



Food and Agriculture
Organization of the
United Nations

Global Forest Resources Assessment 2020

Desk Study

Kiribati

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 Kiribati. 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.

Kiribati is comprised of 33 coral atolls in 3 main groups of islands; the Gilbert, Phoenix and Line Islands, Only 21 islands are inhabited. The total Land area is only 811 km² (around 313 sq mi) but each of the islands is widely dispersed across a 3.5 million km² Kiribati Exclusive Economic Zone in the middle of Pacific Ocean.

Population as of 2015 census is 110 136, which is a 6.9% increase from the 2010 population of 103 058. 57% of the total population resides on Tarawa Atoll.

Coconut trees and mangroves are of specific importance to livelihoods in Kiribati attols. These trees play important goods and services in providing: housing materials for construction, shelter for both human and species, food, protection of water reserves and coastal areas that are most affected by the climate change and sea level rise.

With the effect of climate change and sea level rise as well as the increase in population, a number of trees have eaten away due to erosion, many die and fallen off the ground due to prolong droughts, and some were chopped down for handicraft and building purposes. The rest have reached their maturity age and are starting to produce less for consumption.

The lack of quality information and data on forest and trees remains a challenge.

1 Forest extent, characteristics and changes

1a Extent of forest and other wooded land

National data

Data sources

2017	References	Rouatu, I., Leport, G., Pascal, N., Wendt, H., Abeta, R., Brander, L., et al. (2017). National marine ecosystem service valuation: Kiribati. Suva: MACBIO. quoting Lands Divisio, MEDLAD. http://macbio-pacific.info/wp-content/uploads/2017/05/Kiribati-MESV-Report-Digital-LoRes.pdf
	Methods used	Other (specify in comments)
	Additional comments	The data cover 16 out of 24 islands including Makin, Butaritari, Marakei, Abaiang, Maiana, Abemama, Kuria, aranuka, Nonouti, Beru. Nikunau, Onotoa, Tamana, Arorae and Xmas. Banaba, N. Tarawa, S. Tarawa, Betio, N. Tabiteuea, S. Tabiteuea, Teraina and Canton are excluded.

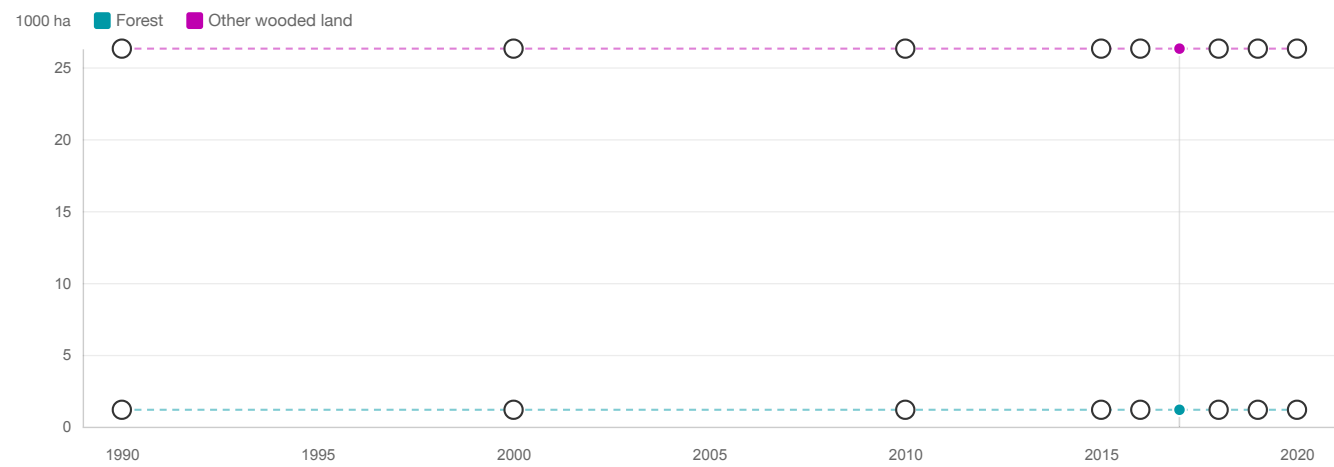
Classifications and definitions

2017	National class	Definition
	Mangrove	
	Dense coconut	
	Medium dense coconut	
	Scattered coconut	
	Shrub	
	Settlement	
	Water body	
	Bare land	

Original data and reclassification

2017	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Other land
	Mangrove	1.18	100.00 %	0.00 %	0.00 %
	Dense coconut	8.46	0.00 %	0.00 %	100.00 %
	Medium dense coconut	7.77	0.00 %	0.00 %	100.00 %
	Scattered coconut	8.55	0.00 %	0.00 %	100.00 %
	Shrub	26.30	0.00 %	100.00 %	0.00 %
	Settlement	3.89	0.00 %	0.00 %	100.00 %
	Water body	10.12	0.00 %	0.00 %	100.00 %

	Bare land	14.74	0.00 %	0.00 %	100.00 %
	Total	81.01	1.18	26.30	53.53



FRA categories	Area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Forest (a)	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18
Other wooded land (a)	26.30	26.30	26.30	26.30	26.30	26.30	26.30	26.30	26.30
Other land (c-a-b)	53.52	53.52	53.52	53.52	53.52	53.52	53.52	53.52	53.52
Total land area (c)	81.00	81.00	81.00	81.00	81.00	81.00	81.00	81.00	81.00

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

The reclassification assumes that the mangroves in Kiribati meet the FRA 2020 forestry definition. It is thought that several shrub species may have the potential to be reach 5m in height (based on FRA 2015), however due to a lack of data on species, density and canopy cover this has been classified as other wooded land.

As there is no available data on forest and other wooded land changes and trends, the data from 2017 where considered constant backward and forward.

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	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18

Comments

There is evidence of planted mangroves in Kiribati due to planting schemes. However, the ratio of planted : naturally regenerated, is not known.

1c Primary forest and special forest categories

National Data

Data sources + type of data source eg NFI, etc

Environment & Conservation Division, MELAD (2014) KIRIBATI FIFTH NATIONAL REPORT TO THE CONVENTION ON BIOLOGICAL DIVERSITY; Government of Kiribati

Rouatu I, Leport G, Pascal N, Wendt H, Abeta R, Brander L, Fernandes L, Seidl A, Salcone J (2017) National marine ecosystem service valuation: Kiribati. MACBIO (GIZ/IUCN/SPREP): Suva, Fiji. 83 pp. (available on <http://macbio-pacific.info/wp-content/uploads/2017/05/Kiribati-MESV-Report-Digital-LoRes.pdf>)

Mangubhai, S., Lovell, E., Abeta, R., Donner, S., Redfern, F., O'Brien, M., Aram, K., Gillett, R., Rotjan, R., Eria, T., Teetu, S. and Bebe, R. (2019). Kiribati: Atolls and Marine Ecosystems. *World Seas: an Environmental Evaluation*, [online] pp.807-826. Available at: <https://doi.org/10.1016/B978-0-08-100853-9.00054-3>

National classification and definitions

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Original data

Mangroves : Lands Division, MEDLAD quoted in Rouatu et al (2017) mentions the following area : 790 hectares of mangrove in 2016. The data cover 16 out of 24 islands including Makin, Butaritari, Marakei, Abaiang, Maiana, Abemama, Kuria, aranuka, Nonouti, Beru. Nikunau, Onotoa, Tamana, Arorae and Xmas. Banaba, N. Tarawa, S. Tarawa, Betio, N. Tabiteuea, S. Tabiteuea, Teraina and Canton are excluded.

Analysis and processing of national data

Estimation and forecasting

Mangroves : The islands covered by the report from Rouatu et al. covers 474.3 ha of land area as all islands were not included. A calibration factor is applied to match with the official country area (810 ha) assuming that mangroves are also present in the other islands not covered by the study with a similar percentage. The calibration factor is $810/474.3 = 1.10778$. The resulting mangroves areas is estimating by extrapolation to 1180 ha. The mangrove area is considered constant in absence of any quantitative change estimate.

Reclassification into FRA 2020 categories

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FRA categories	Area (1000 ha)				
	1990	2000	2010	2015	2020
Primary forest					
Temporarily unstocked and/or recently regenerated					
Bamboos					
Mangroves	1.18	1.18	1.18	1.18	1.18
Rubber wood					

Comments

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

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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
Forest expansion (a)				
...of which afforestation				
...of which natural expansion				
Deforestation (b)				
Forest area net change (a-b)	0.00	0.00	0.00	0.00

Comments

Absence of available datasets on deforestation and forest expansion.

1e Annual reforestation

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/year)			
	1990-2000	2000-2010	2010-2015	2015-2020
Reforestation				

Comments

Absence of data on annual reforestation.

1f Other land with tree cover

National Data

Data sources + type of data source eg NFI, etc

Rouatu I, Leport G, Pascal N, Wendt H, Abeta R, Brander L, Fernandes L, Seidl A, Salcone J (2017) National marine ecosystem service valuation: Kiribati. MACBIO (GIZ/IUCN/SPREP): Suva, Fiji. 83 pp.

National classification and definitions

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Original data

Source: Lands Division, Ministry of Environment, Lands and Agricultural Development (MELAD) in Rouatu et.al. (2017)	
	km ²
Mangrove	7.9
Dense coconut	56.6
Medium dense coconut	52
Scattered coconut	57.2
Shrub	176
Settlement	26
Water body	67.7
Bare land	98.6

It should be noted that not all islands were included in the table above.

Analysis and processing of national data

Estimation and forecasting

As not all islands are covered (only 16 islands Makin, Butaritari, Marakei, Abaiang, Maiana, Abemama, Kuria, aranuka, Nonouti, Beru. Nikunau, Onotoa, Tamana, Arorae and Xmas. Banaba, N. Tarawa, S. Tarawa, Betio, N. Tabiteuea, S. Tabiteuea, Teraina and Canton are excluded.), the data have been expanded to cover all land, provided that the other attols have similar conditions. As there is no other comparable dataset, the data are considered constant over time.

Vegetation class	km2	1000 ha	% of land area	Estimates calibrated to official land area (km2)	1000 ha
Mangrove	7.9	0.79	1%	11.8	1.1806
Dense coconut	56.6	5.66	10%	84.6	8.4587
Medium dense coconut	52	5.2	10%	77.7	7.7712
Scattered coconut	57.2	5.72	11%	85.5	8.5483
Shrub	176	17.6	32%	263.0	26.3026
Settlement	26	2.6	5%	38.9	3.8856
Water body	67.7	6.77	12%	101.2	10.1175
Bare land	98.6	9.86	18%	147.4	14.7354

Reclassification into FRA 2020 categories

	Palms	Tree orchards	Agroforestry	Trees in urban settings
Mangrove				
Dense coconut	100%			
Medium dense coconut	100%			
Scattered coconut	100%			
Shrub				
Settlement				
Water body				
Bare land				

FRA categories	Area (1000 ha)				
	1990	2000	2010	2015	2020
Palms (a)	24.78	24.78	24.78	24.78	24.78
Tree orchards (b)					
Agroforestry (c)					
Trees in urban settings (d)					
Other (specify in comments) (e)					
Total (a+b+c+d+e)	24.78	24.78	24.78	24.78	24.78
Other land area	53.52	53.52	53.52	53.52	53.52

Comments

2 Forest growing stock, biomass and carbon

2a Growing stock

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	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									
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									
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

-

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

Comments

2d Carbon stock

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 carbon (tonnes/ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Carbon in above-ground biomass									
Carbon in below-ground biomass									
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

Rouatu, I., Leport, G., Pascal, N., Wendt, H., Abeta, R., Brander, L., et al. (2017). National marine ecosystem service valuation: Kiribati. Suva: MACBIO.<http://macbio-pacific.info/wp-content/uploads/2017/05/Kiribati-MESV-Report-Digital-LoRes.pdf>

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)	0.00	0.00	0.00	0.00	0.00
Protection of soil and water (b)	1.18	1.18	1.18	1.18	1.18
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)	0.00	0.00	0.00	0.00	0.00
Other (specify in comments) (f)	0.00	0.00	0.00	0.00	0.00
None/unknown (g)	0.00	0.00	0.00	0.00	0.00
Total forest area	1.18	1.18	1.18	1.18	1.18

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

No data to further divide by management objective- however a mangroves are a crucial tool in Kiribati's climate adaptation plan so protection of soil and water given priority for use.

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

-

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)								
	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

-

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	1.18	1.18	1.18	1.18

Comments

No data available that describes ownership and management rights of forest ownership in Kiribati

4b Holder of management rights of public forests

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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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

-

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	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	1.18	-	-	-	-	-	-	-	-	-	1.18	-	-	-	-	1.18	1.18	1.18

Comments

5b Area affected by fire

National Data

Data sources + type of data source eg NFI, etc

-

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)																	
	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

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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

-

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	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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	–	–	–	–	–	–	–	–

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	
----------------------------	--

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	–	–