efforts.

215. **In addition to the MRRP, a series of important policy measures and commitments were approved to address forest loss and degradation.**

- 2014: A **raw log export ban** was announced, requiring that all log exports be processed.
- 2016/2017: A **temporary logging ban** was introduced as part of the National League for Democracy 100-day plan.
- 2016/2017: A **10-year logging ban in the Bago Yoma Region** was introduced.
- 2016: The **CFI**, initially issued in 1995, were significantly revised. The recently amended CFI (2019 was released in May 2019 as the report was being finalized; its analysis is not included in the report.
- 2017: The **Myanmar Reforestation and Rehabilitation Program** (2017–2026) was introduced.
- 2018: The **Forest Law** (2018) was newly enacted and allows ownership of teak and other previously restricted high-value species, laying out more flexible zoning within the different land classifications (Reserved Forests and Public Protected Forests) of the PFE confirming formal legal authority to MONREC for CF rollout and allowing commercialization of timber-based CF.
- 2018: **Conservation of Biodiversity and Protected Areas Law** provides for communities to form Community Conserved Protected Areas (CPAs) and to benefit from potential income through PES (that is, tourism).

216. **The World Bank's Program on Forests (PROFOR)[25] sees an increasing timber supply gap over the coming years based on increasing demand for wood products.** At the same time, loopholes for illegal timber import will be closing as most producer countries will commit themselves to timber legality assurance systems. Major consumer markets, including China's timber industry, are pushing toward the same direction. Although this is good news for Myanmar, it also means that key policy reforms need to be advanced.

217. **Myanmar has huge potential to become a more important player in regional and global timber markets and respond to the demand of a 21st century wood-based economy.** There is vast opportunity to transform and improve the performance of the sector, including uplifting wood-based timber industries with technology transfer and modernization. To provide the example of a regional comparator, Vietnam earns export revenues from timber and wood products that exceed those of Myanmar more than twentyfold in value, achieved mainly through processing and value addition. In comparison, export revenues in Myanmar have hardly been maximized as exports are dominated by minimally processed timber and as private sector investment in value-added wood processing is constrained across the entire value chain.

218. **Nonetheless, the forest sector still contributes 8.3 percent of government revenue (MEITI 2019)** despite having a log export ban in place and reduced AAC, the value addition being constrained by a non-conducive business environment, and the fact that about two-thirds of natural forests are located in ethnic minority areas and are not fully integrated into the national economy. Myanmar, however, holds the largest expanse of natural forest in the region, providing a strong basis for sustainable forest management of its unique high-value timber stock with the potential to benefit the economy, boost job creation, contribute to livelihood sustenance, and provide critical environmental services, such as, for example, erosion control to prevent siltation of hydropower reservoirs. Moreover, Myanmar's forest-related public sector agencies and sector-relevant research institutions further boost significant human resources with good technical forest management and planning capacity.

219. **To leverage Myanmar's potential for reviving its legendary forest sector, business as usual is no longer viable and significant transformation and modernization of the sector is needed.** The impetus for such transformation is already present, and there is a recognition of the need for reform. In the case of the MTE, which is the sole state-owned enterprise with legal right to harvest timber as well as constrained innovation in the productive value chain, the reform process is about to start. There is opportunity to introduce innovation and modernization by providing incentives for investments and technology transfer from reputable private sector companies investing along the entire value chain from plantation to value addition. A cross-agency plantation strategy will be needed to address regulatory certainty, secure long-term tenure, and create good enabling and authorizing environment. Accelerating implementation of national certification and legality assurance systems will be important to position Myanmar's forest sector.

220. **CF and the new community-based conservation models proposed through recent policy reform (Biodiversity and Conservation of Protected Areas Law 2018) provide opportunities for large-scale forest restoration through a multipurpose landscape approach that better reflects the diverse range of social, institutional, land, and resource conditions.** Such landscape approach offers a more people-centric approach to forest restoration, taking into account mixed forestry and agriculture livelihood models that create increased social benefits while also restoring ecosystem functions. Strengthened legal and institutional foundations, in particular, provisions for productive use and value addition enterprise development from timber and non-timber CF products and services, have resulted in significant uptake of CF over the last few years, with the total area under CF doubling since 2016 after decades of very slow progress in rollout.

221. **Despite the recent dynamics in support of CF, Myanmar's national target of 3 percent of total forest area is still comparatively low when compared to international best practices.** Globally, almost one-third of the world's forest area is now estimated be under some form of community-based management, and regional data show that 34 percent of total forests is under community-based management regimes in East Asia and the Pacific (FAO 2016). Expanding and accelerating CF and other community-based conservation models must be a

25 https://www.profor.info/sites/profor.info/files/Productive%20forests%20booklet%20-updated.pdf.

priority. These models provide a people-centric approach with huge potential to engage local communities into the efforts toward meeting national policy targets for forest rehabilitation, reforestation, and forest conservation. At the same time, they contribute to increased land and resource tenure security of communities over their customary lands and protection of local livelihood assets. This is particularly urgent for mangrove ecosystems, which have declined dramatically over the past decades and have higher average annual deforestation rates (2.2 percent) than in other forest types. With in-country evidence showing improved community-led governance of mangroves as a result of CF, there is opportunity to curb current mangrove deforestation trends through community-based management and protection.

222. **At present, only 41 percent of Myanmar's forest are located inside the PFE, while most of the forest is located on land designated as VFV under the administration by DALMS.** These unclassified forests outside the PFE on VFV land are typically under customary community management. However, without statutory recognition of customary tenure, they are at risk from land-use change through expansion of agricultural concessions and appropriation through VFV laws, as well as from informal extraction. CF provides a means of tenure security for these unclassified forests for a 30-year renewable term, although CF approval of CF on VFV land has thus far proven challenging in the context of overlapping authority between DALMS and FD. Similar ambiguity remains regarding competing policy targets for expansion of agriculture on VFV land versus expansion of the PFE, including for protection purpose.

223. **Building stronger relationships between government, civil society, and other actors, including the private sector, will be essential to promote peaceful and sustainable governance on forests across the landscape.** Multistakeholder processes that are inclusive, participatory, and cognizant of local conflict dynamics are needed to prevent tensions that can arise from forest conservation and rehabilitation initiatives. In this context, a considerable shift in skills development will be needed to develop and implement a more people-centric public sector culture emphasizing outreach and engagement and developing models for improved sharing of benefits derived from forests with local communities in a more equitable way.

224. **Ethnic communities' aspirations for peace, self-determination, cultural preservation, and environmental sustainability are reflected in local initiatives supported by ethnic organizations.** Many conservation and forest management initiatives exist under the administration of ethnic groups, some of which demonstrate a strong track record and readiness for implementation. The scope by which such self-governed ethnic initiatives could be recognized is worth exploring in the context of the country's vision for creating a peaceful, prosperous, and democratic Myanmar.

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6 RECOMMENDATIONS

RECOMMENDATIONS

Context	Key Message	Action	Time Frame (Short-, Medium-, Long-Term)	Main Responsibility
Planning, Management, and Monitoring of Production Forests				
Overharvesting and weak control mechanism led to the degradation of large areas of forest reserves. This represents major loss of potential commercial values, livelihood benefits, and ecosystem services.	Review of reserve forest and protected public forests (forest stocks, boundaries and management plans, where necessary). Based on site-specific review, define how production forests should be managed; and adapt district forest management plans (restoration, conservation, private plantations, CF).	• Implement a comprehensive National Forest Inventory system and produce major forest type maps • Enhance site-specific inventories in production forests • Validation of existing reserved (and protected public and protected forest boundaries and maps, where necessary • Create forest production information system	**Short**	FD
There has been weak understanding of 'regulated markets' and the impact that mandatory laws and regulations from consumer countries and the VPA will have on tightening the supply chain procedures and standards and increasing the confidence of importers and end-users in legal sources. International lucrative buyer markets are increasingly looking at Timber Legality Assurance System, including the emerging China's Green Growth Timber Platform.	Improving Timber Legality Assurance System is critical for market positioning and creating investment climate for high-value production and export. Definition and implementation of national certification standards should align with regional and international requirements.	• Align MTLAS principles, criteria, indicators with requirements from key consumer countries. • Implement national certification standards aligned with regional (ASEAN) and international requirements. • Consider third-party domestic verification and other ways of increased transparency as part of the emerging operational procedures. • Implement good governance recommendations under the FLEGT and improve law enforcement across agencies in a concerted manner. • Build capacity of wood-based industry on MTLAS and certification. • Cooperate with Greater Mekong Subregion, ASEAN trading partners on legality, tracking systems, especially with Vietnam Timber Legality Assurance System/VPA, China Green Growth Platform, and Thailand.	**Medium**	MONREC, FD, MTE, Myanmar Timber Merchant Association, MFCCPrivate sector, CSOs

Context	Key Message	Action	Time Frame (Short-, Medium-, Long-Term)	Main Responsibility
MTE				
The MTE enjoyed for decades high-volume and high-value timber easily exported as logs, with little or no value addition, high wastage, and limited transparency. A lack of effective control and political influence resulted in overharvesting. With reduced availability of timber, over dimensioned structure and high maintenance costs, the MTE faces the need for restructuring.	Reform MTE with consideration of entire value chain. All reforms should take into account a strong regulatory, planning, and control function of the FD.	• Carry out functional review. • Undertake comprehensive capacity and skills assessment. • Pass on pension obligations, away from the books of MTE, while taking practical considerations as well as existing regulations into account.	**Short** **Medium** **Short**	MONREC / FD, MTE FD, MTE Parliament, MONREC
Wood Fuel				
Natural forests are estimated to be the primary source for wood fuel (fuelwood and charcoal). The scale of wood extraction, to meet household, commercial, and transborder demand for fuelwood and charcoal is highly concerning due to severe impacts on forests.	Address wood fuel as the major rural energy source and driver of forest degradation.	• To better understand wood fuel dynamics, complete assessment of wood fuel consumption (household and commercial), assessment of value chains to identify key interventions and cross- sectoral policy concerns. • Incentivize private sector and community plantations, including wood fuel plantations. • Incentivize production and distribution of efficient cook stoves. • Incentivize alternative energy sources. • Cooperate with industrial consumers to improve legality and efficiency of wood fuel use.	**Short** **Medium** **Medium** **Medium** **Medium**	FD, DZGD, Ministry of Electricity and Energy, Ministry of Industry, private sector
Plantation (state-owned and private)				
State-owned plantations had suffered high mortalities due to insufficient long-term maintenance and inadequate budgets.	Improve long-term management of state-owned plantations.	• Consider participatory models or partnerships with communities (benefit-sharing mechanisms, initial consultations) or with public-private partnerships. • Provide adequate budget for maintenance	**Short** **Long**	FD

Context	Key Message	Action	Time Frame (Short-, Medium-, Long-Term)	Main Responsibility
Domestic entrepreneurs are currently operating in a challenging environment due to unpredictable timber supply from the MTE's auction system; and focus on minimally processed timber exports). As both global as well as domestic demand for wood products is growing, planted forests provide attractive investment opportunities at commercial scale while also contributing to national reforestation targets. Fast-growing species offer good business opportunities for smallholders and price and market development are favorable. Myanmar lacks high-quality timber processing and integrated plantation industry which will be needed to cope with sophisticated clients and markets. Foreign investors still perceive challenges to invest in Myanmar: complex processes and regulations; weak infrastructure, political economy, land conflicts, lack of secure tenure, and lack of incentives are the main issues raised.	Commercial plantations have a significant potential to create rural jobs, boost exports, provide secure timber to build a thriving internationally competitive wood industry. Develop a comprehensive reform package to improve business climate for high-end investors to stimulate national forest industry development.	Develop and implement Myanmar Industrial and Commercial Plantation Strategy in close cooperation with wood-based industry. Following considerations to be taken into account: • Identify appropriate and uncontested land availability for public and private investors, with conflict resolutions systems. • Identify clusters of CF and forest land areas where outgrower forest plantation schemes can be promoted. • Assess competitive and transparent instruments to promote partnerships. • Provide sufficiently secure and long-term tenure for private investors (including foreign) and community groups. • Increase FD capacity to license, plan, and control partnerships in an effective and credible manner. • Assess fiscal incentives for large-scale integrated industry using certified timber (domestic and foreign) to promote outgrower and community partnerships. • Promote industry/public research platform to develop fast-growing clones, germplasm, and technology applications. • Offer silviculture training for smallholder plantations and strengthen extension services, possibly through third-party service providers	**Short / Medium**	FD, Ministry of Industry, Myanmar Investment Commission, Myanmar Timber Merchant Association

Context	Key Message	Action	Time Frame (Short-, Medium-, Long-Term)	Main Responsibility
Processing				
Most of the processing is undertaken by small and medium-scale wood industry. However, credit financing, enabling environment, and access to timber is challenging; market information is scarce and productive infrastructure is still poor (labor, skills, logistics, and electrification). Myanmar's wood industry lacks research/technology support.	Improve enabling environment for wood SMEs, processing, and handling. Attract industry that can promote vertical integration in cooperation with smallholders.	• Create cross-ministerial task team to assess and improve enabling environment for SMEs. • Simplify procedures to establish, run, and set up wood-processing enterprises. • Promote technology and skill enhancing training for national labor force. • Promote national and foreign investments in integrated industries, including fiscal incentives. • Assess market acceptability of lesser utilized species in close cooperation between research bodies and private companies. • Disseminate state-of-the-art processing technology. • Collect and disseminate market information on domestic and international markets.	**Medium** **Short** **Medium** **Medium** **Medium**	MONREC, Ministry of Finance, Ministry of Industry, MTE, MIC, MTMA, MOC
Community-based forest management (CF)				
Currently, there is limited handover capacity and slow approval of CF application process, which will be exacerbated with increased numbers of CFUGs. A large share of CFUGs are inactive. Capacity gaps at subnational level (community, township, and district levels) to support CFUGs at all stages of CF implementation will need to be addressed.	Improve and simplify the approval process of CF establishment (to ensure equity and inclusiveness); develop efficient delivery mechanism for scale-up of CF establishment and implementation.	• Accelerate establishment of CF • Develop efficient delivery mechanism for CF establishment and implementation, including the following: o Clarify responsibilities and strengthen delivery functions of local FD staff. o Develop capacity of local FD staff and agricultural extension services. o Develop a cadre of service providers and community facilitators. o Create open access CF database and information systems. o Strengthen CF outreach program.	**Short**	FD (for example, Central Forestry Development Training Center , CF Unit, FRI, Myanmar Forest School) MOALI CFNWG CSOs
Ethnic areas with customary tenure and forest management systems need a practical solution.	Recognize customary tenure systems and support their effective forest management.	• Explore current status of different forms of community-based forest management beyond CF. • Develop and define legal and technical processes that will lead to effective tenure for customary groups and sustainable forest management.	**Short to Medium**	Ministry of Ethnic Affairs

Context	Key Message	Action	Time Frame (Short-, Medium-, Long-Term)	Main Responsibility
The potential impact of CF is significant, but there are critical capacity constraints among community members.	Support systematic capacity building of CFUGs, including through association/ networks of CFUGs at the district, regional, and national levels	• Facilitate a stepwise emergence of a national CF network, building on existing formal and informal networks at the regional and district levels, promote peer-to-peer knowledge exchange • Identify best practices and develop database and practitioner handbook	**Short to Medium**	FD CF Unit FRI CFNWG CSOs for technical support
The foundations for livelihood development from CF, including CFE establishment, are becoming stronger. However, the CFUGs and their members (including potential entrepreneurs) have limited access to finance, especially loans value added processes.	Support business development for CFE (legal, technical incubator); expand financial services (credit, finance, PES to CFUGs).	• Develop an evolving menu of option by which CFUGs can access financing, including from microfinance institutions. • Provide technical support to existing non-parastatal producer cooperatives (or similar mutualistic enterprise organization) covering various CF products in the country. • Survey and improve services provided by cooperative-like organizations—finance, technical, organizational, and so on as well as their effectiveness to identify gaps to be target by CFE/SME incubator • Develop a CFE/SME incubator and accelerator support program providing technical assistance and training.	**Short to Medium**	FD (for example, CF Unit) CFNWG Ministry of Planning and Finance Ministry of Industry SME Development Department Department of Cooperative CSOs
The revised CFI (2016) and the CF Strategic Plan (2017–2020) highlight the importance of private sector engagement in CF, specifically forming partnerships with associated CFE. There is limited experience where CFUGs and private sector are building mutually beneficial partnership models. CF-based locally controlled spinoff enterprises would be a priority as well as enterprise partnerships with CFs.	Assess and promote expansion of smallholder, outgrower, and other private sector-smallholder partnership models to encourage mutually beneficial enterprise partnerships with private sector.	• Implement capacity development program for smallholder entrepreneurs (technical and extension services for improved germplasm/ seedling, silviculture practices for tree-based enterprises). • Carry out market analysis of NTFP and other wood products. • Create CF platform that promotes CF products and identifies potential business opportunities to facilitate connection between CFUGs, CFEs, and private sector actors. • Promote timber plantation development in CF	**Medium**	FD (CF Unit) MoPF SME Development Department, Ministry of Industry CSOs Relevant cooperatives and entrepreneur associations Relevant private sector actors

Context	Key Message	Action	Time Frame (Short-, Medium-, Long-Term)	Main Responsibility
In the past, CF expansion has often focused on handing over degraded forests with insufficient stock for forest-based enterprise development or conservation forests with insufficient tangible benefits to communities. There is potential for using CF in all forested areas, in particular coastal mangrove areas, which have experienced significant decline.	Mainstream CF rollout across different land classifications, including in reserved forests, in mangrove forests, on VFV lands, and explore ways to promote CF services to ethnic communities.	• Proactively expand CF in reserved forests to provide viable opportunities for sustainable wood-based CFE development. • Recognize on the ground existing customary lands, as recommended in the NLUP 2016 and VFV Amendment 2018. In areas beyond these explore options for community participation. • Accelerate CF establishments in coastal mangrove areas. • Strengthen dialogue with ethnic communities to recognize and enable preexisting customary tenures and management, where appropriate and agreed by communities promote CF.	**Short to Medium**	FD (CF Unit) Department of Agriculture DOF Local communities NGOs
Protection				
Myanmar's PAs network area has not yet reached the target of land under protection (NFMP 2001-2002 to 2030-2031). Some of the main challenges for managing the national PA system include—incomplete PA zoning, lack of PA management plans for all PAs, inadequate data management systems, and implementation capacity at local levels. There is further scope to expand the role of communities in meeting the national protection target of 10 percent based on NFMP 2001-02 to 2030-31.	Expand area under protection to meet national targets with increased focus on community-based conservation models and improved stakeholder engagement.	• Promote community conservation models as defined in the 2018 Biodiversity Law and 2016 National Biodiversity Action Plan (these are CPA and Indigenous and Community Conserved Areas [ICCA]). Building on multistakeholder consultations, develop instructions to designate CPAs and ICCAs. • Continue gazettement of planned PAs in conjunction with civil society. • Strengthen multistakeholder engagement and dialogue including promoting CF in buffer zones. • Review zoning as part of PA (and CPA) establishment process to diversify management approaches, including collaborative arrangement. • Develop PA management plans for PAs and provide adequate budget for implementation, including for law enforcement. • Invest in ecotourism and create effective management framework to promote ecotourism (fee management, access, promotion, management plans, benefit-sharing mechanism, private sector partnerships, basic infrastructure).	**Medium**	MONREC FD – NWCD Ministry of Hotels and Tourism CSOs

Context	Key Message	Action	Time Frame (Short-, Medium-, Long-Term)	Main Responsibility
PA management is challenged by insufficient funding for planning, capacity development, monitoring and operating cost, and engagement with communities. Improved resource mobilization and revenue generation is needed to financial viability of the national PA system.	Put in place multipronged approach to improve financial sustainability of the PAs system.	• Assess and put in place options to address financial sustainability of PA system, including o Assessing ecosystem service values and develop PES scheme to support sustainable financing for PAs including CPAs and ICCA; o Promoting ecotourism in PAs to increase revenue collection; o Operationalizing Myanmar Biodiversity Fund for PAs; and o Including REDD+[26] payments to support PA management.	**Medium**	MONREC FD - MWCD MoPF MOHT
With a target of almost 40 percent of energy production coming from hydropower, protection and rehabilitation of critical watershed forests will be important.	Develop financing mechanisms for rehabilitation of critical watershed forests and for establishment of watershed plantations.	• Conduct analysis of potential PES schemes as well as other potential financing mechanism to provide sustainable financing for rehabilitation of critical watershed forests • Expand watershed plantations	**Medium**	FD
FD skill development				
After decades of a highly centralized governance system and technical implementation of forest management by the FD, emerging modalities will rely more on decentralized partnership building with private sector, CSO, communities, ethnic groups, and other stakeholders. This will require new skills, more capacity, and institutional readiness to manage these new institutional challenges, especially at state/region and local levels.	Invest in technology and new skill development for FD with emphasis on state/region and local levels. Strengthen citizen engagement.	• Enhance technical capacity of existing FD at state/region and township level, including for o Monitoring (for example, remote sensing); o Sustainable forest management (for example, inventory, enforcement); and o Value addition and enterprise development. • Emphasize development of new skill sets at state/region and township level that focus on citizen dialogue, social inclusion, and trust building: o Bottom-up planning o Community engagement skills o Livelihoods development o Benefit-sharing modalities • Engage, communicate, and consult with private sector and civil society groups, including ethnic minority civil society groups. • Establish mechanism for citizen feedback.	**Short to Medium**	MONREC, FD, state/region Government Ministry of Ethnic Affairs, and departments at state levels

26 Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks.

Context	Key Message	Action	Time Frame (Short-, Medium-, Long-Term)	Main Responsibility
The forest sector has experienced irregularities as well as challenges related to governance and transparency, which has been leading to leakage of forest resources as well as benefits to organized crime as well as to shadow markets.	Introduce transparency, accountability, and citizen engagement measures and mechanisms to increase efficiency and facilitate control mechanism.	• Collaborate with and support the President's anticorruption initiative and offer channels for collaboration between NGOs and FD (for example, EITI, FLEGT, and others). • Improve transparency and accountability mechanisms in the forest sector, including but not limited to improving open access satellite-based monitoring, citizen engagement tools, increasing financial surveillance, and strengthening law enforcement capacity across agencies.	**Medium to Long**	MoPF, MONREC
Cross-sectoral and cross-cutting issues				
Many of the drivers of deforestation relate to cross-sectoral issues and require dialogue, planning, and coordination across multiple sectors including agriculture, mining, energy, and infrastructure to ensure that the objectives of the forest sector, including increasing the portion of total land areas designated as forest reserve and PAs, are met.	Address multisectoral causes of deforestation by breaking down sectoral silos in the public sector administration and by strengthening safeguards application for activities impacting forest lands.	• Prioritize and proactively strengthen mechanism for intersectoral coordination, coordinated policy formulation, and collaborative implementation, in particular with MOALI and the Ministry of Industry. • Strengthen environmental and social safeguards implementation to ensure that impact on forests from large infrastructure, energy (hydropower) and mining investments are avoided, minimized, mitigated, and offset.	**Medium to Long**	MONREC (FD, ECD), MOALI and other sectoral line ministries, National Environmental Conservation and Climate Change Central Committee, NCRMC
Uncontrolled forested land conversion has often resulted in loss of forests in critical watersheds.	Appropriately license and control land conversion logging and develop strategy to improve competitive bidding for conversion timber to avoid distortion of markets.	• Improve licensing and monitoring of conversion timber. • Include conversion timber into Timber Legality Assurance System.	**Medium**	MONREC (FD)

Context	Key Message	Action	Time Frame (Short-, Medium-, Long-Term)	Main Responsibility
Overlapping and conflicting authority between the MONREC (FD) and the MOALI related to the management and administration of land according to the VFV Law has led to significant conversion of forest land outside the PFE for agricultural purposes, mainly for the purpose of large agribusiness concessions (for example, palm oil around Myeik, rubber plantations in Kachin and Shan, and so on). There has been insufficient application of safeguards and stakeholder consultation, often resulting in environmental impact, social grievances, as well as evictions. Customary tenures have not yet been properly recognized according to the NLUP 2016 and VFV Amendment 2018.	Ensure appropriate forest management of forests on VFV lands	• Recognize preexisting customary tenures across ethnic areas according to NLUP 2016 and VFV amendment 2018 and develop the legal framework for their statutory recognition. • Review implementation of recent amendment of VFV law with regard to customary tenure. • In remaining areas, remove ambiguity related to overlapping authority of MONREC and MOALI on VFV land to prevent conversion of forest land without due application of stakeholder consultation, safeguards application, and so on. • Any VFV lease of forested land should ensure that tree cover is not lost. Remove perverse incentives for forest destruction through VFV leases.	**Medium to Long**	MONREC (FD, ECD) MOALI MoEA Union Attorney General
With no statuary recognition yet for customary tenure, land and resource tenure is insecure, in particular in ethnic forested landscapes. Providing customary tenure security is a central ethnic aspiration in the national peace process. Tenure security will help protect ethnic cultures, support livelihood, poverty reduction, and food security.	Support rural livelihood security by enabling customary tenure systems.	• Continue dialogue between agencies and all stakeholders toward statutory recognition of ethnic customary land and resource tenure systems as proposed under the National Land Use Policy 2016 and Pyidaungsu Accord 2017 (Ministry of Information 2017).	**Long**	Parliament, Cabinet, Union Attorney General

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