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

Organization(s):

Food and Agriculture Organization of the United Nations (FAO)

Concepts and definitions

Definition:

Forest area as a proportion of total land area

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.

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 habitats 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”).

Comments and limitations:

Assessment of forest area is carried out at infrequent intervals in many countries. Although the improved access to remote sensing data can help some countries to update their forest area estimates more frequently, estimation of forest area using remote sensing techniques for has certain challenges. In particular they relate to the assessment of land use (remote sensing primarily assesses land cover), and gradual changes, such as forest regrowth, that can require several years to become detectable. In addition, forest area with low canopy cover density (e.g. 10-30%) are still difficult to detect at large scale with affordable remote sensing techniques.

Methodology

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.

Treatment of missing values:

- **At country level:**

For countries and territories where no information was provided to FAO for FRA 2020 (47 countries and territories representing 0.5 percent of the global forest area), FAO made estimates of forest area based on existing information from previous assessments, literature search, remote sensing or a combination of these data sources.

- **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 aggregating country-level data.

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 template requests that countries provide the full reference for original data sources as well as national definitions and terminology. Separate sections in the template 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:

Detailed methodology and guidance on how to prepare the country reports through an online web platform and to convert national data according to national categories and definitions to FAO's global categories and definitions is found in the documents "Guidelines and Specifications" (www.fao.org/3/I8699EN/i8699en.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

Description:

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 year. The latest of these assessments, FRA 2020, contains information for 236 countries and territories on about 60 variables related to the extent of forests, their conditions, uses and values for several points in time.

Collection process:

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, literature search, remote sensing or a combination of two or more of them.

All data are provided to FAO by countries in the form of a country report through an on-line platform 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. The on-line platform was used for all data entry, review and quality control.

Data availability

Description:

Forest area data are available for all 236 countries and territories included in FRA 2020.

Time series:

1990, 2000, 2010, 2015, 2016, 2017, 2018, 2019, 2020

Disaggregation:

No further disaggregation of this indicator

Calendar

Data collection:

Data collection process for FRA 2020 was launched in 2018 and data collection took place in 2018-2019

Data release:

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

Data providers

The data are provided by the countries through a global network of officially nominated national correspondents. For the countries and territories which do not have a national correspondent, a report is prepared by FAO using previously reported information, literature search, remote sensing or their combination.

Data compilers

FAO

References

URL:

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

References:

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

Related indicators as of February 2020

15.2.1: Progress towards sustainable forest management