Food and Agriculture Organization of the United Nations

Global Forest Resources Assessment 2020

Guidelines and specifications

FRA 2020

Version 1.0

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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The Forest Resources Assessment (FRA) Working Paper Series is designed to reflect the activities and progress of the FRA Programme of FAO. Working Papers are not authoritative information sources – they do not reflect the official position of FAO and should not be used for official purposes. Please refer to the FAO forestry website (www.fao.org/forestry) for access to official information.

The FRA Working Paper Series provides an important forum for the rapid release of information related to the FRA programme. Should users find any errors in the documents or would like to provide comments for improving their quality they should contact fra@fao.org.

Global Forest Resources Assessment

FAO has been monitoring the world's forests at 5 to 10 year intervals since 1946. The recent Global Forest Resources Assessments (FRA) have been produced every five years in an attempt to provide consistent approach to describing the world's forests and how they are changing.

During this period, the scope of FRA has evolved from timber-focused inventories to more holistic assessments that seek to respond to increasing information needs related to all of the aspects of sustainable forest management. At the same time, countries role in the FRA data collection process has been strengthened and the country reports developed by the National Correspondents, their alternates and other national contributors have become the cornerstone of the process.

FRA 2020 reporting has been adapted both in terms of scope and reporting periodicity to better respond to recent development in the international forest policy arena, such as the Agenda 2030 for Sustainable Development, United Nations Strategic Plan for Forests 2017-2030 (UNSPF) and the Paris agreement. Furthermore, the reporting content has been streamlined and a new on-line reporting Platform developed, to make the reporting more efficient and to decrease countries' reporting burden. All these changes have been made with the support of international experts consulted during the Seventh Expert Consultation on FRA, held in Joensuu, Finland in June 2017.

This document intends to support the FRA 2020 National Correspondents in their work of preparation of the FRA 2020 Country reports by providing information about the country reporting process, including an introduction to the new FRA 2020 on-line reporting platform and specifications of the FRA 2020 national reporting tables.

The Global Forest Resources Assessment process is coordinated by the Forestry Department at FAO headquarters in Rome. The contact person is:

Anssi Pekkarinen
Senior Forestry Officer
FAO Forestry Department
Viale delle Terme di Caracalla
Rome 00153, Italy

E-mail: Anssi.Pekkarinen@fao.org

Readers can also use the following e-mail address: fra@fao.org

More information on the Global Forest Resources Assessment can be found at:
http://www.fao.org/forest-resources-assessment/en/

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Introduction

Ever since its foundation, FAO has regularly collected, analysed, interpreted and disseminated information on the status and trends of the world's forests resources through the Global Forest Resources Assessment (FRA). The scope, the methodology and the periodicity of the assessments have evolved over time to respond to changing information needs, to increase the level of participation of the countries, as well as to streamline and harmonize definitions and reporting in collaboration with other organizations and international reporting processes. Since FRA 2000, assessments have been conducted every five years.

The work of preparation for FRA 2020 initiated with an internal evaluation of the FRA 2015 reporting process, followed by a user survey. The results of the internal evaluation and the feedbacks of a number of national correspondents and other FRA users that participated to the FRA 2015 survey, have helped the FRA secretariat to shape the scope and the reporting content of FRA 2020. These were then further defined in consultation with other teams of the FAO Forestry Department, the FRA Advisory Group, the Collaborative Forest Resources Questionnaire (CFRQ[1]) and the FAO/UNECE Team of Specialists on Sustainable Forest Management.

The Seventh Expert Consultation on FRA, held in Joensuu, Finland in June 2017, concluded this consultation cycle and provided important inputs for the definition of the scope and reporting framework for FRA 2020. Recommendations from the Expert Consultation focused on the development of capacities for FRA to provide timely responses to information requirements, while also seeking to reduce the reporting burden on countries. Its agenda reflected recent significant advances in the international forest policy arena, such as the Paris Agreement, the Sustainable Development Goals (SDGs)[2], and the United Nations Strategic Plan for Forests 2017-2030 (UNSPF), all of which have set new demands for the FRA process, both in terms of scope and reporting periods.

[1] In 2011, FAO, the International Tropical Timber Organization (ITTO), FOREST EUROPE, the United Nations Economic Commission for Europe (UNECE), the Observatory of Central African Forests (COMIFAC/OFAC) and the countries of the Montréal Process came together to create the Collaborative Forest Resources Questionnaire (CFRQ). The questionnaire was created with the aim to reduce the reporting burden and increase data consistency across organizations through standardized definitions and common timing of data collection. The CFRQ questionnaire contained a subset of the FRA 2015 variables, which were in common with at least one of the partner organizations and covered 104 countries representing 88 percent of the world's forests. These data, once collected, were then shared among the CFRQ partners.

[2] The Inter-agency Expert Group on Sustainable Development Goal Indicators (IAEG-SDGs) agreed in March 2017 on the framework of targets and indicators to measure progress towards the SDGs. Two of the targets of SDG 15 – 15.1 and 15.2 – refer explicitly to forests and sustainable forest management, and a third target, 15.4, to conservation of mountain ecosystems. FAO is the custodian agency for three indicators under these targets and thus responsible for the following main tasks: 1) development of related methodologies; 2) measuring the progress; 3) collection, compilation and validation of data; 4) submission of data and storylines to the United Nations Statistical Division; and 5) provision of support to enable countries to develop their reporting capacity. More specifically, FRA is responsible for these tasks for indicators 15.1.1 "Forest area as a proportion of total land area" and 15.2.1" Progress towards sustainable forest management". For more information on this topic: http://www.fao.org/3/a-i7334e.pdf

In order to adapt to a new international scenario, FRA 2020 has introduced a number of significant changes. For the first time since FRA 2000, the number of variables has been reduced (to around 60) and the possibility to provide annual updates on key variables has been introduced in order to support countries in reporting progress towards SDGs.

A new online platform has been implemented to facilitate the process of reporting and improve transparency and reliability of the results as well as facilitating the review process and the data access and usability of end users of FRA data.

The FRA 2020 reporting process will initiate with the FRA 2020 official launch in March 2018 and the Global Meeting of National Correspondents. Regional and sub-regional workshops will follow the global meeting between April and October 2018, providing additional support for National Correspondents in their work of reporting to FRA 2020. The reporting and review process will continue until the end of 2018 when reports will have to be completed and officially validated by countries. Resulting data will be analysed throughout 2019 and final results will be released in 2020. Major milestones and activity planned for the FRA 2020 exercise are summarized below:

MILESTONE / ACTIVITY	DATE	COMMENT
Global meeting of National Correspondents	March 2018	Launch of the FRA 2020 process. Training of National Correspondents and work on key variables for SDGs reporting
Deadline for submission of draft country reports	10 days before regional/sub-regional workshops	Draft country reports submitted for a first review at least 10 days before participation to the regional/sub-regional workshop
Regional and sub-regional workshops	April 2018 – September 2018	Technical assistance and review of draft country reports
Deadline for finalization of country reports	End of October 2018	All country reports completed and submitted for final clearance
Official validation of final country reports	Beginning of 2019	Official request for validation of the final country reports sent to the national authorities
Release of FRA 2020 Preliminary Findings	March 2020	Preliminary results of FRA 2020
Launch of FRA 2020 Main Report	July 2020	Final results and report published on the occasion of the 25th session of FAO Committee on Forestry (COFO)

FRA 2020 ONLINE PLATFORM

The FRA Long Term Strategy prepared in 2010 recommended the development of on-line tools to facilitate the reporting and review process. To take into account this recommendation an on-line Forest Resources Information Management System (FRIMS) was developed and countries were provided with the opportunity to compile and submit their country reports on-line through the FRIMS, or by email. Although rather limited in its functionalities, the online reporting system was well received by the National Correspondents and it both facilitated the reporting and improved the internal consistency of the data. This was achieved by allowing simultaneous data entry by multiple contributors and provision of a number automatic checks to detect logical errors and inconsistencies in the reported data.

Encouraged by the positive experience and building on the lessons learned from the use of FRIMS, FAO has developed the next generation FRA Platform to improve data entry, visualization, review and analysis functionalities. The design and the implementation of the Platform have been carried out bearing in mind the following objectives:

a) Transparency – the Platform should contain all the documentation necessary for understanding how the reported figures were produced, including the original data sources, definitions and the methodology which has been applied to convert national figures into FRA estimates;

b) Ease of use – the Platform should have an intuitive interface which allows easy data entry, copying and pasting from existing data sheets and upload of existing documentation;

c) Added value – the Platform should have functionality which facilitates the reporting and guarantees consistency of the reported values (system validation rules);

d) Improved communication – the Platform should have a transparent review and revision functionality, which allows tracking of changes in the reported figures and facilitates understanding of the flow of the review process;

e) Flexibility – The Platform should be flexible enough to allow adjustment of the data collection questionnaires.

The benefits of a flexible and easy-to-use on-line reporting system are not limited to the FRA reporting process as it also benefits other reporting needs and ultimately even serve more general data storing, sharing and dissemination needs the countries may have. That is, such a platform will provide a significant contribution to the implementation of Agenda 2030 and to the forest related indicators of the SDG reporting, which was initiated in 2016 and will continue on annual basis. Particularly for countries that do not have inventory and monitoring systems producing annual data, the Platform will be a useful tool for consistent interpolation or extrapolation of these figures and a provide a transparent mechanism to allow their review and update.

In addition to the SDGs, the Platform serves as a common reporting tool for other partners of the CFRQ. Particularly, the Platform will be used to collect data for pan-European reporting on indicators for sustainable forest management in collaboration with FOREST EUROPE and United Nations Economic Commission for Europe.

In order to facilitating the reporting process, especially for countries where forest information is limited or not available, the Platform provides the opportunity to access related external information as well as geospatial data from global remote sensing products. The access to the Platform is exclusive to the National correspondents and their collaborators. Each National Correspondent will be provided

access to the Platform to her/his respective country in order to start the work of reporting by filling in the reporting tables.

REPORTING METHODOLOGY

The standard methodology to be applied to all reporting tables is a process that consists of several steps as outlined below and further explained in the following sections.

1. **IDENTIFICATION AND SELECTION OF DATA SOURCES**
2. **DOCUMENTATION OF DATA SOURCES, NATIONAL CLASSES AND DEFINITIONS, AND ORIGINAL DATA**
3. **ANALYSIS OF NATIONAL DATA**: (usually includes 2 steps).

   STEP 1 – **Reclassification of national data to FRA categories**

   STEP 2 – **Estimation and forecasting to FRA reporting years**

1. IDENTIFICATION AND SELECTION OF DATA SOURCES

Based on the requirements of each specific reporting table, the National Correspondent should identify all potentially useful data sources and evaluate the data sources according to content, completeness, quality and compliance with FRA definitions.

Particularly for table 1a Extent of forest and Other wooded land, the documentation of the national data sources is extremely important to get an idea of the reliability of the data. For each national data point a category should be assigned that describe the methodology for data collection:

- National Forest Inventory – The national data point is derived from national forest inventory (field inventory) data;
- Sample based remote sensing assessment – The national data point is derived from a sample based assessment of plots using remote sensing techniques, such as Collect Earth or other tools;
- Full cover forest/vegetation maps – The national data point is derived from full cover mapping of forest/land cover/vegetation either by direct generation of statistics from raster or vector data, or adjusted through a sample-based accuracy assessment;
- Registers/questionnaires – The national data point is derived from data in national/subnational registers of administrative forest units, or through questionnaires;
- Other – to be specified by the NC.

2. DOCUMENTATION OF DATA SOURCES NATIONAL CLASSES AND DEFINITIONS AND ORIGINAL DATA

The selected data sources, their references and the corresponding data should be documented according to the following:

- Full reference: Author(s), year of publication (if published) and title;
- Reference year(s) for the data. Note that the reference year is the year that the data refer to, not the year of publication.

Example 1: Documentation of data sources

References to sources of information	Year(s)	Additional comments
Smith, B 1994. *National Pine forest and mangrove inventory.*	1992	National inventory of pine and mangrove forests covering the whole country, using remote sensing.
Grove, N 2004. *Forestry national report on state of the forest.*	2002	Analysis of forest cover based on satellite images.

Countries should document the national definitions for each data source.

Example 2: Documentation of National definitions

National class	Definition
Pine Plantations	*Man-made pine forests of Pinus caribaea.*
Closed Forest	Natural forest with crown cover by trees and / or ferns 40-100% and ground coverage by, palm and / or bamboo over 20%
Open Forest	Natural forest with crown cover by trees and / or ferns 10-40% and ground coverage by, palm and / or bamboo 50-80%
Hardwood plantations	Man-made forests with *Tectona grandis*.
Other land	Agricultural lands and built-up areas

Countries should further clearly document the original national data that constitute the basis for the estimates in the table. Note that only the original data relevant for each specific reporting table and used for the further analysis need to be documented.

Example 3: Documentation of original data

National class	Area 1000 ha	
	1992	**2002**
Pine Plantations	200	185
Closed Forest	600	600
Open Forest	100	100
Hardwood plantations	900	885
Other land	610	640

3. ANALYSIS OF NATIONAL DATA

The analysis of national data comprises two steps that may or may not be necessary to carry out, depending on the nature of the national data. These include the reclassification and the estimation and forecasting.

STEP 1: Reclassification

The reclassification can be necessary in order to make national data correspond to the categories defined for FRA. In some cases, when the national classes are identical to the FRA categories or when countries have National Forest Inventories that permit the direct calculation of data according to the FRA categories and definitions, the reclassification can be omitted.

Reclassification is performed assigning percentages in a "Reclassification matrix", in which each national class is assigned a percentage that applies to each FRA category.

Below an example of reclassification matrix:

Example 4: Reclassification matrix

Classifications and definitions	**FRA classes**		
National Class	**Forest**	**Other wooded land**	**Other land**
Pine Plantations	100%	0%	0%
Closed Forest	100%	0%	0%
Open Forest	70%	20%	10%
Hardwood plantations	100%	0%	0%
Other land	0%	0%	100%

STEP 2: Estimation and forecasting

The estimation and forecasting of values is often necessary in order to report national data for the FRA reference years. The estimation is the process of interpolation between observations and forecasting is the extrapolation of values beyond observations.

In order do decide whether estimation and/or forecasting are necessary, the following general principles apply:

- If the country has data sources that provide observed data for the requested reporting years these data can be used directly without any estimation;
- If available data sets do not correspond to the requested reporting years, estimation and/or forecasting is required. Data for 2020 will always be forecasted;
- Forecasts may also be necessary for previous reference years if the latest data set is older than the reference year.

Estimation and forecasting can be made using linear inter or extrapolation. However, in cases where trends are not linear, curvilinear relationships or multiple linear relationships (for different segments of the time series) can be applied.

It is important to stress that estimation and forecasting are not only mathematical calculations. It is equally or even more important to assess whether the estimated/forecasted figures reflect reality.

Many times there may be particular reasons why data from different years vary, and such variations do not necessary imply that there is a trend that can be used for estimation and forecasting.

If time series indicate trends that, according to the professional judgment of the National Correspondent do not reflect the real situation, this must be documented in the country report. In such cases, countries should make an adjustment of the estimated / forecasted data, and clearly document and justify this in the country report.

As a general rule, the documentation of the calculations should follow the order in which the steps were carried out.

Example 5: Estimation and forecasting using linear interpolation

FRA class	Area 1000 ha										
	1990	**1992**	**2000**	**2002**	**2010**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Forest	1 776	**1 770**	1 746	**1 740**	1 716	1 701	1 698	1 695	1 692	1 689	1 686
Other wooded land	20	**20**	20	**20**	20	20	20	20	20	20	20
Other land	604	**610**	614	**640**	664	679	682	685	688	691	694
Total land area	2 400	**2 400**	2 400	**2 400**	2 400	2 400	2 400	2 400	2 400	2 400	2 400

The original data (example 3) were used as input for the reclassification matrix (example 4) to obtain data for the FRA categories: Forest area, Other wooded land area and Other land area for the years 1992 and 2002. Data for the *FRA reporting years* were estimated using linear interpolation and extrapolation.

FRA category	Area (1000 ha)	
	1992	**2002**
Forest	1 770	1 740

STEP 1: **Calculate the annual change**

Time difference between observations (2002-1992 = 10 years)

Difference between observed values (1 740 000-1 770 000 = -30 000 ha)

Difference per year of annual change (-30 000/10 = -3 000 ha per year)

STEP 2: **Estimation and forecasting using linear interpolation and extrapolation**

2a linear interpolation for the year 2000

Value for 2002 - (difference in years between 2000 and 2002 * difference per year)

1 740 - (2*-3 000) = 1 746 000 ha

2b linear extrapolation for the year 2010

Value for 2002 = (difference in years between 2010 and 2002 * difference per year)

1 740 + (8*-3 000) = 1 716 000 ha

National data point reporting: Preferred reporting for table 1a and 1b

In order to facilitate the reporting and to increase the transparency of FRA estimates, a new way of reporting is available in the Platform for the tables 1a and 1b.

For these two tables, when beginning the reporting, the National Correspondent has the possibility of choosing between "traditional reporting" or the "national data point reporting". The national data point way of reporting is based on the same reporting methodology as outlined above (documentation of national data source, national data, reclassification and estimation and forecasting). The difference with the traditional reporting is that with the national data point, the reporting is embedded in the Platform in a way that reporting itself is facilitated and that the displays and the understanding of the resulting estimates are improved.

When choosing the reporting using the national data point, National Correspondent should start by adding a new national data point.

The documentation of the national data sources, national classes and related definitions and area figures needs to be completed first (the text and the figures can be either manually entered in the table of copied and pasted from a previous country report or a different source).

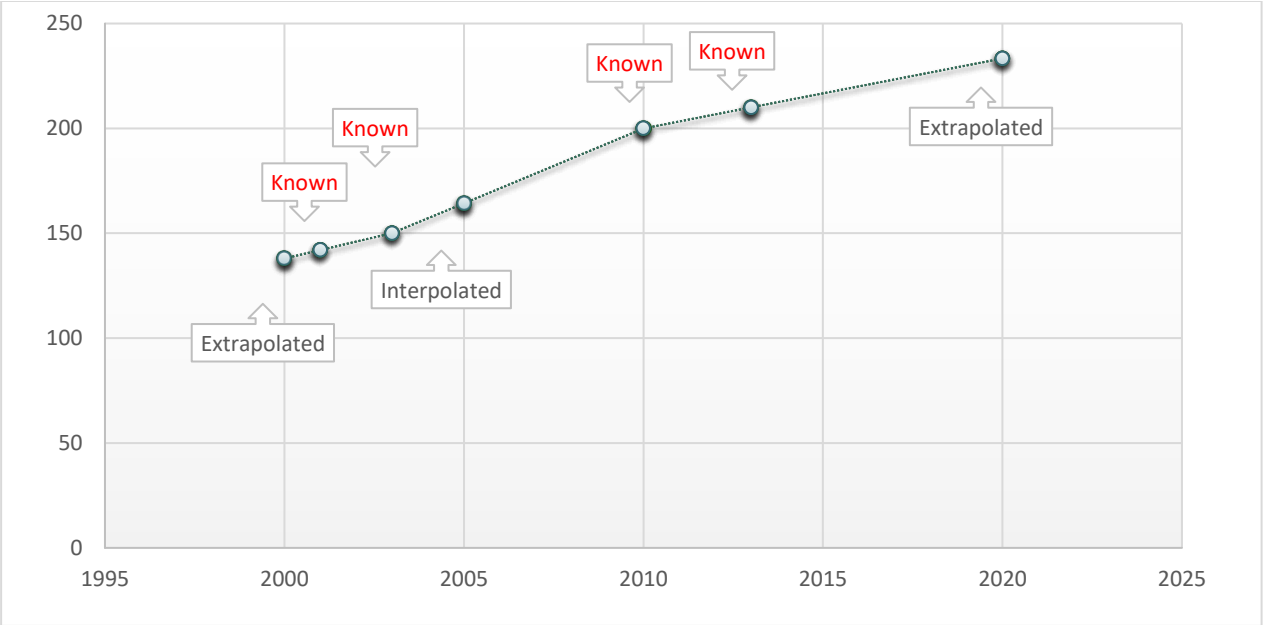
The system will automatically use these national classes to populate the reclassification matrix. The National Correspondent will then have to assign the percentage of the FRA 2020 categories to each national class and the system will automatically calculate the corresponding areas.

When these steps are completed, by clicking on the button "done editing" the National Correspondent can access the page with the final table where areas from national classes are displayed according to the FRA 2020 corresponding category for the corresponding reference years.

In all those cases where the reference years do not correspond to the FRA 2020 reporting years or to forecast value to the future, it is necessary for the National Correspondent to perform the estimation and forecasting using interpolation and extrapolation analysis. The Platform provides the possibility of performing estimation and forecasting automatically using the following options:

- linear interpolation/extrapolation: the interpolation is an estimation between two data points. The linear interpolation connects the known data points using a straight line on either side of the unknown point (FRA reference year). The extrapolation is a forecasting based on the last two data points. The linear extrapolation uses the same straight line that connects the two last data known points to estimate the value for the FRA reference year;

Example 6: Forecasting using linear interpolation and extrapolation



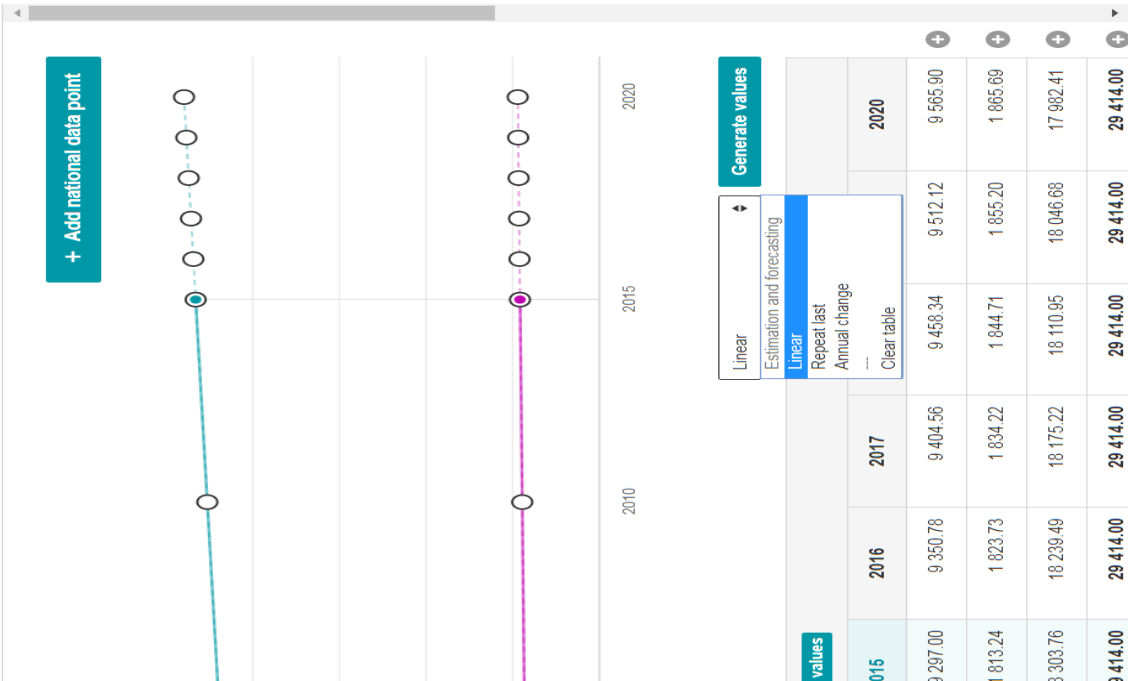
- repeat last: this option can be chosen to adjust future and past trend by repeating the latest data point, while linear interpolation is always applied between national data points;

- annual change: also the annual change option can be used to adjust future and past trend by applying a given change value (in 1000 hectares per year to the last data point). With the annual change, the system provides the possibility to select two different change values to adjust the estimation into the future and the one into the past.

The system allows selecting different estimation and forecasting methods to each of the variables of the table (for example in table 1a, linear interpolation and extrapolation can be used for Forest, while the "repeat last" can be applied to the Other wooded land). These estimation methods can be applied to each FRA 2020 categories in table 1a and 1b.

Once an estimation method is selected the system will automatically calculate the corresponding figures for the FRA reporting years and display the results in a graph in order to facilitate the understanding of the estimates.

Example 7: The Estimation and forecasting page in the Platform when using National data point reporting: in the table below 1985, 2005 and 2015 are national data points



Extent of forest and other wooded land See definitions FAQ

Area (1000 ha) Copy values

Generate values

Linear

Estimation and forecasting
Linear
Repeat last
Annual change
—
Clear table

FRA categories	1985	1990	2000	2005	2010	2015	2015	2016	2017	2020
Forest (a)	7 200.00	7 589.80	8 369.40	8 759.20	9 028.10	9 297.00	9 297.00	9 350.78	9 404.56	9 565.90
Other wooded land (b)	1 475.10	1 533.41	1 650.02	1 708.33	1 760.79	1 813.24	1 813.24	1 823.73	1 834.22	1 865.69
Other land (c)	20 736.00	20 288.62	19 391.15	18 946.47	18 625.12	18 303.76	18 303.76	18 239.49	18 175.22	17 982.41
Total land area (a+b+c)	29 411.10	29 411.83	29 410.57	29 414.00	29 414.01	29 414.00	29 414.00	29 414.00	29 414.00	29 414.00
	29 414.00	29 414.00	29 414.00	29 414.00	29 414.00	29 414.00	29 414.00	29 414.00	29 414.00	29 414.00
	29 414.00	29 414.00	29 414.00	29 414.00	29 414.00	29 414.00	29 414.00	29 414.00	29 414.00	29 414.00
	29 414.00	29 414.00	29 414.00	29 414.00	29 414.00	29 414.00	29 414.00	29 414.00	29 414.00	29 414.00

SUBMISSION OF THE COUNTRY REPORT AND REVIEW PROCESS

Once the report has been completed and all the tables have been duly filled in, the National Correspondent can submit the Country Report to allow the review process to begin. The review process is necessary to ensure that reported figures are consistent and that the proposed reporting methodology is applied correctly. When a report is submitted for review, its status in the Platform is "Under Review" and no further edits are allowed.

If during the review process the need for clarifications or amendments arises, the reviewers can insert feedbacks in the form of comments and send back the report to the National Correspondent. The National Correspondent is notified that the review process is completed and that a number of comments needs to be addressed. The report will then be again in "Edit" mode and the National Correspondent can modify the report accordingly and resubmit it for another review cycle.

If no further clarifications or amendments are needed the report is considered finalized and ready for the final validation, before publishing.

VALIDATION OF COUNTRY REPORTS

When the reporting period is closed, the full FRA dataset for each country/territory is sent back to the relevant national authority (in most cases the Head of Forestry) for validation. The country is given 3 weeks to respond, and if no response is received it is considered that the corresponding authority has expressed their consent.

NATIONAL REPORTING TABLES

Overview of FRA 2020 reporting tables

Title	Table	Unit	Reporting year					
			1990	2000	2010	2015	2020	Yearly
1 Forest extent, characteristics and changes	1a Extent of forest and other wooded land	1000 ha	×	×	×	×	×	2016-2019
	1b Forest characteristics	1000 ha	×	×	×	×	×	2016-2019
	1c Annual forest expansion, deforestation and net change	1000 ha/year	(1990-2000), (2000-2010), (2010-2015), (2015-2020)					
	1d Annual reforestation	1000 ha/year	(1990-2000), (2000-2010), (2010-2015), (2015-2020)					
	1e Specific forest categories	1000 ha	×	×	×	×	×	
	1 f Other land with tree cover	1000 ha	×	×	×	×	×	
2 Forest growing stock, biomass and carbon	2a Growing stock	m3/ha Million m3	×	×	×	×	×	2016-2019
	2b Growing stock composition	Million m3	×	×	×	×	×	
	2c Biomass stock	t/ha Million t/ha	×	×	×	×	×	2016-2019
	2d Carbon stock	t/ha Million t/ha	×	×	×	×	×	2016-2019
3 Forest ddesignation and management objective	3a Designated management objective	1000 ha	×	×	×	×	×	
	3b Forest area within legally established protected areas and forest area with long-term forest management plan	1000 ha	×	×	×	×	×	2016-2019
4 Forest ownership and management rights	4a Forest ownership	1000 ha	×	×	×	×		
	4b Management rights of public forests	1000 ha	×	×	×	×		
5 Forest disturbances	5a Disturbances	1000 ha		×	×	×		2000-2017
	5b Area affected by fire	1000 ha		×	×	×		2000-2017
	5c Degraded forest	Not applicable	Not applicable					
6 Forest policy and legislation	6a Policies, legislation and national platform for stakeholder participation in forest policy	Not applicable	Not applicable					
	6b Area of permanent forest estate	1000 ha	×	×	×	×	×	
7 Employment, education and NWFP	7a Employment in forestry and logging	1000 years full-time equivalents	×	×	×	×		
	7b Graduation of students in forest-related education	Number	×	×	×	×		
	7 c Non wood forest products removals 2015	Value: 1000 local currency Quantity: local unit				×		

GENERAL GUIDELINES TO FILL IN THE FRA 2020 TABLES

Apart from specifically designed Boolean tables, only numerical value can be inserted in the tables. If a cell is left blank the database will archive this information as "unknown information". Therefore, it is important to fill in a cell with a zero in case the value for a certain variable is actually zero (and not unknown). Further note that some tables may contain categories, which are not applicable for all countries (e.g. Table 1e Specific forest categories, which include mangroves and bamboo). In these cases, zero (0) should be used to fill in the table.

FORMATTING

Values may be reported with or without decimals. The system allows for entering 2 decimals. The only exceptions are table 7a Employment in forestry and logging (3 decimals) and table 7b Graduation of students in forest-related education (zero decimals).

When reporting decimals, the dot (.) should be used as separator, no other separators should be used.

Numbers larger than 1000 may use a blank space or commas to separate the thousands (groups of three digits).

EXPERT ESTIMATES

When documented national data are weak or missing, countries are encouraged to make expert estimates to fill in the requested information, as long as it is clearly documented in the country report in the respective field under "Comments related to data, definitions, etc". In particular, the countries are encouraged to make expert estimates in the following cases:

- In order to make time series complete. A missing data point in a time series may lead to not including the country in global/regional aggregates, so expert estimates to ensure complete time series are strongly encouraged;
- In order to make categories add up to a total.

1. FOREST EXTENT, CHARACTERISTICS AND CHANGES

1a EXTENT OF FOREST AND OTHER WOODED LAND

FRA 2020 categories	Area (1000 ha)									
	1990	2000	2010	2015	2016	2017	2018	2019	2020	← *Reporting years*
Forest										
Other wooded land										
Other land										← *Calculated*
Total land area										← *Prefilled*

← *Reporting unit*

The main categories to be reported on in table 1a are **Forest** and **Other wooded land**. **Total land area** is pre-filled with official land areas maintained by FAOSTAT and **Other land** is automatically calculated by subtracting the area of Forest and Other wooded land from the Total land area.

Annual reporting has been introduced starting from 2015 in order to meet reporting requirements for the Sustainable Development Goals (SDGs).

Internal consistency

In Table 1a, the system calculates the Other land area based on the Total land area as maintained by FAOSTAT (system validation rule).

Should the area figures generally accepted by your country be different from those maintained by FAOSTAT, the competent authority in the country should make sure that an official request is made to FAOSTAT to change the official figures. Once an official request is put forward, the updated figures may be used even if they are still not reflected in the on-line databases. A note should be added in the comments section to specify that a request has been sent to FAOSTAT@fao.org in order to change the official figures of country area and/or land area.

The system also compares the forest area figures that were reported for the same reporting years to FRA 2015 and highlights any major discrepancies (system validation rule). In case of differences in the reported figures, the NC should check the data and add a comment to explain the reasons of the differences.

Inter-tabular consistency

The area of Forest as presented in table 1a constitute the basis for reporting in many of the other reporting tables. For internal consistency, the forest area must match with corresponding figures in tables 1b, 3a, 4a. The system automatically prefills the total forest area as of table 1a, for tables 1b, 3a, 4a. The difference in forest area between two FRA reporting years is automatically calculated to prefill the net change of table 1c.

In order to allow analysis of forest by main ecological domains, National Correspondents are asked to validate or update the figures provided by FAO related to the share in percentage of forest area by main climatic domain.[3]

Climatic domain	% of forest area 2015	
Boreal		← *Prefilled*
Temperate		← *Prefilled*
Sub-tropical		← *Prefilled*
Tropical		← *Prefilled*

1b FOREST CHARACTERISTICS

FRA 2020 categories	Forest area (1000 ha)					
	1990	2000	2010	2015	2020	← *Reporting unit* / ← *Reporting years*
Naturally regenerating forest (a)						
Planted forest (b)						← *Calculated*
Plantation forest						
…of which introduced species						← *Optional*
Other planted forest						
TOTAL FOREST AREA (a+b)						← *Prefilled from 1a*

The main reporting categories in table 2a are **Naturally regenerating forest**, **Plantation forest** and **Other planted forest**. The category **Planted forest** is automatically calculated as the sum of **Plantation forest** and **Other planted forest**. The total Forest area is prefilled from table 1a.

The reporting on the sub-category of **Plantation forest of which introduced species** is optional.

Internal consistency

The area of the subcategory Plantation forest of which of introduced species can't be greater than the area of Plantation forest (system validation rule).

A decision-making tree has been elaborated to support more consistent interpretation and reporting for the proposed forest types (Annex 1).

[3] The analysis of forest area by climatic domains was carried out using the latest version of the FAO Global Ecological Zone map (http://www.fao.org/docrep/017/ap861e/ap861e00.pdf) and the MODIS Vegetation Continuous Fields (VFC) pixels with a canopy cover larger than equal to 10% to determine the forested area.

Inter-tabular consistency

Total forest area is automatically prefilled using the Forest area resulting from table 1a. The sum of Naturally regenerating forest and Planted forest needs to match the total Forest area from table 1a (system validation rule).

1c ANNUAL FOREST EXPANSION, DEFORESTATION AND NET CHANGE

FRA 2020 categories	Area (1000 ha/year)				← *Reporting unit*
	1990-2000	2000-2010	2010-2015	2015-2020	← *Reporting periods*
Forest expansion (a)					← *Can be calculated if deforestation is known*
…of which afforestation					
…of which natural expansion					
Deforestation (b)					← *Can be calculated if forest expansion is known*
Forest area net change (a-b)					← *Calculated and prefill from 1a*

The main categories to be reported on in table 1c are **Forest expansion** and **Deforestation**. Reporting on the subcategories of **Forest expansion of which afforestation** and on **Forest expansion on which natural expansion** is optional. **Forest area net change** is calculated as the difference in Forest area between two FRA reporting years, as reported in table 1a. The net change can be either positive (gain), negative (loss) or zero (no change). The forest expansion and the deforestation should be reported as average (thousand hectare per year) for the reporting periods.

Internal consistency

Since the net change is the sum of all losses (deforestation) and gains (forest expansion), using the net change figure, the system can automatically calculate the deforestation figure if the forest expansion figure is known and, vice versa, it can calculate the forest expansion figure if deforestation figure is known.

Inter-tabular consistency

The system automatically calculates the net change and prefills the corresponding value in this table. If both deforestation and forest expansion figures are reported, their balance needs to match the forest net change as calculated from table 1a (system validation rule).

1d ANNUAL REFORESTATION

FRA 2020 categories	Forest area (1000 ha/year)				← *Reporting unit*
	1990-2000	2000-2010	2010-2015	2015-2020	← *Reporting periods*
Reforestation					

The main category for table 1d is **Reforestation**, reported as an average of the reporting period (thousand hectares per year).

1e SPECIFIC FOREST CATEGORIES

FRA 2020 categories	Forest area (1000 ha)					← *Reporting unit*
	1990	2000	2010	2015	2020	← *Reporting years*
Bamboos						
Mangroves						
Temporarily unstocked and/or recently regenerated forest						
Primary forest						

Internal consistency

The main category to be reported on in table 1e are related to the area of specific forest categories such as: **Bamboo**, **Mangroves**, **Temporarily unstocked and/or recently regenerated forest** and **Primary forest**. When one or more of these specific forest categories do not exist in the country, NCs are invited to fill in the table with zeros. If cells are left blank, the system will consider them in the category of unknown data. A decision-making tree has been elaborated to support more consistent interpretation and reporting for primary forest (Annex 1).

Inter-tabular consistency

The area corresponding to each forest category can't be bigger than the forest area from table 1a (system validation rule). The area of primary forest can't be bigger than the area of Naturally regenerating forest from table 1b (system validation rule).

1f OTHER LAND WITH TREE COVER

FRA 2020 categories	Area (1000 ha)				
	1990	2000	2010	2015	2020
Palms					
Tree orchards					
Agroforestry					
Trees in urban settings					
Other (Specify)					
TOTAL OTHER LAND WITH TREE COVER					

← *Reporting unit*

← *Reporting years*

The reporting categories of table 1f are related to the area of **Other land with tree cover** and more specifically to the area occupied by **Palms**, **Tree orchards**, **Agroforestry** and **Trees in urban settings**. In case of a different type of other land with tree cover category, other than those listed in the table, the category **Other** can be used and the type of tree cover formation should be specified in the comments section.

Internal consistency

The Total Other land with tree cover area is automatically calculated by the system as the sum of the categories reported in this table.

Inter-tabular consistency

The area of total land with tree cover can’t be bigger than the total other land as from table 1a (system validation rule).

2. FOREST GROWING STOCK, BIOMASS AND CARBON

2a GROWING STOCK

FRA 2020 categories	Growing stock (m^3/ha over bark)									
	1990	2000	2010	2015	2016	2017	2018	2019	2020	← *Reporting years*
Naturally regenerating forest (a)										
Planted forest (b)										← *Calculated*
…of which plantation forest										
…of which other planted forest										
FOREST (a+b)										← *Calculated*
Other wooded land										← *Optional*

FRA 2020 categories	Total growing stock (million m^3 over bark)									
	1990	2000	2010	2015	2016	2017	2018	2019	2020	← *Reporting years*
Naturally regenerating forest (a)										
Planted forest (b)										← *Calculated*
…of which plantation forest										
…of which other planted forest										
FOREST (a+b)										← *Calculated*
Other wooded land										← *Optional*

The main categories to be reported on in table 2a are **Growing stock** (m3/ha over bark) or **Total growing stock** (Million m3 over bark) of Naturally Regenerating Forest, Plantation Forest, Other Planted Forest and Other wooded land.

In order to allow annual calculations of biomass for reporting to the SDGs, also growing stock will be reported annually, starting from the FRA reporting year 2015.

Internal consistency

If data on average Growing stock in cubic meters per hectare by FRA 2020 categories are available, it is possible to enter data in the first of the 2 tables above. The Growing stock per hectare of Planted forest is calculated by the system as the area weighted average of the growing stock per hectare of Plantation forest and of Other planted forest and the Growing stock per hectare of Forest as area weighted average of the growing stock of the Naturally regenerating forest and the Planted forest. If reporting starts using data per hectare, thus filling in the first table, the system automatically calculates the total Growing stock in million cubic meters in the second table, using the corresponding area figures of table 2b.

If data on total Growing stock in million cubic meters by FRA 2020 forest characteristics categories are available, it is possible to start reporting using the second table. In this case, the Growing stock of Planted forest is calculated as the sum of the Growing stock of Plantation forest and Other planted Forest and the Total growing stock is calculated as the sum of the growing stock of Naturally regenerating forest and Planted forest. If reporting starts using the Total growing stock, thus filling in the second table, the system automatically calculates the Growing stock per hectare in the first table, using the corresponding area figures of table 2b.

The same automatic calculations are performed on the Other wooded land category.

Inter-tabular consistency

The data entered in table 2b needs to be related to the forest area as reported in table 2b.

2b GROWING STOCK COMPOSITION

FRA 2020 categories	Scientific name	Common name	Growing stock in forest (million m3 over bark)					← *Reporting unit*
			1990	2000	2010	2015	2020	← *Reporting years*
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								← *Calculated*
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								← *Calculated*
TOTAL growing stock								← *Prefilled from table 2a*

The growing stock of the ten most common **Native tree species** and of the five most common **Introduced tree species** should be reported in table 2b. Each species listed in this table should be identified by both *scientific name* and common name. In special cases, countries may report on genera instead of species if their inventory data do not allow the distinction of individual species within the genera.

Internal consistency and validation rules

The reference year for the ranking order of the species is according to volume in 2015.

Inter-tabular consistency

The figures in this table only apply to land classified as forest in table 1a. The total growing stock is automatically prefilled from table 2a and the sum of the ten most common native tree species (and remaining native tree species) and of the five common introduced tree species (and remaining introduced tree species) should match corresponding values for forest Growing stock in table 2a (system validation rule).

2c BIOMASS STOCK

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

← *Reporting unit*

← *Reporting years*

Table 2c refers to the forest biomass and the main categories to be reported on are the A**bove ground biomass** and the **Below ground biomass**. Reporting on **Deadwood** is optional. In order to allow annual calculations of biomass and carbon for reporting to the SDGs, also biomass stock will be reported annually starting from 2015.

Inter-tabular consistency

The biomass figures are generally derived from the Growing stock figures reported in table 2a through biomass conversion and expansion factors. The conversion and expansion factors are multiplication factors that expand growing stock to different biomass components such as branches, foliage and roots. In order to facilitate reporting on these variables for countries that do not have specific national data on forest biomass and carbon, a biomass excel calculator is available for download on the platform. The calculator, based on main ecological domains, provides the possibilities to produce biomass and carbon estimates, starting from data on the forest area and growing stock already provided in table 1b and 2a and using IPCC (IPCC 2006 Guidelines[4]) expansion factors (Annex 2).

2d CARBON

FRA 2020 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										← *Optional*
Carbon in litter										← *Optional*
Soil carbon										← *Optional*

← *Reporting unit*

← *Reporting years*

[4] This document is available at: http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html

Internal consistency

The main categories to be reported on in table 2d are **Carbon in above ground biomass** and **Carbon in below ground biomass**. Reporting on the **Carbon in dead wood**, **Carbon in litter** and **Soil Carbo**n is optional. Carbon content in biomass is usually derived using conversion factors. The reported figures on carbon stock are therefore closely related to corresponding figures on biomass stock in table 2c and growing stock in table 2a. Soil depth for the data on carbon in the soil should be specified.

Soil depth (cm) used for soil carbon	

Inter tabular consistency

Carbon content for above and below ground biomass can be calculated starting from the biomass figures of table 2c using the biomass excel calculator (Annex 2).

3. FOREST DESIGNATION AND MANAGEMENT

3a DESIGNATED MANAGEMENT OBJECTIVE

FRA 2020 categories	Forest area (1000 ha)					← *Reporting unit*
	Primary designated management objective					
	1990	2000	2010	2015	2020	← *Reporting years*
Production						
Protection of soil and water						
Conservation of biodiversity						
Social Services						
Multiple use						
Other (specify)						
None/unknown						
Total forest area						← *Prefilled from 1a*

FRA 2020 categories	Forest area (1000 ha)					← *Reporting unit*
	Total area with designated management objective					
	1990	2000	2010	2015	2020	← *Reporting years*
Production						
Protection of soil and water						
Conservation of biodiversity						
Social Services						
Other (specify)						

The main reporting categories of the two tables in 3a concern the designated management objective (primary and not primary) of a forest area and more specifically: **Production, Protection of soil and water, Conservation of biodiversity** and **Multiple use.** If the designated management objective of a forest area is other than these already listed, the category **Other** can be used for reporting and the management objective should be specified in the comments section. If the designated management objective of a certain forest area is not known, or if there is none, this area should be reported under the category **None/Unknown**.

Internal consistency

The areas which are recorded under a **Primary designated management objective** (first table) are exclusive and should only be counted once, so that their sum should match the total forest area from table 1a. The areas which are recorded under **Total area with designated management objective** (second table) should refer to the total area that is managed under a specific management objective, regardless whether is primary or not. Because of the non-exclusiveness of these management objectives, areas in this table could be double counted and this is why the total area of the different management objectives are not summed up.

Inter-tabular consistency

The total forest area as reported in table 1a is prefilled by the system in the table about the Primary designated management objective and the sum of the individual forest areas under primary designated forest management objectives should sum up to the total forest area from table 1a (system validation rule).

3b FOREST AREA WITHIN LEGALLY ESTABLISHED PROTECTED AREAS AND FOREST AREA WITH LONG-TERM FOREST MANAGEMENT PLAN

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

← *Reporting unit*
← *Reporting years*

The main category to be reported on for table 3b are **Forest Area within legally established protected areas** and **Forest area with long-term forest management plan**. The reporting on the subcategory **Forest area with long term management plan of which in protected areas** is optional. Annual reporting has been introduced starting from 2015 in order to meet reporting requirements for the Sustainable Development Goals (SDGs).

Inter-tabular consistency

None of the individual values can be greater than total forest area as reported in table 1a (system validation rule).

4. FOREST OWNERSHIP AND MANAGEMENT RIGHTS

4a FOREST OWNERSHIP

FRA 2020 categories	Forest area (1000 ha)				← *Reporting unit*
	1990	2000	2010	2015	← *Reporting years*
Private ownership					
... 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					
Other (specify)/unknown					
Total forest area					← *Prefilled from 1a*

The main category to be reported on in table 4a are forest area with **Private ownership** and forest area with **Public ownership**. The category of forest privately owned can also be reported by subcategories of which owned by **individuals, private business entities and institutions** or local, **tribal and indigenous communities.** If, for a forest area the ownership is neither private nor public or if the ownership is not known, the category **Other/unknown** can be used. If an area of forest is reported under Other, the type of ownership should be specified in the comments section.

Internal consistency

The sum of private, public and other forest should match the total forest area from table 1a. The sum of the subcategories of private ownership should equal the total privately owned forest area.

Inter-tabular consistency

The total forest area as reported in table 1a is prefilled in the table and the sum of the individual forest areas under ownership category should sum up to the total forest area (system validation rule). The area of forest under public ownership is automatically prefilled in table 4b.

4b MANAGEMENT RIGHTS OF PUBLIC FORESTS

FRA 2020 categories	Forest area (1000 ha)				← *Reporting unit*
	1990	2000	2010	2015	← *Reporting years*
Public Administration					
Individuals					
Private business entities and institutions					
Local, tribal and indigenous communities					
Other (specify)					
Total public ownership					← *Prefilled from 4a*

The main categories to be reported on in table 4b refer to the **Management rights of public forests**, specifically: **Public Administration, Individuals, Private business entities and institutions, Local, tribal and indigenous communities.** If management rights of a publicly owned forest area are others than those listed above, the category **Other** can be used, and the type of management rights should be specified in the comments section.

Inter-tabular consistency

The sum of the categories of management rights of public forests in table 4b needs to add up to the Public ownership forest area of table4a (system validation rule).

5. FOREST DISTURBANCES

5a DISTURBANCES

Disturbance type or event	Forest area affected (1000 ha)								
	2000	2001	2002	…	2013	2014	2015	2016	2017
Insects									
Diseases									
Severe weather events									
Other (specify)									
Total									

← *Reporting unit*
← *Reporting years*

The main categories to be reported on in table 5a are related to the forest area affected by **Insects**, **Diseases**, **Severe weather events** and **Other**. The reporting is annual starting from the year 2000 until the year 2017. The reporting should be done according with the primary/major disturbing agent/event and the areas reported should be exclusive.

Internal consistency

The forest area reported to be disturbed by individual type or event of disturbance can't be bigger than the total forest area as of table 1a and because the categories are exclusive.

Inter-tabular consistency

Because of the exclusiveness of the disturbance categories, their sum can't bigger than the total forest as of table 1a (system validation rule).

5b AREA AFFECTED BY FIRE

FRA 2020 categories	Area (1000 ha)								
	2000	2001	2002	...	2013	2014	2015	2016	2017
Total land area affected by fire									
...of which on forest									

← *Reporting unit*
← *Reporting years*

Main reporting category in table 5b is the **Total land area affected by fire** and the subcategory **of which on forest.** Annual data from 2000-2017 is requested.

For reporting on table 5b, countries can use national data obtained from national fire monitoring systems, or in absence of national data, use statistics derived from the FRA geospatial portal. These estimates are based on the monthly global burned area product built on time-series of surface reflectance data collected by the MODIS sensor. By overlaying this product with the Hansen tree

cover product (canopy cover threshold can be set by the user), an estimate of burned forest area is obtained.

Inter-tabular consistency

The area of forest burned should not be bigger than the total forest area as of table 1a (system validation rule).

5c DEGRADED FOREST

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

Table 5c does not require data input, rather a description, if existing, of degraded forest and in case a monitoring process is in place at the national level, a brief description of methodology and results should be also provided.

6. FOREST POLICY AND LEGISLATION

6a POLICIES, LEGISLATION AND NATIONAL PLATFORM FOR STAKEHOLDER PARTICIPATION IN FOREST POLICY

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

Table 6a does not require data input. National Correspondent can simply report on the existence of Policies supporting SFM, Legislations and/or regulations supporting SFM, Platform that promotes or allows for stakeholder participation in forest policy development and traceability system for wood products.

6b AREA OF PERMANENT FOREST ESTATE

FRA 2020 categories	Forest area (1000 ha)					
	Applicable	1990	2000	2010	2015	2020
Area of permanent forest estate	Yes/No					

← *Reporting unit*
← *Reporting years*

Table 6b refers to the **Area of permanent forest estate**. Countries in which the permanent forest estate concept does not exist can report No, in the "Applicable" column.

Inter-tabular consistency

The area under permanent forest estate cannot be bigger than the total forest as of table 1a (system validation rule).

7. EMPLOYMENT, EDUCATION AND NWFP

7a EMPLOYMENT IN FORESTRY AND LOGGING

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												

←*Reporting unit*
←*Reporting years*

Table 7a relates to the **Employment in forestry and logging**. This category corresponds to the ISIC/NACE Rev. 4 activity A02 (Forestry and logging). The reporting is by full time equivalents (one fulltime employee counts as one FTE, and two half-time employees also count as one FTE). If the breakdown of full time equivalent by gender is available, National Correspondents can report the figures in the corresponding columns, otherwise the total number can be reported.

The reported figures should be based on averages for the three years period (1989-1990-1991) for 1990, (1999-2000-2001) for 2000, (2009-2010-2011) for 2010 and (2014-2015-2016) for 2015. If data are not available to produce three year average, this should be documented along with information on how the value for the reporting year(s) was reached. It could be the actual value for the reference year, if available, but preferably it should be an average value of two or more years. Please note that all original data used for the averages must be properly documented under original data.

Internal consistency

The sum of the full time equivalents reported under each employment category can't be bigger than the total Employment in forestry and logging (system validation rule).

7b GRADUATION OF STUDENTS IN FOREST-RELATED EDUCATION

FRA 2020 categories	Number of graduated											
	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												

←*Reporting unit*

←*Reporting years*

The reporting categories of forest education in table 7 b are **Doctoral degree**, **Master's degree, Bachelor's degree** and **Technical certificate/diploma.** If the breakdown of number of graduated by gender is available, National Correspondents can report the figures in the corresponding columns, otherwise the total number can be reported.

The reported figures should be based on averages for the three years period (1989-1990-1991) for 1990, (1999-2000-2001) for 2000, (2009-2010-2011) for 2010 and (2014-2015-2016) for 2015. If data are not available to produce three year average this should be documented along with information on how the value for the reporting year(s) was reached. It could be the actual value for the reference year, if available, but preferably it should be an average value of two or more years. Please note that all original data used for the averages must be properly documented under original data.

7c NON WOOD FOREST PRODUCTS REMOVALS AND VALUE 2015

	Name of NWFP product	*Key species*	Quantity	Unit	Value (1000 currency)	NWFP category
1st						
2nd						
3rd						
4th						
5th						
6th						
7th						
8th						
9th						
10th						
All other plant products						
All other animal products						
Total						

Name of currency	

Table 7c relates to the removals and value of **Non wood forest products**. If available, the table should be filled with the name of each product, the key species, the quantity of removals and its unit. Value should be reported in 1000 local currency (to be specified) and the corresponding FAO Non wood forest products category should be also given. Ranking of table 7c is to be organized according to the value.

CATEGORY

Plant products / raw material

1. Food
2. Fodder
3. Raw material for medicine and aromatic products
4. Raw material for colorants and dyes
5. Raw material for utensils, handicrafts & construction
6. Ornamental plants
7. Exudates
8. Other plant products

Animal products / raw material

9. Living animals
10. Hides, skins and trophies
11. Wild honey and bee-wax
12. Wild meat
13. Raw material for medicine
14. Raw material for colorants
15. Other edible animal products
16. Other non-edible animal products

SUSTAINABLE DEVELOPMENT GOAL 15

The final section of the Platform relates to the SDG 15 reporting. The following tables are automatically filled in using the data reported in the reporting tables. The National Correspondent should revise these figures and add the information related to the Agency responsible for every indicator and sub-indicator.

SDG Indicator 15.1.1 Forest area as proportion of total land area 2015

	Percent								
Indicator	1990	2000	2010	2015	2016	2017	2018	2019	2020
Forest area as proportion of total land area 2015									

Name of agency responsible	Indicate agency responsible

SDG Indicator 15.2.1 Progress towards sustainable forest management

	Percent							
Sub-Indicator 1	1990-2000	2000-2010	2010-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
Forest area annual net change rate								

Name of agency responsible	Indicate agency responsible

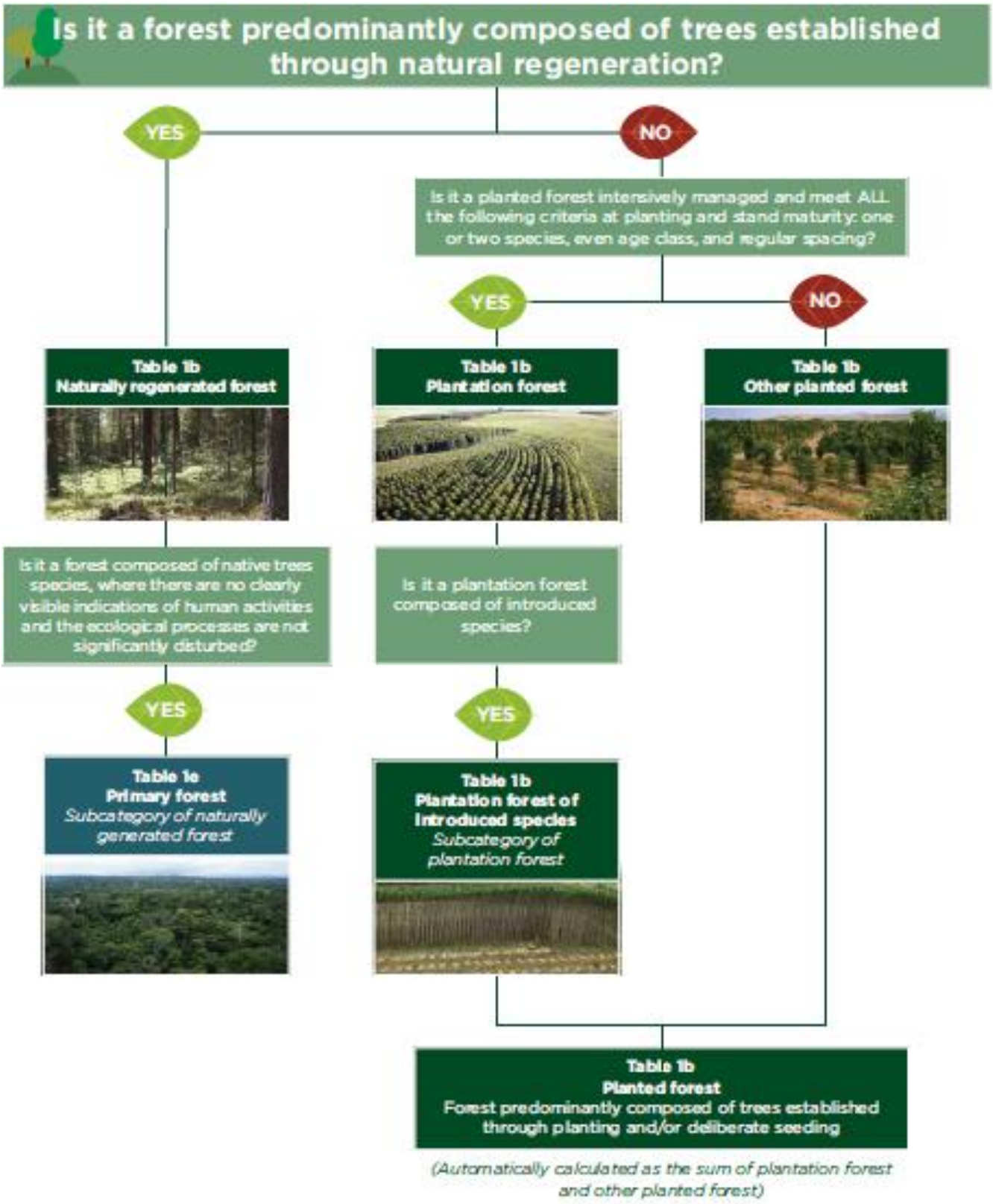
	Forest Biomass (tonnes/ha)								
Sub-Indicator 2	1990	2000	2010	2015	2016	2017	2018	2019	2020
Above-ground biomass stock in forests									

Name of agency responsible	Indicate agency responsible

	Percent (2015 forest area baseline)								
Sub-Indicator 3	1990	2000	2010	2015	2016	2017	2018	2019	2020
Proportion of forest area located within legally established protected areas									
Proportion of forest area under long-term forest management									

Name of agency responsible	Indicate agency responsible

ANNEX 1: FOREST CHARACTERISTICS DECISION TREE



ANNEX 2: BIOMASS EXCEL CALCULATOR

Biomass calculators corresponding to each of the four broad climatic domains (tropical, subtropical, temperate and boreal) are available for download in the platform. These calculators facilitate the calculation and documentation of calculation steps for countries that estimate biomass and carbon by applying the IPCC default factors. Countries that estimate biomass and carbon through modelling, allometric equations, national forest inventory data, or by aggregation of subnational estimates, should do the estimates the traditional way and document all the calculation steps.

In case that a country is covered by two or more climatic domains, countries should select the calculator that corresponds to the domain that has the greatest share of the growing stock.

Once the calculator is downloaded, the National Correspondent can copy data from the platform (using the specific functionality in the platform) and paste these data in the biomass calculator; data from table 1b (forest characteristics) in section 1 and data from table 2a (growing stock per hectare) in section 2.

1 INPUT DATA ON FOREST AREA FROM REPORTING TABLE 1B

Forest category	**1990**	**2000**	**2010**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
	1000 ha	**1000 ha**	**1000 ha**	**1000 ha**	**1000 ha**	**1000 ha**	**1000 ha**	**1000 ha**	**1000 ha**
Naturally regenerating forest	200	190	185	180	179	178	179	180	181
Plantation forest	10	15	20	21	22	23	24	25	26
...of which introduced species	5	6	7	7	7	7	8	8	8
Other planted forest	30	30	32	32	32	32	32	32	32
Total	**240**	**235**	**237**	**233**	**233**	**233**	**235**	**237**	**239**

2 INPUT DATA ON GROWING STOCK FROM REPORTING TABLE 2a

Forest category	1990	2000	2010	2015	2016	2017	2018	2019	2020
	m^3/ha	m^3/ha	m^3/ha	m^3/ha	m^3/ha	m^3/ha	m^3/ha	m^3/ha	m^3/ha
Naturally regenerating forest	80	80	80	80	80	80	80	80	80
Planted forest	90	90	90	90	90	90	90	90	90
...of which plantation forest	90	90	90	90	90	90	90	90	90
...of which other planted forest	90	90	90	90	90	90	90	90	90
Total	**82**	**82**	**82**	**82**	**82**	**82**	**82**	**82**	**82**

As next step, in section 3, National Correspondent should assign a percentage of growing stock belonging to each IPCC forest types to the FRA 2020 forest categories and ensure that each column adds up to 100%:

3 INSERT THE PERCENTAGES OF GROWING STOCK BY IPCC FOREST TYPE FOR EACH OF THE FRA CATEGORIES

IPCC forest types	FRA forest categories		
	Naturally regenerating forest	Plantation forest	Other planted forest
	% of Growing stock		
Broadleaved humid	50%	50%	50%
Broadleaved dry	40%		
Coniferous	10%	50%	50%

In section 4, the default carbon fraction is provided, but the National Correspondent can change the default value if so desired.

4 DEFAULT CARBON FRACTION

Carbon Fraction	**47%**

Based on input data from section 1 to section 4, the calculator will automatically assign the default biomass conversion and expansion factors by IPCC forest type for the FRA reporting years.

5 BIOMASS CONVERSION AND EXPANSION FACTORS (BCEF)

Naturally regenerating forest	**1990**	**2000**	**2010**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Broadleaved humid	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Broadleaved dry	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Coniferous	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Plantation forest									
Broadleaved humid	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Broadleaved dry	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Coniferous	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Other planted forest									
Broadleaved humid	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Broadleaved dry	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Coniferous	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Weighted BCEF									
Naturally regenerating forest	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Plantation forest	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Other planted forest	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61

Similarly, the calculator will then assign the default Root-shoot ratios by IPCC forest types for the FRA reporting years.

6 ROOT-SHOOT RATIOS

Naturally regenerating forest	**1990**	**2000**	**2010**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Broadleaved humid	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Broadleaved dry	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Coniferous	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Plantation forest									
Broadleaved humid	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Broadleaved dry	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Coniferous	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Other planted forest									
Broadleaved humid	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Broadleaved dry	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Coniferous	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Weighted RS ratio									
Naturally regenerating forest	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Plantation forest	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Other planted forest	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25

And in section 7 it will automatically calculate the above and below ground biomass per hectare by FRA 2020 forest categories and reporting years.

7 ABOVE-GROUND BIOMASS (t/ha)

	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest	51.92	51.92	51.92	51.92	51.92	51.92	51.92	51.92	51.92
Plantation forest	54.45	54.45	54.45	54.45	54.45	54.45	54.45	54.45	54.45
Other planted forest	54.45	54.45	54.45	54.45	54.45	54.45	54.45	54.45	54.45
Total	**52.34**	**52.40**	**52.48**	**52.50**	**52.51**	**52.52**	**52.52**	**52.53**	**52.53**

8 BELOW-GROUND BIOMASS (t/ha)

	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest	12.51	12.51	12.51	12.51	12.51	12.51	12.51	12.51	12.51
Plantation forest	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34
Other planted forest	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34	13.34
Total	**12.65**	**12.67**	**12.69**	**12.70**	**12.70**	**12.71**	**12.71**	**12.71**	**12.71**

In order to document the estimation in the platform, the National Correspondent should copy and paste section 5 to 8 straight from the calculator to the platform in the comments section.

The last two tables of the biomass calculator contain the final calculated figures (highlighted in yellow) on biomass and carbon that should be copied and pasted in the platform in table 2c and 2d respectively.

Forest biomass (tonnes/ha)	1990	2000	2010	2015	2016	2017	2018	2019	2020
Above-ground biomass	52.34	52.40	52.48	52.50	52.51	52.52	52.52	52.53	52.53
Below-ground biomass	12.65	12.67	12.69	12.70	12.70	12.71	12.71	12.71	12.71

Carbon in Forest biomass (tonnes/ha)	1990	2000	2010	2015	2016	2017	2018	2019	2020
Above-ground biomass	24.60	24.63	24.66	24.67	24.68	24.68	24.69	24.69	24.69
Below-ground biomass	24.60	24.63	24.66	24.67	24.68	24.68	24.69	24.69	24.69

ANNEX 3: FREQUENTLY ASKED QUESTIONS

TABLE 1a

Q: **Can I correct or change previously reported figures?**

A: If new data have become available since last reporting, you may need to also change the historical figures as the new data most likely will affect the trends. Likewise, if you notice that some errors were made in the estimations for FRA 2015, these should be corrected accordingly. Whenever, previously reported figures are changed, the justification should be clearly documented in the comments to the table.

Q: **Can sub-national level information on forest area be used to improve/generate national level estimates?**

A: If boundaries of the sub-national units are consistent and definitions compatible, sub-national level information can be aggregated to generate a composite national level estimate through addition of the sub-national figures. Where definitions/classifications differ, harmonization of national classes or reclassification to the FRA categories should be done prior to adding the various estimates.

Q: **How does one address the problem of different reference years for sub-national level figures used to generate an aggregated national estimate?**

A: First bring the different estimates to a common reference year through inter/extrapolation, then add the sub-national figures.

Q: **When it is difficult to reclassify national classes into FRA categories, can I use and report data for the national classes as a proxy for the FRA categories?**

A: It is important that the time series reported to FRA are consistent. If the national categories are reasonably close to the FRA categories countries may use these as long as this is clearly documented in the country report. However, if the national categories differ substantially from the FRA categories, countries should try reclassifying the national data to the FRA categories. When in doubt, please contact the FRA secretariat.

Q: **What should I do when the national datasets from different years use different definitions and classifications?**

A: In order to build a time series, these datasets must first be brought to a common classification system. Usually the best way is to first reclassify both datasets to FRA classes, before making the estimation and forecasting.

Q: **Mangroves are found below the tidal level and are not part of the total land area, how should they be accounted for in forest area?**

A: Most mangroves are located in the inter-tidal zone i.e. above the daily low tide, but below the high water mark. The land area according to country definitions may or may not include the inter-tidal zone. For, all mangroves which meet the criteria of "forest" or "other wooded land" should be included in the respective category in the forest area, even when they are found in areas not classified by the country as land area. When necessary, the area of "other land" should be adjusted in order to ensure that the total land area matches the official figures as maintained by FAO and the UN Statistics Division and a comment about this adjustment included in the comment field to the table.

Q: **What estimate should I use for 1990? Our estimate at the time or an estimate projected back from the latest inventory?**

A: The estimate for 1990 should be based on the most accurate information available, not necessarily a repetition of a previous estimate or the result of an inventory/assessment undertaken in or just prior to 1990. Where a time series is available for a time period before 1990, the estimate for 1990 can be calculated by simple interpolation. If the latest inventory is considered more accurate than earlier inventories, then this should be taken into account and an attempt made to project the results back in time.

Q: **How should I report forest fallows / abandoned "shifting cultivation"?**

A: It depends on how you consider the future land use. Long fallows, in which the woody fallow period is longer than the cropping period and trees reach at least 5 m in height should be considered as "forest". Short fallows in the cropping period is greater or equal to the fallow period and/or woody vegetation does not reach 5 m during the fallow period should be classified as "other land" and, when relevant, as "other land with tree cover" since the main land use is agriculture.

Q: **How should "young forests" be classified?**

A: Young forest should be classified as "forest" if the land use criterion is met and the trees are capable of reaching 5 m in height. The area should also be reported on under the sub-category "…of which temporarily unstocked and/or recently regenerated".

Q: **Where should line be drawn between "forest" and agricultural tree crops (fruit plantations, rubber plantations, etc.). For example: How to classify a plantation of Pinus pinea with the main objective of harvesting pine nuts? Is it an agricultural tree crop or is it a forest where NWFP are harvested?**

A: Rubber plantations should always be classified as "forest" (see explanatory note 7 under the definition of forest). Fruit tree plantations should be classified as "Other land with tree cover". The general rule is that if the plantation is made up of forest tree species, it should be classified as "forest". The case of the Pinus pinea plantation for pine nut production should therefore be classified as "forest" and the harvested pine nuts should be reported as NWFP if they are traded commercially.

Q: **How do I report on areas of bush-like formations (e.g. in the Mediterranean countries) with a height of about 5m?**

A: If the woody vegetation has more than 10% canopy cover of tree species with a height or expected height of 5 m or more, it should be classified as "forest", otherwise it should be classified as "Other wooded land".

Q: **How to report when national data are using different thresholds than FRA definition of forest?**

A: Sometimes national data do not allow making estimates with exactly the thresholds specified in the FRA definition. In such cases countries should report according to national thresholds and clearly document the thresholds used in the comments to the table. The same threshold must be used consistently throughout the time series.

Q: **How does the FRA definition of forest correspond with the definition of forest in other international reporting processes?**

A: The definition of forest used for reporting to FRA is generally accepted and used by other reporting processes. However, in the specific case of the UNFCCC, the IPCC guidelines for country reporting on greenhouse gas emissions allow for certain flexibility in the national

definition of forest, stating that the country can choose the thresholds of the following parameters, allowed interval within parenthesis:

- minimum area (0.05 – 1.0 hectares)
- tree crown cover (10 – 30 per cent)
- tree height (2 – 5 meters)

The thresholds should be selected by the country at the first national communication and must then be kept the same for subsequent national communications.

Q: **How should I classify power lines?**

A: Power and telephone lines less than 20 m wide and crossing through forest areas should be classified as "forest". In all other cases they should be classified as "other land".

TABLE 1b

Q: **How should I report areas where enrichment planting has been carried out?**

A: If it is expected that the planted trees will dominate the future stand, then it should be considered as "other planted forest"; if the intensity is so low that the planted or seeded trees will have only a minor share of the future growing stock, it should be considered as naturally regenerating forest.

Q: **How should I report when it is difficult to distinguish whether a forest is planted or naturally regenerated?**

A: If it is not possible to distinguish whether planted or naturally regenerated, and there is no auxiliary information available that indicates that it was planted, it should be reported as "naturally regenerating forest".

Q: **How should I report areas with naturalized species, i.e. species that were introduced a long time ago and which are now naturalized in the forest?**

A: Areas with naturalized species that are naturally regenerated should be reported as "naturally regenerating forest".

TABLE 1c

Q: **When do I consider that abandoned land has reverted to forest and therefore should be included under "natural expansion of forest"?**

A: It should fulfil the following:

- having been abandoned from previous land use for a period of time and be expected to revert to forest. There should not be any indications that it will go back to previous land use. The period of time may be chosen by the country and should be documented in a note in appropriate comment field.
- have regeneration of trees that are expected to comply to the definitions of forest.

Q: **What is the difference between afforestation and reforestation?**

A: Afforestation is the planting/seeding of trees on areas that previously were either other wooded land or other land. Reforestation on the other hand takes place in areas that already are classified as forest and does not imply any change of land use from a non-forest use to forest.

Q: **Are the FRA definitions of afforestation and reforestation the same as is used in the IPCC guidelines for greenhouse gas reporting?**

A: No, the terminology on afforestation and reforestation is different. In the IPCC guidelines, both afforestation and reforestation imply a land use change and correspond to the FRA term afforestation, while the IPCC term revegetation corresponds approximately to the FRA term reforestation.

TABLE 1e

Q: **How should I interpret "clearly visible indication of human activities" in order to distinguish between "primary forest" and "naturally regenerating forest"?**

A: Almost all forests have been affected one way or another by human activities for commercial or for subsistence purposes by logging and/or collection of non-wood forest products, either recently or in the distant past. The general rule is that if the activities have been of such a low impact that the ecological processes have not been visibly disturbed, the forest should be classified as Primary. This would allow for including activities such as a non-destructive collection of NWFP. Likewise it may include areas where a few trees have been extracted as long as this happened a long time ago.

Q: **Can I use the area of forest in protected areas as a proxy for reporting on area of primary forest?**

A: In some cases, the area of forest in protected areas is the only information available that can be used as a proxy for the area of primary forest. However, this is a very weak proxy subject to major errors which should only be used where there are no better alternatives. Caution should be employed when reporting time series, because establishing new protected areas does not mean that the area of primary forest increases.

Q: **How can the ITTO classification of forests be translated to the FRA categories on forest characteristics?**

A: ITTO defines primary forest as follows:
"Forest which has never been subject to human disturbance, or has been so little affected by hunting and gathering that its natural structure, functions and dynamics have not undergone any unnatural change."
This category can be considered equivalent to the FRA 2020 definition of primary forest.
ITTO defines a degraded primary forest as follows:
"Primary forest in which the initial cover has been adversely affected by the unsustainable harvesting of wood and/or non-wood forest products so that its structure, processes, functions and dynamics are altered beyond the short-term resilience of the ecosystem; that is, the capacity of the forest to fully recover from exploitation in the near to medium term has been compromised)."
This definition falls within the FRA 2020 definition of "naturally regenerating forests". ITTO defines a managed primary forest as follows:
"Forest in which sustainable timber and non-wood harvesting (e.g. through integrated harvesting and silvicultural treatments), wildlife management and other uses have changed forest structure and species composition from the original primary forest. All major goods and services are maintained.
Also this definition falls within the FRA 2020 definition of "naturally regenerating forests".

Q: **Some forests are regularly affected by severe disturbances (such as hurricanes) and will never reach a "stable" climax state, but still there are substantial areas with no visible human impact. Should these be classified as primary forest (despite the visible hurricane impact)?**

A: A disturbed forest with no visible human impact and with a species composition and structure that resembles a mature or close-to-mature forest should be classified as "primary", while a severely damaged forest with an age structure and species composition which is significantly different from a mature forest should be classified as a "naturally regenerating forest". See also Explanatory note 1 to the definition of Primary Forest.

TABLE 1f

Q: **How should areas under multiple land use (agroforestry, forest grazing, etc.) be classified in a consistent way, when no land use is considered significantly more important than the others?**

A: Agroforestry systems where crops are grown under tree cover are generally classified as "Other land with tree cover", however 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". In the case of forest grazing (i.e. grazing on land that fulfil the requirements of canopy cover and tree height), the general rule is to include the forest pastures in the area of Forest, unless the grazing is so intensive that it becomes the predominant land use, in which case the land should be classified as "Other land with tree cover".

Q: **What species should be considered as mangroves?**

A: FRA uses the definition of mangroves as of Tomlinson's Botany of Mangroves, where the following are listed as "true mangrove species":

Acanthus ebracteatus
Acanthus ilicifolius
Acanthus xiamenensis
Acrostichum aureum
Acrostichum speciosum
Aegialitis annulata
Aegialitis rotundifolia
Aegiceras corniculatum
Aegiceras floridum
Avicennia alba
Avicennia bicolor
Avicennia eucalyptifolia
Avicennia germinans
Avicennia integra
Avicennia lanata
Avicennia marina
Avicennia officinalis
Avicennia rumphiana
Avicennia schaueriana
Bruguiera cylindrica
Bruguiera exaristata
Bruguiera gymnorrhiza
Bruguiera hainesii
Bruguiera parviflora
Bruguiera sexangula
Camptostemon philippinensis
Camptostemon schultzii
Ceriops australis
Ceriops decandra
Ceriops somalensis
Ceriops tagal
Conocarpus erectus
Cynometra iripa
Cynometra ramiflora
Excoecaria agallocha
Excoecaria indica
Heritiera fomes
Heritiera globosa
Heritiera kanikensis
Heritiera littoralis
Kandelia candel
Laguncularia racemosa
Lumnitzera littorea
Lumnitzera racemosa
Lumnitzera x rosea
Nypa fruticans
Osbornia octodonta
Pelliciera rhizophorae
Pemphis acidula
Rhizophora x annamalayana
Rhizophora apiculata
Rhizophora harrisonii
Rhizophora x lamarckii
Rhizophora mangle
Rhizophora mucronata
Rhizophora racemosa
Rhizophora samoensis
Rhizophora x selala
Rhizophora stylosa
Scyphiphora hydrophyllacea
Sonneratia alba
Sonneratia apetala
Sonneratia caseolaris
Sonneratia griffithii
Sonneratia x gulngai
Sonneratia hainanensis
Sonneratia ovata
Sonneratia x urama
Xylocarpus granatum
Xylocarpus mekongensis
Xylocarpus rumphii

Q: **How to classify seed orchards?**
A: Seed orchards of forest tree species are considered as forest.

Q: **How should we report on palm plantations?**
A: According to the FRA definition of "forest", oil palm plantations are specifically excluded. Regarding other palm plantations, it is a land use issue. If managed primarily for agricultural production, food and fodder they should be classified as "other land" and – when applicable – as "…of which palms (oil, coconut, dates, etc)". When managed primarily for production of wood and construction material and/or protection of soil and water they should be classified as either "forest" or "other wooded land" depending on the height of the trees. In the specific case of senile coconut palm plantation, the classification depends on expected future land use. If expected to be replaced with a new coconut palm plantation or other agricultural land use it should be classified as "other land with tree cover". If abandoned and not expected to return to agriculture, it should be classified as "forest".

Q: **Should natural stands of coconut palms be included in the forest area?**
A: Yes, if it is not managed for agricultural purposes and the minimum area, crown cover and height criteria are met (see the definition of "Forest").

TABLE 2a

Q: **Is it possible to estimate growing stock from biomass stock using the conversion factors?**
A: It is possible, but should be done with much caution; particularly the conversion and expansion factors need a growing stock per hectare as part of the input, so here some assumptions need to be made. Using wood density and biomass expansion factors is more straightforward.

TABLE 2b

Q: **Does Table 2b on growing stock composition refer to natural forests only?**
A: No. All the table refer to both natural and planted forests of both native and introduced species.

Q: **Which reporting year should be used as reference for compiling the species list?**
A: The ranking of species is according to volume for the year 2015.

Q: **In table 2b, should the ranking of species be by volume, area or number of trees?**
A: By volume (growing stock).

Q: **In table 2b, is it possible to provide information by groups of species when the number of species is too large?**
A: Yes, if national data do not allow the distinction of individual species within certain species groups, countries may report on genera (or groups) instead of species, and make a note in relevant comment field to the table.

TABLE 2c and 2d

General methodological aspects

For any biomass calculation, irrespective of whether for Above-ground biomass, Below-ground biomass or Dead wood, the choice of method is determined by available data and country-specific biomass estimation methods. The following list indicates some choices, starting with the method that provides the most precise estimates.

1. If a country has developed biomass functions for directly estimating biomass from forest inventory data or has established country-specific factors for converting growing stock to biomass, using these should be the first choice.

2. The second choice is to use other biomass functions and/or conversion factors that are considered to give better estimates than the default regional/biome-specific conversion factors published by IPCC (e.g. functions and/or factors from neighbouring countries).
3. The third choice is to use the automatic calculation of biomass which is using the IPCC default factors and values. For the automatic estimations of Biomass, the FRA process relies on the methodological framework developed by the IPCC and documented in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 4, chapters 2 and 4. This document is available at: http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.htm.

Q: **What about the biomass/carbon stock of shrubs and bushes? Should they be included or excluded?**

A: The IPCC guidelines states that when the forest understory is a relatively small component of the above-ground biomass, it can be excluded provided this is done in a consistent manner throughout the time series. However, in many cases shrubs and bushes are important in terms of biomass and carbon, particularly for areas classified as "other wooded land", and should therefore be included to the extent possible. Please indicate in the relevant comment field how shrubs and bushes have been handled in your biomass estimates.

Q: **Should I report the same figures on biomass and carbon stocks to FRA as to UNFCCC?**

A: Not necessarily – but ideally the figures reported to UNFCCC should be based on the FRA figures and then adjusted/reclassified, when necessary, to comply with the UNFCCC definitions.

Q: **Does "above ground biomass" include forest litter?**

A: No, above-ground biomass only includes living biomass.

Q: **In our national forest inventory we have biomass estimates where biomass equations have been used. Should I use these or rather use the IPCC default factors in the guidelines?**

A: Generally, biomass equations are considered to give better estimates than default factors, but if for some reasons you believe that the use of default factors provide a more reliable estimate you may use these factors. In such case please make a comment in the report.

TABLE 3a

Q: **If the national legislation states that all forests should be managed for production, conservation of biodiversity and protection of soil and water, should I then report all forest area as having "multiple use" as primary designated function?**

A: The definition of primary designation function, explanatory note 2, says that "Nation-wide function established in general clauses of national legislation or policies should not be considered as designations". So you must instead look into what functions have been designated at management unit level.

TABLE 4a and 4b

Q: **How should I report on ownership where indigenous land overlaps protected areas?**

A: It is the formal ownership of the forest resources that define how you should report. If the indigenous rights to the forest resources correspond to the definition of ownership, then report as "Local, tribal and indigenous communities". Otherwise, protected areas where indigenous rights are present are likely to be of "public ownership".

Q: **My country has a complex land tenure regime that is difficult to fit into the FRA categories. How should I do?**

A: Contact the FRA team for advice, describing the particular land/resource tenure regime of your country.

Q: **Do the three sub-categories of private ownership add up to total private ownership?**
A: Yes.

Q: **How to classify ownership of forests planted by private companies on government land?**
A: Sometimes, private companies are required to plant trees as part of concession or harvesting agreements. Generally speaking the planted forest is public, unless there are specific legal or contractual clauses giving the private company ownership of the planted trees, in which case they should be classified as private.

Q: **How to classify ownership of forests on private land where a permit is needed from the authorities to cut the trees?**
A: It depends on the legal status of the ownership of the forest. You may have forests that are legally owned by the private land owner, but the state still can enforce restrictions on harvesting and in this case it is private ownership. You may also have the case where the trees belong to the state even if the land is private. In this case it should be reported as public ownership and a note that the ownership of trees and land are different.

Q: **How to report on forest areas with concession rights?**
A: Concession rights are not full ownership rights – they usually only refer to the right to harvest and responsibility to manage the forests. Forest concessions are almost always on State land and ownership is therefore "public" and management rights is "private corporations". In the rare case when a private owner gives a concession, it should be reported on under private ownership in table 4a.

Q: **How to report on concessions of only commercial species?**
A: To be classified as a concession in the table 4b on management rights, the concession should not only give the right to harvest but also the responsibility to manage the forest for long-term benefits. As long at these criteria are fulfilled, it doesn't matter if the harvesting rights only cover a few commercial species, all species or just some NWFPs. If the concession is only a short-term harvesting right, it should be reported under "public administration" in table 4b.

Q: **How to report when the ownership status is ambiguous (e.g. communities claiming ownership, disputed ownership, etc.)?**
A: The current legal status should be the guiding principle. If legally clear that the land is either public or private it should be reported so, although there may exist claims to the land. Only when it is legally unclear or unknown, it should be reported as "Unknown ownership". Special cases should be documented in detail in appropriate comment field to the table.

Q: **Do public lands include leased lands?**
A: They should be reported as "public" ownership in table 4a. What category to assign in table 4b depends on the length and other characteristics of the lease.

Q: **Should indigenous territories be considered private (indigenous) or public with community user rights?**
A: It depends on the national legislation and to what extent it grants legal rights to the indigenous people that correspond to the FRA definition of "ownership", i.e. rights to "freely and exclusively use, control, transfer, or otherwise benefit from a forest. Ownership can be acquired through transfers such as sales, donations and inheritance." The country should assess whether this is the case and report accordingly.

Q: **How to report public forests that are under co-management agreements (public administration + NGO or Community)?**

A: In table 4a, report them as "Public". In 4b, report them under "Other" and explain in "comments to data" how this co-management agreement is set up.

TABLE 6b

Q: **The concept of Permanent Forest Estate (PFE) does not fit into the national context. How should I report?**

A: If the concept of Permanent Forest Estate does not fit in the national context then select "Not applicable".

TABLE 7a

Q: **What does the unit FTE stand for?**

A: FTE means "Full-time equivalent" and one FTE corresponds to one person working full time during a reference period, in this case the reporting year. Consequently, one person working full time as seasonal employment during 6 months would count as ½ FTE, as would one person working half-time during a whole year.

Q: **How to include casual and season labour/employment?**

A: Seasonal labour should be recalculated into FTE during the year. Example: If a company employed 10000 people for tree planting during 1 week in 2005, for the whole year 2005 FTE it would be approx.: 10000people / 52 weeks = 192 employees (FTE). It is important that a note on this is made in the appropriate comment field. If official data (in FTE) from the national statistical office are used, these recalculations have already been made.

Q: **Should people involved in wood transport be included as employment?**

A: You should include people working with wood transport within the forest. Operators of skidders, forwarders and caterpillars transporting logs should therefore be included. Truck drivers should not be included as they generally transport the wood all the way to the industry.

Q: **Should we include people working in sawmills in the forest?**

A: Generally, people working in sawmill and woodworking industries should not be included. However, small scale work with portable sawmills is a borderline case and countries may decide to include such employment, but if so, a comment should be provided in the report.

Q: **There are some cases where sawmills are located inside the forest area, and people may share their time between working in the forest and in the sawmill. How should it be reported?**

A: If possible, you should calculate/estimate the time allocated to each activity and report on the part that correspond to the work in the forest. If not possible, please use the total and make a note in the comments field.

Q: **Should employment related to "other wooded land" be included?**

A: If it is possible to distinguish between employment related to forests and to other wooded land, please provide both figures in the comments section.

Q: **Should employment in this table include haulage, processing and other non-forest work?**

A: No, only employment directly related to the primary production of goods and to the management of protected areas should be included. For primary production of goods, this includes all the logging activities in the forest, but excludes road transport and further processing.

Q: **In my country, the same person works with both production and management of protected areas – how should I report?**

A: If possible, his time should be split on the two activities, so that if he/she works 50% with each it should count as 0.5 year FTE for each activity. If not possible to do the split, note the time under the activity on which he/she spends most of the time.

TABLE 7c

Q: **Can we include services, such as water, ecotourism, recreation, hunting, carbon, etc., in the NWFP table? In other contexts we report on non-wood goods and services where these are included.**

A: No, NWFPs are limited to goods only, defined as "tangible and physical objects of biological origin other than wood".

Q: **How should we report on production of ornamental plants and crops growing under tree cover?**

A: They should be included if collected in the wild. If planted and managed they should not be included as in such case they are not derived from forest but from an agricultural production system.

Q: **How do we report on Christmas trees?**

A: In FRA Christmas tree plantations are always considered as forests, consequently Christmas trees should be considered as NWFP (ornamental plants).

Q: **What about products from multi-purpose trees often growing in agroforestry systems – should they be included as NWFPs?**

A: The specifications and the definition of NWFP states that only non-wood products derived from forests should be included. So if the particular agroforestry system is considered to be "forest", the non-wood products derived from multi-purpose trees are NWFPs and should be included in the reporting.

Q: **We only have a commercial value of processed products. How should we then report on value?**

A: In general, the value should refer to the commercial value of the raw material. However, sometimes raw material value is not available and in such cases you may report on the value of a processed or semi-processed product and clearly note this in the respective comment field.

Q: **Are animals which are produced inside the forest considered NWFP?**

A: Yes, bush meat species production should be considered NWFP. Domesticated animals should not be included as NWFP.

Q: **Can grazing be considered as fodder and therefore as a NWFP?**

A: No, grazing is a service while fodder is a tangible good. So include fodder collected from the forest, but exclude grazing.