Forestry Statistics

Indicators on Sustainable Forestry,

Terms and Definitions

Introduction

This document contains terms and definitions for terms used in the national data reporting tables for quantitative MCPFE indicators collected through this enquiry. Utmost importance was given to ensure the continuity of definitions to be applied exactly as in previous assessments in order to enable consistency of data over time wherever possible. Definitions are only provided for those terms that are specified in the reporting tables. Sources of the respective definition are given for each term.
The reference documents for the terms and definitions listed here are:

1. MCPFE "Relevant Definitions Used for the Improved Pan-European Indicators for Sustainable Forest Management" 2003 (MCPFE 2003)
2. FAO "Global Forest Resources Assessment Update 2005 - Terms and Definitions (Final version)"; Forest Resources Assessment Programme Working Paper 83/E Rome 2004. (FAO 2004)

The FAO Global Forest Resources Assessment Update 2005 terms and definitions have been
adopted for those key definitions where important changes were adopted or accepted by the international community. Most of these changes, that were done and applied in the National Data Enquiry for the MCPFE 2007 Report, were incremental and intended to clarify terms used on the basis of experiences made in the forest resource assessments in 2000. In several cases, explanatory notes were added to the definition to facilitate interpretation, e.g. in the FAO FRA 2005 update definitions document. Furthermore, definitions on carbon stock related terms have been further clarified by the Intergovernmental Panel on Climate Change (IPCC).
The following terms were taken from FAO FRA 2005 terms and definitions document:

- forest
- other wooded land
- carbon stock
- carbon stock in below-ground biomass (adapted to woody biomass)
- deadwood
- growing stock
- modified natural forest/other wooded land
- semi-natural forest (explanatory notes)

Terms and Definitions

Abiotic

1. Not biotic. Nonliving, e.g.: *abiotic damage* = damage caused by non-living agents (snow, storms, etc.) (MCPFE 2003, from EFI 2001).

Age class

Any interval into which the age range of trees, forests, stands, or forest types is divided for classification, e.g. 1, 5, 10 or 20 year age classes, as used in inventory or management (MCPFE 2003,from IUFRO, 2000).

Biotic

1. Of or relating to life; especially: caused or produced by living beings.
2. Living. Living organisms make up the biotic parts of ecosystems, e.g.: biotic damage = damage caused by living organisms (fungi, insects etc.) (MCPFE 2003, from EFI, 2001).

Black liquors

Black liquors comprises lignin etc. from chemical pulping used for energy.

Note: this T&D was formulated in the process of the elaboration of the MCPFE-2007 Enquiry on the basis of existing definitions in different processes.

Carbon stock

The quantity of carbon in a "pool", meaning a reservoir or system which has the capacity to accumulate or release carbon. (FAO 2004, from IPCC. 2003. *Good Practice Guidance for LULUCF* - Glossary)

Critically endangered

A taxon is critically endangered when it is facing an extremely high risk of extinction in the wild in the immediate future, as defined by any of the criteria A to E of IUCN (1998) on page l and li (MCPFE 2003, from IUCN, 1998).

Damage to forest

Disturbance to the forest which may be caused by biotic or abiotic agents, resulting in death, or a significant loss of vitality, productivity or value of trees and other components of the forest ecosystem (MCPFE 2003, from TBFRA 2000).

primarily damaged by insects and disease

Forest and other wooded land where insect attack or disease has been identified as the primary cause of damage (MCPFE 2003, TBFRA 2000).

primarily damaged by wildlife and grazing

Forest and other wooded land where damage has been caused by wildlife or grazing by domestic animals. Includes: Grazing or browsing of young plants, preventing or delaying the establishmentor regeneration of the stand (MCPFE 2003, TBFRA 2000).

primarily damaged by storm, wind, snow or other identifiable abiotic factors

Forest and other wooded land on which the trees have been felled or damaged by storm, wind, snow or other abiotic factors such as avalanches, landslides or flooding (MCPFE 2003, TBFRA 2000).

primarily damaged by fire

Forest and other wooded land, the vegetation on which, including the trees, has been wholly or largely destroyed by fire (MCPFE 2003, TBFRA 2000).

primarily damaged by forest operations

Forest and other wooded land where damage has been caused by forest management operations, including damages incurred by road construction (permanent roads, landings) and harvesting damage, incl. through skidding tracks, hauling and transport. (adjusted from the above). *Note: this T&D was formulated in the process of the elaboration of the MCPFE-2007 Enquiry on the basis of existing definitions in different processes.*

Deadwood

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 (FAO 2004).

It is up to the countries to define the threshold level for the minimum size of diameter to be reported.

Thresholds used should be documented and reported.

Recommended thresholds:

- Minimum length of standing and lying dead trees: 2 m or less
- Minimum diameter of standing and lying dead trees: Standing deadwood: 10 cm d.b.h., Lying deadwood: 10 cm mean diameter

Diameter class

Any of the intervals into which the range of stem diameters of trees or logs is divided for classification and use. Also the trees or logs falling into such an interval (MCPFE 2003, from IUFRO, 2000).

Endangered

A taxon is endangered when it is not critically endangered but is facing a very high risk of extinction in the wild in the near future, as defined by any of the criteria A to E of IUCN (1998) (MCPFE 2003, from IUCN, 1998).

Energy from wood directly from forests

Comprises wood used for energy taken directly from forest, other wooded land or from trees outside forest, such as orchards, hedges etc. whether or not marketed or recorded in official statistics (the volumes concerned may be estimated on the basis of household energy use surveys). This category thus includes self-consumption. If figures for marketed wood for energy directly from forests are available, please report these under "country comments".

Note: this T&D was formulated in the process of the elaboration of the MCPFE-2007 Enquiry on the basis of existing definitions in different processes.

Extinct in the wild

A taxon is extinct in the wild when it is known only to survive in cultivation, in captivity or as a naturalised population (or populations) well outside the past range. A taxon is presumed extinct in the wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxons's life cycle and life form (MCPFE 2003, from IUCN, 1998).

Fellings (annual)

Average annual standing volume of all trees, living or dead, measured overbark to a minimum diameter of 0 cm (d.b.h.) that are felled during the given reference year, including the volume of trees or parts of trees that are not removed from the forest, other wooded land or other felling site.

Includes: silvicultural and pre-commercial thinnings and cleanings left in the forest; and natural losses that are recovered (harvested) (MCPFE 2003, from TBFRA 2000).

Forest

Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds *in situ*. It does not include land that is predominantly under agricultural or urban land use.

Explanatory notes:

1. Forestis 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 *in situ*. Areas under reforestation that have not yet reached but are expected to reach a canopy cover of 10 percent and a tree height of 5 m are included, as are temporarily unstocked areas, resulting from human intervention or natural causes, which are expected to regenerate.
2. Includes areas with bamboo and palms provided that height and canopy cover criteria are met.
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 scientific, historical, cultural or spiritual interest.
4. Includes windbreaks, shelterbelts and corridors of trees with an area of more than 0.5 ha and width of more than 20 m.
5. Includes plantations primarily used for forestry or protection purposes, such as rubberwood plantations and cork oak stands.
6. Excludes tree stands in agricultural production systems, for example in fruit plantations and agroforestry systems. The term also excludes trees in urban parks and gardens.(FAO 2004)

Forest available for wood supply

Forest where any legal, economic, or specific environmental restrictions do not have a significant impact on the supply of wood. Includes: areas where, although there are no such restrictions, harvesting is not taking place, for example areas included in long-term utilisation plans or intentions (MCPFE 2003, from TBFRA 2000).

Forest holding

One or more parcels of forest and other wooded land which constitute a single unit from the point of view of management or utilisation. For State-owned forest and other wooded land a holding may be defined as the area forming a major management unit administered by a senior official, .e.g. a Regional Forestry Officer. For forest and other wooded land that is owned publicly, other than by the State, or owned by large-scale forest owners, e.g. forest industries, a holding may constitute a number of separated properties which are, however, managed according to one corporate strategy. Under any category of ownership, other than State-owned, one holding may be the property of one or several owners (TBFRA 2000).

Forest services (marketed)

Marketed forest services comprise recreational, environmental and protective services that are forest-dependent or mainly forest-related, but are not necessarily to marketed by forest owners.

marketed recreational services

Marketed recreational services include e.g. hunting or fishing licences, renting of huts and houses as well as forest-related leisure, sport and outdoor adventure activities and educational services that are not free of cost to consumers (the public, schools,..). Forest-related means that forests constitute an essential element of the service marketed. Recreational services not exchanged via market transaction are not to be reported. (see also MCPFE indicator 6.10)

marketed environmental services

Marketed environmental services include those related to MCPFE indicator 4.6 (*in situ* or *ex situ* gene conservation of genetic resources) as well as MCPFE indicator 4.9 (protected forest area) e.g. nature protection on a voluntary contractual basis with compensation or other payments from private or public bodies (this includes NATURA 2000). This class also includes carbonsequestration related afforestation projects in the context of the Kyoto Protocol.

marketed protective services

Marketed protective services include those related to MCPFE indicators 5.2 (soil, water and other environmental functions as well as infrastructure and managed natural resources) on a voluntary contractual basis with compensation or other payments from private or public bodies.

This can include contractual arrangements for the protection against soil erosion by air or water, avalanches, mud and rock slides, flooding, air pollution, noise, etc.

other marketed services

Other marketed services include payments to woodland owners for licences for gravel extraction, telecommunication masts, wind farms and electricity distribution.
Note: this T&D was formulated in the process of the elaboration of the MCPFE-2007 Enquiry on the basis of existing definitions in different processes.

Forest species

A forest species is a species that is dependent on a forest for part or all of its day to day living requirements, or for its reproductive requirements. Therefore, an animal species may be considered a forest species even if it does not live most of its life in a forest. (MCPFE 2003, from AD HOC Technical Expert Group on Forest Biological Diversity, convened by the Secretarial of the CBD to prepare a report for SBSTTA-7, 2001).

Forest type

Forest types are classified as follows, based on EUNIS Top Level and TBFRA 2000:

- predominantly broadleaved woodland
- predominantly coniferous woodland
- mixed broadleaved and coniferous woodland

(MCPFE 2003)

Note: "other wooded land" is excluded from this definition for the MCPFE 2007 reporting.

Growing stock

The living tree component of the standing volume (MCPFE 2003, from TBFRA 2000). Volume over bark of all living trees more than X cm in diameter at breast height. 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. Explanatory notes

1. The countries must indicate the three thresholds (X, Y, W in cm) and the parts of the tree that are not included in the volume. The countries must also indicate whether the reported figures refer to volume above ground or above stump.
2. The diameter is measured at 30 cm above the end of the buttresses if these are higher than 1 meter.
3. Includes windfallen living trees.
4. Excludes: Smaller branches, twigs, foliage, flowers, seeds, and roots.

(FAO 2004)

Introduced tree species

(synonyms: non-indigenous species, exotic species, alien species)

Tree species occurring outside their natural vegetation zone, area or region. Includes: Hybrids (MCPFE 2003, from TBFRA 2000).

invasive introduced tree species

Invasive introduced tree refers to an alien tree species whose introduction and spread threaten ecosystems, habitats or species with socio-cultural, economic and/or environmental harm, and/or harm to human health (MCPFE 2003, definition of invasive alien species from UNEP/CBD/COP/6/18/Add.1/Rev.1; 2002. The word "tree" was added).

Alien or alien species refers to a species, subspecies or lower taxon, introduced outside its normal past or present normal distribution; includes any part, gametes, seeds, eggs, or propagates of such species that might survive and subsequently reproduce (UNEP/CBD/COP/6/18/Add.1/Rev.1; 2002).

Legal right of access

Where the public are legally entitled to visit forest and other wooded land, whether publicly owned or owned by third parties. Some activities by the visiting public may however be forbidden or restricted (TBFRA 2000).

Management plan or equivalent

A written scheme of forest management, aiming at defined management goals, which is periodically revised. These include:

forest management plans

Information (in the form of text, maps, tables and graphs) collected during (periodic) forest inventories at operational forest units level (stands, compartments), and operations planned for individual stands or compartments to reach the management goals.

equivalents

Information collected on forest area, at forest management or aggregated forest management unit level (forest blocks, farms, enterprises, watersheds, municipalities, or wider units), and strategies/management activities planned to reach the management or development goals.

(MCPFE 2003)

MCPFE Class

as defined by the MCPFE Assessment Guidelines for Protected and ProtectiveForest and Other Wooded Land in Europe.

MCPFE Class 1.1: Main Management Objective Biodiversity "No Active Intervention"

- The main management objective is biodiversity
- No active, direct human intervention is taking place
- Activities other than limited public access and non-destructive research not detrimental to the management objective are prevented in the protected area

MCPFE Class 1.2: Main Management Objective Biodiversity "Minimum Intervention"

- The main management objective is biodiversity
- Human intervention is limited to a minimum
- Activities other than listed below are prevented in the protected area:
    - Ungulate/game control
    - Control of diseases/insect outbreaks*
    - Public access
    - Fire intervention
    - Non-destructive research not detrimental to the management objective
    - Subsistence resource use**
      *In case of expected large diseases/insect outbreaks control measures using biological methods are allowed provided that no other adequate control possibilities in buffer zones are feasible. ** Subsistence resource use to cover the needs of indigenous people and local communities, in so far as it will not adversely affect the objectives of management.

MCPFE Class 1.3: Main Management Objective Biodiversity "Conservation Through Active Management"

- The main management objective is biodiversity.
- A management with active interventions directed to achieve the specific conservation goal of the protected area is taking place.
- Any resource extraction, harvesting, silvicultural measures detrimental to the management objective as well as other activities negatively affecting the conservation goal are prevented in the protected area.

MCPFE Class 2: Main Management Objective "Protection of Landscapes and Specific Natural Elements"

- Interventions are clearly directed to achieve the management goals landscape diversity, cultural, aesthetic, spiritual and historical values, recreation, specific natural elements.
- The use of forest resources is restricted.
- A clear long-term commitment and an explicit designation as specific protection regime defining a limited area is existing.
- Activities negatively affecting characteristics of landscapes or/and specific natural elements mentioned are prevented in the protected area.

MCPFE Class 3: Main Management Objective "Protective Functions"

- The management is clearly directed to protect soil and its properties or water quality and quantity or other forest ecosystem functions, or to protect infrastructure and managed natural resources against natural hazards.
- Forests and other wooded lands are explicitly designated to fulfil protective functions in management plans or other legally authorised equivalents.
- Any operation negatively affecting soil or water or the ability to protect other ecosystem functions, or the ability to protect infrastructure and managed natural resources against natural hazards is prevented.

Naturalness

Naturalness is specified in the following classes:

undisturbed by man (forest/other wooded land)

Forest/other wooded land which shows natural forest dynamics, such as natural tree composition, occurrence of dead wood, natural age structure and natural regeneration processes, the area of which is large enough to maintain its natural characteristics and where there has been no known significant human intervention or where the last significant human intervention was long enough ago to have allowed the natural species composition and processes to have become re-established (MCPFE 2003, from TBFRA 2000).

semi-natural forest/other wooded land

Forest/other wooded land which is neither "forest/other wooded land undisturbed by man" nor "plantation" as defined separately (MCPFE 2003, from TBFRA 2000).

modified natural forest/other wooded land

Forest/other wooded land which is classified as "semi-natural forest/other wooded land" which shows characteristics of the class "forests/other wooded land undisturbed by man" such as close to natural forest dynamics as described in class "forests/other wooded land undisturbed by man"

but where there are clear indications of human activities. This includes land with naturally regenerating native species and natural regeneration of native or non-native species enhanced by planting of native species. Native species refers to a species, subspecies or lower taxon, occurring in its normal past or present distribution; See also criteria for classifying "Regeneration" (based on FRA 2005),

plantation

Forest stands established by planting or/and seeding in the process of afforestation or reforestation.They are either:

- of introduced species (all planted stands), or
- intensively managed stands of indigenous species which meet all the following criteria: one or two species at plantation, even age class, regular spacing.

Excludes: Stands which were established as plantations but which have been without intensive management for a significant period of time. These should be considered semi natural (TBFRA 2000).

Net annual increment

Average annual volume over the given reference period of gross increment less that of natural losses on all trees to a minimum diameter of 0 cm (d.b.h.) (TBFRA 2000).

Other wooded land

Land not classified as forest, spanning more than 0.5 hectares; with trees higher than 5 meters and a canopy cover of 5-10 percent, or trees able to reach these thresholds *in situ*; or with a combined cover of shrubs, bushes and trees above 10 percent. It does not include land that is predominantly under agricultural or urban land use. (FAO 2004)

Post-consumer wood energy

Post-consumer wood energy comprises wood derived from used palettes and boxes, demolition wood etc.

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Private ownership

Forest/other wooded land owned by individuals, families, co-operatives and corporations which may be engaged in agriculture or other occupations as well as forestry; private forest enterprises and industries; private corporations and other institutions (religious and educational institutions, pension and investment funds, nature conservation societies, etc) (MCPFE 2003, from TBFRA 2000).

Public ownership

Forest/other wooded land belonging to the State or other public bodies (MCPFE 2003, from TBFRA 2000).

Predominantly coniferous

Forest/other wooded land on which more than 75 percent of the tree crown cover consists of coniferous species (TBFRA 2000).

Predominantly broadleaved

Forest/other wooded land on which more than 75 percent of the tree crown cover consists of broadleaved species (TBFRA 2000).

Protective forest - see MCPFE Class

Recreation

Any physical or psychological revitalisation through the voluntary pursuit of leisure time. Forest recreation includes the use and enjoyment of a forest or wildland setting, including heritage landmarks, developed facilities, and other biophysical features (BC Forest Service, 1997).

Recreational forest

A forest managed primarily to provide recreational opportunities (IUFRO 2000).

Reference year

The years for which figures should be reported, generally 1990, 2000 and 2005. If these differ from the years during which the data was collected, then adjustment will be necessary (interpolation or extrapolation).

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Regeneration

Re-establishment of a forest stand by natural or artificial means following the removal of the previous stand by felling or as a result of natural causes, e.g. fire or storm (TBFRA 2000).

natural regeneration

Re-establishment of a forest stand by natural means, i.e. by natural seeding or vegetative regeneration. It may be assisted by human intervention, e.g. by scarification or fencing to protect against wildlife damage or domestic animal grazing (TBFRA 2000).

natural regeneration enhanced by planting

Natural regeneration which has been combined with artificial planting or seeding, either to ensure satisfactory restocking with the naturally regenerated species or to increase species diversity (TBFRA 2000).

regeneration by planting and seeding

The act of establishing a forest stand (e.g. plantation) or re-establishing a forest stand by artificial means, either by planting of seedlings or by scattering seed. The material used may be of indigenous or introduced origin. Planting and seeding may take place on forest, other wooded land or other land (TBFRA 2000).

coppice sprouting

The re-growth from coppice stools after the previous stand has been cut (TBFRA 2000).

Roundwood

All roundwood felled or otherwise harvested and removed. It comprises all wood obtained from removals, i.e. the quantities removed from forests and from trees outside the forest, including wood recovered from natural, felling and logging losses during the period, calendar year or forest year. It includes all wood removed with or without bark, including wood removed in its round form, or split, roughly squared or in other form (e.g. branches, roots, stumps and burls (where these are harvested) and wood that is roughly shaped or pointed. It is an aggregate comprising wood fuel (including wood for charcoal) and industrial roundwood (wood in the rough). It is reported in cubic metres solid volume underbark (i.e. excluding bark) (Joint UNECE/FAO/Eurostat/ITTO Forest Sector Questionnaire, 2001).

marketed roundwood

"Marketed" roundwood comprises all round wood sold on markets. It excludes round wood harvested for self-consumption (subsistence) and other forms of uses without market transaction.

Stand

A community of trees possessing sufficient uniformity in composition, age, arrangement or condition to be distinguishable from the forest or other growth on adjoining areas, thus forming a temporary silvicultural or management entity (IUFRO, 2000).

even-aged stand

A stand or forest type, in which no or relatively small age differences exist among individual trees within it, usually less than 20% of rotation length (IUFRO, 2000).

uneven-aged stand

Consisting of trees of a range of age classes, with age differences which are significant in relation to the stand structure management and rotation length (IUFRO, 2000).

Standing volume

Volume of standing trees, living or dead, above-stump measured overbark to top (0 cm). Includes all trees with diameter over 0 cm (d.b.h.) Includes: Tops of stems, large branches; dead trees lying on the ground which can still be used for fibre or fuel. Excludes: Small branches, twigs and foliage (MCPFE 2003, from TBFRA 2000).

Sustainable forest management

Sustainable management means the stewardship and use of forests and forest lands in such a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems (MCPFE, 1993).

Tree

A woody perennial with a single main stem or, in the case of coppice, with several stems, having a more or less definite crown. Includes: Bamboos, palms and other woody plants meeting the above criterion (TBFRA 2000).

Vulnerable

A taxon is vulnerable when it is not critically endangered or endangered but is facing a high risk of extinction in the wild in the medium-near future, as defined by any of the criteria A to E of IUCN (1998) on page lii (MCPFE 2003, from IUCN, 1998).

Wood

All roundwood felled or otherwise harvested and removed. It comprises all wood obtained from removals, i.e. the quantities removed from forests and from trees outside the forest, including wood recovered from natural, felling and logging losses during the period, calendar year or forest year. It includes all wood removed with or without bark, including wood removed in its round form, or split, roughly squared or in other form (e.g. branches, roots, stumps and burls (where these are harvested) and wood that is roughly shaped or pointed. It is an aggregate comprising wood fuel (including wood for charcoal) and industrial roundwood (wood in the rough). It is reported in cubic metres solid volume underbark (i.e. excluding bark) (MCPFE 2003, from Joint FAO/ECE/Eurostat/ITTO Questionnaire).

Woody biomass

Organic woody material both above-ground and below-ground, and both living and dead, measured to a minimum diameter of 0 mm (d.b.h.). Includes stem, stump, branches, bark, seeds and foliage, roots, shrubs and bushes. Excludes: litter (definition of "biomass" in FAO 2004, which is based on IPCC Good Practice Guidelines LULUCF Glossary 2003; term "woody" added, minimum diameter threshold as in TBFRA 2000).

above-ground (living) woody biomass

all living woody biomass above the soil, including stem, stump, branches, bark, seeds and foliage. (FAO 2004, based on IPCC Good Practice Guidelines LULUCF Glossary 2003; term "woody" added).

below-ground (living) woody biomass

all living woody biomass of live roots and the below-ground part of the stump. (FAO 2004, based on IPCC Good Practice Guidelines LULUCF Glossary 2003; term "woody" added).

dead woody biomass

All non-living woody biomass not contained in the litter, see also "deadwood"

wood (processing) residues

comprise residues used for energy including wood and bark from sawmills, wood based panel mills, pulp and paper mills, furniture and secondary processing plants.

Note: this T&D was formulated in the process of the elaboration of the MCPFE-2007 Enquiry on the basis of existing definitions in different processes.

Source of Terms and Definitions:

UNECE, MCPFE & FAO. 2007.State of Europe's forests 2007 - The MCPFE report on sustainable forest management in Europe. Warsaw,Poland, Ministerial Conference on the Protection of Forests in Europe (MCPFE) Liaison Unit. Available at: http://www.mcpfe.org/files/u1/publications/pdf/state_of_europes_forests_2007.pdf\\