Food and Agriculture Organization of the United Nations

Global Forest Resources Assessment 2020

Report

Malaysia

Rome, 2020

FAO has been monitoring the world's forests at 5 to 10 year intervals since 1946. The Global Forest Resources Assessments (FRA) are now produced every five years in an attempt to provide a consistent approach to describing the world's forests and how they are changing. The FRA is a country-driven process and the assessments are based on reports prepared by officially nominated National Correspondents. If a report is not available, the FRA Secretariat prepares a desk study using earlier reports, existing information and/or remote sensing based analysis.

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Introduction

Report preparation and contact persons

The present report was prepared by the following person(s)

Name	Role	Email	Tables
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Introductory text

Malaysia is a nation located in Southeast Asia. Together with its territorial waters lie between 0º 51' N and 7º 33' N, and 98º 01' E and 119º 30' E. It consists 13 states and three Federal Territories. Eleven of the states and two of the Federal Territories (of Kuala Lumpur and Putrajaya) are in Peninsular Malaysia, and these are separated by the South China Sea from the states of Sabah and Sarawak in the island of Borneo. The Federal Territory of Labuan consisting of the island of Labuan is located off the coast of western Sabah. Malaysia has a land area of approximately 330,345 km^2, with about 8,840 km of coastline and over 879 islands.

Malaysian forests, with their complex ecosystems and richness in species of both flora and fauna, is considered one of the world's megadiverse countries. There are _approximately than 15,000 species of vascular plants, more than 306 species of wild mammals, more than 742 species of birds, 567 species of reptiles, 242 species of amphibians, approximately 1,619 species of marine fish, more than 449 species of freshwater fish, 612 species of hard coral and over 150,000 species of invertebrates. Malaysia's terrestrial biodiversity is primarily concentrated within its tropical rainforests that extends from coastal plains to mountainous areas, including inland waters such as lakes and rivers. The major forest types found in Malaysia are the lowland dipterocarp forests, hill dipterocarp forests, upper hill dipterocarp forests, montane ericaceous forests, peat swamp forests and mangrove forests. In this regard, in Sabah and Sarawak, the lowland and hill dipterocarp forests are often known as mixed dipterocarp forest.

The management of all types of forest is enshrined in the National Forestry Policy 1978 (revised 1992) (NFP) for Peninsular Malaysia, Sabah Forest Policy 2018 for Sabah and Sarawak Forest Policy 2019 for Sarawak respectively. These policies provided for greater uniformity in the implementation of strategies for the achievement of forest conservation, management as well as social and educational needs. It represents an important policy framework, which is unequivocal in maintaining that forest management must fulfil environmental and conservational needs besides meeting rational socio-economic goals. It provides guidelines and strong emphasis on the necessity for sound management, conservation, utilisation, development and protection of these forests. This commitment is duly recognised and given specific attention by the National Forestry Act 1984 (revised 1993) (NFA) in Peninsular Malaysia. In Sabah, the necessary legal provisions are provided by the Sabah Forest Enactment 1968 while in Sarawak, the Sarawak Forest Ordinance 1958 provides the necessary legal framework.

The key objective of the forest management in Malaysia has been to ensure the continuity of product flow while conserving the complex ecosystems and maintaining the rich and varied in flora and fauna. Sustainable Forest Management (SFM) remains the common policy thrust in Malaysia, in line with sustainable development goals. Consequently, SFM must be one that is socially acceptable, environmentally sound and economically viable. As such, successful SFM will provide integrated benefits to all, ranging from safeguarding local livelihoods to protecting the biodiversity and ecosystems provided by forests, reducing rural poverty and mitigating some of the effects of climate change.

As a whole, the tropical forests in Malaysia are important national treasures and will continue to play important roles in ensuring the stability of the ecosystem and are closely linked to the socioeconomic development of the country and the well-being of the people. These natural treasures, undoubtedly, need to be properly managed in perpetuity to ensure that the forest ecosystem can continue to function in terms of tangible and intangible benefits such as timber, clean water supply, fresh air, biodiversity, storehouse of genetic materials, maintaining a sizable carbon stock, and providing critical function in stabilizing the world's climate.

1 Forest extent, characteristics and changes

1a Extent of forest and other wooded land

National Data

Data sources + type of data source eg NFI, etc

References to sources of information	Year(s)	Additional comments
Ministry of Water, Land and Natural Resources Website.	1990 - 2016	Statistical information of forest cover in Malaysia.
Ministry of Plantation Industries and Commodities Malaysia. *Statistic on Commodities.*	2015 - 2016	Statistical information covering primary and based sector in Malaysia.
FAO. *Global Forest Resources Assessment (FRA) 2015 Report.*	2015	Pre-filled data.
FAO. *Global Forest Resources Assessment (FRA) 2020 Guidelines.*	2018	FAOSTAT for country area.

National classification and definitions

National class	Definiton
Forest	Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of **more than 30 percent**, or trees able to reach these thresholds *in situ*. It does not include land that is predominantly under agricultural include rubber plantation or urban land use.
Other wooded land	Land not classified as “Forest”, spanning more than 0.5 hectares; with trees higher than 5 meters and a canopy cover of 5-10 percent, or trees able to reach these thresholds *in situ*; or with a combined cover of shrubs, bushes and trees above 10 percent. It does not include land that is predominantly under agricultural or urban land use.
Other land	All land that is not classified as “Forest” or “Other wooded land”.

Original data

FRA 2020 Categories	Area (1000ha)				
	1990	2000	2010	2015	2016
(a) Permanent Reserved Forest (PRF)	12,139.52	11,916.96	12,086.70	11,283.40	11,182.43
(b) State Land Forest	5,205.97	4,506.40	3,745.81	4,068.17	3,888.11
(c) Total Protected Area/National Parks and Wildlife & Bird Sanctuary	1,436.41	1,837.29	2,094.74	3,038.12	3,171.18
Total Forested Area (a+b+c)	18,781.90	18,260.65	17,927.25	18,389.69	18,241.72
Rubber Plantation	1,836.60	1,430.70	1,020.40	1,074.53	1,072.92
Other wooded land					
Other land	12,236.50	13,163.65	13,907.35	13,390.78	13,540.36
Total land area	32,855.00	32,855.00	32,855.00	32,855.00	32,855.00

*Figure on total land area base on FAOSTAT country area figures.

Analysis and processing of national data

Estimation and forecasting

The figure for forest for 1990, 2000, 2010, 2015 and 2016 are available. While figure for 2017 to 2020 has been forecasted using linear trend (extrapolation).

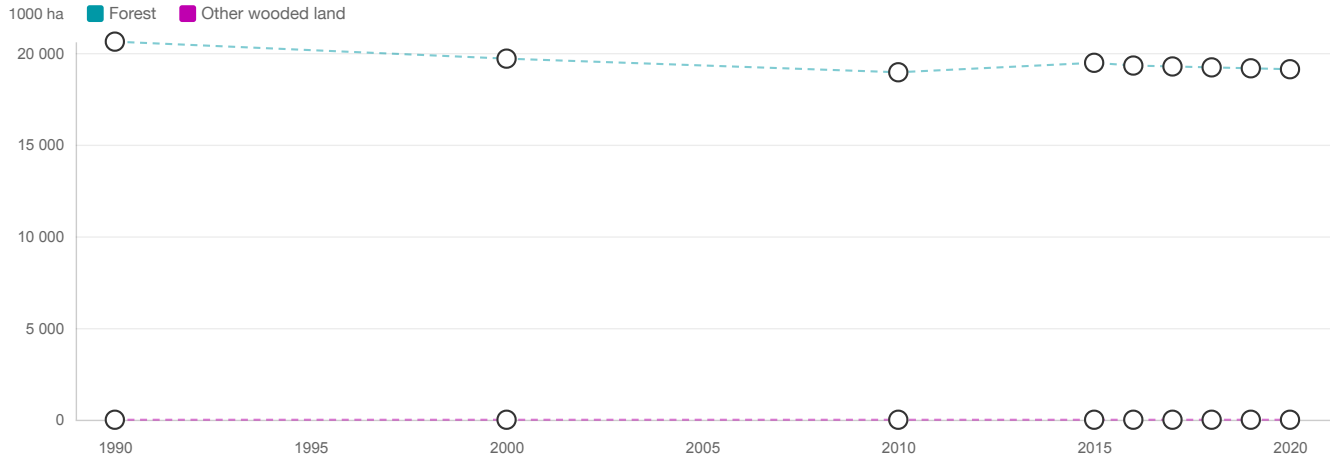
Reclassification into FRA 2020 categories

Classifications and Definitions	FRA classes		
National class	**Forest**	**Other wooded land**	**Other land**
Permanent reserved forest	100		
Stateland forest	100		
National park and wildlife sanctuary	100		
Rubber plantation	100		
Other land			100

This leads to the following:

FRA 2020 Categories	Area (1000ha)				
	1990	**2000**	**2010**	**2015**	**2016**
Forests (a)+(b)+(c)+(d)	20,618.50	19,691.35	18,947.65	19,464.22	19,314.64
(a) Permanent Reserved Forest (PRF)	12,139.52	11,916.96	12,086.70	11,283.40	11,182.43
(b) State Land Forest	5,205.97	4,506.40	3,745.81	4,068.17	3,888.11
(c) Total Protected Area/National Parks and Wildlife & Bird Sanctuary	1,436.41	1,837.29	2,094.74	3,038.12	3,171.18
(d) Rubber Plantation*	1,836.60	1,430.70	1,020.40	1,074.53	1,072.92
Other wooded land					
Other land	12,236.50	13,163.65	13,907.35	13,390.78	13,540.36
Total land area	32,855.00	32,855.00	32,855.00	32,855.00	32,855.00

Malaysia does not include rubber plantations as a forest. However for FRA reporting, rubber plantation is included as forest for international consistency.


1000 ha
Forest
Other wooded land
20 000
15 000
10 000
5 000
0
1990
1995
2000
2005
2010
2015
2020

FRA categories	Area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Forest (a)	20 618.50	19 691.35	18 947.65	19 464.22	19 314.64	19 264.49	19 214.34	19 164.19	19 114.04
Other wooded land (a)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other land (c-a-b)	**12 236.50**	**13 163.65**	**13 907.35**	**13 390.78**	**13 540.36**	**13 590.51**	**13 640.66**	**13 690.81**	**13 740.96**
Total land area (c)	**32 855.00**	**32 855.00**	**32 855.00**	**32 855.00**	**32 855.00**	**32 855.00**	**32 855.00**	**32 855.00**	**32 855.00**

The FAOSTAT land area figure for the year 2015 is used for all reference years

Climatic domain	% of forest area 2015	Override value
Boreal	**0.00**	
Temperate	**0.00**	
Sub-tropical	**0.00**	
Tropical	**100.00**	

Comments

Malaysia has updated its forest from 1990 onward. The update is due to harmonization of cadastral and geospatial data sets. Malaysia does not include rubber plantations as a forest. However for FRA reporting, rubber plantation is included as forest for international consistency.

There may exist an unknown extent of other wooded land but as it could not be estimated from available data it is included under Other land"

1b Forest characteristics

National Data

Data sources + type of data source eg NFI, etc

References to sources of information	Year(s)	Additional comments
Ministry of Water, Land and Natural Resources Website.	1990 - 2016	Statistical information covering naturally regenerated forest and forest plantation in Malaysia.
FAO. *Global Forest Resources Assessment (FRA) 2015 Report.*	2015	Pre-filled data.
FAO. *Global Forest Resources Assessment (FRA) 2020 Guidelines.*	2018	FAOSTAT for country area.

National classification and definitions

National class	Definiton
Naturally regenerating forest	Forest predominantly composed of trees established through natural regeneration.
Planted forest	Forest predominantly composed of trees established through planting and/or deliberate seeding
Plantation forest	Planted Forest that is intensively managed and meet ALL the following criteria at planting and stand maturity: one or two species, even age class, and regular spacing.
Other planted forest	Planted forest which is not classified as plantation forest

Original data

FRA 2020 Categories	Area (1000 Hectares)				
	1990	2000	2010	2015	2016
Naturally regenerating forest (a)	**18,683.82**	**18,063.83**	**17,638.74**	**17,756.22**	**17,585.85**
Planted forest (b)	**1,934.68**	**1,627.52**	**1,308.91**	**1,708.00**	**1,728.79**
Plantation forest	98.08	196.82	288.51	633.47	655.87
Rubber Plantation*	1,836.60	1,430.70	1,020.40	1,074.53	1,072.92
Other planted forest					
TOTAL FOREST AREA (a+b)	**20,618.50**	**19,691.35**	**18,947.65**	**19,464.22**	**19,314.64**

*Malaysia does not include rubber plantations as a forest. However for FRA reporting, rubber plantation is included as forest for international consistency.

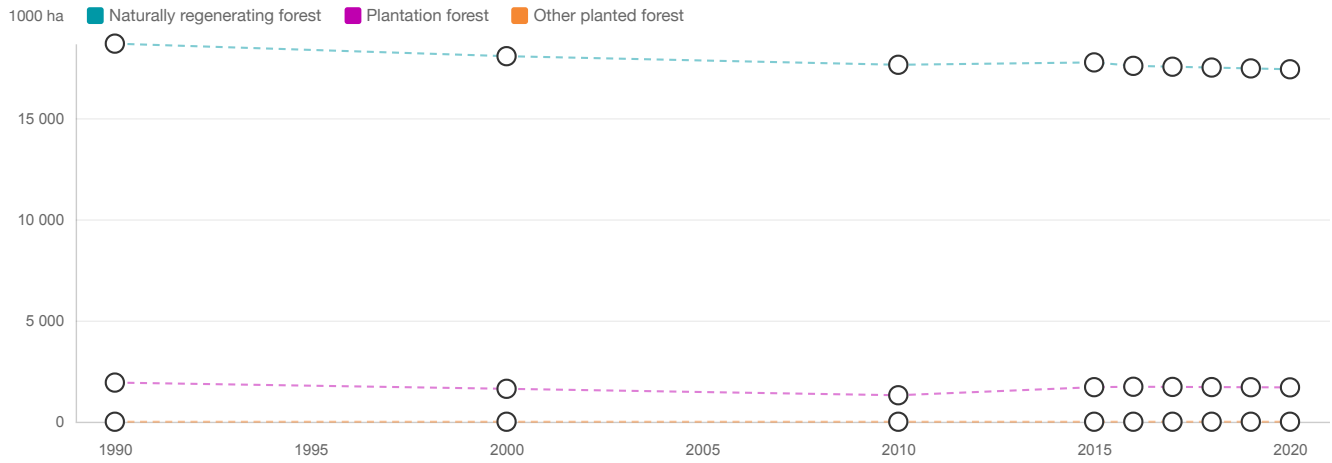
Analysis and processing of national data

Estimation and forecasting

The figure for naturally regenerating forest, plantation forest for 1990, 2000, 2010, 2015 and 2016 are available. While figure for 2017 to 2020 has been forecasted using linear trend (extrapolation).

Reclassification into FRA 2020 categories

n.a


1000 ha
Naturally regenerating forest
Plantation forest
Other planted forest
15 000
10 000
5 000
0
1990
1995
2000
2005
2010
2015
2020

FRA categories	Forest area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest (a)	18 683.82	18 063.83	17 638.74	17 756.22	17 585.85	17 543.61	17 501.38	17 459.15	17 416.92
Planted forest (b)	**1 934.68**	**1 627.52**	**1 308.91**	**1 708.00**	**1 728.79**	**1 720.88**	**1 712.96**	**1 705.04**	**1 697.12**
Plantation forest	1 934.68	1 627.52	1 308.91	1 708.00	1 728.79	1 720.88	1 712.96	1 705.04	1 697.12
…of which introduced species									
Other planted forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total (a+b)	**20 618.50**	**19 691.35**	**18 947.65**	**19 464.22**	**19 314.64**	**19 264.49**	**19 214.34**	**19 164.19**	**19 114.04**
Total forest area	**20 618.50**	**19 691.35**	**18 947.65**	**19 464.22**	**19 314.64**	**19 264.49**	**19 214.34**	**19 164.19**	**19 114.04**

Comments

Malaysia does not include rubber plantations as a forest. However for FRA reporting, rubber plantation is included as forest for international consistency.

1c Primary forest and special forest categories

National Data

Data sources + type of data source eg NFI, etc

References to sources of information	Year(s)	Additional comments
Ministry of Water, Land and Natural Resources Website.	1990 - 2016	Statistical information covering mangrove and primary forest in Malaysia.
FAO. *Global Forest Resources Assessment (FRA) 2015 Report.*	2015	Pre-filled data.
FAO. *Global Forest Resources Assessment (FRA) 2020 Guidelines.*	2018	FAOSTAT for country

National classification and definitions

National class	Definiton
Bamboos	Forest area with predominant bamboo vegetation
Mangroves	Forest and other wooded land with mangrove vegetation.
Temporarily unstocked and/or recently regenerated forest	Forest area which is temporarily unstocked or with trees shorter than 1.3 meters that have not yet reached but are expected to reach a canopy cover of at least 10 percent and tree height of at least 5 meters.
Primary forest	Naturally regenerated forest of native tree species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.

Original data

FRA 2020 Categories	Forest area (1000 ha)				
	1990	2000	2010	2015	2016
Bamboos					
Mangroves	467.76	438.02	429.77	410.66	409.29
Temporarily unstocked and/or recently regenerated forest					
Primary forest	1,086.16	1,086.16	1,086.16	1,086.16	1,086.16
Rubber wood	1,836.60	1,430.70	1,020.40	1,074.53	1,072.92

*Malaysia does not include rubber plantations as a forest. However for FRA reporting, rubber plantation is included as forest for international consistency.

Analysis and processing of national data

Estimation and forecasting

The figure for mangroves, primary forest and rubber wood for 1990, 2000, 2010, 2015 and 2016 are available. While figure for 2016 has been assumed as 2020.

Reclassification into FRA 2020 categories

n.a

FRA categories	Area (1000 ha)				
	1990	2000	2010	2015	2020
Primary forest	1 086.16	1 086.16	1 086.16	1 086.16	1 086.16
Temporarily unstocked and/or recently regenerated					
Bamboos					
Mangroves	467.76	438.02	429.77	410.66	409.29
Rubber wood	1 836.60	1 430.70	1 020.40	1 074.53	1 072.92

Comments

Malaysia does not include rubber plantations as a forest. However for FRA reporting, rubber plantation is included as forest for international consistency.

1d Annual forest expansion, deforestation and net change

National Data

Data sources + type of data source eg NFI, etc

References to sources of information	Year(s)	Additional comments
Ministry of Water, Land and Natural Resources Website.	1990 - 2016	Statistical information covering forest area in Malaysia.
FAO. *Global Forest Resources Assessment (FRA) 2015 Report.*	2015	Pre-filled data.
FAO. *Global Forest Resources Assessment (FRA) 2020 Guidelines.*	2018	FAOSTAT for country area.

National classification and definitions

National class	Definiton
Forest expansion	Expansion of forest on land that, until then, was under a different land use, implies a transformation of land use from non-forest to forest.
Forest expansion (of which afforestation)	Establishment of forest through planting and/or deliberate seeding on land that, until then, was under a different land use, implies a transformation of land use form non-forest to forest.
Forest expansion (of which natural expansion)	Expansion of forest through natural succession on land that, until then, was under a different land use, implies a transformation of land use form non-forest to forest (e.g. forest succession on land previously used for agriculture).
Deforestation	The conversion of forest to other land use independently whether human-induced or not.

Original data

n.a

Analysis and processing of national data

Estimation and forecasting

n.a

Reclassification into FRA 2020 categories

n.a

FRA categories	Area (1000 ha/year)			
	1990-2000	2000-2010	2010-2015	2015-2020
Forest expansion (a)				
…of which afforestation				
…of which natural expansion				
Deforestation (b)				
Forest area net change (a-b)	**-92.72**	**-74.37**	**103.31**	**-70.04**

Comments

1e Annual reforestation

National Data

Data sources + type of data source eg NFI, etc

n.a

National classification and definitions

n.a

Original data

n.a

Analysis and processing of national data

Estimation and forecasting

n.a

Reclassification into FRA 2020 categories

n.a

FRA categories	Area (1000 ha/year)			
	1990-2000	2000-2010	2010-2015	2015-2020
Reforestation				

Comments

1f Other land with tree cover

National Data

Data sources + type of data source eg NFI, etc

References to sources of information	Year(s)	Additional comments
Ministry of Plantation Industries and Commodities Malaysia. *Statistic on Commodities.*	1990 - 2016	Statistical information covering primary and commodities based sector in Malaysia.
Ministry of Agriculture.	1990 - 2016	Statistical information covering agriculture sector in Malaysia.
FAO. *Global Forest Resources Assessment (FRA) 2015 Report.*	2015	Pre-filled data.
FAO. *Global Forest Resources Assessment (FRA) 2020 Guidelines.*	2018	FAOSTAT for country area.

National classification and definitions

National class	Definiton
Palms	“Other land with tree cover” predominantly composed of palms for production of oil, coconuts or dates.
Tree orchards	“Other land with tree cover” predominantly composed of trees for production of fruits, nuts, or olives.
Agroforestry	“Other land with tree cover” with temporary agricultural crops and/or pastures/animals.
Tree in urban settings	“Other land with tree cover” such as: urban parks, alleys and gardens.
Other land with tree cover	Land classified as “other land”, spanning more than 0.5 hectares with a canopy cover of more than 10 percent of trees able to reach a height of 5 meters at maturity.

Original data

FRA 2020 Categories	Area (1000 ha)				
	1990	2000	2010	2015	2016
Palms	2,345.06	3,535.22	4,959.42	5,724.94	5,822.60
Tree orchards	598.07	379.77	437.97	221.71	212.41
Agroforestry					
Tree in urban settings					
Other (Specify)					
TOTAL OTHER LAND WITH TREE COVER	**2,943.13**	**3,914.99**	**5,397.39**	**5,946.65**	**6,035.01**

Analysis and processing of national data

Estimation and forecasting

The figure for palms, tree orchards and tree in urban settings for 1990, 2000, 2010, 2015 and 2016 are available. While figure for 2020 has been forecasted using linear trend (extrapolation).

Reclassification into FRA 2020 categories

n.a

FRA categories	Area (1000 ha)				
	1990	2000	2010	2015	2020
Palms (a)	2 345.06	3 535.22	4 959.42	5 724.94	6 357.60
Tree orchards (b)	598.07	379.77	437.97	221.71	153.08
Agroforestry (c)					
Trees in urban settings (d)					
Other (specify in comments) (e)					
Total (a+b+c+d+e)	**2 943.13**	**3 914.99**	**5 397.39**	**5 946.65**	**6 510.68**
Other land area	**12 236.50**	**13 163.65**	**13 907.35**	**13 390.78**	**13 740.96**

Comments

2 Forest growing stock, biomass and carbon

2a Growing stock

National Data

Data sources + type of data source eg NFI, etc

References to sources of information	Year(s)	Additional comments
Forestry Department Peninsular Malaysia. *Third National Forest Inventory Report.*	1991 - 1993	Growing stock information.
Forestry Department Peninsular Malaysia. *Fourth National Forest Inventory Report.*	2007	Growing stock information.
Forestry Department Peninsular Malaysia. *Fifth National Forest Inventory Report.*	2013	Growing stock information.
FAO. *Global Forest Resources Assessment (FRA) 2015 Report.*	2015	Pre-filled data.
FAO. *Global Forest Resources Assessment (FRA) 2020 Guidelines.*	2018	

National classification and definitions

National class	Definiton
Growing stock	Volume over bark of all living trees with a minimum diameter of 10 cm at breast height (or above buttress if these are higher). Includes the stem from ground level up to a top diameter of 0 cm, excluding branches.
Naturally regenerating forest	Forest predominantly composed of trees established through natural regeneration.
Planted forest	Forest predominantly composed of trees established through planting and/or deliberate seeding
Other wooded land	Land not classified as “Forest”, spanning more than 0.5 hectares; with trees higher than 5 meters and a canopy cover of 5-10 percent, or trees able to reach these thresholds *in situ*; or with a combined cover of shrubs, bushes and trees above 10 percent. It does not include land that is predominantly under agricultural or urban land use.

Original data

FRA 2020 Categories	Growing stock (m^3/ha over bark)			
	1990	2000	2010	2015
Naturally regenerating forest (a)	227.79	217.50	207.23	223.11
Planted forest (b)				
…of which plantation forest	145.00	145.00	145.00	145.00
…of which other planted forest				
FOREST (a+b)	**372.79**	**362.50**	**352.23**	**368.11**
Other wooded land				

Analysis and processing of national data

Estimation and forecasting

The growing stock has been estimated and forecasted by calculating the growing stock per hectares for the reference year (1990, 2000, 2010). For this purposes, the weighted average per hectares of growing stock for national inventories with reference years of 1992, 2002 and 2012 has been interpolated and extrapolated. While for the reference year (2015 to 2020), growing stock from NFI-5 have been used.

Reclassification into FRA 2020 categories

n.a

FRA categories	Growing stock m³/ha (over bark)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest	227.79	217.50	207.23	223.11	223.11	223.11	223.11	223.11	223.11
Planted forest	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00
…of which plantation forest	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00
…of which other planted forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forest	220.02	211.51	202.93	216.26	216.12	216.13	216.15	216.16	216.17
Other wooded land									

FRA categories	Total growing stock (million m³ over bark)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest	4 255.99	3 928.88	3 655.28	3 961.59	3 923.58	3 914.15	3 904.73	3 895.31	3 885.89
Planted forest	280.53	235.99	189.79	247.66	250.67	249.53	248.38	247.23	246.08
…of which plantation forest	280.53	235.99	189.79	247.66	250.67	249.53	248.38	247.23	246.08
…of which other planted forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forest	4 536.52	4 164.87	3 845.07	4 209.25	4 174.25	4 163.68	4 153.11	4 142.54	4 131.97
Other wooded land									

Comments

Malaysia does not include rubber plantations as a forest. However for FRA reporting, rubber plantation is included as forest for international consistency.

2b Growing stock composition

National Data

Data sources + type of data source eg NFI, etc

References to sources of information	Year(s)	Additional comments
Forestry Department Peninsular Malaysia. *Third National Forest Inventory Report.*	1991 - 1993	Growing stock information.
Forestry Department Peninsular Malaysia. *Fourth National Forest Inventory Report.*	2007	Growing stock information.
Forestry Department Peninsular Malaysia. *Fifth National Forest Inventory Report.*	2013	Growing stock information.
FAO. *Global Forest Resources Assessment (FRA) 2015 Report.*	2015	Pre-filled data.
FAO. *Global Forest Resources Assessment (FRA) 2020 Guidelines.*	2018	

National classification and definitions

National class	Definiton
Native tree species	A tree species occurring within its natural range (past or present) and dispersal potential (i.e. within the range it occupies naturally or could occupy without direct or indirect introduction or care by humans).
Introduced tree species	A tree species occurring outside its natural range (past or present) and dispersal potential (i.e. outside the range it occupies naturally or could occupy without direct or indirect introduction or care by humans).

Original data

For the calculation of growing stock in forest of 10 most common species, the species distribution (%) from NFI5 has been utilised. Estimation of growing stock in forest for year 2020 is based on species distribution from NFI5. Calculation of species wise growing stock is done by multiplying the percent species distribution based on NFI with total growing stock for the particular year.

Species distribution based on NFI5 (2011 - 2013)

Peninsular Malaysia		
Scientific name	**Common name**	**Percent**
Syzygium spp.	Kelat	12.41%
Cinnamomum spp.	Medang	11.47%
Canarium spp.	Kedondong	6.10%
Shorea curtisii	Meranti seraya	3.89%
Shorea leprosula	Meranti tembaga	2.63%
Shorea platyclados	Meranti bukit	2.19%
Koompassia spp.	Kempas, Tualang	1.91%
Palaquium spp.	Nyatoh	1.81%
Shore ovalis	Meranti kepong	1.77%
Shorea pauciflora	Meranti nemesu	1.67%
Remaining species		54.14%
Total		**100%**

Analysis and processing of national data

Estimation and forecasting

The growing stock has been estimated and forecasted by calculating the growing stock per hectares for the reference year (1990, 2000, 2010, 2015 and 2020) and multiplying it with related extent of forest area in the respective years.

Reclassification into FRA 2020 categories

n.a

FRA categories	Scientific name	Common name	Growing stock in forest (million m³ over bark)				
			1990	2000	2010	2015	2020
Native tree species							
#1 Ranked in terms of volume	Syzygium spp.	Kelat	755.00	695.00	679.00	491.63	482.24
#2 Ranked in terms of volume	Cinnamomum spp.	Medang	551.00	507.00	495.00	454.39	445.71
#3 Ranked in terms of volume	Canarium spp.	Kedondong	259.62	239.66	222.97	241.66	237.04
#4 Ranked in terms of volume	Shorea curtisii	Meranti seraya	237.00	219.00	213.00	154.11	151.16
#5 Ranked in terms of volume	Shorea leprosula	Meranti tembaga	111.93	103.33	96.13	104.19	102.20
#6 Ranked in terms of volume	Shorea platyclados	Meranti bukit	93.21	86.04	80.05	86.76	85.10
#7 Ranked in terms of volume	Koompassia spp.	Kempas, Tualang	81.29	75.04	69.82	75.67	74.22
#8 Ranked in terms of volume	Palaquium spp.	Nyatoh	77.03	71.11	66.16	71.70	70.33
#9 Ranked in terms of volume	Shore ovalis	Meranti kepong	75.33	69.54	64.70	70.12	68.78
#10 Ranked in terms of volume	Shorea pauciflora	Meranti nemesu	71.07	65.61	61.04	66.16	64.89
Remaining native tree species			2 224.04	2 033.54	1 797.20	2 392.86	2 350.30
Total volume of native tree species			**4 536.52**	**4 164.87**	**3 845.07**	**4 209.25**	**4 131.97**
Introduced tree species							
#1 Ranked in terms of volume							
#2 Ranked in terms of volume							
#3 Ranked in terms of volume							
#4 Ranked in terms of volume							
#5 Ranked in terms of volume							

FRA categories	Scientific name	Common name	Growing stock in forest (million m³ over bark)				
			1990	2000	2010	2015	2020
Native tree species							
Remaining introduced tree species							
Total volume of introduced tree species			–	–	–	–	–
Total growing stock			4 536.52	4 164.87	3 845.07	4 209.25	4 131.97

Comments

2c Biomass stock

National Data

Data sources + type of data source eg NFI, etc

References to sources of information	Year(s)	Additional comments
Forestry Department Peninsular Malaysia. *Third National Forest Inventory Report.*	1991 - 1993	Growing stock information.
Forestry Department Peninsular Malaysia. *Fourth National Forest Inventory Report.*	2007	Growing stock information.
Forestry Department Peninsular Malaysia. *Fifth National Forest Inventory Report.*	2013	Growing stock information.
FAO. *Global Forest Resources Assessment (FRA) 2015 Report.*	2015	Pre-filled data.
FAO. *Global Forest Resources Assessment (FRA) 2020 Guidelines.*	2018	

National classification and definitions

National class	Definiton
Above ground biomass	All biomass of living vegetation, both woody and herbaceous, above the soil including stems, stumps, branches, bark, seeds, and foliage.
Below-ground biomass	All biomass of live roots. Fine roots of less than 2 mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter.
Dead wood	All non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.

Original data

Based on FRA 2020 guidelines and projected growing stock for 2020, the BCEF of 0.95 for humic tropical forest and root-shoot ratio of 0.24 have been applied.

Analysis and processing of national data

Estimation and forecasting

The calculation of biomass stock are based on biomass calculator from FRA 2020 system (Tropical Climate Domain).

Insert the percentages of Growing stock by IPCC forest type for each of the FRA forest categories

IPCC forest types	FRA forest categories			
	Naturally regenerating forest	Plantation forest	Other planted forest	
	% Growing stock			
Broadleaved humid	100%	100%		
Broadleaved dry				
Coniferous				
	100%	*100%*		*Must add up to 100%*

Insert Carbon fraction used by country (IPCC default = 0.47)

Carbon Fraction	47%

Biomass conversion and expansion factors (BCEF)

Naturally regenerating forest	1990	2000	2010	2015	2016	2017	2018	2019	2020
Broadleaved humid	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Broadleaved dry	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Coniferous	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Plantation forest									
Broadleaved humid	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Broadleaved dry	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Coniferous	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Other planted forest									
Broadleaved humid									
Broadleaved dry									
Coniferous									
Weighted BCEF									
Broadleaved humid	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Broadleaved dry	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Coniferous									

Root-shoot ratios

Naturally regenerating forest	1990	2000	2010	2015	2016	2017	2018	2019	2020
Broadleaved humid	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Broadleaved dry	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Coniferous	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Plantation forest									
Broadleaved humid	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Broadleaved dry	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Coniferous	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Other planted forest									
Broadleaved humid									
Broadleaved dry									
Coniferous									
Weighted BCEF									

Broadleaved humid	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Broadleaved dry	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Coniferous									

Above-ground biomass (t/ha)

	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest	216.40	206.63	196.87	211.95	211.95	211.95	211.95	211.95	211.95
Plantation forest	188.50	188.50	188.50	188.50	188.50	188.50	188.50	188.50	188.50
Other planted forest									
Total	**213.78**	**205.12**	**196.29**	**209.90**	**209.86**	**209.86**	**209.86**	**209.87**	**209.87**

Below-ground biomass (t/ha)

	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest	51.94	49.59	47.25	50.87	50.87	50.87	50.87	50.87	50.87
Plantation forest	45.24	45.24	45.24	45.24	45.24	45.24	45.24	45.24	45.24
Other planted forest									
Total	**51.31**	**49.23**	**47.11**	**50.38**	**50.37**	**50.37**	**50.37**	**50.37**	**50.37**

Reclassification into FRA 2020 categories

n.a

FRA categories	Forest biomass (tonnes/ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Above-ground biomass	213.78	205.12	196.29	209.90	209.86	209.86	209.86	209.87	209.87
Below-ground biomass	51.31	49.23	47.11	50.38	50.37	50.37	50.37	50.37	50.37
Dead wood									

Comments

2d Carbon stock

National Data

Data sources + type of data source eg NFI, etc

References to sources of information	Year(s)	Additional comments
Forestry Department Peninsular Malaysia. *Third National Forest Inventory Report.*	1991 - 1993	Growing stock information.
Forestry Department Peninsular Malaysia. *Fourth National Forest Inventory Report.*	2007	Growing stock information.
Forestry Department Peninsular Malaysia. *Fifth National Forest Inventory Report.*	2013	Growing stock information.
FAO. *Global Forest Resources Assessment (FRA) 2015 Report.*	2015	Pre-filled data.
FAO. *Global Forest Resources Assessment (FRA) 2020 Guidelines.*	2018	

National classification and definitions

National class	Definiton
Carbon on above-ground biomass	Carbon in all living biomass above the soil, including stems, stumps, branches, bark, seeds, and foliage.
Carbon in below-ground biomass	Carbon in all biomass of live roots. Fine roots of less than 2 mm diameter are excluded, because these often cannot be distinguished empirically from soil organic matter or litter.
Carbon in dead wood	Carbon in all non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots down to 2 mm, and stumps larger than or equal to 10 cm in diameter.
Carbon in litter	Carbon in all non-living biomass with a diameter less than the minimum diameter for dead wood (e.g. 10 cm), lying dead in various states of decomposition above the mineral or organic soil.
Soil Carbon	Organic carbon in mineral and organic soils (including peat) to a specified depth chosen by the country and applied consistently through the time series.

Original data

Based on FRA 2020 guidelines and projected growing stock for 2020, this table uses biomass data and convention factor of 0.47 to calculate carbon in above-ground biomass and carbon in below-ground biomass.

Analysis and processing of national data

Estimation and forecasting

The calculation of carbon stock are based on biomass calculator from FRA 2020 system (Tropical Climate Domain).

Insert the percentages of Growing stock by IPCC forest type for each of the FRA forest categories

IPCC forest types	FRA forest categories			
	Naturally regenerating forest	Plantation forest	Other planted forest	
	% Growing stock			
Broadleaved humid	100%	100%		
Broadleaved dry				
Coniferous				
	100%	*100%*		*Must add up to 100%*

Insert Carbon fraction used by country (IPCC default = 0.47)

Carbon Fraction	47%

Biomass conversion and expansion factors (BCEF)

Naturally regenerating forest	1990	2000	2010	2015	2016	2017	2018	2019	2020
Broadleaved humid	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Broadleaved dry	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Coniferous	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Plantation forest									
Broadleaved humid	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Broadleaved dry	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Coniferous	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Other planted forest									
Broadleaved humid									
Broadleaved dry									
Coniferous									
Weighted BCEF									
Broadleaved humid	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Broadleaved dry	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Coniferous									

Root-shoot ratios

Naturally regenerating forest	1990	2000	2010	2015	2016	2017	2018	2019	2020
Broadleaved humid	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Broadleaved dry	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Coniferous	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Plantation forest									
Broadleaved humid	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Broadleaved dry	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Coniferous	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Other planted forest									
Broadleaved humid									
Broadleaved dry									

Coniferous									
Weighted BCEF									
Broadleaved humid	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Broadleaved dry	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Coniferous									

Above-ground biomass (t/ha)

	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest	216.40	206.63	196.87	211.95	211.95	211.95	211.95	211.95	211.95
Plantation forest	188.50	188.50	188.50	188.50	188.50	188.50	188.50	188.50	188.50
Other planted forest									
Total	**213.78**	**205.12**	**196.29**	**209.90**	**209.86**	**209.86**	**209.86**	**209.87**	**209.87**

Below-ground biomass (t/ha)

	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest	51.94	49.59	47.25	50.87	50.87	50.87	50.87	50.87	50.87
Plantation forest	45.24	45.24	45.24	45.24	45.24	45.24	45.24	45.24	45.24
Other planted forest									
Total	**51.31**	**49.23**	**47.11**	**50.38**	**50.37**	**50.37**	**50.37**	**50.37**	**50.37**

Reclassification into FRA 2020 categories

n.a

FRA categories	Forest carbon (tonnes/ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Carbon in above-ground biomass	100.48	96.41	92.26	98.65	98.63	98.63	98.64	98.64	98.64
Carbon in below-ground biomass	24.11	23.14	22.14	23.68	23.67	23.67	23.67	23.67	23.67
Carbon in dead wood									
Carbon in litter									
Soil carbon									

Soil depth (cm) used for soil carbon estimates	

Comments

3 Forest designation and management

3a Designated management objective

National Data

Data sources + type of data source eg NFI, etc

References to sources of information	Year(s)	Additional comments
Ministry of Water, Land and Natural Resources Website.	1990 - 2016	Statistical information of forest cover in Malaysia.
FAO. *Global Forest Resources Assessment (FRA) 2015 Report.*	2015	Pre-filled data.
FAO. *Global Forest Resources Assessment (FRA) 2020 Guidelines.*	2018	

National classification and definitions

National class	Definiton
Total area with designated management objective	The total area managed for a specific objective.
Primary designated management objective	The primary designated management objective assigned to a management unit.
Production	Forest where the management objective is production of wood, fibre, bio-energy and/or non wood forest products.
Protection of soil and water	Forest where the management objective is protection of soil and water.
Conservation of biodiversity	Forest where the management objective is conservation of biological diversity. Includes but is not limited to areas designated for biodiversity conservation within the protected areas.
Social services	Forest where the management objective is social services.
Multiple use	Forest where the management objective is a combination of several purposes and where none of them is significantly more important than the other.
Other	Forest where the management objective is other than production, protection, conservation, social services or multiple use.

Original data

FRA 2020 Categories	Forest area (1000 ha)				
	Primary designated management objective				
	1990	2000	2010	2015	2016
Production	11,435.66	9,979.47	9,989.55	9,046.54	9,031.17
Protection of soil and water			-	-	-
Conservation of biodiversity					
Social Services					
Multiple use	7,346.23	8,281.18	7,937.70	9,343.14	9,210.54
Other (rubber plantation for latex production)	1,836.60	1,430.70	1,020.40	1,074.53	1,072.92
None/unknown					
Total forest area	**20,618.50**	**19,691.35**	**18,947.65**	**19,464.22**	**19,314.64**

* Malaysia does not include rubber plantations as a forest. However for FRA reporting, rubber plantation is included as forest for international consistency.

Analysis and processing of national data

Estimation and forecasting

The figure for production, protection of soil and water, multiple use and other (rubber plantation for latex production) for 1990, 2000, 2010, 2015 and 2016 are available. While figure for 2020 has been forecasted using linear trend (extrapolation).

Reclassification into FRA 2020 categories

n.a

Primary designated management objective

FRA 2020 categories	Forest area (1000 ha)				
	1990	2000	2010	2015	2020
Production (a)	11 435.66	9 979.47	9 989.55	9 046.54	8 661.25
Protection of soil and water (b)	0.00	0.00	0.00	0.00	0.00
Conservation of biodiversity (c)	0.00	0.00	0.00	0.00	0.00
Social Services (d)	0.00	0.00	0.00	0.00	0.00
Multiple use (e)	7 346.24	8 281.18	7 937.70	9 343.15	9 497.36
Other (specify in comments) (f)	1 836.60	1 430.70	1 020.40	1 074.53	955.43
None/unknown (g)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Total forest area	**20 618.50**	**19 691.35**	**18 947.65**	**19 464.22**	**19 114.04**

Total area with designated management objective

FRA 2020 categories	Forest area (1000 ha)				
	1990	2000	2010	2015	2020
Production	11 435.66	9 979.47	9 989.55	9 046.54	8 661.25
Protection of soil and water					
Conservation of biodiversity					
Social Services					
Other (specify in comments)					

Comments

Malaysia does not include rubber plantations as a forest. However for FRA reporting, rubber plantation is included as forest for international consistency.

The multiple use category does not included timber production forest under sustainable yield. It is managed only for conservation of biodiversity, social services, wild life reserved, national park, soil protection forest, soil reclamination forest,flood control forest, water catchment forest, forest sanctuary for wildlife, virgin jungle reserved forest, amenity forest, education forest, research forest and forest for federal purposes.

For multiple use at the moment it is possible to provide only cumulative figures.

"Other" indicated as rubber plantation for latex production.

3b Forest area within protected areas and forest area with long-term management plans

National Data

Data sources + type of data source eg NFI, etc

References to sources of information	Year(s)	Additional comments
State Forestry Departments.	1990 - 2016	State gazettes.
Ministry of Plantation Industries and Commodities Malaysia. *Statistic on Commodities.*	2015 - 2016	Statistical information covering primary and based sector in Malaysia.
FAO. *Global Forest Resources Assessment (FRA) 2015 Report.*	2015	Pre-filled data.
FAO. *Global Forest Resources Assessment (FRA) 2020 Guidelines.*	2018	

National classification and definitions

National class	Definiton
Forest area withing legally established protected areas	Forest area within formally established protected areas independently of the purpose for which the protected areas were established.
Forest area with long-term forest management plan	Forest area that has a long-term (ten years or more) documented management plan, aiming at defined management goals, and which is periodically revised.
Forest area with long-term forest management plan.....*of which in protected areas*	Forest area within protected areas that has a long-term (ten years or more) documented management plan, aiming at defined management goals, and which is periodically revised.

Original data

FRA 2020 Categories	Forest area (1000 ha)				
	1990	2000	2010	2015	2016
Forest area within legally established protected areas	1,436.41	1,837.29	2,094.74	3,038.12	3,171.18
Forest area with long-term forest management plan	9,141.13	8,887.70	9,186.91	10,463.86	10,421.84
…of which in protected areas	1,150.34	1,516.32	1,912.96	1,255.11	1,340.77

Analysis and processing of national data

Estimation and forecasting

The figure for forest area within protected areas, forest area with long-term forest management plan and of which in protected areas for 1990, 2000, 2010, 2015 and 2016 are available. While figure for 2017 to 2020 has been forecasted using linear trend (extrapolation).

Reclassification into FRA 2020 categories

n.a

FRA categories	Area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Forest area within protected areas	1 436.41	1 837.29	2 094.74	3 038.12	3 171.18	3 237.90	3 304.63	3 371.35	3 438.07
Forest area with long-term forest management plan	9 141.13	8 887.70	9 186.91	10 463.86	10 421.84	10 471.10	10 520.36	10 569.61	10 618.87
…of which in protected areas	1 150.34	1 516.32	1 912.96	1 255.11	1 340.77	1 348.09	1 355.41	1 362.74	1 370.06

Comments

4 Forest ownership and management rights

4a Forest ownership

National Data

Data sources + type of data source eg NFI, etc

References to sources of information	Year(s)	Additional comments
State Forestry Departments.	1990 - 2015	State gazettes.
FAO. *Global Forest Resources Assessment (FRA) 2015 Report.*	2015	Pre-filled data.
FAO. *Global Forest Resources Assessment (FRA) 2020 Guidelines.*	2018	

National classification and definitions

National class	Definiton
Forest ownership	Generally refers to the legal right to freely and exclusively use, control, transfer, or otherwise benefit from a forest. Ownership can be acquired through transfers such as sales, donations, and inheritance.
Private ownership	Forest owned by individuals, families, communities, private co-operatives, corporations and other business entities, religious and private educational institutions, pension or investment funds, NGOs, nature conservation associations and other private institutions.
Private ownership... *of which owned by individuals*	Forest owned by individuals and families.
Private ownership... *of which owned by private bussiness entities and institutions*	Forest owned by private corporations, co-operatives, companies and other business entities, as well as private organizations such as NGOs, nature conservation associations, and private religious and educational institutions, etc.
Private ownership... *of which owned by local, tribal and indigenous communities*	Forest owned by a group of individuals belonging to the same community residing within or in the vicinity of a forest area or forest owned by communities of indigenous or tribal people. The community members are co-owners that share exclusive rights and duties and benefits contribute to the community development.
Public ownership	Forest owned by the State; or administrative units of the Public Administration; or by institutions or corporations owned by the Public Administration.
Other	Other kinds of ownership arrangements not covered by public or private ownership or forest area where ownership is unknown.

Original data

FRA 2020 Categories	Forest area (1000 ha)			
	1990	2000	2010	2015
Private ownership	1,836.60	1,430.70	1,020.40	1,074.53
…of which owned by individuals				
…of which owned by private business entities and institutions	1,836.60	1,430.70	1,020.40	1,074.53
…of which owned by by local, tribal and indigenous communities				
Public ownership	18,781.90	18,260.65	17,927.25	18,389.69
Other (specify)/unknown				
Total forest area	**20,618.50**	**19,691.35**	**18,947.65**	**19,464.22**

Analysis and processing of national data

Estimation and forecasting

The figure for private ownership and public ownership for 1990, 2000, 2010 and 2015 are available.

Reclassification into FRA 2020 categories

n.a

FRA categories	Forest area (1000 ha)			
	1990	2000	2010	2015
Private ownership (a)	1 836.60	1 430.70	1 020.40	1 074.53
…of which owned by individuals	0.00	0.00	0.00	0.00
…of which owned by private business entities and institutions	1 836.60	1 430.70	1 020.40	1 074.53
…of which owned by local, tribal and indigenous communities	0.00	0.00	0.00	0.00
Public ownership (b)	18 781.90	18 260.65	17 927.25	18 389.69
Unknown/other (specify in comments) (c)	**0.00**	**0.00**	**0.00**	**0.00**
Total forest area	**20 618.50**	**19 691.35**	**18 947.65**	**19 464.22**

Comments

4b Holder of management rights of public forests

National Data

Data sources + type of data source eg NFI, etc

References to sources of information	Year(s)	Additional comments
State Forestry Departments.	1990 - 2015	State gazettes.
FAO. *Global Forest Resources Assessment (FRA) 2015 Report.*	2015	Pre-filled data.
FAO. *Global Forest Resources Assessment (FRA) 2020 Guidelines.*	2018	

National classification and definitions

National class	Definiton
Management right of public forest	Refers to the right to manage and use publicly owned forests for a specific period of time.
Public administration	The Public Administration (or institutions or corporations owned by the Public Administration) retains management rights and responsibilities within the limits specified by the legislation.
Individuals	Forest management rights and responsibilities are transferred from the Public Administration to individuals or households through long-term leases or management agreements.
Private, bussiness entities and institutions	Forest management rights and responsibilities are transferred from the Public Administration to corporations, other business entities, private co-operatives, private non-profit institutions and associations, etc., through long-term leases or management agreements.
Local, tribal and indigenous communities	Forest management rights and responsibilities are transferred from the Public Administration to local communities (including indigenous and tribal communities) through long-term leases or management agreements.
Other	Forests for which the transfer of management rights does not belong to any of the categories mentioned above.

Original data

FRA 2020 Categories	Forest area (1000 ha)			
	1990	2000	2010	2015
Public Administration	18,781.90	18,195.47	17,927.25	18,389.69
Individuals	0	0	0	0
Private business entities and institutions	0	0	0	0
Local, tribal and indigenous communities	0	0	0	0
Other (specify)	0	0	0	0
Total public ownership	18,781.90	18,195.47	17,927.25	18,389.69

Analysis and processing of national data

Estimation and forecasting

The figure for public administration, private business entities and institutions for 1990, 2000, 2010 and 2015 are available.

Reclassification into FRA 2020 categories

n.a

FRA categories	Forest area (1000 ha)			
	1990	2000	2010	2015
Public Administration (a)	18 781.90	18 195.47	17 927.25	18 389.69
Individuals (b)	0.00	0.00	0.00	0.00
Private business entities and institutions (c)	0.00	0.00	0.00	0.00
Local, tribal and indigenous communities (d)	0.00	0.00	0.00	0.00
Unknown/other (specify in comments) (e)	**0.00**	**65.18**	**0.00**	**0.00**
Total public ownership	**18 781.90**	**18 260.65**	**17 927.25**	**18 389.69**

Comments

5 Forest disturbances

5a Disturbances

National Data

Data sources + type of data source eg NFI, etc

n.a

National classification and definitions

n.a

Original data

n.a

Analysis and processing of national data

Estimation and forecasting

n.a

Reclassification into FRA 2020 categories

n.a

FRA categories	Area (1000 ha)																	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Insects (a)																		
Diseases (b)																		
Severe weather events (c)																		
Other (specify in comments) (d)																		
Total (a+b+c+d)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total forest area	**19 691.35**	–	–	–	–	–	–	–	–	–	**18 947.65**	–	–	–	–	**19 464.22**	**19 314.64**	**19 264.49**

Comments

5b Area affected by fire

National Data

Data sources + type of data source eg NFI, etc

References to sources of information	Year(s)	Additional comments
State Forestry Departments.	2015 - 2017	Information of forest fire.
FAO. *Global Forest Resources Assessment (FRA) 2015 Report.*	2015	Pre-filled data.
FAO. *Global Forest Resources Assessment (FRA) 2020 Guidelines.*	2018	

National classification and definitions

National class	Definiton
Burned area	Land area affected by fire.
Total land area affected by fire *.....of which on forest*	Forest area affected by fire.

Original data

FRA 2020 categories	Area (ha)																	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total land area affected by fire	6.00	297.00	1,350.00	1,320.00	1,301.00	2,231.00	1,325.00	1,350.00	60.00	1,540.00	2,480.00	10.00	448.00	1,436.00	5,196.60	886.00	20,845.99	215.39
…of which on forest	6.00	297.00	1,350.00	1,320.00	1,301.00	2,231.00	1,325.00	1,350.00	60.00	1,540.00	2,480.00	10.00	448.00	1,436.00	5,196.60	886.00	20,845.99	215.39

Analysis and processing of national data

Estimation and forecasting

The figure for total land area affected by fire for 2000 to 2017 are available.

Reclassification into FRA 2020 categories

n.a

FRA categories	Area (1000 ha)																	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total land area affected by fire	0.01	0.30	1.35	1.32	1.30	2.23	1.33	1.35	0.06	1.54	2.48	0.01	0.45	1.44	5.20	0.89	20.85	0.22
…of which on forest	0.01	0.30	1.35	1.32	1.30	2.23	1.33	1.35	0.06	1.54	2.48	0.01	0.45	1.44	5.20	0.89	20.85	0.22

Comments

5c Degraded forest

Does your country monitor area of degraded forest		Yes
If "yes"	What is the national definition of "Degraded forest"?	A direct loss of forest values likely to be characterised by a reduction of tree crown cover over long term. Routine management from which crown cover will recover within the normal cycle of forest management operations is not included. (ITTO, 2005)
	Describe the monitoring process and results	Biennial geospatial image assessment with periodic ground assessment.

Comments

6 Forest policy and legislation

6a Policies, Legislation and national platform for stakeholder participation in forest policy

National Data

Data sources + type of data source eg NFI, etc

References to sources of information	Additional comments
Ministry of Water, Land and Natural Resources	
FAO. *Global Forest Resources Assessment (FRA) 2015 Report.*	Pre-filled data.
FAO. *Global Forest Resources Assessment (FRA) 2020 Guidelines.*	

National classification and definitions

National class	Definiton
Policies supporting SFM	Policies or strategies that explicitly encourage sustainable forest management.
Legislation and/or regulations supporting sustainable forest management	Legislation and regulations that govern and guide sustainable forest management, operations and use.
National stakeholder platform	A recognized procedure that a broad range of stakeholders can use to provide opinions, suggestions, analysis, recommendations and other input into the development of national forest policy.
Traceability system for wood products	A system that provides the ability to trace the origin, location and movement of wood products by means of recorded identifications. This involves two main aspects: (1) identification of the product by marking, and (2) the recording of data on movement and location of the product all the way along the production, processing and distribution chain

Original data

n.a

Indicate the existence of	Boolean (Yes/No)	
	National	Sub-national
Policies supporting SFM	Yes	Yes
Legislations and regulations supporting SFM	Yes	Yes
Platform that promotes or allows for stakeholder participation in forest policy development	Yes	Yes
Traceability system(s) for wood products	Yes	Yes

Comments

6b Area of permanent forest estate

National Data

Data sources + type of data source eg NFI, etc

References to sources of information	Year(s)	Additional comments
Ministry of Land, Water and Natural Resources Website.	1990 - 2016	Statistical information of forest cover in Malaysia.
FAO. *Global Forest Resources Assessment (FRA) 2015 Report.*	2015	Pre-filled data.
FAO. *Global Forest Resources Assessment (FRA) 2020 Guidelines.*	2018	

National classification and definitions

National class	Definiton
Permanent forest estate	Forest area that is designated to be retained as forest and may not be converted to other land use.

Original data

FRA 2020 categories	Forest area (1000ha)			
	1990	2000	2010	2015
Area of permanent forest estate	12,491.13	12,487.70	12,793.91	12,788.05

The figure for 1990, 2000,2010 and 2015 are available. While figure for 2020 has been forecasted using linear trend (extrapolation).

FRA 2020 categories	Forest area (1000 ha)					
	Applicable?	1990	2000	2010	2015	2020
Area of permanent forest estate	Yes	12 491.13	12 487.70	12 793.91	12 788.05	12 835.56

Comments

7 Employment, education and NWFP

7a Employment in forestry and logging

National Data

Data sources + type of data source eg NFI, etc

References to sources of information	Year(s)	Additional comments
Department of Statistics Malaysia.	1990 - 2016	Statistical information of employees in forestry sector
FAO. *Global Forest Resources Assessment (FRA) 2015 Report.*	2015	Pre-filled data.
FAO. *Global Forest Resources Assessment (FRA) 2020 Guidelines.*	2018	FAOSTAT for country area.

National classification and definitions

National class	Definiton
Full-time equivalents (FTE)	A measurement equal to one person working full-time during a specified reference period.
Employment in forestry and logging	Employment in activities related to production of goods derived from forests. This category corresponds to the ISIC/NACE Rev. 4 activity A02 (Forestry and logging).
Employment in forestry and logging *.... of which silviculture and other forestry activities*	This class includes employment in silviculture and other forestry activities.
Employment in forestry and logging *.... of which logging*	This class includes employment in logging and the output of this activity can take the form of logs, chips or fire wood.
Employment in forestry and logging *.... of which support services to forestry*	This class includes employment in carrying out part of the forestry operation on a fee or contract basis.

Original data

FRA 2020 categories	Full-Time Equivalents (FTE)					
	2010			2015		
	Total	Female	Male	Total	Female	Male
Employment in forestry and logging	23,460.00	2,021.00	21,439.00	25,106.00	3,198.00	21,908.00
…of which silviculture and other forestry activites	0	0	0	0	0	0
…of which logging	0	0	0	0	0	0
…of which gathering of non wood forest products	0	0	0	0	0	0
…of which support services to forestry	0	0	0	0	0	0

FRA 2020 categories	Full-time equivalents (1000 FTE)											
	1990			2000			2010			2015		
	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male
Employment in forestry and logging							23.46	2.02	21.44	25.11	3.20	21.91
…of which silviculture and other forestry activities												
…of which logging												
…of which gathering of non wood forest products												
…of which support services to forestry												

Comments

Figure for 1990 and 2000 are not available

7b Graduation of students in forest-related education

National Data

Data sources + type of data source eg NFI, etc

References to sources of information	Year (s)	Additional comments
Ministry of Education	1990 - 2016	Statistical information of graduation of students in forest related education
FAO. Global Forest Resources Assessment (FRA) 2020 Guidelines.	2018	

National classification and definitions

National class	Definiton
Forest-related education	Post-secondary education programme with focus on forests and related subjects.
Doctoral degree	University (or equivalent) education with a total duration of about 8 years.
Master's degree	University (or equivalent) education with a total duration of about 5 years.
Bachelor's degree	University (or equivalent) education with a duration of about 3 years.
Technician certificate diploma	Qualification issued from a technical education institution consisting of 1 to 3 years post-secondary education

Original data

FRA 2020 categories	Number of graduated																	
	2009			2010			2011			2014			2015			2016		
	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male
Doctoral degree	0.00	0.00	0.00	0.00	0.00	0.00	5.00	3.00	2.00	5.00	1.00	4.00	3.00	0.00	3.00	8.00	4.00	4.00
Master's degree	11.00	8.00	3.00	24.00	13.00	11.00	24.00	14.00	10.00	20.00	11.00	9.00	13.00	7.00	6.00	20.00	13.00	7.00
Bachelor's degree	386.00	213.00	173.00	433.00	246.00	187.00	275.00	160.00	115.00	106.00	67.00	39.00	121.00	74.00	47.00	209.00	135.00	74.00
Technician certificate/diploma	71.00	28.00	43.00	43.00	20.00	23.00	124.00	35.00	89.00	135.00	35.00	100.00	129.00	42.00	87.00	156.00	42.00	114.00

FRA 2020 categories	Number of graduated students											
	1990			2000			2010			2015		
	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male
Doctoral degree							2.00	1.00	1.00	6.00	2.00	4.00
Master's degree							20.00	12.00	8.00	17.00	10.00	7.00
Bachelor's degree							364.00	206.00	158.00	145.00	92.00	53.00
Technician certificate / diploma							80.00	28.00	52.00	140.00	40.00	100.00
Total							466.00	247.00	219.00	308.00	144.00	164.00

Comments

Figure for 1990 and 2000 are not available

7c Non wood forest products removals and value 2015

National Data

Data sources + type of data source eg NFI, etc

References to sources of information	Year(s)	Additional comments
State Forestry Departments.	2015	Non wood forest product(s).
Department of Wildlife and National Parks.	2015	Non wood forest product(s).
FAO. *Global Forest Resources Assessment (FRA) 2015 Report.*	2015	Pre-filled data.
FAO. *Global Forest Resources Assessment (FRA) 2020 Guidelines.*	2018	FAOSTAT for country area.

National classification and definitions

National class	Definiton
Non wood forest product	Goods derived from forests that are tangible and physical objects of biological origin other than wood.
Value of non wood forest products	For the purpose of reporting on this variable, value is defined as the commercial market value at the forest gate.

Original data

-

	Name of NWFP product	Key species	Quantity	Unit	Value (1000 local currency)	NWFP category
#1	Agarwood	Aquilaria spp			5 873	3 Raw material for medicine and aromatic products
#2	Rattan	Calamus spp			349	5 Raw material for utensils handicrafts construction
#3	Python	Python reticulatus			327	12 Wild meat
#4	Wild Boar	Sus scrofa			319	12 Wild meat
#5	Monitor Lizard	Varanus salvator			73	12 Wild meat
#6	Skin (Python)	Python reticulatus			30	10 Hides skins and trophies
#7	Nypa	Nypa spp			12	5 Raw material for utensils handicrafts construction
#8	Skin (Monitor Lizard)	Varanus salvator			11	10 Hides skins and trophies
#9	Bamboo	Bambusease spp.			3	5 Raw material for utensils handicrafts construction
#10						
All other plant products						
All other animal products						
Total					**6 997**	

Name of currency	MYR

Comments

8 Sustainable Development Goal 15

8a Sustainable Development Goal 15

SDG Indicator 15.1.1 Forest area as proportion of total land area 2015

Indicator	Percent							
	2000	2010	2015	2016	2017	2018	2019	2020
Forest area as proportion of total land area 2015	59.93	57.67	59.24	58.79	58.63	58.48	58.33	58.18

Name of agency responsible	Economic Planning Unit

SDG Indicator 15.2.1 Progress towards sustainable forest management

Sub-Indicator 1	Percent						
	2000-2010	2010-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
Forest area annual net change rate	-0.38	0.54	-0.77	-0.26	-0.26	-0.26	-0.26

Name of agency responsible	Economic Planning Unit

Sub-Indicator 2	Forest biomass (tonnes/ha)							
	2000	2010	2015	2016	2017	2018	2019	2020
Above-ground biomass stock in forest	205.12	196.29	209.90	209.86	209.86	209.86	209.87	209.87

Name of agency responsible	Economic Planning Unit

Sub-Indicator 3	Percent (2015 forest area baseline)							
	2000	2010	2015	2016	2017	2018	2019	2020
Proportion of forest area located within legally established protected areas	9.44	10.76	15.61	16.29	16.64	16.98	17.32	17.66

Name of agency responsible	Economic Planning Unit

Sub-Indicator 4	Percent (2015 forest area baseline)							
	2000	2010	2015	2016	2017	2018	2019	2020
Proportion of forest area under long-term forest management plan	45.66	47.20	53.76	53.54	53.80	54.05	54.30	54.56

Name of agency responsible	Economic Planning Unit

Sub-Indicator 5	Forest area (1000 ha)							
	2000	2010	2015	2016	2017	2018	2019	2020
Forest area under independently verified forest management certification schemes	55.14	1 618.76	5 228.45	4 515.71	4 736.86	5 011.18	–	–