

Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Target 15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements

Indicator 15.1.1: Forest area as a proportion of total land area

## **Institutional information**

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### **Organization(s)**

Food and Agriculture Organization of the United Nations (FAO)

## **Concepts and definitions**

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### **Definition**

Forest area as a proportion of total land area

### **Rationale**

Forests fulfil a number of functions that are vital for humanity, including the provision of goods (wood and non-wood forest products) and services such as habitat for biodiversity, carbon sequestration, coastal protection and soil and water conservation.

The indicator provides a measure of the relative extent of forest in a country. The availability of accurate data on a country's forest area is a key element for forest policy and planning within the context of sustainable development.

Changes in forest area reflect the demand for land for other uses and may help identify unsustainable practices in the forestry and agricultural sector.

Forest area as percentage of total land area may be used as a rough proxy for the extent to which the forests in a country are being conserved or restored, but it is only partly a measure for the extent to which they are sustainably managed.

The indicator was included among the indicators for the Millennium Development Goals (MDG) (indicator 7.1 “Proportion of land covered by forest”).

### **Concepts**

In order to provide a precise definition of the indicator, it is crucial to provide a definition of “Forest” and “Total Land Area”.

According to the FAO definitions, Forest is defined as: “land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these

thresholds in situ. It does not include land that is predominantly under agricultural or urban land use”. More specifically:

- Forest is determined both by the presence of trees and the absence of other predominant land uses. The trees should be able to reach a minimum height of 5 meters.
  - It includes areas with young trees that have not yet reached but which are expected to reach a canopy cover of at least 10 percent and tree height of 5 meters or more. It also includes areas that are temporarily unstocked due to clear-cutting as part of a forest management practice or natural disasters, and which are expected to be regenerated within 5 years. Local conditions may, in exceptional cases, justify that a longer time frame is used.
  - It includes forest roads, firebreaks and other small open areas; forest in national parks, nature reserves and other protected areas such as those of specific environmental, scientific, historical, cultural or spiritual interest.
  - It includes windbreaks, shelterbelts and corridors of trees with an area of more than 0.5 hectares and width of more than 20 meters.
  - It includes abandoned shifting cultivation land with a regeneration of trees that have, or are expected to reach, a canopy cover of at least 10 percent and tree height of at least 5 meters.
  - It includes areas with mangroves in tidal zones, regardless whether this area is classified as land area or not.
  - It includes rubberwood, cork oak and Christmas tree plantations.
  - It includes areas with bamboo and palms provided that land use, height and canopy cover criteria are met.
  - It excludes tree stands in agricultural production systems, such as fruit tree plantations, oil palm plantations, olive orchards and agroforestry systems when crops are grown under tree cover.
- Note: Some agroforestry systems such as the “Taungya” system where crops are grown only during the first years of the forest rotation should be classified as forest.

Total land area is the total surface area of a country less the area covered by inland waters, like major rivers and lakes.

The indicator is expressed as percent.

## Comments and limitations

Assessment of forest area is carried out at infrequent intervals in many countries. Access to remote sensing imagery has improved in recent years, but remote sensing techniques have limitations. In particular there are limitations to assess land use (remote sensing primarily assesses land cover), and some slow changes such as forest regrowth cannot easily be observed with remote sensing techniques and require long time periods in order to detect. In addition, forest area with low canopy cover density (e.g. 10-30%) are difficult to detect with remote sensing techniques.

## Methodology

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### Computation Method

Forest area (reference year) / Land area (2015) \* 100

This indicator can be aggregated to global or regional level by adding all country values globally or in a specific region

### Disaggregation

No further disaggregation of this indicator

## **Treatment of missing values**

- At country level

For countries and territories where no information was provided to FAO for FRA 2015 (79 countries and territories representing 1.2 percent of the global forest area), a report was prepared by FAO using existing information from previous assessments and literature search.

- At regional and global levels

See above

## **Regional aggregates**

Since information is available for all countries and territories, regional and global estimates are produced by summation.

## **Sources of discrepancies**

The national figures in the database are reported by the countries themselves following standardized format, definitions and reporting years, thus eliminating any discrepancies between global and national figures. The reporting format ensures that countries provide the full reference for original data sources as well as national definitions and terminology. Separate sections in the reporting format (country reports) deal with the analysis of data (including any assumptions made and the methods used for estimates and projections to the common reporting years); calibration of data to the official land area as held by FAO; and reclassification of data to the classes used in FAO's Global Forest Resources Assessments.

## **Methods and guidance available to countries for the compilation of the data at the national level**

All data are provided to FAO by countries in the form of a country report following a standard format, which includes the original data and reference sources and descriptions of how these have been used to estimate the forest area for different points in time.

Detailed methodology and guidance on how to prepare the country reports and to convert national data according to national categories and definitions to FAO's global categories and definitions is found in the document "Guide for country reporting for FRA 2015", <http://www.fao.org/3/au190e.pdf>.

## **Quality assurance**

Once received, the country reports undergo a rigorous review process to ensure correct use of definitions and methodology as well as internal consistency. A comparison is made with past assessments and other existing data sources. Regular contacts between national correspondents and FAO staff by e-mail and regional/sub-regional review workshops form part of this review process.

All country reports (including those prepared by FAO) are sent to the respective Head of Forestry for validation before finalization and publishing of data. The data are then aggregated at sub-regional, regional and global levels by the FRA team at FAO.

# Data Sources

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## Description

FAO has been collecting and analysing data on forest area since 1946. This is done at intervals of 5-10 years as part of the Global Forest Resources Assessment (FRA). FRA 2015 contains information for 234 countries and territories on more than 100 variables related to the extent of forests, their conditions, uses and values for three points in time: 1990, 2000, 2005, 2010 and 2015.

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Officially nominated national correspondents and their teams prepare the country reports for the assessment. Some prepare more than one report as they also report on dependent territories. For the remaining countries and territories where no information is provided, a report is prepared by FAO using existing information and a literature search.

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## Collection process

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# Data Availability

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## Description

Data are available for all 234 countries and territories included in FRA 2015.

## Time series

1990, 2000, 2005, 2010, 2015

## Calendar

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### Data collection

Data collection process for FRA 2020 will be launched in 2017 and data collection will take place 2017-2019

### Data release

Data with updated time series and including year 2020 will be released late 2020. The possibilities of a more frequent reporting on forest area and other key indicators are currently being evaluated.

## Data providers

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## Data compilers

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FAO

## References

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### URL:

<http://www.fao.org/forest-resources-assessment/en/>

### References

<http://www.fao.org/forest-resources-assessment/current-assessment/en/>

## Related indicators

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15.2.1: Progress towards sustainable forest management