



# Forestry Department

Food and Agriculture Organization of the United Nations

## GLOBAL FOREST RESOURCES ASSESSMENT 2010

## TERMS AND DEFINITIONS

ROME, 2010



## The Forest Resources Assessment Programme

Sustainably managed forests have multiple environmental and socio-economic functions which are important at the global, national and local scales, and they play a vital part in sustainable development. Reliable and up-to-date information on the state of forest resources - not only on area and area change, but also on such variables as growing stock, wood and non-wood products, carbon, protected areas, use of forests for recreation and other services, biological diversity and forests' contribution to national economies - is crucial to support decision-making for policies and programmes in forestry and sustainable development at all levels.

FAO, at the request of its member countries, regularly monitors the world's forests and their management and uses through the Forest Resources Assessment Programme. The Global Forest Resources Assessment 2010 (FRA 2010) has been requested by the FAO Committee on Forestry in 2007 and will be based on a comprehensive country reporting process, complemented by a global remote sensing survey. The assessment will cover all seven thematic elements of sustainable forest management, including variables related to the policy, legal and institutional framework. FRA 2010 is also aimed at providing information to facilitate the assessment of progress towards the Global Objectives on Forests of the United Nations Forum on Forests and the 2010 Biodiversity Target of the Convention on Biological Diversity. Results are expected to be published in 2010.

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More information on the Global Forest Resources Assessment can be found at:  
[www.fao.org/forestry/fra](http://www.fao.org/forestry/fra)

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## Introduction

FAO has been coordinating global forest resources assessments every five to ten years since 1946. The assessments have to a great extent contributed to the improvement of concepts, definitions and methods related to forest resources assessments.

Strong efforts have been made to harmonize and streamline reporting with other international forest-related processes e.g. within the framework of the Collaborative Partnership on Forest (CPF), as well as with the member countries and the scientific community, all in order to harmonize and improve forest related definitions and reduce reporting burden on countries. The core definitions build on earlier global assessments to ensure comparability over time. Whenever new definitions are introduced or old definitions modified this is done taking into consideration recommendations from experts in various fora.

Variations in definitions, however minor, will increase the risk of inconsistency in reporting over time. High importance is thus given to ensure the continuity of the definitions as applied in previous assessments in order to allow consistency of data over time whenever possible.

The global definitions are in a sense compromises and their application is subject to interpretation. Reducing national classifications to a set of global classes is a challenge and sometimes assumptions and approximations must be made.

This working paper includes the terms and definitions applied in the country reporting process for the Global Forest Resources Assessment 2010 (FRA 2010) and should be regarded as an authoritative document on the terms and definitions for FRA 2010. The working paper can be used in meetings and training at all levels aiming to build national capacity for forest resources assessment and reporting in general.

For more details on FRA Programme, please see: [www.fao.org/forestry/fra](http://www.fao.org/forestry/fra)

## Structure of the document

The terms are structured according to the 17 National Reporting Tables used for the country reporting in FRA 2010. The underlying rationale for this is that the context in which the definition is placed is of great importance for the understanding of the definition. Further, the definitions often build on each other and only make sense in the right context.

Definitions are provided for all terms and categories reported on in the country reports for FRA 2010. In addition, a number of closely related general and additional terms are defined to further improve the understanding of the definitions.

<b>National Reporting Tables for FRA 2010</b>
1. Extent of forest and other wooded land
2. Forest ownership and management rights
3. Forest designation and management
4. Forest characteristics
5. Forest establishment and reforestation
6. Growing stock
7. Biomass stock
8. Carbon stock
9. Forest fires
10. Other disturbances affecting forest health and vitality
11. Wood removals and value of wood removals
12. Non-wood forest products removals and value of removals
13. Employment in forestry
14. Policy and legal framework
15. Institutional framework
16. Education and research
17. Public revenue collection and expenditure
<b>Additional terms</b>

In order to provide a good overview and facilitate the search of terms, the terms are compiled in an alphabetical index.

All terms are printed in capital bold letters and the definitions are found immediately below the term in bold font. Note that an underlined term in a definition indicates that a definition is available for that particular term, elsewhere in the document. Most definitions are accompanied by explanatory notes.

### Example 1

<b>TERM, definition</b> and explanatory notes
<b>TERM</b>
<b>Definition</b>
<u>Explanatory note(s)</u>

# Terms in the National Reporting Tables

## 1.1 *Extent of forest and other wooded land*

TERM, definition and explanatory notes
<p><b>FOREST</b></p> <p><b>Land spanning more than 0.5 hectares with <u>trees</u> higher than 5 meters and a <u>canopy cover</u> of more than 10 percent, or <u>trees</u> able to reach these thresholds <i>in situ</i>. It does not include land that is predominantly under agricultural or urban land use.</b></p> <p><u>Explanatory notes</u></p> <ol style="list-style-type: none"><li>1. Forest is determined both by the presence of trees and the absence of other predominant land uses. The trees should be able to reach a minimum height of 5 meters <i>in situ</i>.</li><li>2. Includes areas with young trees that have not yet reached but which are expected to reach a canopy cover of 10 percent and tree height of 5 meters. It also includes areas that are temporarily unstocked due to clear-cutting as part of a forest management practice or natural disasters, and which are expected to be regenerated within 5 years. Local conditions may, in exceptional cases, justify that a longer time frame is used.</li><li>3. Includes forest roads, firebreaks and other small open areas; forest in national parks, nature reserves and other protected areas such as those of specific environmental, scientific, historical, cultural or spiritual interest.</li><li>4. Includes windbreaks, shelterbelts and corridors of trees with an area of more than 0.5 hectares and width of more than 20 meters.</li><li>5. Includes abandoned shifting cultivation land with a regeneration of trees that have, or is expected to reach, a canopy cover of 10 percent and tree height of 5 meters.</li><li>6. Includes areas with mangroves in tidal zones, regardless whether this area is classified as land area or not.</li><li>7. Includes rubber-wood, cork oak and Christmas tree plantations.</li><li>8. Includes areas with bamboo and palms provided that land use, height and canopy cover criteria are met.</li><li>9. <u>Excludes</u> tree stands in agricultural production systems, such as fruit tree plantations, oil palm plantations and agroforestry systems when crops are grown under tree cover. <u>Note:</u> 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.</li></ol>
<p><b>OTHER WOODED LAND</b></p> <p><b>Land not classified as <u>Forest</u>, spanning more than 0.5 hectares; with <u>trees</u> higher than 5 meters and a <u>canopy cover</u> of 5-10 percent, or trees able to reach these thresholds <i>in situ</i>; or with a combined cover of <u>shrubs</u>, bushes and <u>trees</u> above 10 percent. It does not include land that is predominantly under agricultural or urban land use.</b></p> <p><u>Explanatory notes</u></p> <ol style="list-style-type: none"><li>1. The definition above has two options:<ul style="list-style-type: none"><li>• The canopy cover of trees is between 5 and 10 percent; trees should be higher than 5 meters or able to reach 5 meters <i>in situ</i>.</li></ul>or<ul style="list-style-type: none"><li>• The canopy cover of trees is less than 5 percent but the combined cover of shrubs, bushes and trees is more than 10 percent. Includes areas of shrubs and bushes where no trees are present.</li></ul></li><li>2. Includes areas with trees that will not reach a height of 5 meters <i>in situ</i> and with a canopy cover of 10 percent or more, e.g. some alpine tree vegetation types, arid zone mangroves, etc.</li><li>3. Includes areas with bamboo and palms provided that land use, height and canopy cover criteria are met.</li></ol>

<b>TERM, definition and explanatory notes</b>
<p><b>OTHER LAND</b></p> <p><b>All land that is not classified as <u>Forest</u> or <u>Other wooded land</u>.</b></p> <p><u>Explanatory notes</u></p> <ol style="list-style-type: none"> <li>1. Includes agricultural land, meadows and pastures, built-up areas, barren land, land under permanent ice, etc.</li> <li>2. Includes all areas classified under the sub-category “Other land with tree cover”.</li> </ol>
<p><b>OTHER LAND WITH TREE COVER (<i>sub-category of OTHER LAND</i>)</b></p> <p><b>Land classified as <u>Other land</u>, spanning more than 0.5 hectares with a <u>canopy cover</u> of more than 10 percent of <u>trees</u> able to reach a height of 5 meters at maturity.</b></p> <p><u>Explanatory notes</u></p> <ol style="list-style-type: none"> <li>1. The difference between Forest and Other land with tree cover is the land use criteria.</li> <li>2. Includes groups of trees and scattered trees in agricultural landscapes, parks, gardens and around buildings, provided that area, height and canopy cover criteria are met.</li> <li>3. Includes tree stands in agricultural production systems, for example in fruit tree plantations and agroforestry systems when crops are grown under tree cover. Also includes tree plantations established mainly for other purposes than wood, such as oil palm plantations.</li> <li>4. <u>Excludes</u> scattered trees with a canopy cover less than 10 percent, small groups of trees covering less than 0.5 hectares and tree lines less than 20 meters wide.</li> </ol>
<p><b>INLAND WATER BODIES</b></p> <p><b>Inland water bodies generally include major rivers, lakes and water reservoirs.</b></p>

## 1.2 Forest ownership and management rights

<b>TERM, definition and explanatory notes</b>
<p><b>FOREST OWNERSHIP</b></p> <p><b>Generally refers to the legal right to freely and exclusively use, control, transfer, or otherwise benefit from a <u>forest</u>. Ownership can be acquired through transfers such as sales, donations, and inheritance.</b></p> <p><u>Explanatory note</u></p> <ol style="list-style-type: none"> <li>1. For this reporting table, forest ownership refers to the ownership of the trees growing on land classified as forest, regardless of whether or not the ownership of these trees coincides with the ownership of the land itself.</li> </ol>
<p><b>MANAGEMENT RIGHTS OF PUBLIC FORESTS</b></p> <p><b>Refers to the right to manage and use publicly owned <u>forests</u> for a specific period of time.</b></p> <p><u>Explanatory notes</u></p> <ol style="list-style-type: none"> <li>1. Generally includes agreements that regulate not only the right to harvest or collect products, but also the responsibility to manage the forest for long-term benefits.</li> <li>2. Generally <u>excludes</u> harvesting licences, permits and rights to collect non-wood forest products when such use rights are not linked to a long-term forest management responsibility.</li> </ol>

<p><b>TERM, definition</b> and explanatory notes</p>
<p><b>PUBLIC OWNERSHIP</b></p> <p><b><u>Forest owned by the State; or administrative units of the <u>Public Administration</u>; or by institutions or corporations owned by the Public Administration.</u></b></p> <p><u>Explanatory notes</u></p> <ol style="list-style-type: none"> <li>1. Includes all the hierarchical levels of Public Administration within a country, e.g. State, Province and Municipality.</li> <li>2. Shareholder corporations that are partially State-owned, are considered as under public ownership when the State holds a majority of the shares.</li> <li>3. Public ownership may exclude the possibility to transfer.</li> </ol>
<p><b>PRIVATE OWNERSHIP</b></p> <p><b><u>Forest owned by individuals, families, communities, private co-operatives, corporations and other business entities, private religious and educational institutions, pension or investment funds, NGOs, nature conservation associations and other private institutions.</u></b></p>
<p><b>INDIVIDUALS</b> (<i>sub-category of PRIVATE OWNERSHIP</i>)</p> <p><b><u>Forest owned by individuals and families.</u></b></p>
<p><b>PRIVATE BUSINESS ENTITIES AND INSTITUTIONS</b> (<i>sub-category of PRIVATE OWNERSHIP</i>)</p> <p><b><u>Forest owned by private corporations, co-operatives, companies and other business entities, as well as private organizations such as NGOs, nature conservation associations, and private religious and educational institutions, etc.</u></b></p> <p><u>Explanatory note</u></p> <ol style="list-style-type: none"> <li>1. Includes both profit and non-profit entities and institutions.</li> </ol>
<p><b>LOCAL COMMUNITIES</b> (<i>sub-category of PRIVATE OWNERSHIP</i>)</p> <p><b><u>Forest owned by a group of individuals belonging to the same community residing within or in the vicinity of a <u>forest</u> area. The community members are co-owners that share exclusive rights and duties, and benefits contribute to the community development.</u></b></p> <p><u>Explanatory note</u></p> <ol style="list-style-type: none"> <li>1. For the purpose of this reporting table, forest owned by local communities is differentiated from forest owned by indigenous and tribal communities.</li> </ol>
<p><b>INDIGENOUS/TRIBAL COMMUNITIES</b> (<i>sub-category of PRIVATE OWNERSHIP</i>)</p> <p><b><u>Forest owned by communities of indigenous or tribal people.</u></b></p> <p><u>Explanatory notes</u></p> <p>Indigenous and tribal people include:</p> <ol style="list-style-type: none"> <li>1. People regarded as indigenous on account of their descent from the population which inhabited the country, or a geographical region to which the country belongs, at a time of conquest or colonization or the establishment of present state boundaries and who, irrespective of their legal status, retain some or all their own social, economic cultural and political institutions.</li> <li>2. Tribal people whose social, cultural and economic conditions distinguish them from other sections of the national community, and whose status is regulated wholly or partly by their own customs or traditions or by special laws and regulations.</li> </ol>

<b>TERM, definition</b> and explanatory notes
<b>OTHER TYPES OF OWNERSHIP</b>  Other kind of ownership arrangements not covered by the categories above. Also includes areas where ownership is unclear or disputed.
<b>PUBLIC ADMINISTRATION</b>  The Public Administration (or institutions or corporations owned by the Public Administration) retains management rights and responsibilities within the limits specified by the legislation.
<b>INDIVIDUALS / HOUSEHOLDS</b>  Forest management rights and responsibilities are transferred from the <u>Public Administration</u> to individuals or households through long-term leases or management agreements.
<b>PRIVATE INSTITUTIONS</b>  Forest management rights and responsibilities are transferred from the <u>Public Administration</u> to corporations, other business entities, private co-operatives, private non-profit institutions and associations, etc., through long-term leases or management agreements.
<b>COMMUNITIES</b>  Forest management rights and responsibilities are transferred from the <u>Public Administration</u> to local communities (including <u>indigenous and tribal communities</u> ) through long-term leases or management agreements.
<b>OTHER FORM OF MANAGEMENT RIGHTS</b>  <u>Forests</u> for which the transfer of management rights does not belong to any of the categories mentioned above.

### 1.3 Forest designation and management

<b>TERM, definition</b> and explanatory notes
<b>PRIMARY DESIGNATED FUNCTION</b>  The primary function or management objective assigned to a management unit either by legal prescription, documented decision of the landowner/manager, or evidence provided by documented studies of forest management practices and customary uses.  <u>Explanatory notes</u> 1. In order to be considered primary, the designated function should be significantly more important than other functions. 2. Nation-wide functions established in general clauses of national legislation or policies (such as e.g. “ <i>all forest land should be managed for production, conservation and social purposes</i> ”) should not be considered as designations.
<b>PROTECTED AREAS</b>  Areas especially dedicated to the protection and maintenance of <u>biological diversity</u> , and of natural and associated cultural resources, and managed through legal or other effective means.

<p><b>TERM, definition and explanatory notes</b></p>
<p><b>PRODUCTION</b></p> <p><b><u>Forest area designated primarily for production of wood, fibre, bio-energy and/or <u>non-wood forest products</u>.</u></b></p> <p><u>Explanatory note</u></p> <ol style="list-style-type: none"> <li>1. Includes areas for subsistence collection of wood and/or non-wood forest products.</li> </ol>
<p><b>PROTECTION OF SOIL AND WATER</b></p> <p><b><u>Forest area designated primarily for protection of soil and water.</u></b></p> <p><u>Explanatory notes</u></p> <ol style="list-style-type: none"> <li>1. Harvesting of wood and non-wood forest products may (sometimes) be allowed, but with specific restrictions aimed at maintaining the tree cover and not damaging the vegetation that protects the soil.</li> <li>2. National legislation may stipulate that buffer zones should be maintained along rivers and may restrict wood harvesting on slopes exceeding certain steepness. Such areas should be considered as designated for protection of soil and water.</li> <li>3. Includes forest areas managed for combating desertification.</li> </ol>
<p><b>CONSERVATION OF BIODIVERSITY</b></p> <p><b><u>Forest area designated primarily for conservation of <u>biological diversity</u>. Includes but is not limited to areas designated for biodiversity conservation within the protected areas.</u></b></p>
<p><b>SOCIAL SERVICES</b></p> <p><b><u>Forest area designated primarily for social services.</u></b></p> <p><u>Explanatory notes</u></p> <ol style="list-style-type: none"> <li>1. Includes services such as: recreation, tourism, education, research and/or conservation of cultural/spiritual sites.</li> <li>2. <u>Excludes</u> areas for subsistence collection of wood and/or non-wood forest products unless also designated for any of the services mentioned above.</li> </ol>
<p><b>MULTIPLE USE</b></p> <p><b><u>Forest area designated primarily for more than one purpose and where none of these alone is considered as the predominant designated function.</u></b></p> <p><u>Explanatory notes</u></p> <ol style="list-style-type: none"> <li>1. Includes any combination of: production of goods, protection of soil and water, conservation of biodiversity and provision of social services and where none of these alone is considered as the predominant function.</li> <li>2. Clauses in national legislation or policies stating an overarching objective of multiple use (such as e.g. <i>“all forest land should be managed for production, conservation and social purposes”</i>) should not generally be considered as designated for multiple use.</li> </ol>
<p><b>OTHER</b></p> <p><b><u>Forest areas designated primarily for a function other than <u>production, protection, conservation, social services</u> or <u>multiple use</u>.</u></b></p> <p><u>Explanatory note</u></p> <ol style="list-style-type: none"> <li>1. Countries should specify in comments to the table what areas they have included in this category.</li> </ol>
<p><b>NO/UNKNOWN</b></p> <p><b>No or unknown designation.</b></p>

## Special designation and management categories

<p><b>TERM, definition</b> and explanatory notes</p>
<p><b>AREA OF PERMANENT FOREST ESTATE (PFE)</b></p> <p><b><u>Forest area that is designated to be retained as forest and may not be converted to other land use.</u></b></p> <p><u>Explanatory note</u></p> <ol style="list-style-type: none"><li>1. If the PFE contains both forest and non-forest areas, the reporting should refer only to the forest area within the PFE.</li></ol>
<p><b>FOREST AREA WITHIN PROTECTED AREAS</b></p> <p><b><u>Forest area within formally established protected areas independently of the purpose for which the protected areas were established.</u></b></p> <p><u>Explanatory notes</u></p> <ol style="list-style-type: none"><li>1. Includes IUCN Categories I – IV</li><li>2. <u>Excludes</u> IUCN Categories V-VI</li></ol>
<p><b>FOREST AREA UNDER SUSTAINABLE FOREST MANAGEMENT</b></p> <p><b>To be defined and documented by the country.</b></p> <p>Countries should apply their own national definition or description of sustainable forest management and document in the country report the definition, criteria and process applied for estimating the area under sustainable forest management.</p> <p>If no national definition or criteria exist, countries may use the following (ITTO, 2006):</p> <p>Forest areas that fulfil <u>any</u> of the following conditions:</p> <ol style="list-style-type: none"><li>i. have been independently certified or in which progress towards certification is being made;</li><li>ii. have fully developed, long-term (ten years or more) forest management plans with firm information that these plans are being implemented effectively;</li><li>iii. are considered as model forest units in their country and information is available on the quality of management;</li><li>iv. are community-based forest management units with secure tenure for which the quality of management is known to be of high standard;</li><li>v. are protected areas with secure boundaries and a management plan that are generally considered in the country and by other observers to be well managed and that are not under significant threat from destructive agents.</li></ol>
<p><b>FOREST AREA WITH MANAGEMENT PLAN</b></p> <p><b><u>Forest area that has a long-term (ten years or more) documented management plan, aiming at defined management goals, which is periodically revised.</u></b></p> <p><u>Explanatory notes</u></p> <ol style="list-style-type: none"><li>1. A forest area with management plan may refer to forest management unit level or aggregated forest management unit level (forest blocks, farms, enterprises, watersheds, municipalities, or wider units).</li><li>2. A management plan may include details on operations planned for individual operational units (stands or compartments) but may also be limited to provide general strategies and activities planned to reach the management goals.</li><li>3. Includes forest area in protected areas with management plan.</li></ol>

## 1.4 Forest characteristics

<b>TERM, definition and explanatory notes</b>
<b>NATURALLY REGENERATED FOREST</b>  <b>Forest predominantly composed of <u>trees</u> established through natural regeneration.</b>  <u>Explanatory notes</u> 1. In this context, predominantly means that the trees established through natural regeneration are expected to constitute more than 50% of the growing stock at maturity. 2. Includes coppice from trees established through natural regeneration. 3. Includes naturally regenerated trees of introduced species.
<b>INTRODUCED SPECIES</b>  <b>A species, subspecies or lower taxon, occurring outside its natural range (past or present) and dispersal potential (i.e. outside the range it occupies naturally or could occupy without direct or indirect introduction or care by humans).</b>

<b>TERM, definition and explanatory notes</b>
<b>PRIMARY FOREST</b>  <b><u>Naturally regenerated forest of native species</u>, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.</b>  <u>Explanatory note</u> 1. Some key characteristics of primary forests are: <ul style="list-style-type: none"><li>- they show natural forest dynamics, such as natural tree species composition, occurrence of dead wood, natural age structure and natural regeneration processes;</li><li>- the area is large enough to maintain its natural characteristics;</li><li>- there has been no known significant human intervention or the last significant human intervention was long enough ago to have allowed the natural species composition and processes to have become re-established.</li></ul>
<b>OTHER NATURALLY REGENERATED FOREST</b>  <b><u>Naturally regenerated forest</u> where there are clearly visible indications of human activities.</b>  <u>Explanatory notes</u> 1. Includes selectively logged-over areas, areas regenerating following agricultural land use, areas recovering from human-induced fires, etc. 2. Includes forests where it is not possible to distinguish whether planted or naturally regenerated. 3. Includes forests with a mix of naturally regenerated trees and planted/seeded trees, and where the naturally regenerated trees are expected to constitute more than 50 percent of the growing stock at stand maturity.
<b>OTHER NATURALLY REGENERATED FOREST OF INTRODUCED SPECIES (<i>sub-category of OTHER NATURALLY REGENERATED FOREST</i>)</b>  <b>Other <u>naturally regenerated forest</u> where the <u>trees</u> are predominantly of <u>introduces species</u>.</b>  <u>Explanatory note</u> 1. In this context, predominantly means that the trees of introduced species are expected to constitute more than 50 percent of the growing stock at maturity.

<b>TERM, definition</b> and explanatory notes
<b>PLANTED FOREST</b>
<b>Forest predominantly composed of <u>trees</u> established through planting and/or deliberate seeding.</b>
<u>Explanatory notes</u>
<ol style="list-style-type: none"> <li>1. In this context, predominantly means that the planted/seeded trees are expected to constitute more than 50 percent of the growing stock at maturity.</li> <li>2. Includes coppice from trees that were originally planted or seeded.</li> <li>3. <u>Excludes</u> self-sown trees of introduced species.</li> </ol>
<b>PLANTED FOREST OF INTRODUCES SPECIES</b> ( <i>sub-category of PLANTED FOREST</i> )
<b>Planted forest, where the planted/seeded <u>trees</u> are predominantly of <u>introduced species</u>.</b>
<u>Explanatory note</u>
<ol style="list-style-type: none"> <li>1. In this context, predominantly means that the planted/seeded trees of introduced species are expected to constitute more than 50 percent of the growing stock at maturity.</li> </ol>

### Special categories

<b>TERM, definition</b> and explanatory notes
<b>RUBBER PLANTATIONS</b>
<b>Forest area with rubber <u>tree</u> plantations.</b>
<b>MANGROVES</b>
<b>Area of <u>forest</u> and <u>other wooded land</u> with mangrove vegetation.</b>
<b>BAMBOO</b>
<b>Area of <u>forest</u> and <u>other wooded land</u> with predominant bamboo vegetation.</b>

### 1.5 Forest establishment and reforestation

<b>TERM, definition</b> and explanatory notes
<b>AFFORESTATION</b>
<b>Establishment of <u>forest</u> through planting and/or deliberate seeding on land that, until then, was not classified as forest.</b>
<u>Explanatory note</u>
<ol style="list-style-type: none"> <li>1. Implies a transformation of land use from non-forest to forest.</li> </ol>
<b>REFORESTATION</b>
<b>Re-establishment of <u>forest</u> through planting and/or deliberate seeding on land classified as forest.</b>
<u>Explanatory notes</u>
<ol style="list-style-type: none"> <li>1. Implies no change of land use.</li> <li>2. Includes planting/seeding of temporarily unstocked forest areas as well as planting/seeding of areas with forest cover.</li> <li>3. Includes coppice from trees that were originally planted or seeded.</li> <li>4. <u>Excludes</u> natural regeneration of forest.</li> </ol>

<b>TERM, definition</b> and explanatory notes
<b>NATURAL EXPANSION OF FOREST</b>
<b>Expansion of <u>forests</u> through natural succession on land that, until then, was under another land use (e.g. forest succession on land previously used for agriculture).</b>
<u>Explanatory note</u>
1. Implies a transformation of land use from non-forest to forest.

## 1.6 Growing stock

<b>TERM, definition</b> and explanatory notes
<b>GROWING STOCK</b>
<b>Volume over bark of all living <u>trees</u> more than X cm in diameter at breast height (or above buttress if these are higher). Includes the stem from ground level or stump height up to a top diameter of Y cm, and may also include branches to a minimum diameter of W cm.</b>
<u>Explanatory notes</u>
1. Countries must indicate the three thresholds (X, Y, W in cm) and the parts of the tree that are not included in the volume. They must also indicate whether the reported figures refer to volume above ground or above stump. These specifications should be applied consistently through the time series.
2. Includes windfallen living trees.
3. <u>Excludes</u> smaller branches, twigs, foliage, flowers, seeds, and roots.
<b>GROWING STOCK OF COMMERCIAL SPECIES</b>
<b><u>Growing stock</u> (see def. above) of commercial species.</b>
<u>Explanatory notes</u>
1. Commercial species are all species that currently are being commercialized for domestic and/or international markets.
2. Includes all trees of commercial species within the threshold limits given for growing stock, regardless whether they have reached commercial dimensions or not.

## 1.7 Biomass stock

<b>TERM, definition</b> and explanatory notes
<b>ABOVE-GROUND BIOMASS</b>
<b>All living biomass above the soil including stem, stump, branches, bark, seeds, and foliage.</b>
<u>Explanatory note</u>
1. In cases where forest understorey is a relatively small component of the aboveground biomass carbon pool, it is acceptable to exclude it, provided this is done in a consistent manner throughout the inventory time series.
<b>BELOW-GROUND BIOMASS</b>
<b>All biomass of live roots. Fine roots of less than 2mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter.</b>
<u>Explanatory notes</u>
1. Includes the below-ground part of the stump.
2. The country may use another threshold value than 2 mm for fine roots, but in such a case the threshold value used must be documented.

<b>TERM, definition</b> and explanatory notes
<p><b>DEAD WOOD</b></p> <p><b>All non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.</b></p> <p><u>Explanatory note</u></p> <ol style="list-style-type: none"> <li>1. The country may use another threshold value than 10 cm, but in such a case the threshold value used must be documented.</li> </ol>

## 1.8 Carbon stock

<b>TERM, definition</b> and explanatory notes
<p><b>CARBON IN ABOVE-GROUND BIOMASS</b></p> <p><b>Carbon in all living biomass above the soil, including stem, stump, branches, bark, seeds, and foliage.</b></p> <p><u>Explanatory note</u></p> <ol style="list-style-type: none"> <li>1. In cases where forest understorey is a relatively small component of the aboveground biomass carbon pool, it is acceptable to exclude it, provided this is done in a consistent manner throughout the time series.</li> </ol>
<p><b>CARBON IN BELOW-GROUND BIOMASS</b></p> <p><b>Carbon in all biomass of live roots. Fine roots of less than 2 mm diameter are excluded, because these often cannot be distinguished empirically from soil organic matter or litter.</b></p> <p><u>Explanatory notes</u></p> <ol style="list-style-type: none"> <li>1. Includes the below-ground part of the stump.</li> <li>2. The country may use another threshold value than 2 mm for fine roots, but in such a case the threshold value used must be documented.</li> </ol>
<p><b>CARBON IN DEAD WOOD</b></p> <p><b>Carbon in all non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.</b></p> <p><u>Explanatory note</u></p> <ol style="list-style-type: none"> <li>1. The country may use another threshold value than 10 cm, but in such a case the threshold value used must be documented.</li> </ol>
<p><b>CARBON IN LITTER</b></p> <p><b>Carbon in all non-living biomass with a diameter less than the minimum diameter for dead wood (e.g. 10 cm), lying dead in various states of decomposition above the mineral or organic soil.</b></p> <p><u>Explanatory note</u></p> <ol style="list-style-type: none"> <li>1. Fine roots of less than 2 mm (or other value chosen by the country as diameter limit for below-ground biomass) above the mineral or organic soil are included in the litter where they cannot be distinguished from it empirically.</li> </ol>

<b>TERM, definition</b> and explanatory notes
<b>SOIL CARBON</b>
<b>Organic carbon in mineral and organic soils (including peat) to a specified depth chosen by the country and applied consistently through the time series.</b>
<u>Explanatory note</u>
1. Fine roots of less than 2 mm (or other value chosen by the country as diameter limit for below-ground biomass) are included with soil organic matter where they cannot be distinguished from it empirically.

## 1.9 Forest fires

<b>TERM, definition</b> and explanatory notes
<b>NUMBER OF FIRES</b>
<b>Number of vegetation fires per year.</b>
<b>AREA AFFECTED BY FIRE</b>
<b>Area affected by vegetation fires per year.</b>
<b>VEGETATION FIRE</b> ( <i>supplementary term</i> )
<b>Any vegetation fire regardless of ignition source, damage or benefit.</b>
<b>WILDFIRE</b>
<b>Any unplanned and/or uncontrolled vegetation fire.</b>
<u>Explanatory notes</u>
1. Includes management-ignited vegetation fires that exceed the restrictions in the fire plan and require suppression actions.
2. <u>Excludes</u> unplanned vegetation fires that burn in accordance with management objectives.
<b>PLANNED FIRE</b>
<b>A vegetation fire regardless of ignition source that burns according to management objectives and requires limited or no suppression action.</b>
<u>Explanatory notes</u>
1. Includes unplanned vegetation fires that burn in accordance with management objectives (e.g. “let burn”) and therefore not subject to suppression measures.
2. <u>Excludes</u> management-ignited vegetation fires that exceed the restrictions in the fire plan.

## 1.10 Other disturbances affecting forest health and vitality

<b>TERM, definition</b> and explanatory notes
<p><b>DISTURBANCE</b></p> <p><b>Damage caused by any factor (biotic or abiotic) that adversely affects the vigour and productivity of the forest and which is not a direct result of human activities.</b></p> <p><u>Explanatory note</u></p> <p>1. For the purpose of this reporting table, disturbances exclude forest fires as these are reported on in a separate table.</p>
<p><b>INVASIVE SPECIES</b></p> <p><b>Species that are non-native to a particular ecosystem and whose introduction and spread cause, or are likely to cause, socio-cultural, economic or environmental harm or harm to human health.</b></p> <p><u>Explanatory note</u></p> <p>1. For the purpose of this table, the reporting is restricted to cover only the woody invasive species.</p>

<b>TERM, definition</b> and explanatory notes
<p><b>DISTURBANCE BY INSECTS</b></p> <p><b>Disturbance caused by insect pests.</b></p>
<p><b>DISTURBANCE BY DISEASES</b></p> <p><b>Disturbance caused by diseases attributable to pathogens, such as bacteria, fungi, phytoplasma or virus.</b></p>
<p><b>DISTURBANCES BY OTHER BIOTIC AGENTS</b></p> <p><b>Disturbance caused by biotic agents other than <u>insects</u> or <u>diseases</u>, such as wildlife browsing, grazing, physical damage by animals, etc.</b></p>
<p><b>DISTURBANCES CAUSED BY ABIOTIC FACTORS</b></p> <p><b>Disturbances caused by abiotic factors, such as air pollution, snow, storm, drought, etc.</b></p>

## 1.11 Wood removals and value of removals

<b>TERM, definition</b> and explanatory notes
<p><b>INDUSTRIAL ROUNDWOOD REMOVALS</b></p> <p><b>The wood removed (volume of roundwood over bark) for production of goods and services other than energy production (woodfuel).</b></p> <p><u>Explanatory notes</u></p> <p>1. The term “removal” differs from "felling" as it excludes trees that were felled but not removed.</p> <p>2. Includes removals from fellings in an earlier period and from trees killed or damaged by natural causes.</p>

<b>TERM, definition</b> and explanatory notes
<p><b>WOODFUEL REMOVALS</b></p> <p><b>The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.</b></p> <p><u>Explanatory notes</u></p> <ol style="list-style-type: none"> <li>1. Includes all wood collected or removed for energy purposes.</li> <li>2. Includes removals from fellings in an earlier period and from trees killed or damaged by natural causes.</li> <li>3. Includes removals of fuelwood for household use.</li> <li>4. <u>Excludes</u> woodfuel which is produced as a by-product or residual matter from industrial processing of roundwood.</li> </ol>

### **1.12 Non-wood forest products removals and value of removals**

<b>TERM, definition</b> and explanatory notes
<p><b>NON-WOOD FOREST PRODUCT (NWFP)</b></p> <p><b>Goods derived from forests that are tangible and physical objects of biological origin other than wood.</b></p> <p><u>Explanatory notes</u></p> <ol style="list-style-type: none"> <li>1. Generally includes non-wood plant and animal products collected from areas defined as <u>forest</u> (see definition of forest in table T1).</li> <li>2. Specifically includes the following regardless of whether from natural forests or plantations: <ul style="list-style-type: none"> <li>- gum arabic, rubber/latex and resin;</li> <li>- Christmas trees, cork, bamboo and rattan.</li> </ul> </li> <li>3. Generally <u>excludes</u> products collected in tree stands in agricultural production systems, such as fruit tree plantations, oil palm plantations and agroforestry systems when crops are grown under tree cover.</li> <li>4. Specifically <u>excludes</u> the following: <ul style="list-style-type: none"> <li>- woody raw materials and products, such as chips, charcoal, fuelwood and wood used for tools, household equipment and carvings;</li> <li>- grazing in the forest;</li> <li>- fish and shellfish.</li> </ul> </li> </ol>
<b>VALUE OF NWFP REMOVALS</b>
<p><b>For the purpose of this table, value is defined as the market value at the site of collection or forest border.</b></p> <p><u>Explanatory notes</u></p> <ol style="list-style-type: none"> <li>1. If values are obtained from a point further down the production chain, transport costs and possible handling and/or processing costs should be subtracted whenever possible.</li> <li>2. When NWFPs are removed for subsistence use, the value should be calculated based on local market value.</li> </ol>

### 1.13 *Employment in forestry*

<b>TERM, definition and explanatory notes</b>
<b>FULL-TIME EQUIVALENTS (FTE)</b>  <b>A measurement equal to one person working full-time during a specified reference period.</b>  <u>Explanatory note</u> 1. One fulltime employee counts as one FTE, and two half-time employees also count as one FTE.
<b>EMPLOYMENT</b>  <b>Includes all persons in <u>paid employment</u> or <u>self-employment</u>.</b>  <u>Explanatory note</u> 1. The full definition of the TERM “Employment”, “Paid employment” and “Self-employment” as used by UN Statistics Division can be found at <a href="http://unstats.un.org/unsd/cdb/cdb_dict_xrxx.asp?def_code=388">http://unstats.un.org/unsd/cdb/cdb_dict_xrxx.asp?def_code=388</a>
<b>PAID EMPLOYMENT</b>  <b>Persons who during a specified reference period performed some work for wage or salary in cash or in kind.</b>  <u>Explanatory note</u> 1. Includes limited periods of absence from an on-going job due to illness or injury, holiday or vacation, strike or lockout, maternity or parental leave or educational or training leave.
<b>SELF-EMPLOYMENT</b>  <b>Persons who during a specified reference period performed some work for profit or family gain in cash or in kind (e.g. employers, own-account workers, members of producers' cooperatives, contributing family workers).</b>  <u>Explanatory note</u> 1. Includes persons with an enterprise (i.e. a business enterprise, farm or service undertaking) who were temporarily not at work during the reference period for any reason.

<b>TERM, definition</b> and explanatory notes
<b>EMPLOYMENT IN PRIMARY PRODUCTION OF GOODS<sup>1</sup></b>
<b><u>Employment in activities related to production of goods derived from forests.</u></b>
<u>Explanatory notes</u>
<ol style="list-style-type: none"> <li>1. Includes employment in the production of industrial roundwood, woodfuel and non-wood forest products (see definition for tables T11 and T12).</li> <li>2. Includes employment in silvicultural activities such as reforestation, afforestation, thinning, pruning, operation of forest tree nurseries, etc.</li> <li>3. Includes employment in Christmas tree, rubber and bamboo plantations.</li> <li>4. Includes employment in support services the activities mentioned above, such as: <ul style="list-style-type: none"> <li>- forest inventories</li> <li>- forest management consulting services</li> <li>- timber value assessments</li> <li>- forest fire fighting and protection</li> <li>- forest pest control</li> <li>- harvesting and transport of logs within the forest</li> </ul> </li> <li>5. <u>Excludes</u> employment in: <ul style="list-style-type: none"> <li>- administration and management of protected areas</li> <li>- forestry research and education</li> <li>- further processing of the goods derived from forests, independently of whether industrial or small-scale</li> </ul> </li> </ol>
<b>EMPLOYMENT IN MANAGEMENT OF PROTECTED AREAS</b>
<b><u>Employment in activities related to the management of protected areas with forests.</u></b>

## 1.14 Policy and legal framework

<b>TERM, definition</b> and explanatory notes
<b>FOREST POLICY</b>
<b>A set of orientations and principles of actions adopted by public authorities in harmony with national socio-economic and environmental policies in a given country to guide future decisions in relation to the management, use and conservation of forest and tree resources for the benefit of society.</b>
<b>FOREST POLICY STATEMENT</b>
<b>A document that describes the objectives, priorities and means for implementation of the forest policy.</b>
<b>NATIONAL FOREST PROGRAMME (nfp)</b>
<b>A generic expression that refers to a wide range of approaches towards forest policy formulation, planning and implementation at national and sub-national levels. The national forest programme provides a framework and guidance for country-driven forest sector development with participation of all stakeholders and in consistence with policies of other sectors and international policies.</b>
<b>LAW (ACT OR CODE) ON FOREST</b>
<b>A set of rules enacted by the legislative authority of a country regulating the access, management, conservation and use of forest resources.</b>

<sup>1</sup> This category corresponds to the ISIC/NACE Rev. 4 activity A02 (Forestry, logging and related service activities) with the exception of the activities “growing of Christmas trees” and “growing of rubber trees” which are included in the FRA definition but excluded in the ISIC activity A02.

Country statistics based on earlier revisions of ISIC/NACE should note that apart from the exceptions mentioned above, also the collection of mushrooms, truffles, berries and nuts are not included under the ISIC/NACE activity A02.

## 1.15 Institutional framework

<b>TERM, definition</b> and explanatory notes
<p><b>MINISTER RESPONSIBLE FOR FOREST POLICY-MAKING</b></p> <p><b>Minister holding the main responsibility for forest issues and the formulation of the <u>forest policy</u>.</b></p> <p><u>Explanatory note</u> The title includes the full name of the Ministry and often translates the development orientation given to the forest sector.</p>
<p><b>HEAD OF FORESTRY</b></p> <p><b>The Head of Forestry is the Government Officer responsible for implementing the mandate of the <u>public administration</u> related to <u>forests</u>.</b></p> <p><u>Explanatory note</u> 1. The Head of Forestry can be a high Government Officer within a Ministry, but can also be the head of a public forest agency.</p>
<p><b>LEVEL OF SUBORDINATION</b></p> <p><b>Number of administrative levels between the <u>Head of Forestry</u> and the Minister.</b></p> <p><u>Examples</u> 1. Level 1: The Head of Forestry reports directly to the Minister. 2. Level 2: The Head of Forestry reports to a vice-Minister (or equivalent) who in turn reports to the Minister. 3. Level 3: The Head of Forestry reports to a Department Director (or equivalent). The Department director reports to the vice-Minister who reports to the Minister.</p>
<p><b>UNIVERSITY DEGREE</b></p> <p><b>Qualification provided by University after a minimum of 3 years of post secondary education.</b></p>

## 1.16 Education and research

<b>TERM, definition</b> and explanatory notes
<p><b>FOREST-RELATED EDUCATION</b></p> <p><b>Post-secondary education programme with focus on forests and related subjects.</b></p>
<p><b>DOCTOR'S DEGREE (Ph.D.)</b></p> <p><b>University (or equivalent) education with a total duration of about 8 years.</b></p> <p><u>Explanatory notes</u> 1. Corresponds to the second stage of the tertiary education (level 6 ISCED). 2. It typically requires the submission of a thesis or dissertation of publishable quality which is the product of original research and represents a significant contribution to knowledge. 3. Usually two to three years of post-graduate studies after a master's degree.</p>

<b>TERM, definition</b> and explanatory notes
<b>MASTER'S DEGREE (M.Sc.) OR EQUIVALENT</b>
<b>University (or equivalent) education with a total duration of about 5 years.</b>
<u>Explanatory notes</u>
1. Corresponds to the first stage of tertiary education (level 5 ISCED). 2. Usually two years of post-graduate studies after a bachelor's degree.
<b>BACHELOR'S DEGREE (B.Sc.) OR EQUIVALENT</b>
<b>University (or equivalent) education with a duration of about 3 years.</b>
<u>Explanatory note</u>
1. Corresponds to post-secondary non tertiary education (level 4 ISCED).
<b>TECHNICIAN CERTIFICATE OR DIPLOMA</b>
<b>Qualification issued from a technical education institution consisting of 1 to 3 years post secondary education.</b>
<b>PUBLICLY FUNDED FOREST RESEARCH CENTRES</b>
<b>Research centres primarily implementing research programmes on forest matters. Funding is mainly public or channelled through public institutions.</b>

### 1.17 Public revenue collection and expenditure

<b>TERM, definition</b> and explanatory notes
<b>FOREST REVENUE</b>
<b>All government revenue collected from the domestic production and trade of forest products and services. For this purpose, forest products include: roundwood; sawnwood; wood-based panels; pulp and paper; and non-wood forest products. As far as possible, this should include revenue collected by all levels of government (i.e. central, regional/provincial and municipal level), but it should exclude the income of publicly owned business entities.</b>
<u>Explanatory notes</u>
1. It includes: all charges collected <u>specifically</u> from individuals and enterprises engaged in the production of forest products and services (e.g. concession fees and royalties, stumpage payments, public timber sales revenue, taxes and charges based on forest area or yield, taxes on domestic trade and export of forest products, special levies on forestry activities and payments into forest-related funds, other miscellaneous inspection, licence and administrative fees levied by forest administrations, permit and licence fees for hunting, recreation and other forest related activities). 2. It <u>excludes</u> : taxes and charges <u>generally</u> collected from all individuals and enterprises (e.g. corporate taxes, payroll taxes, income taxes, land and property taxes, sales or value-added taxes); import taxes or duties levied on forest products; repayments of government loans to individuals and enterprises engaged in the production of forest products and services.
<b>PUBLIC EXPENDITURE</b>
<b>All government expenditure on forest related activities (further defined below).</b>
<u>Explanatory notes</u>
1. Correspond to the total budget allocated and spent by all concerned institutions. 2. Include expenditures for administrative functions, reforestation funds, direct support to forest sector (e.g. grants and subsidies) and support to other institutions (e.g. training and research centres). 3. <u>Exclude</u> expenditures in publicly owned business entities.

**TERM, definition** and explanatory notes

**OPERATIONAL EXPENDITURE** (*sub-category to PUBLIC EXPENDITURE*)

**All government expenditure on public institutions solely engaged in the forest sector. Where the forest administration is part of a larger public agency (e.g. department or ministry), this should only include the forest sector component of the agency's total expenditure. As far as possible, this should also include other institutions (e.g. in research, training and marketing) solely engaged in the forest sector, but it should exclude the expenditure of publicly owned business entities.**

Explanatory notes

1. It includes expenditure on: personnel; materials; operating costs; and capital investment (e.g. buildings, equipment, tools, vehicles and machinery), whether funded by domestic or external sources of finance. It includes expenditure on contract or outsourced activities. It also includes the operating costs associated with any forest sector incentive schemes.
2. It excludes expenditure on: marketing; trade facilitation; general research, education, training; or development projects, where forest is not the main focus of activities.

**TRANSFER PAYMENTS** (*sub-category to PUBLIC EXPENDITURE*)

**All government expenditure on direct financial incentives paid to non-government and private-sector institutions, enterprises communities or individuals operating in the forest sector to implement forest related activities.**

Explanatory notes

1. It includes: cash grants and subsidies.
2. It excludes: tax incentives; government loans; benefits in kind (free or subsidised materials and/or advice). It also excludes direct financial incentives available to all individuals and enterprises or not specifically related to forest related activities (e.g. relocation grants, employment subsidies, general training grant schemes).

**DOMESTIC FUNDING**

**Public expenditure funded from domestic public financial resources, including: retained forest revenue; forest-related funds; and allocations from the national budget (i.e. from non-forest sector public revenue sources).**

**EXTERNAL FUNDING**

**Public expenditure funded from grants and loans from donors, non-governmental organisations, international lending agencies and international organisations, where such funds are channelled through national public institutions.**

Explanatory note

1. As far as possible, this should exclude expenditure on technical assistance that is funded directly by the external agency and external funding that is not channelled through the government (e.g. external funding channelled through non-governmental agencies and the private sector).

## Additional terms and definitions

<p><b>TERM, definition</b> and explanatory notes</p>
<p><b>BIOLOGICAL DIVERSITY</b></p> <p>The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, among species and of ecosystems.</p>
<p><b>CANOPY COVER</b></p> <p>The percentage of the ground covered by a vertical projection of the outermost perimeter of the natural spread of the foliage of plants. Cannot exceed 100 percent. (Also called crown closure) Same as crown cover.</p> <p>(IPCC. 2003. <i>Good Practice Guidance for LULUCF</i> - Glossary)</p>
<p><b>DEFORESTATION</b></p> <p>The conversion of forest to other land use or the long-term reduction of the tree canopy cover below the minimum 10 percent threshold.</p> <p><u>Explanatory notes</u></p> <ol style="list-style-type: none"> <li>1. Deforestation implies the long-term or permanent loss of forest cover and implies transformation into another land use. Such a loss can only be caused and maintained by a continued human-induced or natural perturbation.</li> <li>2. Deforestation includes areas of forest converted to agriculture, pasture, water reservoirs and urban areas.</li> <li>3. The term specifically excludes areas where the trees have been removed as a result of harvesting or logging, and where the forest is expected to regenerate naturally or with the aid of silvicultural measures. Unless logging is followed by the clearing of the remaining logged-over forest for the introduction of alternative land uses, or the maintenance of the clearings through continued disturbance, forests commonly regenerate, although often to a different, secondary condition.</li> <li>4. In areas of shifting agriculture, forest, forest fallow and agricultural lands appear in a dynamic pattern where deforestation and the return of forest occur frequently in small patches. To simplify reporting of such areas, the net change over a larger area is typically used.</li> <li>5. Deforestation also includes areas where, for example, the impact of disturbance, over utilization or changing environmental conditions affects the forest to an extent that it cannot sustain a tree cover above the 10 percent threshold.</li> </ol>
<p><b>FOREST DEGRADATION</b></p> <p>The reduction of the capacity of a forest to provide goods and services.</p>
<p><b>NATIVE SPECIES</b></p> <p>A species, subspecies, or lower taxon, occurring within its natural range (past or present) and dispersal potential (i.e. with in the range it occupies naturally or could occupy without direct or indirect introduction or care by humans).</p>
<p><b>SHRUB</b></p> <p>Woody perennial plant, generally more than 0.5 meters and less than 5 meters in height at maturity and without a definite crown. The height limits for trees and shrubs should be interpreted with flexibility, particularly the minimum tree and maximum shrub height, which may vary between 5 meters and 7 meters.</p>
<p><b>TREE</b></p> <p>A woody perennial with a single main stem, or in the case of coppice with several stems, having a more or less definite crown.</p> <p><u>Explanatory note</u></p> <ol style="list-style-type: none"> <li>1. Includes bamboos, palms, and other woody plants meeting the above criteria.</li> </ol>

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