

Annex 4: Pan-European Quantitative and Qualitative Indicators for Sustainable Forest Management

Pan-European Quantitative Indicators for Sustainable Forest Management

No	Indicator name	Full text
Criterion 1: Maintenance and Appropriate Enhancement of Forest Resources and their Contribution to Global Carbon Cycles		
1.1	Forest area	Area of forest and other wooded land, classified by forest type and by availability for wood supply, and share of forest and other wooded land in total land area
1.2	Growing stock	Growing stock on forest and other wooded land, classified by forest type and by availability for wood supply
1.3	Age structure and/or diameter distribution	Age structure and/or diameter distribution of forest and other wooded land, classified by forest type and by availability for wood supply
1.4	Carbon stock	Carbon stock of woody biomass and of soils on forest and other wooded land
Criterion 2: Maintenance of Forest Ecosystem Health and Vitality		
2.1	Deposition of air pollutants	Deposition of air pollutants on forest and other wooded land, classified by N, S and base cations
2.2	Soil condition	Chemical soil properties (pH, CEC, C/N, organic C, base saturation) on forest and other wooded land related to soil acidity and eutrophication, classified by main soil types
2.3	Defoliation	Defoliation of one or more main tree species on forest and other wooded land in each of the defoliation classes "moderate", "severe" and "dead"
2.4	Forest damage	Forest and other wooded land with damage, classified by primary damaging agent (abiotic, biotic and human induced) and by forest type
Criterion 3: Maintenance and Encouragement of Productive Functions of Forests (Wood and Non-Wood)		
3.1	Increment and fellings	Balance between net annual increment and annual fellings of wood on forest available for wood supply
3.2	Roundwood	Value and quantity of marketed roundwood
3.3	Non-wood goods	Value and quantity of marketed non-wood goods from forest and other wooded land
3.4	Services	Value of marketed services on forest and other wooded land
3.5	Forests under management plans	Proportion of forest and other wooded land under a management plan or equivalent
Criterion 4: Maintenance, Conservation and Appropriate Enhancement of Biological Diversity in Forest Ecosystems		
4.1	Tree species composition	Area of forest and other wooded land, classified by number of tree species occurring and by forest type
4.2	Regeneration	Area of regeneration within even-aged stands and uneven-aged stands, classified by regeneration type
4.3	Naturalness	Area of forest and other wooded land, classified by "undisturbed by man", by "semi-natural" or by "plantations", each by forest type
4.4	Introduced tree species	Area of forest and other wooded land dominated by introduced tree species
4.5	Deadwood	Volume of standing deadwood and of lying deadwood on forest and other wooded land classified by forest type
4.6	Genetic resources	Area managed for conservation and utilisation of forest tree genetic resources (in situ and ex situ gene conservation) and area managed for seed production
4.7	Landscape pattern	Landscape-level spatial pattern of forest cover
4.8	Threatened forest species	Number of threatened forest species, classified according to IUCN Red List categories in relation to total number of forest species
4.9	Protected forests	Area of forest and other wooded land protected to conserve biodiversity, landscapes and specific natural elements, according to MCPFE ³ Assessment Guidelines

³ The Ministerial Conference on the Protection of Forests in Europe has changed its brand name from MCPFE to FOREST EUROPE

Pan-European Quantitative Indicators for Sustainable Forest Management (cont.)

Criterion 5: Maintenance and Appropriate Enhancement of Protective Functions in Forest Management (notably soil and water)		
5.1	Protective forests - soil, water and other ecosystem functions	Area of forest and other wooded land designated to prevent soil erosion, to preserve water resources, or to maintain other forest ecosystem functions, part of MCPFE Class "Protective Functions"
5.2	Protective forests - infrastructure and managed natural resources	Area of forest and other wooded land designated to protect infrastructure and managed natural resources against natural hazards, part of MCPFE Class "Protective Functions"
Criterion 6: Maintenance of other socio-economic functions and conditions		
6.1	Forest holdings	Number of forest holdings, classified by ownership categories and size classes
6.2	Contribution of forest sector to GDP	Contribution of forestry and manufacturing of wood and paper products to gross domestic product
6.3	Net revenue	Net revenue of forest enterprises
6.4	Expenditures for services	Total expenditures for long-term sustainable services from forests
6.5	Forest sector workforce	Number of persons employed and labour input in the forest sector, classified by gender and age group, education and job characteristics
6.6	Occupational safety and health	Frequency of occupational accidents and occupational diseases in forestry
6.7	Wood consumption	Consumption per head of wood and products derived from wood
6.8	Trade in wood	Imports and exports of wood and products derived from wood
6.9	Energy from wood resources	Share of wood energy in total energy consumption, classified by origin of wood
6.10	Accessibility for recreation	Area of forest and other wooded land where public has a right of access for recreational purposes and indication of intensity of use
6.11	Cultural and spiritual values	Number of sites within forest and other wooded land designated as having cultural or spiritual values

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A	Overall policies, institutions and instruments for sustainable forest management
A.1	National forest programmes or similar
A.2	Institutional frameworks
A.3	Legal/regulatory frameworks and international commitments
A.4	Financial instruments/economic policy
A.5	Informational means
B	Policies, institutions and instruments by policy area
B.1	Land use and forest area and other wooded land (Criterion 1)
B.2	Carbon balance (Criterion 1)
B.3	Health and vitality (Criterion 2)
B.4	Production and use of wood (Criterion 3)
B.5	Production and use of non-wood goods and services, provision of especially recreation (Criterion 3)
B.6	Biodiversity (Criterion 4)
B.7	Protective forests and other wooded land (Criterion 5)
B.8	Economic viability (Criterion 6)
B.9	Employment (incl. safety and health) (Criterion 6)
B.10	Research, training and education (Criterion 6)
B.11	Public awareness and participation (Criterion 6)
B.12	Cultural and spiritual values (Criterion 6)