



Food and Agriculture  
Organization of the  
United Nations

# Global Forest Resources Assessment 2020

Desk Study

**Bahrain**

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 Bahrain. 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.**

The Kingdom of Bahrain consists of an archipelago of more than 30 islands in the southern Persian Gulf. The islands of the archipelago are mostly low-lying desert plains and rocks, although Bahrain Island rises to an elevation of 122 m at its centre, the Jabal ad Dukhan.

The climate is extremely dry, averaging about 80 mm of annual rainfall, nearly all of which occurs in winter. The average annual temperature is about 25 °C, but the temperature in summer often exceeds 38 °C. The winter temperature is mild, ranging between about 10 °C and 27 °C. Bahrain belongs to just one ecological zone in the FAO global map of ecological zones, the subtropical desert.

There is no natural forest cover in Bahrain. The woody cover present in the country is being planted by the government through an afforestation program. In fact 0.8% is the forested area of the country. Besides the main indigenous species *Prosopis juliflora*, *Zizyphus spina-christi* and *Phoenix dactylifera*, species trials have been carried out, and 11 adapted species are used in afforestation programmes as *Avecenia* spp., *Acacia* spp., *Euclyptus camaldulensis*. Parts of some islands are covered by date palms but significant areas have been felled recently and increasing demands on subterranean water sources have also resulted in palm mortality. Forest cover increased by 14.9 percent from 1990 to 2000. [1]

In Al-Areen Wildlife Park, several hundred of trees have been planted. Other protected areas are present, as the Greenbelt Protected Area and programme, placed under State ownership to avoid urban speculation. Indeed the biggest environmental problems include the extensive damage and destruction to mangrove through massive urban development and rapid land reclamation programmes.[2]

[1] Country Profiles – Department of Forest <http://www.fao.org/forestry/country/18310/en/ago/> . FAO, February 19, 2010. Retrieved February 21, 2017.

[2] Bahrain - Global Forest Resources Assessment 2015 – Country Report, FAO, 2015. Retrieved February 21, 2017.

1 Forest extent, characteristics and changes

1a Extent of forest and other wooded land

National data

Data sources

1998	References	Ahmed, J. H and Ayoub, M. 1998. Rationalizing water Resources for greening of areas in Bahrain. Plant Wealth Directorate, Ministry of Agriculture. Plantation area, annual planting rate 1998; FAO 2007 The world's mangroves 1980-2005 FAO Forestry Paper 153
	Methods used	Registers/questionnaires
	Additional comments	

2000	References	Al-Hindy, M. Ali and Ahmed, J. Habib. 2000. Forest plantations in the State of Bahrain. National report prepared for FRA 2000 project. Plant wealth Directorate, Ministry of Agriculture. Bahrain. Annual planting rate 2000; FAO 2007 The world's mangroves 1980-2005 FAO Forestry Paper 153
	Methods used	Registers/questionnaires
	Additional comments	

Classifications and definitions

1998	National class	Definition
	Forest	
	Other wooded land	Mangroves

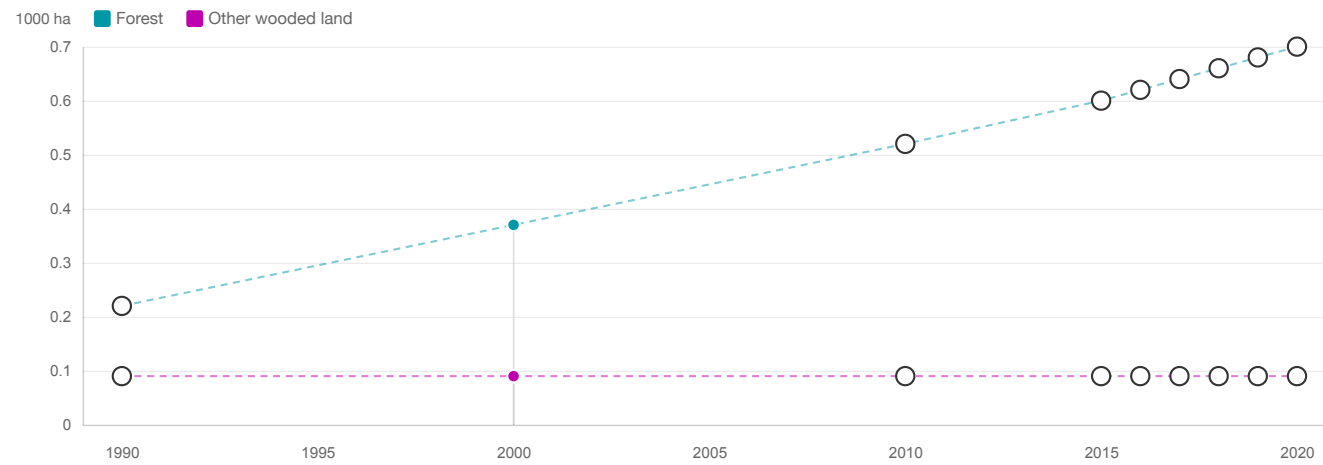
2000	National class	Definition
	Forest	
	Other wooded land	Mangroves

Original data and reclassification

1998	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Other land
	Forest	0.34	100.00 %	0.00 %	0.00 %

	Other wooded land	0.09	0.00 %	100.00 %	0.00 %
	Total	0.43	0.34	0.09	0.00

2000	Classifications and definitions		FRA classes		
	Class	Area (1000 ha)	Forest	Other wooded land	Other land
	Forest	0.37	100.00 %	0.00 %	0.00 %
	Other wooded land	0.09	0.00 %	100.00 %	0.00 %
	Total	0.46	0.37	0.09	0.00



FRA categories	Area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Forest (a)	0.22	0.37	0.52	0.60	0.62	0.64	0.66	0.68	0.70
Other wooded land (a)	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Other land (c-a-b)	76.69	76.54	76.39	76.31	76.29	76.27	76.25	76.23	76.21
Total land area (c)	77.00	77.00	77.00	77.00	77.00	77.00	77.00	77.00	77.00

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	100.00	
Tropical	0.00	

Comments

Area of forest plantations, reference year: 1998

Type: Protective plantations

Ownership: Public sector

Area (ha) 340

Annual planting rate =15.5 ha.

Annual forest change rate refers to the afforestation provided by the Government. Since there is no other information available, the afforestation rate has been assumed to be constant.



## **1b Forest characteristics**

### **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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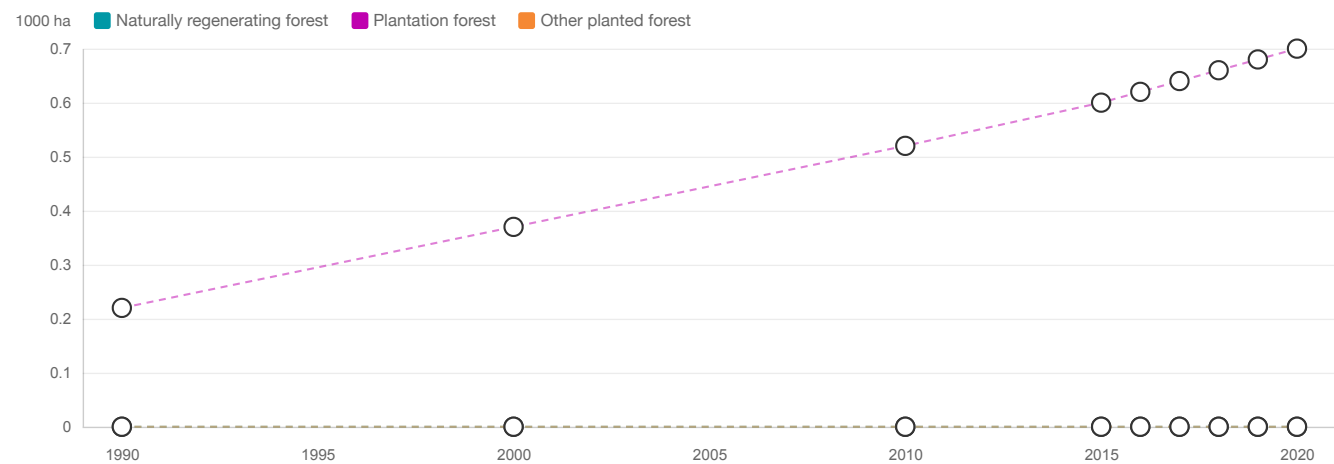
### **Analysis and processing of national data**

**Estimation and forecasting**

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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)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Planted forest (b)</b>	<b>0.22</b>	<b>0.37</b>	<b>0.52</b>	<b>0.60</b>	<b>0.62</b>	<b>0.64</b>	<b>0.66</b>	<b>0.68</b>	<b>0.70</b>
Plantation forest	0.22	0.37	0.52	0.60	0.62	0.64	0.66	0.68	0.70
...of which introduced species	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other planted forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total (a+b)</b>	<b>0.22</b>	<b>0.37</b>	<b>0.52</b>	<b>0.60</b>	<b>0.62</b>	<b>0.64</b>	<b>0.66</b>	<b>0.68</b>	<b>0.70</b>
<b>Total forest area</b>	<b>0.22</b>	<b>0.37</b>	<b>0.52</b>	<b>0.60</b>	<b>0.62</b>	<b>0.64</b>	<b>0.66</b>	<b>0.68</b>	<b>0.70</b>

## Comments

## 1c Primary forest and special forest categories

### National Data

#### Data sources + type of data source eg NFI, etc

FAO 2007 The world's mangroves 1980-2005 FAO Forestry Paper 153

#### 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
Primary forest					
Temporarily unstocked and/or recently regenerated					
Bamboos	0.00	0.00	0.00	0.00	0.00
Mangroves	0.09	0.09	0.09	0.09	0.09
Rubber wood	0.00	0.00	0.00	0.00	0.00

Comments

Mangroves are classified as Other wooded land (tree height less than 5 m).

## **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)	0.02	0.02	0.02	0.02
...of which afforestation	0.02	0.02	0.02	0.02
...of which natural expansion	0.00	0.00	0.00	0.00
Deforestation (b)	0.01	0.01	0.00	0.00
Forest area net change (a-b)	0.02	0.02	0.02	0.02

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

-

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	76.69	76.54	76.39	76.31	76.21

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

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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 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

Expert estimate

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)	0.22	0.37	0.52	0.60	0.60
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	0.10
Total forest area	0.22	0.37	0.52	0.60	0.70

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

Since the plantations were established for protective purposes it has been assumed that this was their primary designated function.

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

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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	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**

Ahmed, J. H and Ayoub, M. 1998. Rationalizing water Resources for greening of areas in Bahrain. Plant Wealth Directorate, Ministry of Agriculture.  
Plantation area, annual planting rate 1998;

**National classification and definitions**

Ownership: Public sector

**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
Private ownership (a)	0.00	0.00	0.00	0.00
...of which owned by individuals	0.00	0.00	0.00	0.00
...of which owned by private business entities and institutions	0.00	0.00	0.00	0.00
...of which owned by local, tribal and indigenous communities	0.00	0.00	0.00	0.00
Public ownership (b)	0.22	0.37	0.52	0.60
Unknown/other (specify in comments) (c)	0.00	0.00	0.00	0.00
Total forest area	0.22	0.37	0.52	0.60

## Comments

## **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**

-

### **Analysis and processing of national data**

**Estimation and forecasting**

-

**Reclassification into FRA 2020 categories**

-

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)	0.22	0.37	0.52	0.60
Total public ownership	0.22	0.37	0.52	0.60

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	0.37	-	-	-	-	-	-	-	-	-	0.52	-	-	-	-	0.60	0.62	0.64

Comments

## 5b Area affected by fire

### National Data

Data sources + type of data source eg NFI, etc

FRA geospatial tools

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

-

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	
...of which on forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

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

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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	0.48	0.68	0.78	0.81	0.83	0.86	0.88	0.91

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	3.46	2.90	3.23	3.13	3.03	2.94	2.86

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	
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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	–	–