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# COMMITTEE ON FORESTRY

## Twenty-sixth Session

## 3-7 October 2022

## Global Forest Resources Assessment and Remote Sensing Survey


## Executive Summary

The results of the latest Global Forest Resources Assessment (FRA) were published in 2020 and they have reached altogether at least 140 000 users. As part of the FRA 2020 process, FAO also conducted an independent participatory global remote sensing survey. The results of the survey supported the main findings of the country reporting process and produced novel information on the drivers of deforestation and other matters.

The FRA Expert Consultation on the scope and other technical aspects of FRA 2025 will take place in the second half of 2022, and the data collection and related training and capacity development will start in early 2023. Along with country reporting, FAO plans to support selected countries in using remote sensing to improve the estimates of key FRA attributes, further refine the remote sensing survey methodology and, financial resources allowing, update its results. A flexible country reporting process, allowing voluntary updates when new data become available, will start in 2024.


## Suggested action by the Committee

**The Committee invites Members to:**

- continue supporting the Global Forest Resources Assessment (FRA) reporting process by ensuring that national forest authorities nominate or confirm FRA National Correspondents and alternates who will be in charge for the compilation of the FRA 2025 Country reports;

- support organization of and participation of FRA National Correspondents in the regional and subregional FRA capacity development workshops planned for the FRA 2025 country reporting cycle.

**The Committee recommends FAO to:**

- finalize the scope and other preparations for the FRA 2025 and initiate the country reporting process;

- continue strengthening the FRA National correspondents network, and provide technical support to countries in the compilation of their country reports, including through the organization of regional and subregional country reporting workshops;

- continue harmonization of methods and definitions for forest data collection, including for primary forests and other forest characteristics, and promote the establishment of regional networks on National Forest Inventory as a vehicle to strengthen south-south cooperation, data sharing and reinforcing FRA capacity development initiatives;

- continue complementing FRA country reporting process with remote sensing-based analysis of forest dynamics at regional, global and ecozone levels and support countries using remote sensing and latest technologies for forest monitoring;

- continue and strengthen collaboration with the Collaborative Forest Resources Questionnaire (CFRQ) partners, members of the Collaborative Partnership on Forests (CPF) and other partners, including UN entities, to reduce the reporting burden, enhance synergies and increase transparency of reporting processes and resulting data;

- continue, in coordination with CPF members, the promotion and dissemination of the Global Core Set of Forest related Indicators**,** and to improve their tier levels.

*Queries on the substantive content of this document may be addressed to:*

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# I. Background

1. The Food and Agriculture Organization of the United Nations (FAO) published the results of the first Global Forest Resources Assessment (FRA) in 1948. Since then the Organization has conducted periodic assessments, the most recent of which was published in 2020[1]. With its long history, official status, and unique scope, FRA is the most comprehensive and authoritative source of information that exists on global forest resources, together with their management and uses.

2. The scope, methodology and periodicity of FRAs have evolved over time in response to changing information needs. The latest assessments have employed a holistic perspective covering all aspects of sustainable forest management. They have also been country-driven, relying on data provided by a well-established network of officially nominated National Correspondents.

3. The FRA data collection and reporting builds on collaboration and partnerships with various actors. Since the establishment of the CFRQ in 2011, FRA data has been collected in close coordination with the six partners[2].

4. FRA country reporting is the core activity of the FAO FRA Programme. In addition, the Programme is directly responsible for collecting data and reporting on two Sustainable Development Goal (SDG) indicators (namely 15.1.1 - Forest area as a proportion of total land area, and 15.2.1 - Progress towards sustainable forest management) and supports data production and reporting on indicator 15.4.2 – Mountain green cover index. Furthermore, the Programme conducts special studies and hosts the office of the Global Forest Observations Initiative.

5. Since 1990, FRA has also complemented the information collected through the country reporting process with global and regional analyses of the world's forest resources and their dynamics using remote sensing. The latest FRA remote sensing survey published in May 2022 continued this tradition, contributed to further enhancement of the global capacity to use remote sensing for forest monitoring and produced novel information on forest dynamics and their drivers at regional, global and ecozone levels.

6. This paper presents progress in the implementation of the FRA Programme since 2020. It highlights the outreach results of FRA 2020, summarizes the key findings of the FRA 2020 Remote Sensing Survey, reports on progress towards recommendations of the 25th Session of COFO (COFO25) and provides an insight into the ongoing preparations of the FRA 2025 reporting cycle.

# II. The Global Forest Resources Assessment 2020 outreach results and user feedback

7. FRA 2020 resulted in a number of dissemination products that have reached a large audience. As of June 2022, the Key Findings[3] document downloads amount to 64 500 and those of the Main Report[4] to 36 000 since their launch in May 2020 and July 2020, respectively[5]. The FRA 2020 Main Report also has 115 citations by other publications[6]. The interactive report *Global Forest Resources Assessment 2020 – Key findings*[7] has been viewed 213 000 times by 142 500 users since May 2020.

[1] https://doi.org/10.4060/ca9825en
[2] The Food and Agriculture Organization of the United Nations, FOREST EUROPE, the International Tropical Timber Organization, the United Nations Economic Commission for Europe, the Observatory of Central African Forests and the Montréal Process.
[3] https://doi.org/10.4060/ca8753en
[4] https://doi.org/10.4060/ca9825en
[5] Download figures based on the situation on 9 June 2022.
[6] Google Scholar, 8 June 2022
[7] https://www.fao.org/forest-resources-assessment/2020/

Another interactive report[8] was launched at the XV World Forestry Congress in May 2022 to highlight the key findings of two recent publications, the Global Forest Resources Assessment 2020 Remote Sensing Survey and A Guide to Forest-Water Management. This report has been viewed 2 500 times by 1 500 users in less than a month after its release. The FRA website is visited by an average of 4 000 users every month. FRA 2020 was also the primary source for quantitative and bio-physical forest resources data for the Global Forest Goals Report 2021[9] prepared by the UN Forum on Forests Secretariat of the UN Department of Economic and Social Affairs, and the State of the World's Forests 2020[10] and 2022[11] reports. FRA 2020 also supported the 2022 Expert Group Meeting in preparation of the 2022 UN High Level Political Forum on Sustainable Development, among other uses.

8. In FRA 2020, for the first time, FAO published all data and metadata reported to the process in an easy-to-use digital format on the FRA Platform[12], an online tool that was also employed to collect and review the data for the 2020 assessment. The Platform has had roughly 32 500 visitors and 80 000 page views since the launch of its open-access interface in July 2020.

9. The FRA 2020 main report, the interactive report on key findings and the FRA Platform are available in all six official UN languages since April 2021.

10. To better understand the profiles of the users of the FRA Platform and their needs, the FAO Office of Chief Statistician organized a User Consultation between June and October 2021. Its results show that the most common reason for accessing the Platform is to download regional and country data for comparative analysis purposes. Other common reasons include using FRA data to generate reports/publications, as well as for research purposes.

11. The same survey reported that 84 percent of respondents were satisfied with data quality. Furthermore, about 90 percent of respondents were satisfied with the data visualization features and overall ease of use of the database. The data download functions were also appreciated by 85 percent of the users. The metadata received the lowest degree of satisfaction, with about 5 percent negative responses and 20 percent neutral responses to the statement that the metadata is clear and sufficient.

12. Based on the user feedback, FAO has implemented a number of improvements to the Platform. These include, but are not limited to, the release of a mobile-friendly version, new multivariable download functionality and additional regional aggregation functions published in 2021. Further improvements will be implemented in the course of 2022 in preparation for the FRA 2025 data collection exercise. More details on future enhancements are available in document COFO/2022/INF/7: "Digital innovation for data collection and dissemination on forest resources, their management and uses".

## III. The Global Forest Resources Assessment Remote Sensing Survey

13. As part of the FRA 2020 process, FAO conducted a global remote sensing survey. The survey had two main objectives: 1) to improve countries' capacities to access and use remote sensing data for forest monitoring and 2) to produce new information on the status of forests and trees, and their dynamics that complements the information from FRA country reporting.

14. FAO conducted the FRA remote sensing survey in close collaboration with Members. More than 800 national experts from 126 countries received training in 24 national and regional workshops

[8] https://www.fao.org/resources/digital-reports/forests-2020-remotesensing-forestwater/en/
[9] https://www.un.org/esa/forests/wp-content/uploads/2021/08/Global-Forest-Goals-Report-2021.pdf
[10] https://doi.org/10.4060/ca8642en
[11] https://doi.org/10.4060/cb9360en
[12] https://fra-data.fao.org/

organized between November 2019 and March 2021. FAO published the preliminary key findings[13] of the survey during the 26th UN Climate Change Conference in Glasgow (COP26) and the full report[14] of the XV World Forestry Congress in May 2022.

15. The survey confirmed several of the most important findings of FRA 2020. The global forest area is approximately 4 billion hectares, or 31 percent of the global land area. The share of planted forests is 7 percent of the total forest area, and both the rate of forest area net loss and deforestation are declining at the global level. However, the absolute deforestation estimates of the remote sensing survey were lower than FRA 2020 figures. For example, while the FRA 2020 reported that annual deforestation in 2000-2010 was 15 Mha/year, the remote sensing survey suggests that it was only 11 Mha/year. In addition, the remote sensing survey suggests that the deforestation rate is also decreasing in Africa. Finally, the survey reports that the total area of "Other wooded land" as well as "Other land with tree cover" were significantly higher than those reported in the FRA 2020 country reporting process.

16. Discrepancies between FRA country reporting and remote sensing survey results are probably due to data quality and methodological differences. While an analysis of the FRA 2020 metadata demonstrated that the global forest monitoring capacity has increased significantly during the past decades[15], many countries still lack consistent national time series data for some key forest attributes. Therefore, the FRA country estimates of forest area trends and deforestation are often derived using interpolation or extrapolation. In addition, FRA country data on areas of "Other land with tree cover" categories are incomplete, as only a relatively small number of countries report on them. Furthermore, separating "Forest" from "Other wooded land" and "Other land with tree cover" is not always straightforward, and that affects both the remote sensing survey and FRA country estimates. Finally, regardless of the thorough training of national experts on image interpretation and FRA terms and definitions, visual interpretation may include bias that affects remote sensing survey estimates. FAO is conducting a more thorough analysis of these differences and the underlying reasons to better understand how the remote sensing survey can be improved and how future remote sensing activities and capacity building could potentially support FRA 2025 reporting.

17. In addition to having produced independent data which allowed comparison with FRA 2020 reported values at regional and global levels, the remote sensing survey produced novel data on attributes not reported by FRA and allowed production of estimates for additional domains, such as the ecozones.

18. These results confirmed that the main driver of deforestation globally is agricultural expansion. While cropland expansion was responsible for 50 percent of the deforestation and dominated land use conversion in Africa and Asia, livestock grazing drove 38 percent of global deforestation and was the most important contributor to deforestation in North and Central America, South America and in Oceania. In Europe, the main driver of forest losses was urbanization and infrastructure development.

19. The remote sensing survey's results also showed that about 90 percent of deforestation took place in tropical forests, and that the deforestation hotspots during the period 2000-2018 were found in the tropical rainforests of South America, and South and Southeast Asia.

20. Finally, as part of the remote sensing survey, FAO conducted a follow-up study on the extent and dynamics of mangroves. The results of the study are planned to be published at the end of 2022.

[13] https://www.fao.org/3/cb7449en/cb7449en.pdf
[14] https://doi.org/10.4060/cb9970en
[15] https://iopscience.iop.org/article/10.1088/1748-9326/abd81b

## IV. Global Core Set of forest related indicators

21. The 25th Session of the Committee on Forestry requested FAO *to analyse - in collaboration with members of the CPF- the uptake of the Global Core Set (GCS) of forest related Indicators by other reporting processes and the extent to which they decrease reporting burden on countries*. To respond to this request, FAO conducted a user survey among CPF partners and other forest data and information reporting processes. The survey received 26 responses from 22 organizations, with 100 percent coverage of CPF Members.

22. The survey results show that the majority of the indicators are considered "of interest" to the various responding organizations, and that none of the indicators are considered superfluous or unnecessary. For most indicators, less than half of the organizations collect data themselves, leaving that role to organizations with the appropriate mandate and resources. In all cases, organizations that collected data cooperated with others, notably through instruments like the CFRQ and the Joint Forest Sector Questionnaire (JFSQ). The organizations that did not collect data themselves mostly used data from a trusted partner, representing a significant reduction of the reporting burden on countries.

23. As part of the survey, organizations assessed the GCS and reported on its uptake and how to improve the GCS. In summary, in the opinion of the responding organizations:

- The GCS is comprehensive and balanced and provides a flexible and transparent framework for collecting comparable information at a global level.

- The potential of the GCS to provide a “minimum global framework” for information for policymakers is accepted by most of the organizations, although many consider that it needs to be strengthened.

- There is significant work being carried out to improve the Tier 3 indicators[16], which is a clear indication that the topics are important, but challenging. It is hoped that these activities will result in a methodologically improved GCS.

24. Overall, the conclusions of the survey are that the GCS is a useful and flexible tool, which has the potential to reduce the reporting burden and improve understanding of sustainable forest management, but more efforts are needed for it to achieve its full potential. An FAO Working Paper Global Core Set of forest-related indicators - Uptake Assessment is currently being prepared.

25. Meanwhile, FAO has collaborated with CPF partners to improve the documentation of the GCS as well as improve the methodology for Tier 3 indicators. These actions are described in the report “Status of, and trends in, the Global Core Set of Forest-related Indicators”[17] and include the following:

- ongoing development of a new methodology for indicator 10 “Wood based energy share of total final energy consumption”;

- a proposal for upgrade of indicator 12 “Employment related to the forest sector” to tier 1; and;

- advancing the methodology of indicator 13 “Number of forest-dependent people in extreme poverty” towards application of geospatial techniques to estimate the number of Forest Proximate People (FPP).

[16] Tier 3 indicators are those for which the methodology needs to be determined, data are generally lacking, and data collection poses significant challenges.
[17] https://doi.org/10.4060/cb9963en

## V. Towards The Global Forest Resources Assessment 2025

26. The preparations for FRA 2025 started in late 2020 with a special study on "Improved reporting on primary forests". FAO is implementing the study in close collaboration with national experts through a series of regional and biome level workshops, and pilot studies. Workshops for the boreal forest countries, and in Latin America and the Caribbean, Asia and the Pacific and Central Africa were conducted in 2020-2022, and the pilot studies are ongoing.

27. To better connect the reporting actors, six virtual sub-regional workshops were organized in 2021 with FRA National Correspondents and the national focal points of United Nations Framework Convention on Climate Change, and National Statistical Offices responsible for SDG reporting. The workshops covered Southeast Asia, Central America and Mexico, as well as Western and Central Africa, and gathered together 232 participants (32 percent women) from 30 countries and 44 institutions.

28. FAO has also continued close collaboration with the CFRQ partners, including in the preparations for continuation of joint data collection with the UN Economic Commission for Europe (UNECE) and FOREST EUROPE for the pan-European reporting, participation of the UNECE/FAO Team of Specialists on Sustainable Forest Management and preparation and closer collaboration in data harmonization with the Observatory of Central African Forests.

29. To further harmonize data produced by the countries and strengthen regional networks, FAO supported the establishment of a National Forest Inventory network in Latin America and the Caribbean. This collaboration resulted in a recent publication on "National Forest Inventories in Latin America: towards the harmonization of forest information"[18]. The planned future activities include regional meetings with national representatives to discuss further harmonization of key indicators and related data collection methodologies in Latin America and the Caribbean and other regions.

30. The preparations of the expert consultation for FRA 2025 were started in 2020, with the plan of organizing the event in 2021. However, due to the travel restrictions and logistical challenges presented by the COVID-19 pandemic, the proposed date was postponed twice and currently the consultation has been scheduled for September 2022. The expert consultation is expected to advise FRA on the technical and procedural implementation of a more flexible reporting process which would allow more frequent voluntary updates of key indicators when new data become available. FAO's proposal foresees opening the FRA Platform for such updates in 2024.

31. Following the consultation, FAO will finalize the scope of the FRA 2025 assessment, implement the improvements of the reporting and review functionalities of the FRA Platform and send an official request to Heads of Forestry to nominate a FRA National Correspondent or confirm the current nomination. The terms of reference of the FRA National Correspondents have been revised to take into account the fact that FRA is moving toward more frequent voluntary reporting and a continuous reporting process.

32. The data collection and capacity development activities for the FRA 2025 country reporting will follow the expert consultation and nomination of the National Correspondents.

33. A separate information note, COFO/2022/INF/6 on "Streamlining reporting on restoration through Global Forest Resources Assessments", discusses potential inclusion of forest restoration related attributes to the FRA reporting content. A similar note, COFO/2022/INF/7, has been prepared to summarize the work FAO has undertaken on digital innovations, as requested by the 25th Session of COFO.

[18] https://doi.org/10.4060/cb7791en

34. Simultaneously - along with the launch of the FRA 2025 country reporting process - FAO plans to support selected countries on the use of remote sensing to improve the estimates of key FRA attributes, and initiate preparations for development of a refined global Remote Sensing Survey methodology for the 2025 reporting cycle.