

National Policies on Forestry and Trade in Forest Products, Economic Aspect of Forest Production, Approaches for FLEG-T and the Lacey Act: Expected Impacts

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11-12 November, 2010

Bangkok, Thailand

2010 7 24



Outline of the presentation

- Country introduction
- Forest resources based
- National forest policy
 - ▶ Forestry and trade in forest products
 - ▶ Economic aspect of forest production
 - ▶ Approaches for FLEGT
 - ▶ Forest management system
- Conclusion



Country Introduction

Country introduction

Location Map of Myanmar



Location

- ❖ Southeast Asia
- ❖ Latitudes = $9^{\circ} 58'$ to $28^{\circ} 29' N$
- ❖ Longitudes = $92^{\circ} 10'$ to $101^{\circ} 10' E$

Area

- ❖ Total land area = $676,577 \text{ km}^2$ (67.7 mil ha)
- ❖ Length (north to south) = 2,090 km
- ❖ Maximum width (west to east) = 805 km

Mean Temperature range

- ❖ $25^{\circ} C$ to $33^{\circ} C$ (Rainy Season)
- ❖ $10^{\circ} C$ to $25^{\circ} C$ (Cold Season)
- ❖ $32^{\circ} C$ to $38^{\circ} C$ (Hot Season)
- ❖ $43^{\circ} C$ (Maximum Temperature)

Mean Rainfall

- ❖ Minimum rainfall $< 800 \text{ mm}$
- ❖ Maximum rainfall = 5,000 mm

Demography

Population = 58 million (2006)
Pop: density = 87 per km^2



Forest resources based

Organization Chart

Ministry of Forestry

Forest
Department



Dry Zone
Greening
Dept.



Planning &
Statistics
Dept.

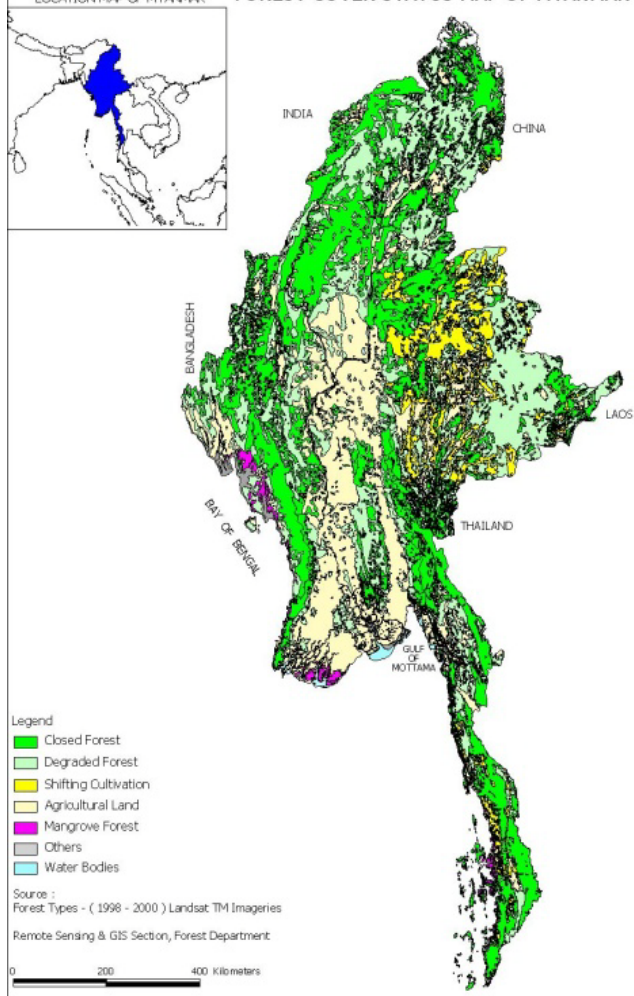


Myanma
Timber
Enterprise



Forest resource based

LOCATION MAP OF MYANMAR FOREST COVER STATUS MAP OF MYANMAR (2000)



Forest types	Typical rainfall (mm/year)	Area (km ²)	% of total forest area
Tidal, beach, dune and swamp forest	>3,500	13,750	4
Hill and temperate evergreen forest	>3,000	89,378	25
Semi evergreen and evergreen forest	2,500-4,000	55,004	16
Mixed deciduous forest	1,250-2,500	134,068	38
Deciduous dipterocarp (Indaing) forest	900-1,250	17,187	5
Dry forest	< 900	34,377	10
Fallow land	-	9,983	2
Total		353,747	100

Figure 1 . Map of Forest Cover Status in Myanmar

Forest resources based cont'

Permanent forest estate (PFE)

Legal classification classification	Area (km ²)	% of land area
Reserved forest	114,995	17.00
Public protected forest	26,799	3.96
Protected area system	31,945	4.72
Area of PFE	173,739	25.68
Unclassified forest forest area	180,008	26.60
Total	353,747	52.28

Source: Forest Department, 2006

Forest resource based cont'

Forest cover changes

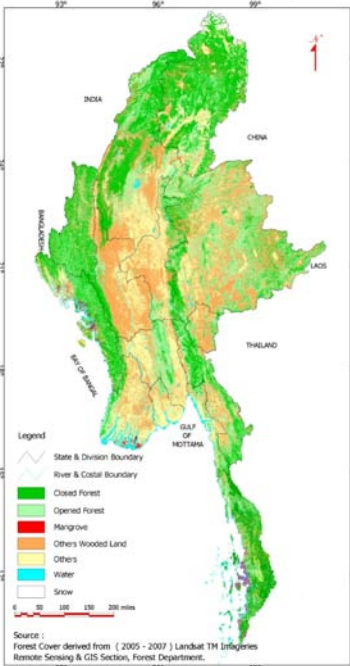
Year	1990	2000	2005	2010
Forest cover (1000 ha)	39,218	34,868	33,321	31,773

Period	1990-2000	2000-2005	2005-2010
Annual loss (ha)	435,000	309,000	310,000

1990-2010, annual loss = 372,250 ha (FAO-FRA, 2010)

- ❖ Over exploitation
- ❖ Repeated logging in accessible areas
- ❖ Illegal logging
- ❖ Fuelwood crisis
- ❖ Expansion of agricultural lands
- ❖ Urban expansion (infrastructure development)
- ❖ Shifting cultivation
- ❖ Population

FAO-FRA (2010)



Carbon sequestration in tropical deciduous forests

Study sites	Above-ground carbon	Root carbon	Litter-fall carbon	Under-growth carbon	Soil carbon	Total carbon (ton/ha)
	I	II	III	IV	V	I+II+III+IV+V
Oktwin forests	185.2 (14.78) ^a	37.04 (2.96)	3.76 (0.22) ^a	6.69 (0.33) ^b	180.98 (3.41) ^a	413.7
Ywangan Community Forests	194.5 (21.35) ^a	38.9 (4.27)	4.11 (0.16) ^a	7.11 (0.39) ^{ab}	192.38 (1.49) ^a	437.0
Alaungdaw Kathapa NP	227.7 (23.19) ^a	45.5 (4.64)	4.16 (0.20) ^a	7.91 (0.40) ^a	195.20 (2.82) ^a	480.5

◆ Not significantly different among study sites ($p > 0.05$).

Source: Thaung Naing Oo, 2009¹⁰



National Forest Policies

National Forest Policy cont'

- **New Forest Policy** was formulated in 1995.
- It is a major breakthrough in Forestry Sector of Myanmar.
- It is based on the political statements towards conservation and development of natural resources and major national policies related to **socio-economic and environmental conservation**.
- It provides opportunities for the promotion of private sector involvement in reforestation and **timber trade, and decentralizes the management responsibilities**.

Policy Imperatives



PROTECTION of soil, water, wildlife, biodiversity and environment;



SUSTAINABILITY of forest resources to ensure perpetual supply of both tangible and intangible benefits;



BASIC NEEDS of the people for fuel, shelter, food and recreation;



EFFICIENCY to harness, in the socio-environmentally friendly manner, the full economic potential of the forest resources;



PARTICIPATION of the people in the conservation and utilization of the forests;



PUBLIC AWARENESS about the vital role of the forests in the well being and socio-economic development of the nation.

National Forest Policy cont'



Policy measures

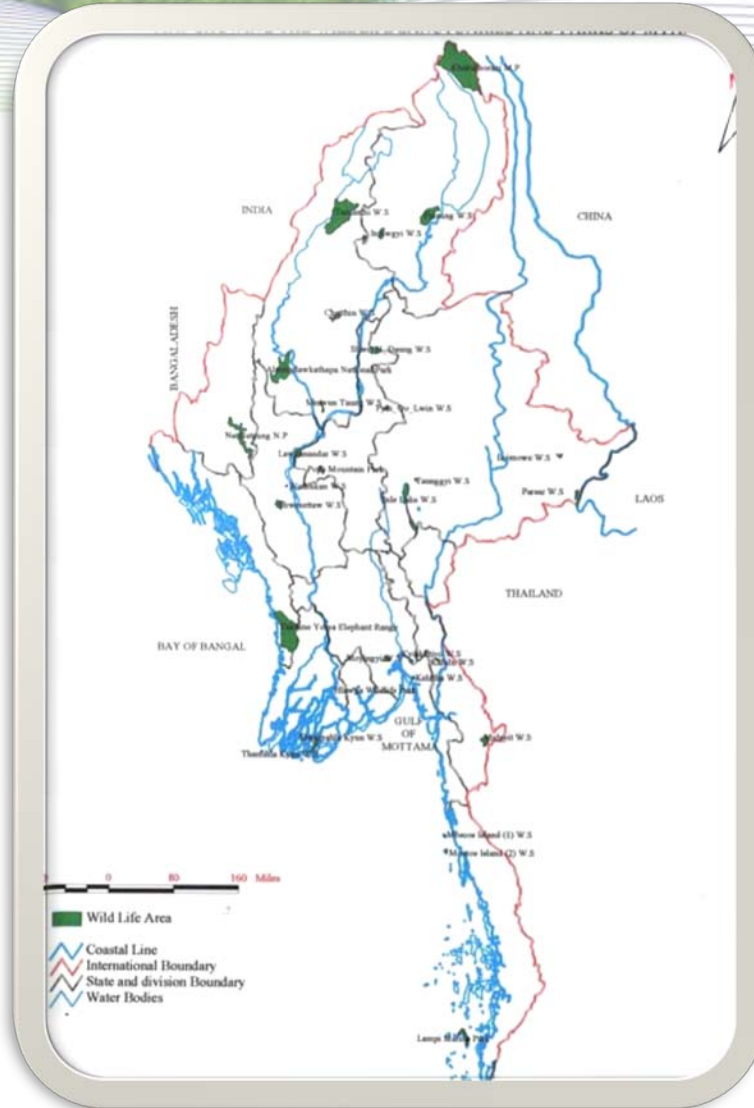
❖ Protection and management

- Up to 30% of total land area of the country will be gazetted as Reserve Forest
- 5% under Protected Area System for short term and 10% for long-term.
 - ▶ 24.25% have been gazetted as Reserve Forest and Public Protected Forest (As of September, 2010)
 - ▶ 4.72% have been conserved as PAS (5.56 % (45,028.27 km² including proposed PAS area) (As of September, 2010)
- A system of environmental pricing based on “Polluter Pays” to compensate for environmental and ecological degradation.

Forest resources based cont'

Protected Area System (PAS)

1. Khakarborzi NP
2. Tamanthi WS
3. Pidaung WS
4. Chatthin WS
5. Minwun-Taung WS
6. Shwe-U-Daung WS
7. Alaungdaw-kathapa NP
8. Pyin-Oo-Lwin WS
9. Mingon Taung WS
10. Lawkanandar WS
11. Natmataung NP
12. Wethikan WS
13. Shwesettaw WS
14. Popa NP
15. Padalingu WS
16. Taunggyi WS
17. Inle Lake WS
18. Loimowe WS



19. Parsar WS
20. Rakhine-Yoma elephant range
21. Thamihla Kyun WS
22. Mainmahla Kyun WS
23. Hlawga WP
24. Moyingyi WS
25. Kelatha WS
26. Kyaikhtiyo WS
27. Kahilu WS
28. Mulayit WS
29. Moscos Island WS
30. Lampi Marine Park
31. Indawgyi WS
32. Kyauk Pan Taung WS
33. Hponkan Rzai WS
34. Hukaung Valley WS

31,945 km² (4.72 % of total area)

National Forest Policy cont'



Policy measures

❖ Forest regeneration and afforestation

- Recognize that plantation forestry is not a substitute for natural forest management.
- Establish plantation on degraded/denuded lands;
- Reforest an annual area of 30,000 hectares of rehabilitations for meeting rural needs.

National Forest Policy cont'

Plantation Forestry

- 1856 **Small scale** plantation initiated using **Taungya method**
- 1941 The extent of plantations reach 47,167 ha
- 1980 **Large scale** plantations began
- 1984 **Annual** plantation target reached **20,000 ha**
- 1985 Myanmar Forest Policy, 1995
- 1998 **Special teak plantation** program was launched to increase timber production
- 1999 Private plantation program started.
- Present**, Annual planting rate over 30,000 ha (teak and other commercial species)

National Forest Policy cont'

Restoration methods in Myanmar

- ❖ **Conventional plantation project**
 - ❖ Mostly in degraded forests caused by shifting cultivation
 - ❖ To meet the demands and to supplement the natural forests
- ❖ **Enrichment planting**
 - ❖ Mostly in logged-over areas and also degraded forests
 - ❖ To increase the stock density of desirable commercial tree species
- ❖ **Taung-ya method (Agroforestry = Forest tree+crops)**
 - ❖ Mostly in logged-over areas and also degraded forests
 - ❖ To establish plantation with low cost while benefiting the local farmers
- ❖ **Community forestry (community-based forest plantations)**
 - ❖ Mostly in degraded forests for reforestation as well as afforestation
 - ❖ To reforest degraded lands while encouraging local people to participate in forestry activities

National Forest Policy cont'



National Forest Policy cont'



Enabling Conditions for REDD in Myanmar

Carbon sequestration of commercial tree species

No.	Species	Mean DB H (cm)	Tree C* (ton /ha)	SOC (ton/ha)	Litter-fall C (ton/ha)	Undergrowth C (ton/ha)	Total C (ton/ha)
1	Teak	26.0	54.7	59.9	2.1	4.2	116.1
2	Pyinkado	24.6	71.5	59.9	2.1	4.2	137.7
3	Padauk	27.7	72.7	59.9	2.1	4.2	138.9
4	Thinwun	27.6	72.5	59.9	2.1	4.2	138.7
5	Taukkyan	22.8	53.8	59.9	2.1	4.2	120.0
6	Yemane	25.0	36.3	59.9	2.1	4.2	102.5
7	Yinma	24.0	63.1	59.9	2.1	4.2	129.3

Source: Thaung Naing Oo (2009)

Note: *above and below ground carbon (root carbon)

Stock density was assumed to be 400 trees per ha for each species. SOC, litter-fall carbon and undergrowth carbon were also assumed to be the same as 26-year-old mixed-species plantation

National Forest Policy cont'



Policy measures

❖ Trade in forest products

- Export of round logs is gradually phased out.
- Ensure a rational balance between national forest industry processing capacity and resource availability.
- Recognize the socio-economic importance of non-wood forest products.
- Support the development of value-added industries.

Annual timber production = 2.9 mil m³ (Teak and other hardwood)

Export = 0.95 mil m³

National Forest Policy cont'



Policy measures

❖ Economic aspects of forest production

- Myanmar's economy is heavily dependent on trade, and forest products are major component of total exports in terms of value.
- Forest product export accounts for approximately 35% of all export earning.
- Budgetary allocation accounts for 10-15% of the revenue generated at current prices.

Forest Law Enforcement, Governance and Trade (FLEGT)



Legal aspect

❖ Approaches for FLEGT

- **The important instruments currently used for managing the forest in Myanmar**
 - ▶ Forest law (1992);
 - ▶ Protection of wildlife and wild plants and conservation of natural areas law (1994);
 - ▶ Myanmar Agenda 21
 - ▶ Community forestry instructions (1995);
 - ▶ National forestry action plan (1995);
 - ▶ Format and guidelines for district forest management plans (1996);
 - ▶ National code of forest harvesting practices in Myanmar (2000).

Forest Law Enforcement, Governance and Trade (FLEGT) cont'

- C&I for SFM
- C&I for legality of timber
- Timber Certification Committee Myanmar (TCCM)
 - ▶ MoF, NGOs,
- Timber Certification Action Plan (2010-2015)
- To introduce control mechanisms such as certification.

- Special Operations against illegal logging, seized 70,312 m³
- Special efforts to reduce illegal logging in the hot spot areas
- At the Border Gates, Inspection Teams are assigned to control and reduce cross-border movements of illegal timber and wood products.

Approaches for FLEGT cont'

Myanmar was signatory to:

- ❖ UN Framework Convention on Climate Change (**UNFCCC**) in November 1994;
- ❖ Kyoto Protocol in 2003 as non-Annex I country.
- ❖ UN Convention to Combat Desertification (**UNCCD**) in January 1994;
- ❖ UN Convention on Biological Diversity (**CBD**) in November 1994;
- ❖ International Tropical Timber Organization (**ITTO**) in November 1993;
- ❖ Convention on International Trade in Endangered Species of Wild Fauna and Flora (**CITES**) in June 1997;



Forest Management System in Myanmar

In line with the REDD+ mechanism

- ❖ **Avoided deforestation and degradation**
- ❖ **Sustainable Forest Management**
- ❖ **Conservation of forest carbon stock**
- ❖ **Re-afforestation to increase carbon stock**



Sustainable forest management

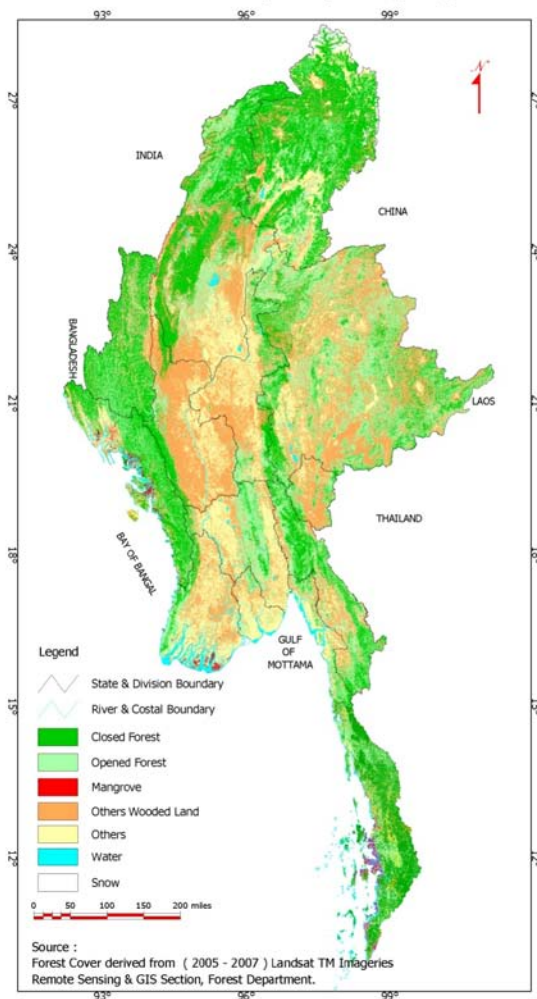
❖ Forest Management Plan (2002–2031)

□ It includes 5 categories:

- ❖ Production Working Circle (PWC),
- ❖ Planted Forests Working Circle (PFWC),
- ❖ Local Supply / Community Forestry Working Circle (LS/CFWC)
- ❖ Watershed Forests Working Circle (FWC) and
- ❖ Non-wood Forest Products Working Circle (NFPWC)

Forest management system cont'

Forest Cover Status Map of Myanmar (2006)



- The present plans cover a **10-year period** from 2006-07 to 2015-16.
- The plan is based on the district level as basic implementation unit.
- Altogether **62 district management plans** are being drawn up to be in line with the new perspectives for 10 year period.
- Myanmar Selection System (MSS) has been the principle forest management system since over 120 years.
- Sustainable Forest Management/ Sustained yield is the basic principle of the MSS.
- Least impacts to the environment

Forest management system cont'

❑ Main Features of Myanmar Selection System – MSS

- It is an **exploitation-cum-cultural** System.
- MSS is practiced within the bound of :
 - ▶ (1) Space/Area limit (Felling series)
 - ▶ (2) Size/Girth limit and (minimum girth limit)
 - ▶ (3) Time limit (a felling cycle of 30 years)
- **Enumeration** of future yield trees down to fixed sizes
- Leaving high quality teak tree as **seed tree (mother tree)**
- Fixing of **Annual Allowable Cut** for teak and hardwood



Forest management system cont'

■ Community Forestry (CF)

- ▶ Forest Department initiated CF in 1995 under CFIs.
- ▶ CF aims at improving living conditions of the local people by supporting FUGs to manage community forest more effectively, sustainably and equitably.
- ▶ It is also to help to restore the productivity of degraded forest lands and to promote the welfare of the local people
- ▶ If **REDD** is designed properly integrated with community forestry, local community would benefits both from CF and REDD activities as well.



Forest management system cont'

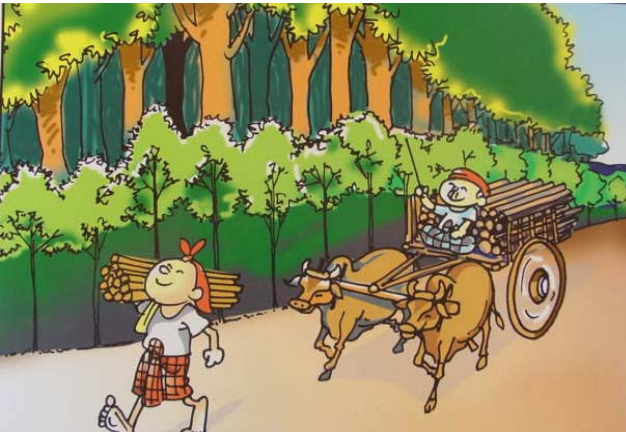
The salient points CF (CFI - FD, 1995):

- ❖ **Any land** at the disposal of the State, including reserved forests and village supply plantations, can be alienated as community forests;
- ❖ Land tenure is initially granted for **30 years**, but can be extended
- ❖ The **tenure right** is inheritable;
- ❖ Forest products harvested from CF for domestic use are **tax-free**;
- ❖ **No restriction** is imposed on the **selling and pricing** of the surplus forest products;
- ❖ **Seeds and seedlings** needed for the first rotation and **technical** assistant are provided by FD free of charge;
- ❖ **FD's approval** to establish CF can be easily and quickly obtained; and
- ❖ The **duties and responsibilities** of the user's group are **reasonable**.

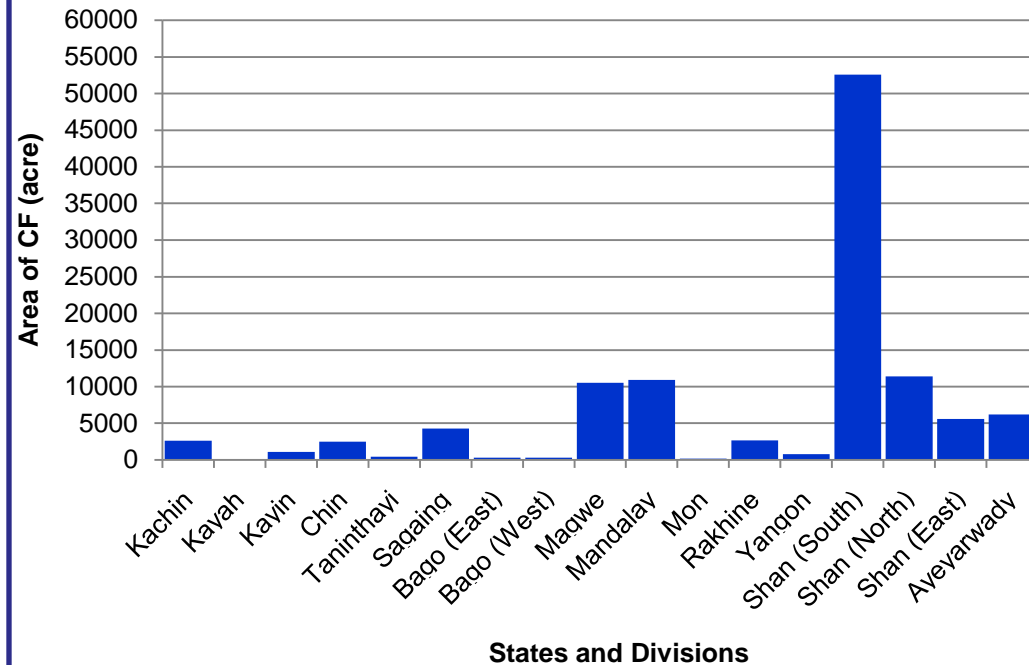
Forest management system cont'

Total area of community forests by 2009 = 102,402 acre (41,458 ha)

Total members of forest user groups by 2009 = 39,298



Area of CF (by 2009)



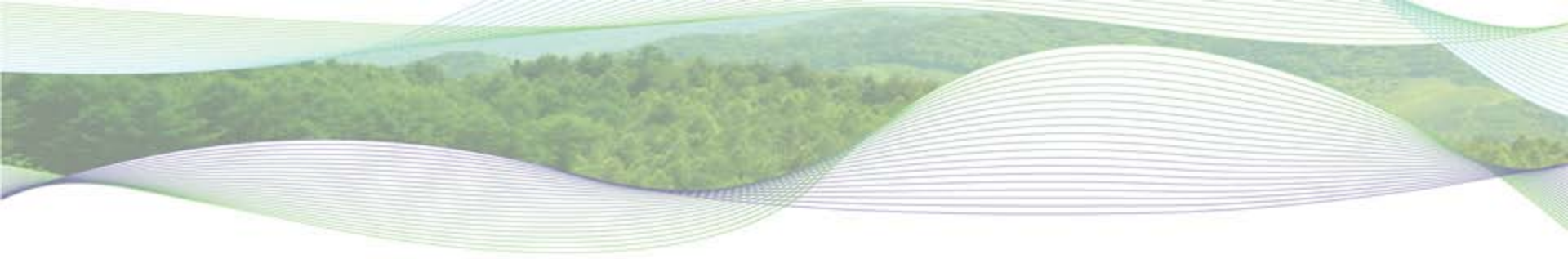
Myanmar's initiative for REDD+



REDD+

❖ Present conditions for REDD+

- The government of Myanmar signed UNFCCC on **11 June 1992** and ratified the convention on 25 November 1994.
- Myanmar ratified Kyoto Protocol in **2003** as a non-Annex I party.
- DNA of Myanmar was established in 2006 in order to approve the proposed CDM projects.
- DNA has 22 members from 15 ministries, is led by Minister for Ministry of Forestry, the secretariat and joint-secretariat are senior officials from Forest Department.
- Forest Department organized a core unit to conduct A/R CDM and **REDD+**.
- Forest Department and UNDP (Myanmar) jointly organized a **National Workshop on REDD** on April, 2010 in Myanmar.
- Forest Department has been enthusiastically seeking the possible means and ways to initiate **REDD+** readiness activities as well as to be able participate in **UN-REDD** program.



Thank you very much for your kind
attention!

Biomass allometric regression equations for seven species

Regression model: $\log Y = a + b \log X$; where, Y= total tree biomass (kg); X= (DBH)² × height, *a* and *b* are the estimated parameters

Species	Biomass (Y)	a	b	R ²	Prob. Level	S.E.
Mixed species plantation						
<i>X. xylocarpa</i>	Total tree biomass	0.834	-0.820	0.93	<i>p</i> <0.01	0.090
<i>P. macrocarpus</i>	Total tree biomass	0.838	-0.887	0.93	<i>p</i> <0.01	0.126
<i>T. tomentosa</i>	Total tree biomass	0.865	-1.007	0.96	<i>p</i> <0.005	0.089
<i>M. pendula</i>	Total tree biomass	0.648	-0.097	0.95	<i>p</i> <0.005	0.084
<i>G. arborea</i>	Total tree biomass	0.732	-0.690	0.98	<i>p</i> <0.005	0.048
<i>C. tubularis</i>	Total tree biomass	0.950	-1.368	0.97	<i>p</i> <0.005	0.109
<i>T. grandis</i>	Total tree biomass	0.746	-0.628	0.91	<i>p</i> <0.05	0.047
Pure teak plantations						
6-year-old <i>T. grandis</i>	Total tree biomass	0.953	-1.437	0.99	<i>p</i> <0.001	0.044
16-year-old <i>T. grandis</i>	Total tree biomass	1.332	-2.758	0.99	<i>p</i> <0.001	0.015
26-year-old <i>T. grandis</i>	Total tree biomass	0.922	-1.354	0.97	<i>p</i> <0.005	0.029

36

36

Regression parameters of seven commercial tree species

No.	Species	Regression coefficients		R^2
		$y \text{ (biomass)} = a \text{ (DBH)} + b$		
		a	b	
1	Teak	15.58	- 137.70	0.95
2	Pyinkado	25.22	- 261.70	0.94
3	Padauk	16.73	- 99.94	0.93
4	Thinwun	16.26	- 86.44	0.98
5	Taukkyan	24.93	- 299.2	0.92
6	Yemane	10.22	- 74.01	0.96
7	Yinma	21.56	- 202.00	0.95

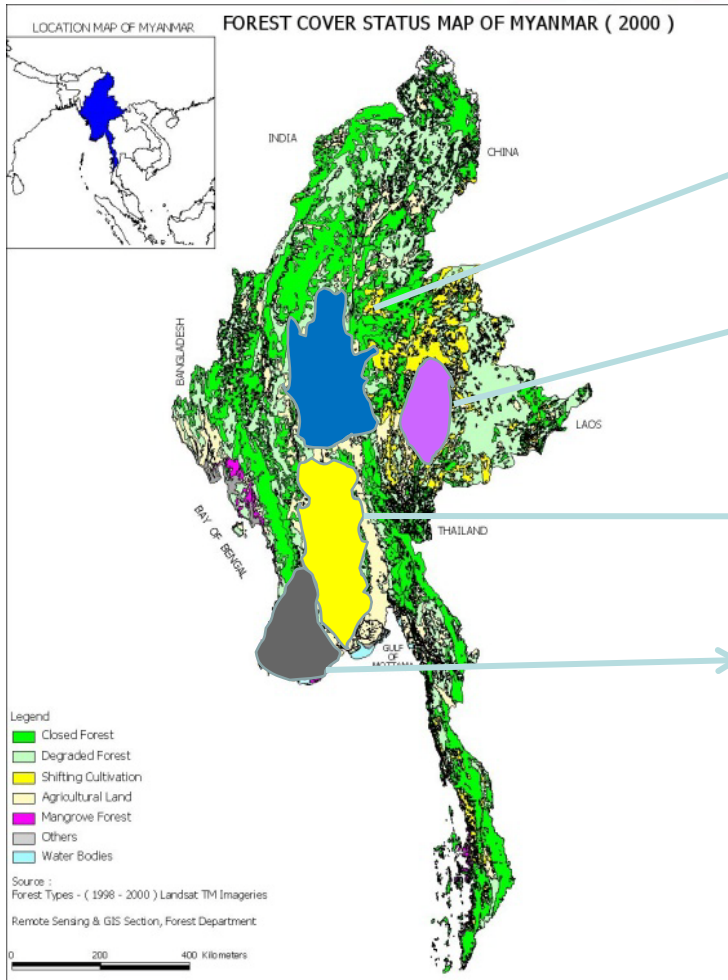
Total carbon sequestration of pure teak and mixed species plantations

Plantations	Above-ground C (ton/ha)	Root C (ton/ha)	Litter C (ton/ha)	Under-growth C (ton/ha)	SOC (ton/ha)	Total carbon storage (ton/ha)
	I	II	III	IV	V	I+II+III+IV+V
6-yr-old	20.8 (0.83) ^b	6.2 (0.25) ^b	0.8 (0.02) ^d	2.2 (0.13) ^d	35.5 (1.08) ^a	65.5 ^b
16-yr-old	37.6 (5.98) ^a	8.7 (1.78) ^a	1.6 (0.15) ^c	2.8 (0.05) ^c	39.7 (1.25) ^a	90.4 ^b
26-yr-old	42.1 (2.10) ^a	12.6 (0.63) ^a	1.9 (0.08) ^b	4.1 (0.13) ^b	55.5 (4.40) ^a	116.1 ^b
26-yr-old Mixed PT	47.8 (1.61) ^a	11.9 (0.40) ^a	2.1 (0.09) ^a	4.2 (0.18) ^a	59.9 (5.77) ^a	125.9 ^a

38

Total carbon storage was significantly different among the plantations ($p < 0.01$).

■ National-Level Large-scale Reforestation Zones



Central Dry Zone:
Rainfall 600 mm/yr

Desert-like
formation and land
degradation

Mountain Watershed Zone:
Rainfall 1473/yr

Serious soil erosion

Bago Yoma Zone: Rainfall
1993 mm/yr

Rapid deforestation

Mangrove-Delta Zone: Rainfall
> 3500 mm/yr

Natural disaster
and livelihood

Figure 1 . Map of Forest Cover Status In Myanmar

Approaches for FLEGT cont'

Forest Legislation

- The old Forest Act of 1902 had been replaced by the new Forest Law.
 - The Forest Law (1992) highlights forest protection, environmental and **biodiversity conservation**.
 - It demonstrates a shift from the concept of revenue generation and restriction to **motivation and share of management** responsibilities with people.
 - It provides opportunities for the promotion of **private sector involvement** in forestry sector.
 - It encourages **community participatory approach** in managing the forest resources.