The 1st Regional Workshop on "Enhancing Smallholder Plantations Towards Quality Timber Production of Teak and Other Economic Species and Carbon Neutrality in the Tropics"

ITTO – BMEL Teak Project – Phase II

18th September 2024, Bangkok, Thailand

Natural Teak Forest and Teak Plantations Management in Myanmar

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MYANMAR

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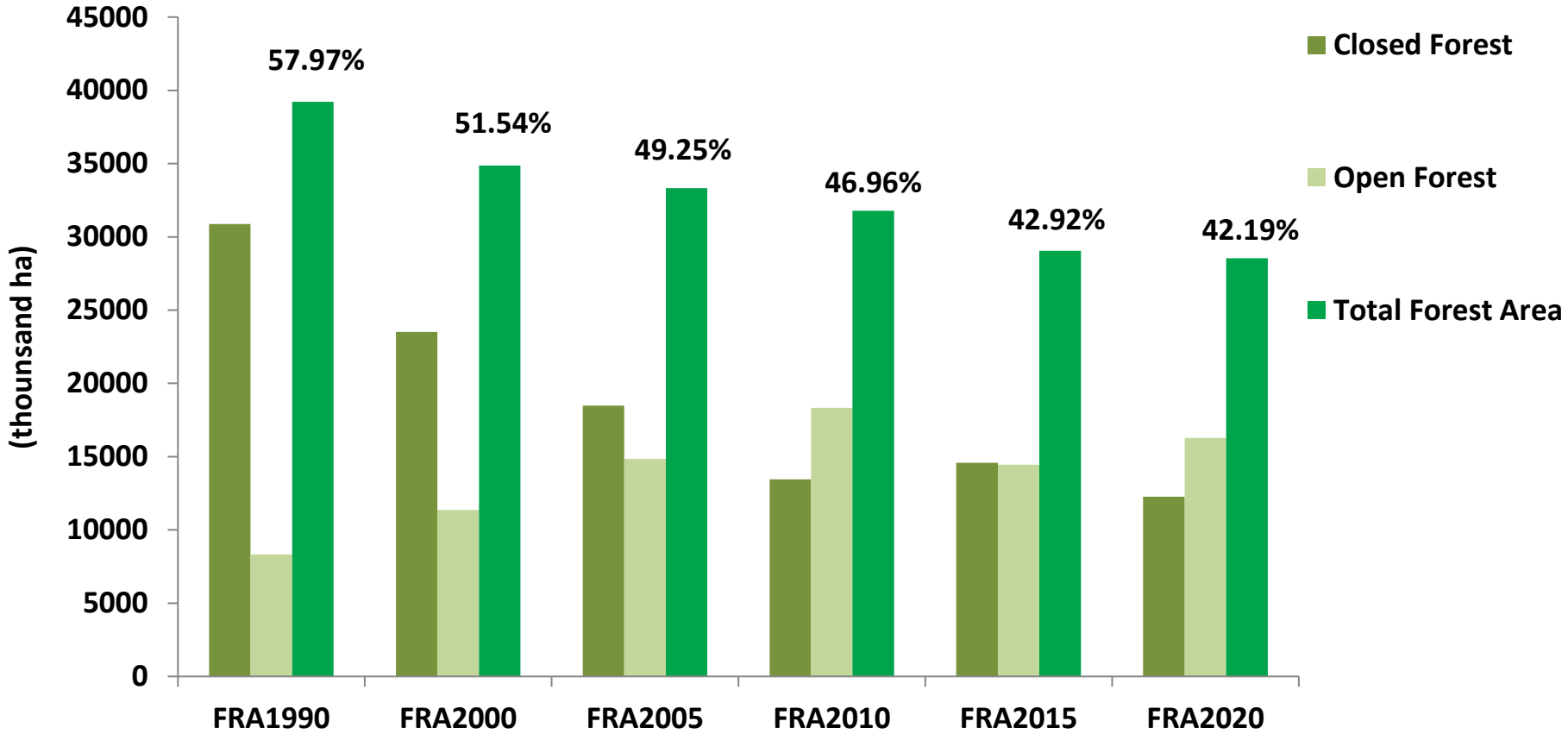
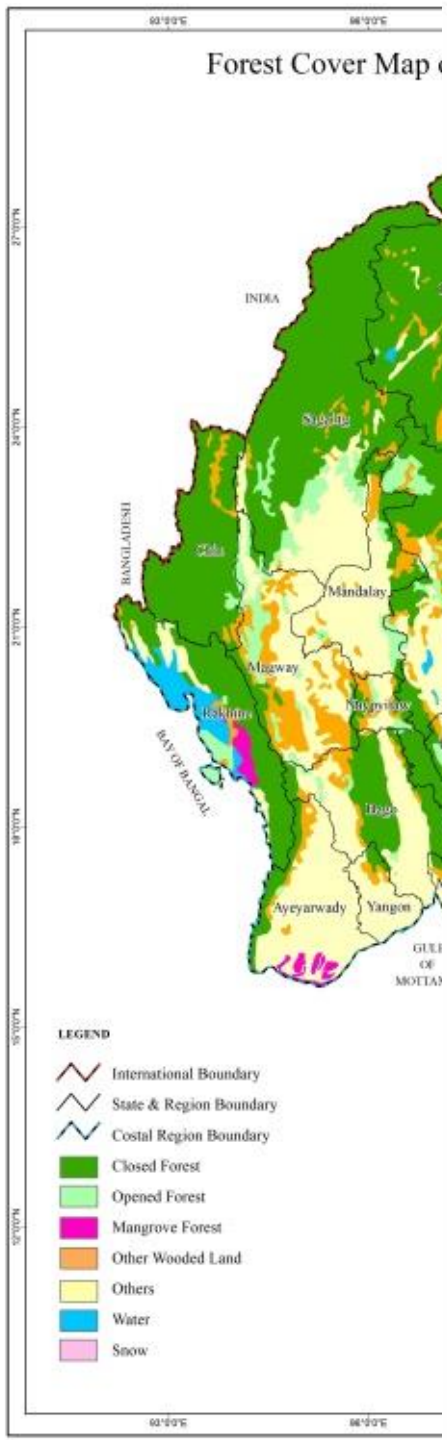
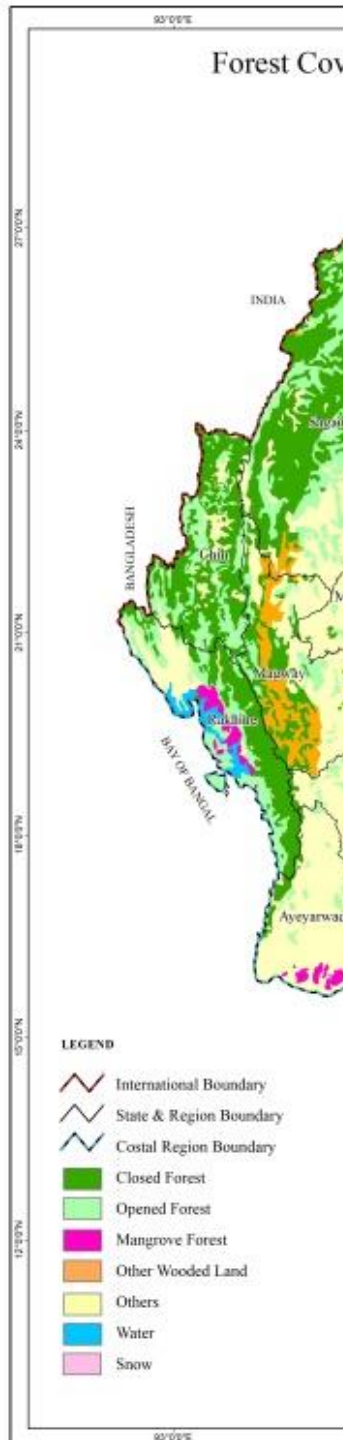
Forest Resources in Myanmar

TREND OF FOREST COVER CHANGES



Period	Annual deforested Area (,000 ha)	Annual deforested Rate (%)
1990-2000	435	-1.17
2000-2010	343	-1.03
2010-2020	289	-0.96


Forest Cover Map
INDIA
BANGLADESH
Sagaing
Chin
Mandalay
Magway
Rakhine
Bago
Ayeyarwady
Yangon
BAY OF BANGAL
LEGEND
International Boundary
State & Region Boundary
Costal Region Boundary
Closed Forest
Opened Forest
Mangrove Forest
Other Wooded Land
Others
Water
Snow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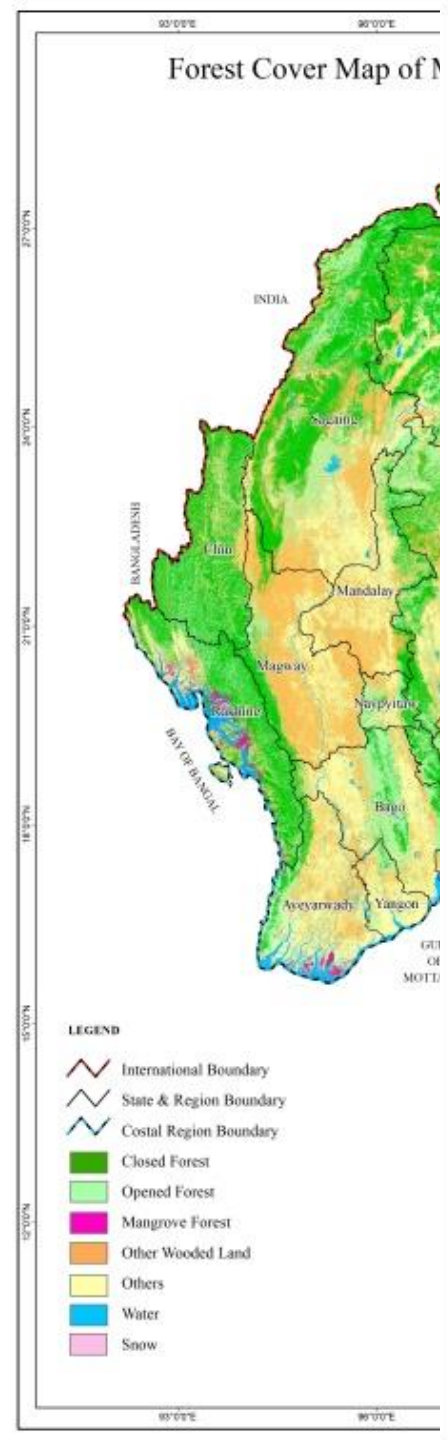
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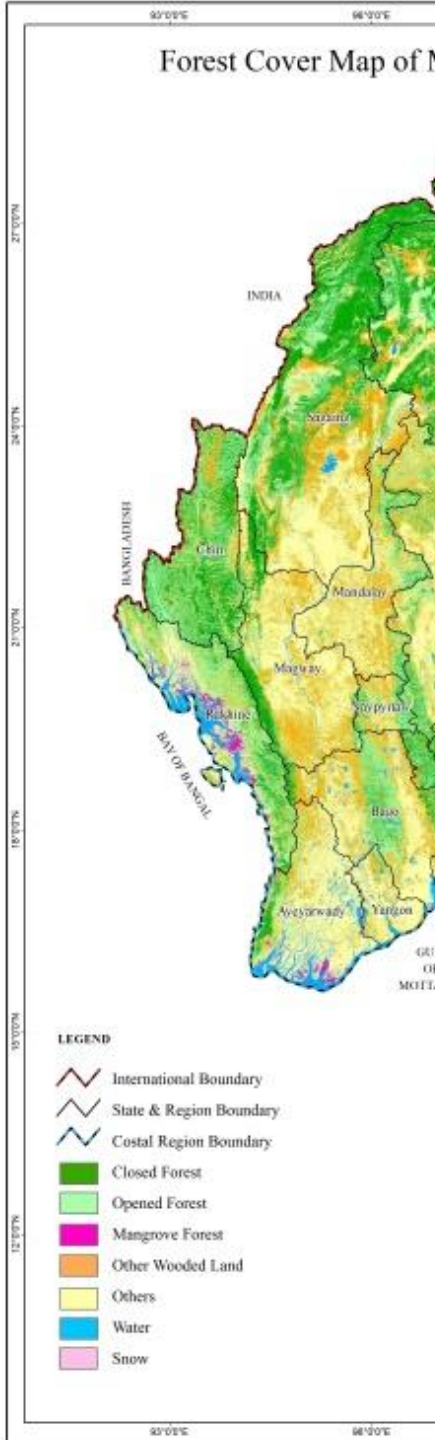
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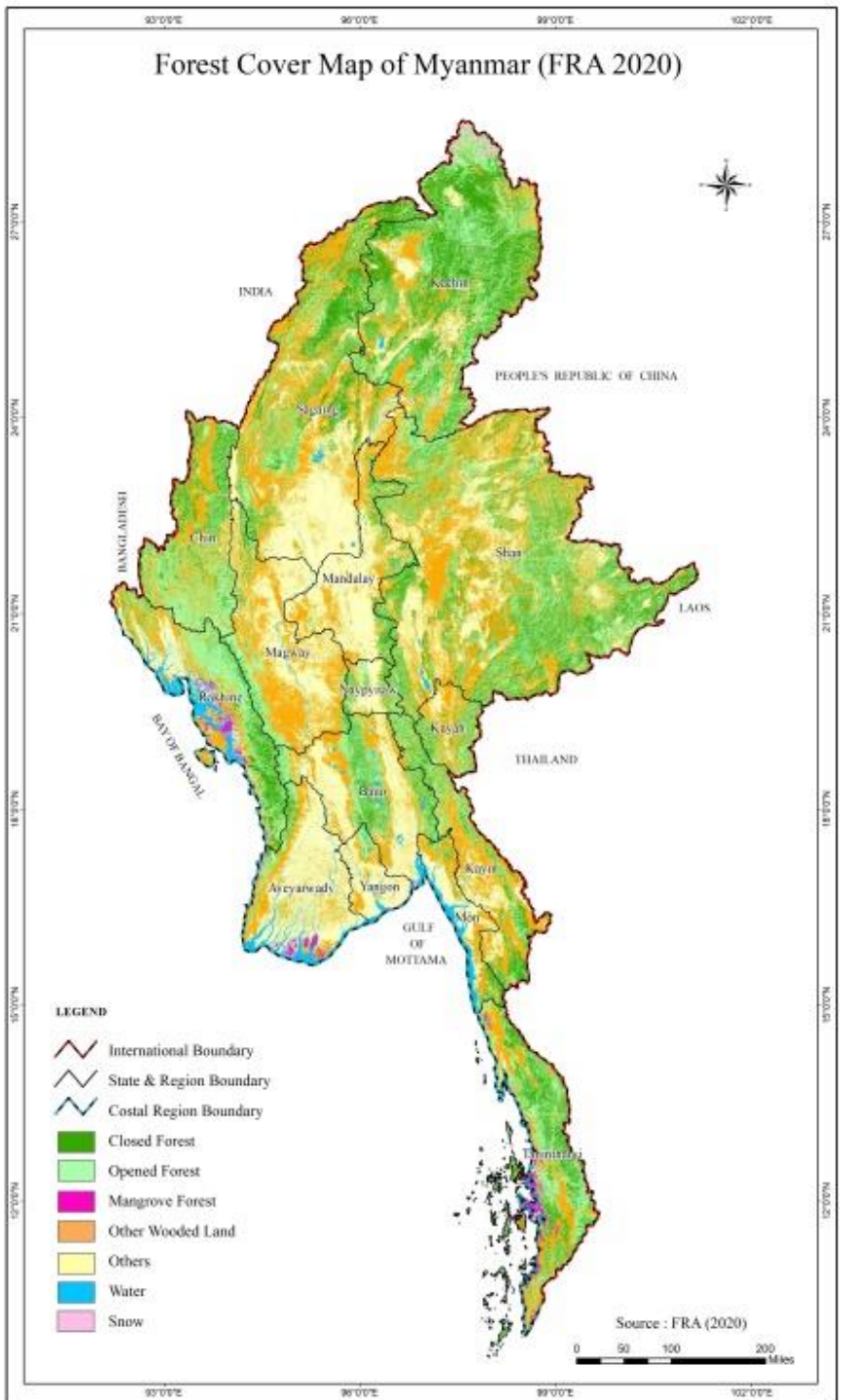
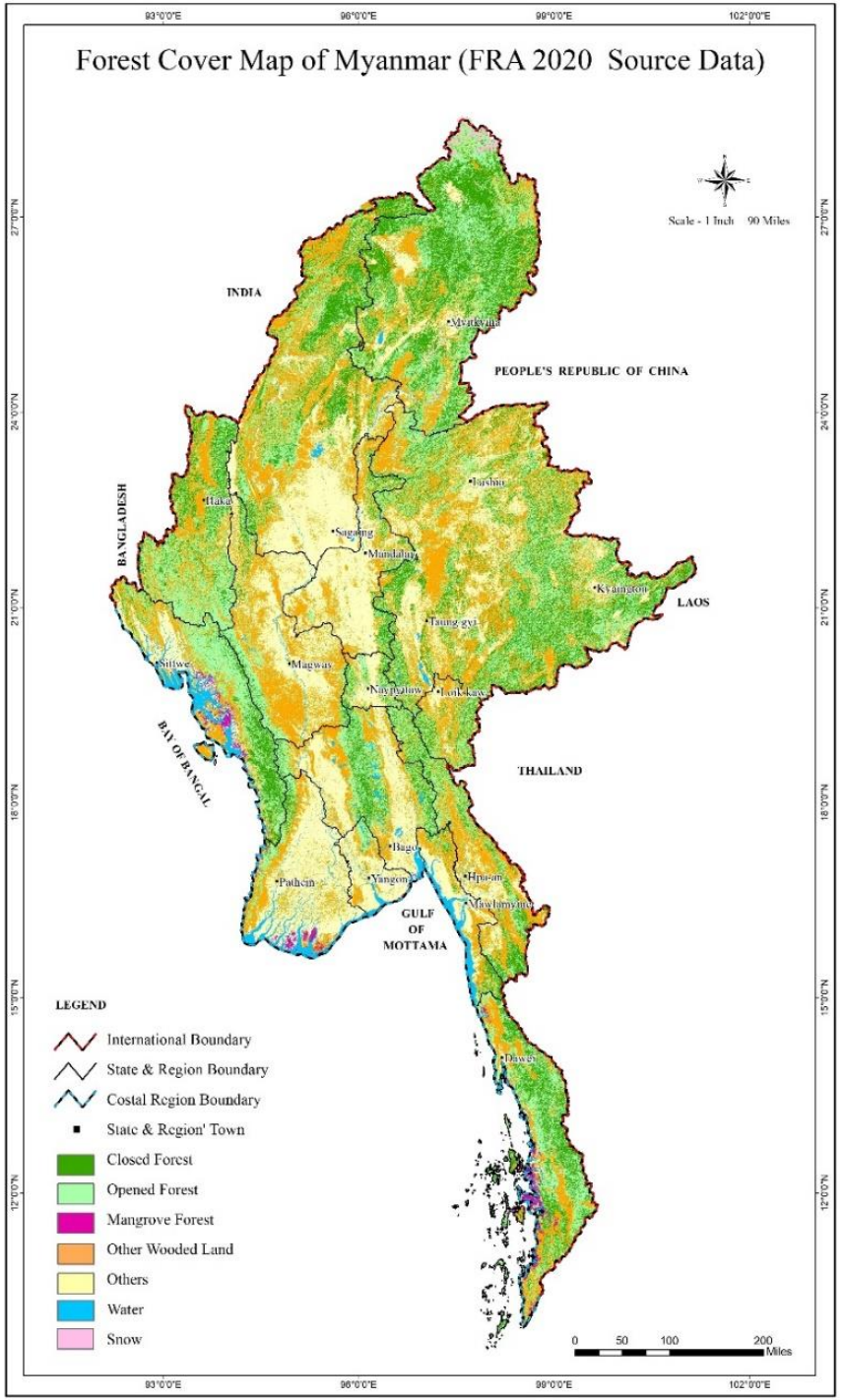

Forest Cover Map of Myanmar (FRA 2020)
INDIA
BANGLADESH
PEOPLE'S REPUBLIC OF CHINA
LAOS
THAILAND
Kachin
Sagaing
Chin
Shan
Mandalay
Magway
Rakhine
Kayah
Bago
Ayeyarwady
Yangon
Kayin
Mon
BAY OF BANGAL
GULF OF MOTTAMA
LEGEND
International Boundary
State & Region Boundary
Costal Region Boundary
Closed Forest
Opened Forest
Mangrove Forest
Other Wooded Land
Others
Water
Snow
Source : FRA (2020)
0 50 100 200
Miles

FOREST COVER STATUS IN MYANMAR

Category	Area (,000ha)	% of total country area
Closed Forest	11811.8	17.46
Open Forest	16283.61	24.07
Mangrove	448.4804	0.66
Total forest	**28543.89**	**42.19**
Other Wooded lands	18756.05	27.72
Others	18386.8	27.18
Water	1971.14	2.91
Total	**67657.88**	**100**

Source: FRA (2020)

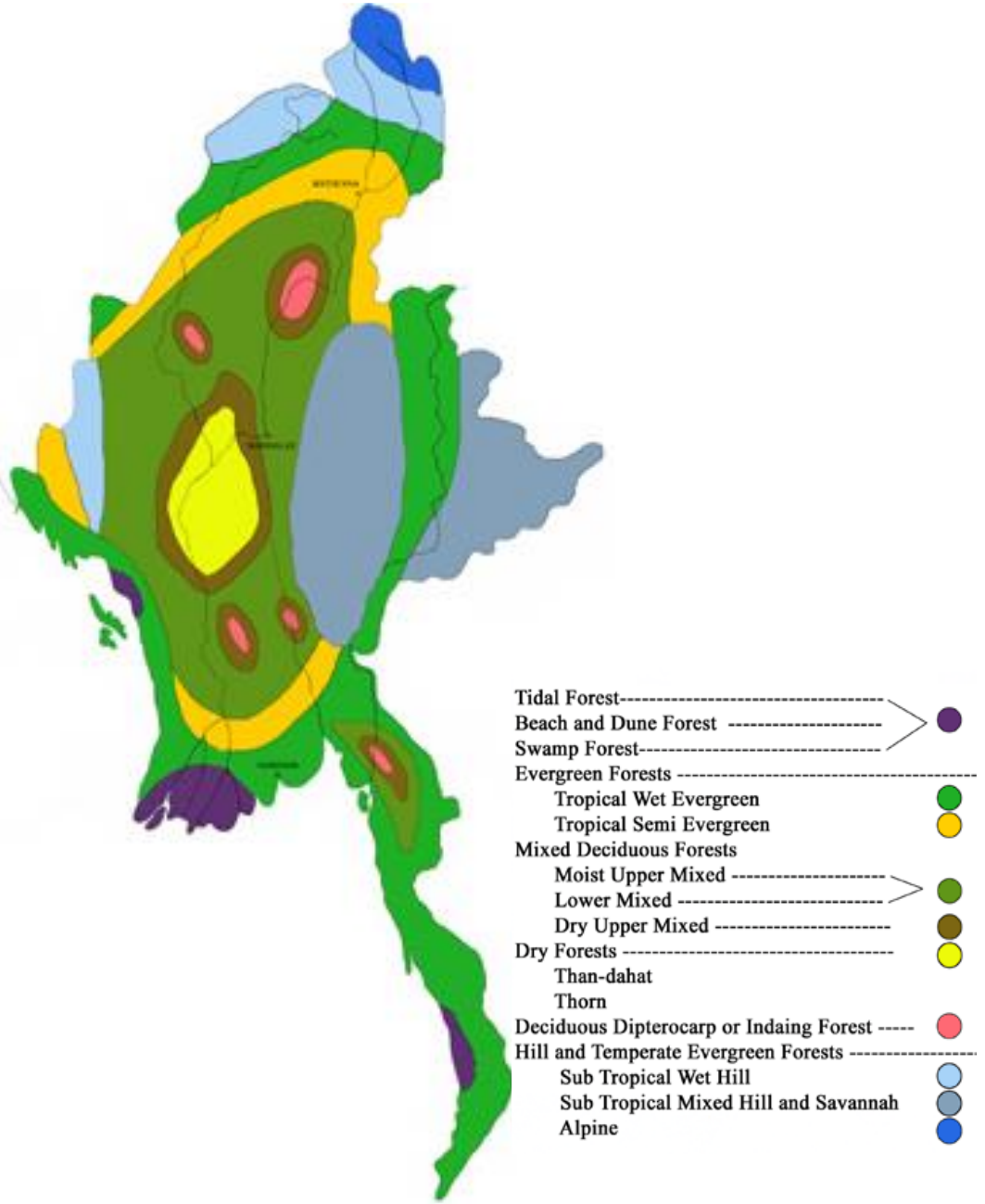


FOREST RESOURCES

No	Major Forest Types	Area (ha)	% of Forested Area
1.	Mangrove Forest	325,259.20	1.12
2.	Tropical Evergreen Forest	5,024,093.00	17.30
3.	**Mixed Deciduous Forest**	**11,093,662.00**	**38.20**
4.	Dry Forest	2,904,100.00	10.00
5.	Deciduous Dipterocarp	1,237,146.60	4.26
6.	Hill and Temperate Evergreen	7,817,837.20	26.92
7.	Scrub and Grass Land	638,902.00	2.20
	Total Forest Area	**29,041,000.00**	**100.00**

Source: Forestry in Myanmar (2020)

Major forest types in Myanmar




Natural Teak Forest in Myanmar

NATURAL TEAK FOREST IN MYANMAR

Natural teak distribution occurs in

(1) Semi-evergreen forests (usually found as scattered individuals or in small groups with little or no regeneration present)

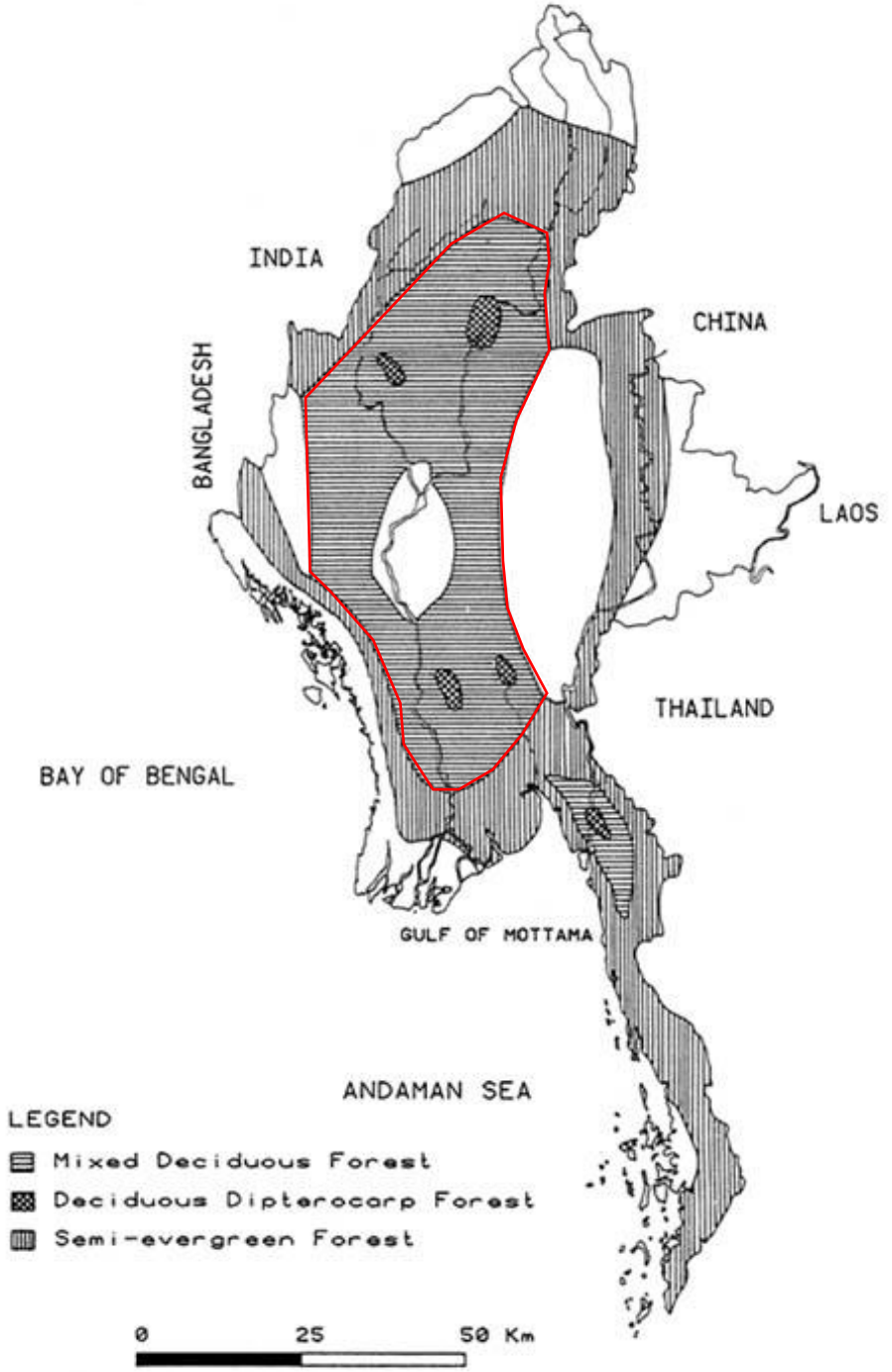
(2) Mixed deciduous forests

(i) Low Mixed Deciduous (LMD) (found gregariously or in patches. The species attains a large girth and height and trees are greatly fluted in these forests)

(ii) Moist Upper Mixed Deciduous (MUMD) (produces teak with cleaner and straighter boles) and

(iii) Dry Upper Mixed Deciduous (DUMD) (produces teak of poorer quality than in the MUMD forests. Natural regeneration is frequent)

(3) Deciduous dipterocarp or Indaing forests (teak does not grow to a great size and is of poor quality)



MANAGEMENT OF NATURAL TEAK FOREST IN MYANMAR

- **Myanmar Selection System (MSS)** has been the principal management system applied in managing to the sustainable harvest and use of plant resources of the natural forests since 1856. (30 annual coupes and 30 year felling cycle)

  - the forests are assembled as the "Working Circles";

    1) Teak selection working circle (TSWC);

    2) Non-teak hardwoods working circle (HSWC); and

    3) Local supply working circle (LSWC).

  - It involves adoption of

    (1) a felling cycle of 30 years,
    (2) prescription of exploitable sizes of trees,
    (3) girdling of teak,
    (4) selection making of other hardwoods,
    (5) felling of less valuable trees interfering with the growth of teak,
    (6) thinning of congested teak stands,
    (7) enumeration of future yield trees down to fixed sizes, and
    (8) fixing annual allowable cuts (AACs) for teak and other hardwoods.

$$AAC = ARR + \frac{CI - \frac{1}{2} FC * ARR}{LP}$$

where ARR = annual rate of recruitment of Class II trees to Class I; CI = original no. of trees in Class I; FC = felling cycle (i.e. 30 years); and LP = decided period to liquidate original CI trees (usually 60 years).

MANAGEMENT OF NATURAL TEAK FOREST IN MYANMAR

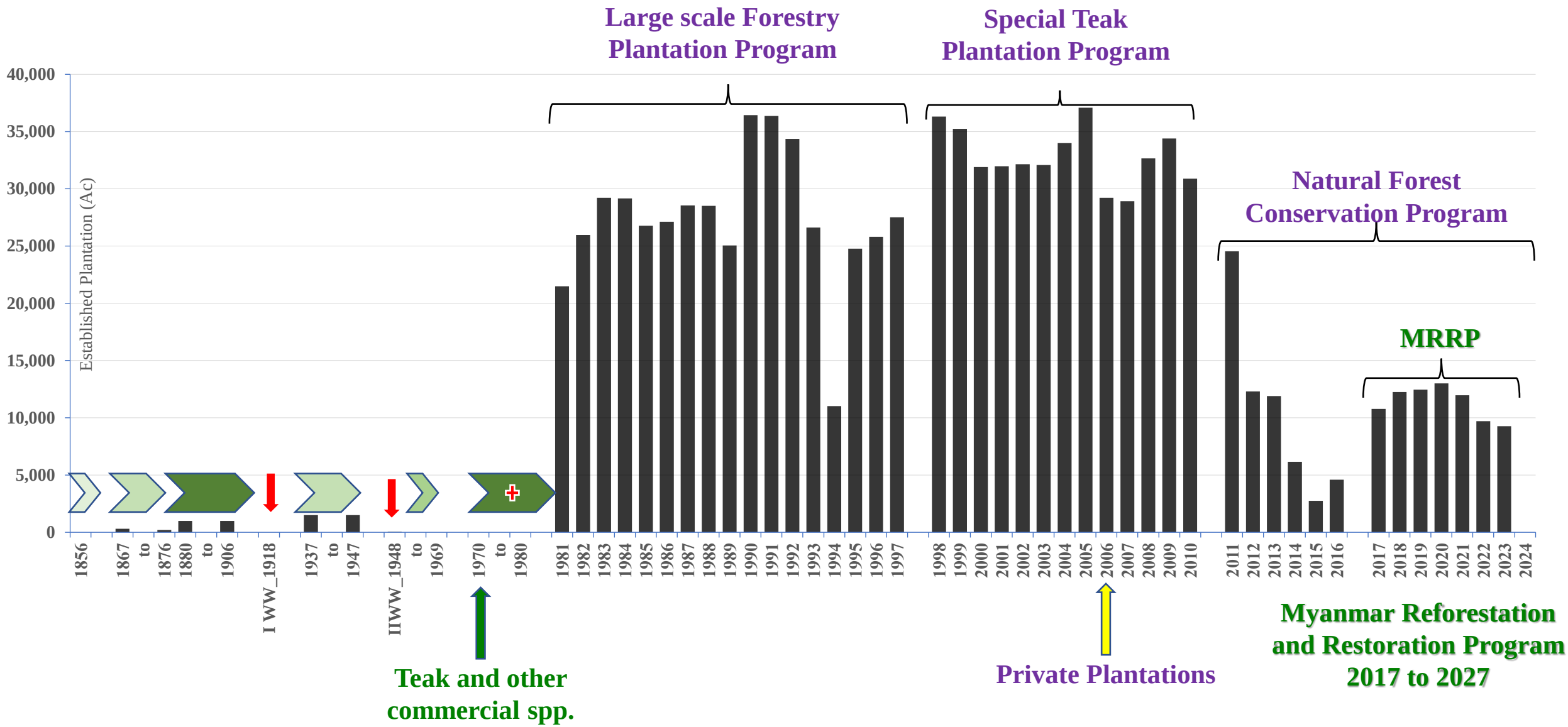
- The forest management system needs to be devised to bring conservative silvicullture into harmony with profitable exploitation on a sustainable basis.

- In this perspective **the Modified Myanmar Selection System (MMSS)** integrates modifications on:
  - Unit of yield regulation
  - Length of felling cycle
  - Residual growing stock
  - Assessment of growing stock
  - Obligatory extraction
  - Method of yield regulation
  - Cultural operation
  - Research

✓ A few remarkable changes include
- an introduction of **log export ban (LEB),** in April 2014, to promote local processing following logging ban policy in 2016, and
- the 10-Year **Myanmar Reforestation and Rehabilitation Programme (MRRP)** launched in 2016 has stipulated a 10-year fallow period in the natural forests of the Bago Yomas Mountain range

(Teak) Plantation Establishment in Myanmar

TEAK PLANTATIONS ESTABLISHMENT IN MYANMAR



(TEAK) PLANTATIONS MANAGEMENT

- before the establishment of plantation, **the Felling cum Regeneration Plan is needed to submitted in 5 years ahead**, in accordance with
    - Myanmar a 30-year National Forest Master Plan (2001-2002 to 2030-2031)
    - Forestry Sector Comprehensive Development Plan (2011-2012 to 2030-2031)
    - Forest Management Plan (2016-17 to 2025-26) for 69 districts

National Forest Master Plan
(District Forest Management Plan)

Conventional Forest Management → Ecosystem-based Forest Management

Piloting in Three Districts with the support of FAO

- Forest Management Unit is at District level
- 69 forest districts in the country
- Implements 10 year district management plan with the mid-term review (and revision)
- It includes SEVEN working circles;
  - Production Working Circle
  - Watershed Working Circle
  - Mangrove Working Circle
  - Plantation Working Circle
  - Local Supply Working Circle
  - Protection Working Circle
  - Non-timber Forest Products Working Circle

Establishment of Plantations

No	Plantation Type	Major species
1	Teak	*Tectona grandis*
2	Hardwood	*Xylia xylocarpa, Pterocarpus macrocarpus, Gmelia arborea, Pinus spp., Sterculia macrophylla,*
3	Industrial	Eucalyptus spp., Tha-le (*Broussonetia papyrifera*)
4	Rubber	Nowadays, not allowed in Reserved Forests and Protected Public Forests
5	Palm Oil	-
6	Industrial (other)	Bamboo

(TEAK) PLANTATIONS MANAGEMENT

Workplan of plantation establishment

No	Items/ Activities	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apl	May	Jun	Jly
1.	Site selection	■	■										
2.	Surveying and Taungya Allocation				■	■							
3.	Taungya cutting					■	■	■					
4.	Drying and Fire protection					■	■	■	■	■			
5.	Seed Collection						■	■	■	■	■		
6.	Nursery activities				■	■	■	■	■	■	■		
7.	Taungya burning									■			
8.	Reburning									■			
9.	Staking									■	■		
10.	Digging and site preparation									■	■		
11.	Transporting the seedlings										■		
12.	Planting									■	■	■	
13.	Patching	■											■
14.	Weeding	■		■								■	
15.	Applying the fertilizer											■	■
16.	Survival counting					■							
17.	Inspection road				■								
18.	Fire protecting					■	■	■	■	■	■		

Stacking instruction

No.	Plantation types	Spacing (m x m)	# of planting tree per ha
1.	Economics (Teak, Po, Pk, Pinus.)	2.7 x 2.7	1,350
2.	Local supply (fuel-wood) (Heavy rain region)	1.8 x 1.8	3,000
3.	Local supply (fuel-wood) (Low rain region)	3.6 x 3.6	750
4	Industrial	2.6 x 2.6	1,500
5.	Watershed	4.6 x 4.6	500
6.	Mangrove	1.8 x 1.8	3,000

Weeding instruction

	1st year	2nd year	3rd year	4th year	
Species \ Months	May/ June, August, October	July, October	July, October	October, November	Total
Teak	3	2	1	1	7
Pyinkado (*Xylia xyloparpus*)	3	2	2	1	8
Padauk (*Pteroparpus macrocarpus*)	3	2	1	1	7
Pinus spp.	3	2	1	-	6
Industrial	2	2	1		5
Local supply (fuel wood) (heavy rain region)	2	2	-	-	4
Local supply (fuel wood) (low rain region)	2	2	1	-	5
Mangrove	2	2	1	-	5

Myanmar Reforestation and Rehabilitation Programme (2017-2018 to 2026-2027)

- **Phase I – 2017-2018 to 2021-2022 (5 years)**
- **Phase II - 2022-2023 to 2026-2027 (5 years)**
- **Phase III – 2028-2029 to 2032-2033 (5 years)**

Natural Regeneration
818,538 Ac

Natural Forests
500,000 Ac

Forest Area
16,160 sp.ml (4.1 million ha)
6.19% of country Area

Capacity Building to local People and Staff Members (38,120 people)

Plantation Policy

MRRP

MRRP

MRRP

MRRP

Myanmar Reforestation and Rehabilitation Programme (MRRP)

MRRP

MRRP

MRRP

MRRP

State owned plantations
352,438 Ac

Private Plantations
285,104 Ac

Community Forests
770,332 Ac

Creation of job opportunities for local people (0.25 millions)

Expected Outputs

Teak Resource Management

- The conservation of forest species diversity including Teak was started in 1984.
- The major conservation of full stock of natural Teak forests and Teak plantation are into
  - Seed Production Areas (**SPAs**),
  - Selection and conservation of genetically **good superior teak trees** in the natural teak bearing forests

  - the establishment of Teak Hedge Gardens (**THGs**),
  - Teak Clonal Seed Orchards (**CSOs**) and
  - Teak Seedling Seed Orchard (**SSOs**)
  - Teak **Provenance Trials** and
  - Teak Gene bank (**GB**)

- **The conservation efforts in Myanmar are *in situ* based** and concerned mainly with the protection of forests by the Forest Protection Law and Legislations.

- An important technique for long-term storage of genetic materials for further genetic improvement programme and sustainable development of species.
- Most of the rural community who depended on natural forest for their daily needs, they are more interested in utilization of forest resources than in conservation of FGR.
- For that reason, **some level of *ex situ* conservation becomes important.**

Thank You Very Much

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