



Food and Agriculture
Organization of the
United Nations

Global Forest Resources Assessment 2020

Desk Study

Antigua and Barbuda

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

Introductory text

No official report has been received from Antigua and Barbuda. This report is the result of a desk study prepared by the FRA secretariat in Rome, which summarizes existing available information using the established format for FRA 2020 country reports.

Antigua and Barbuda, part of the Leeward Islands and about 690 km north of Venezuela, consists of three islands – Antigua, Barbuda and Redonda (the latter is uninhabited, rocky and has little plant life).

The climate is tropical and the average temperature is 27 °C. The islands receive about 1 100 mm of rain annually, but occasionally there are long periods of drought. The ecological zones of Antigua and Barbuda are mainly tropical rainforest, tropical moist forest tropical dry forest in the FAO global map of ecological zones.

The forest cover of Antigua and Barbuda is limited since most of the original forests were cleared to establish the sugar plantations during the early colonial settlement of the islands. Additionally, this island state is relatively dry and flat, therefore, lush tropical rainforests are not common.

Barbuda's topography is relatively uniform, flat with some low lying hills rising to just under 40m in the Highlands area and dominated by coralline limestone rock and sand. Dry woodland covers the highland of the northern section of the island and the western coast sand bar. Cactus scrub is also found on most of the island. There is a coconut plantation only in Palmetto Point. There are mangrove-fringing areas of the Codrington Lagoon.

Antigua has a variety of vegetation types, however, due to the fact that in the 1760's, under colonial rule, the island was virtually cleared of all forests to increase the size of sugar plantations, the biodiversity of vegetation is not as robust as it once was. Cactus scrub can be found on two thirds of the total land. These areas are used for settlement and livestock grazing. Dry woodland can be found in the East coast and in Northern pockets of the island. Moist forests are located in the volcanic region in the South and Southwest. Mangrove woodland and swamps are found in coastal areas.

The forest cover of Antigua and Barbuda is limited since most of the original forests were cleared to establish the sugar plantations during the early colonial settlement of the islands.

source: Antigua and Barbuda second communication to the UNFCCC, 2011

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

Antigua and Barbuda second communication to the UNFCCC, 2011 For the area of forest (available at https://www.adaptation-undp.org/sites/default/files/downloads/antigua_barbuda_second_national_communication.pdf)

Atkins Land and Water Management. 1983. Soil and water conservation, Windward and Leeward Islands, Phase 1: Reconnaissance Study. Draft Final Report, as cited in Caribbean Development Bank, DFS-GmbH, Regional Forestry Sector Study, Country Report, Antigua and Barbuda, 1983. (for the other wooded land)

National classification and definitions

Definitions according to Atkins (1983)

National class	Definition
Moist forest	Closed forest (>40% canopy cover, with trees > 5m tall)
Dry woodland	Closed forest (>40% canopy cover, with trees > 5m tall)
Cactus scrub	Open forest (10-40% canopy cover, with trees > 5m tall)
Mangroves	Closed forest (>40% canopy cover, with trees > 5m tall)
Shrubs	Other wooded land (5-10% canopy cover, with trees and/or shrubs > 5m tall, or >10% canopy cover with trees and/or shrubs < 5m tall)

Original data

(Atkins, 1983)

National class	1980 (1000 ha)
Moist forest	2.2
Dry woodland	5.8
Mangrove	0.3
Cactus scrub	1.1
Shrub	15.6
Total forest	9.4
Total other wooded land	15.6
Total other land	19.0
Total land	44.0

The UNFCCC communication reported above cited the following:

The latest available published data indicating land use was completed by the Developmental Control Authority (DCA) in 1995. However, no data was available for Barbuda. In 1985 an Agricultural Census was carried out by the Ministry of Agriculture, which included details of Barbuda. Woodland areas (limestone hills, volcanic areas) decreased slightly from 23,645 (9569 ha) to 22,024 acres (8913 ha) from 1985 to 1995. Swamp and Mangrove acreage remained almost the same during that ten year period, 2,164 acres (876 ha) in 1985 to 2,142 acres (867 ha) in 1995.

Analysis and processing of national data

Estimation and forecasting

Total forest area in 1985: 9569+876= 10445 ha

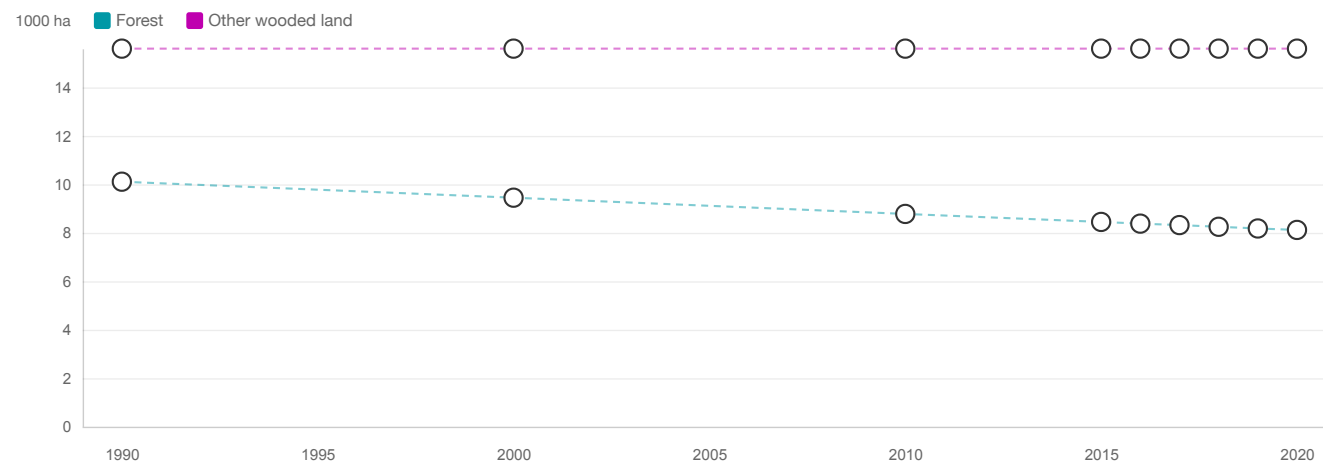
Total forest area in 1995: 8913+867= 9780 ha

These two figures reported in the second communication to the UNFCCC have been used to estimate forest area for the reporting period using linear interpolation/extrapolation.

The other wooded land figure has been taken from the 1983 source and considered constant throughout the reporting period.

Reclassification into FRA 2020 categories

National Classes	Forest	OWL
Moist forest	100%	
Dry woodland	100%	
Mangrove	100%	
Cactus scrub	100%	
Shrub		100%



FRA categories	Area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Forest (a)	10.11	9.45	8.78	8.45	8.38	8.32	8.25	8.18	8.12
Other wooded land (a)	15.60	15.60	15.60	15.60	15.60	15.60	15.60	15.60	15.60
Other land (c-a-b)	18.29	18.95	19.62	19.95	20.02	20.08	20.15	20.22	20.28
Total land area (c)	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00

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

1b Forest characteristics

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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FRA categories	Forest area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest (a)									
Planted forest (b)	–	–	–	–	–	–	–	–	–
Plantation forest									
...of which introduced species									
Other planted forest									
Total (a+b)	–	–	–	–	–	–	–	–	–
Total forest area	10.11	9.45	8.78	8.45	8.38	8.32	8.25	8.18	8.12

Comments

1c Primary forest and special forest categories

National Data

Data sources + type of data source eg NFI, etc

FAO.2007. Working paper 137. Mangroves of North and Central America 1980-2005.

Putney, A.D. 1982. Survey of conservation priorities in the Lesser Antilles. Technical Report 1. Caribbean

Bacon, P. R. 1991. *The Status of Mangrove Conservation in the Caricom Islands of the Eastern Caribbean*. Report to the Commission of the European Communities as part of the Tropical Forestry Action Plan for the Caribbean Region. University of the West Indies, Mona, Jamaica. 211 pp (Ground inventory of 36 mangrove sites in Antigua and 9 in Barbuda. Includes all mangroves, also those with height less than 5 meters)

National classification and definitions

National class	Definition
Mangroves	Mangroves are found on both Antigua and Barbuda islands. Antigua's low-lying coasts have many saline ponds and tidal mud flats that carry stunted mangrove vegetation of the species <i>Rhizophora mangle</i> , <i>Avicennia germinans</i> (syn <i>A. nitida</i>) and <i>Laguncularia racemosa</i> . Mangroves are found usually on mud or sandbanks sites that are not actually inundated but have a high brackish-water table. "Manchineel" swamps of <i>Hippomane mancinella</i> with some <i>Annona glabra</i> and <i>Acrostichum sp.</i> are often found bordering the mangrove swamps. Whereas the mangrove trees are commonly stunted and do not exceed 4.5 m in height, the manchineel attains 9 to 12 m with girths of up to 1.2 m. The biggest area of mangroves occurs in Hansons Bay (Antigua) swamp, with some trees reaching up to 10 m. In Barbuda fringing mangroves are found around salt flats and lagoons, the biggest stand being along Codrington Lagoon.

Original data

Putney: 1500 hectares (1982)

Bacon: 1175 hectares (1991)

Analysis and processing of national data

Estimation and forecasting

Only data on mangroves are available. A linear inter- and extrapolation was made based on the above data to get estimates for the reporting years up to 2005. For the other reporting years due to a lack of more updated information the same figure of 2005 has been used.

Reclassification into FRA 2020 categories

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FRA categories	Area (1000 ha)				
	1990	2000	2010	2015	2020
Primary forest	0.00	0.00	0.00	0.00	0.00
Temporarily unstocked and/or recently regenerated					
Bamboos					
Mangroves	1.21	0.85	0.67	0.67	0.67
Rubber wood	0.00	0.00	0.00	0.00	0.00

Comments

It is assumed that there is no primary forest.

1d Annual forest expansion, deforestation and net change

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

-

Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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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)	-0.07	-0.07	-0.07	-0.07

Comments

1e Annual reforestation

National Data

Data sources + type of data source eg NFI, etc

-

National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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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

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National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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FRA categories	Area (1000 ha)				
	1990	2000	2010	2015	2020
Palms (a)					
Tree orchards (b)					
Agroforestry (c)					
Trees in urban settings (d)					
Other (specify in comments) (e)					
Total (a+b+c+d+e)	–	–	–	–	–
Other land area	18.29	18.95	19.62	19.95	20.28

Comments

2 Forest growing stock, biomass and carbon

2a Growing stock

National Data

Data sources + type of data source eg NFI, etc

Expert estimate based on FRA working paper 69. *Wood volume and woody biomass review of FRA2000 estimates. Volume II.*

National classification and definitions

-

Original data

The original calculations for Antigua and Barbuda were based on the report: **ITTO**. 2000. *Antigua and Barbuda Country Report*. International Institute of tropical forest. The document provided an estimated total aboveground woody biomass (210 t/ha). The unknown value of BEF necessary to transform biomass in volume was extrapolated throughout the common trend resulting from the relation between BEF and total biomass of the others Latin American countries (Biomass expansion factor 2.84 and wood density 0.6). The resulting volume per ha was equal to 123 m3/ha.

Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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FRA categories	Growing stock m³/ha (over bark)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest									
Planted forest									
...of which plantation forest									
...of which other planted forest									
Forest	123.00	123.00	123.00	123.00	123.00	123.00	123.00	123.00	123.00
Other wooded land									

FRA categories	Total growing stock (million m³ over bark)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest									
Planted forest									
...of which plantation forest									
...of which other planted forest									
Forest	1.24	1.16	1.08	1.04	1.03	1.02	1.01	1.01	1.00
Other wooded land									

Comments

2b Growing stock composition

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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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							
#2 Ranked in terms of volume							
#3 Ranked in terms of volume							
#4 Ranked in terms of volume							
#5 Ranked in terms of volume							
#6 Ranked in terms of volume							
#7 Ranked in terms of volume							
#8 Ranked in terms of volume							
#9 Ranked in terms of volume							
#10 Ranked in terms of volume							
Remaining native tree species							
Total volume of native tree species			–	–	–	–	–
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							
Remaining introduced tree species							
Total volume of introduced tree species			–	–	–	–	–
Total growing stock			–	–	–	–	–

Comments

2c Biomass stock

National Data

Data sources + type of data source eg NFI, etc

Expert estimate based on FRA working paper 69. *Wood volume and woody biomass review of FRA2000 estimates. Volume II.*

National classification and definitions

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Original data

The original calculations for Antigua and Barbuda were based on the report: **ITTO**. 2000. *Antigua and Barbuda Country Report*. International Institute of tropical forest. The document provided an estimated total aboveground woody biomass (210 t/ha). T

Analysis and processing of national data

Estimation and forecasting

A ratio equal to 0.28 (from IPCC guidelines) was applied to the above ground biomass to calculate the belowground biomass.

Reclassification into FRA 2020 categories

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FRA categories	Forest biomass (tonnes/ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Above-ground biomass	210.00	210.00	210.00	210.00	210.00	210.00	210.00	210.00	210.00
Below-ground biomass	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00
Dead wood									

Comments

2d Carbon stock

National Data

Data sources + type of data source eg NFI, etc

Expert estimate based on IPCC default value

National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

IPCC default value 0.47 applied to the biomass data of table 2c.

Reclassification into FRA 2020 categories

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FRA categories	Forest carbon (tonnes/ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Carbon in above-ground biomass	98.70	98.70	98.70	98.70	98.70	98.70	98.70	98.70	98.70
Carbon in below-ground biomass	27.73	27.73	27.73	27.73	27.73	27.73	27.73	27.73	27.73
Carbon in dead wood									
Carbon in litter									
Soil carbon									

Soil depth (cm) used for soil carbon estimates	
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Comments

3 Forest designation and management

3a Designated management objective

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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Primary designated management objective

FRA 2020 categories	Forest area (1000 ha)				
	1990	2000	2010	2015	2020
Production (a)					
Protection of soil and water (b)					
Conservation of biodiversity (c)					
Social Services (d)					
Multiple use (e)					
Other (specify in comments) (f)					
None/unknown (g)	10.11	9.45	8.78	8.45	8.12
Total forest area	10.11	9.45	8.78	8.45	8.12

Total area with designated management objective

FRA 2020 categories	Forest area (1000 ha)				
	1990	2000	2010	2015	2020
Production					
Protection of soil and water					
Conservation of biodiversity					
Social Services					
Other (specify in comments)					

Comments

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

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National classification and definitions

-

Original data

-

Analysis and processing of national data

Estimation and forecasting

-

Reclassification into FRA 2020 categories

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FRA categories	Area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Forest area within protected areas									
Forest area with long-term forest management plan									
...of which in protected areas									

Comments

4 Forest ownership and management rights

4a Forest ownership

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

-

Original data

-

Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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FRA categories	Forest area (1000 ha)			
	1990	2000	2010	2015
Private ownership (a)				
...of which owned by individuals				
...of which owned by private business entities and institutions				
...of which owned by local, tribal and indigenous communities				
Public ownership (b)				
Unknown/other (specify in comments) (c)	–	–	–	–
Total forest area	10.11	9.45	8.78	8.45

Comments

4b Holder of management rights of public forests

National Data

Data sources + type of data source eg NFI, etc

-

National classification and definitions

-

Original data

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Analysis and processing of national data

Estimation and forecasting

-

Reclassification into FRA 2020 categories

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FRA categories	Forest area (1000 ha)			
	1990	2000	2010	2015
Public Administration (a)				
Individuals (b)				
Private business entities and institutions (c)				
Local, tribal and indigenous communities (d)				
Unknown/other (specify in comments) (e)	–	–	–	–
Total public ownership	–	–	–	–

Comments

5 Forest disturbances

5a Disturbances

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

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Analysis and processing of national data

Estimation and forecasting

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Reclassification into FRA 2020 categories

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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	9.45	–	–	–	–	–	–	–	–	–	8.78	–	–	–	–	8.45	8.38	8.32

Comments

Hurricanes and tropical storms can also cause physical damage to mangrove forests and coral reefs. No data available.

5b Area affected by fire

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

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Original data

-

Analysis and processing of national data

Estimation and forecasting

-

Reclassification into FRA 2020 categories

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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																		
...of which on forest																		

Comments

5c Degraded forest

Does your country monitor area of degraded forest		No
If "yes"	What is the national definition of "Degraded forest"?	
	Describe the monitoring process and results	

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

-

National classification and definitions

-

Original data

-

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

Comments

6b Area of permanent forest estate

National Data

Data sources + type of data source eg NFI, etc

-

National classification and definitions

-

Original data

-

FRA 2020 categories	Forest area (1000 ha)					
	Applicable?	1990	2000	2010	2015	2020
Area of permanent forest estate						

Comments

7 Employment, education and NWFP

7a Employment in forestry and logging

National Data

Data sources + type of data source eg NFI, etc

-

National classification and definitions

-

Original data

-

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												
...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

7b Graduation of students in forest-related education

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

-

Original data

-

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												
Master's degree												
Bachelor's degree												
Technician certificate / diploma												
Total												

Comments

7c Non wood forest products removals and value 2015

National Data

Data sources + type of data source eg NFI, etc

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National classification and definitions

-

Original data

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	Name of NWFP product	Key species	Quantity	Unit	Value (1000 local currency)	NWFP category
#1						
#2						
#3						
#4						
#5						
#6						
#7						
#8						
#9						
#10						
All other plant products						
All other animal products						
Total					-	

Name of currency	
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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	21.48	19.95	19.20	19.05	18.91	18.75	18.59	18.45

Name of agency responsible	
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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	-0.73	-0.76	-0.84	-0.72	-0.85	-0.86	-0.74

Name of agency responsible	
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Sub-Indicator 2	Forest biomass (tonnes/ha)							
	2000	2010	2015	2016	2017	2018	2019	2020
Above-ground biomass stock in forest	210.00	210.00	210.00	210.00	210.00	210.00	210.00	210.00

Name of agency responsible	
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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	–	–	–	–	–	–	–	–

Name of agency responsible	
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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	–	–	–	–	–	–	–	–

Name of agency responsible	
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Sub-Indicator 5	Forest area (1000 ha)							
	2000	2010	2015	2016	2017	2018	2019	2020
Forest area under independently verified forest management certification schemes	0.00	0.00	0.00	0.00	0.00	0.00	–	–