Forestry Department
Food and Agriculture Organization of the United Nations

GLOBAL FOREST RESOURCES ASSESSMENT

COUNTRY REPORTS

LIECHTENSTEIN

FRA2010/118
Rome, 2010

The Forest Resources Assessment Programme

Sustainably managed forests have multiple environmental and socio-economic functions important at the global, national and local scales, and 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. This country report forms part of the Global Forest Resources Assessment 2010 (FRA 2010).

The reporting framework for FRA 2010 is based on the thematic elements of sustainable forest management acknowledged in intergovernmental forest-related fora and includes variables related to the extent, condition, uses and values of forest resources, as well as the policy, legal and institutional framework related to forests. More information on the FRA 2010 process and the results - including all the country reports - is available on the FRA Web site (www.fao.org/forestry/fra).

The Global Forest Resources Assessment process is coordinated by the Forestry Department at FAO headquarters in Rome. The contact person for matters related to FRA 2010 is:

Mette Løyche Wilkie
Senior Forestry Officer
FAO Forestry Department
Viale delle Terme di Caracalla
Rome 00153, Italy

E-mail: Mette.LoycheWilkie@fao.org

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

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No information is available for tables T5 and T12 – T17.

Report preparation and contact persons

No report has been received from the country.

This report is the result of a desk study prepared by the FRA secretariats in Rome, which is based on the existing available information using the established format for FRA 2010 country reports.

1 Table T1 – Extent of Forest and Other wooded land

1.1 FRA 2010 Categories and definitions

Category	Definition
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.
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.
Other land	All land that is not classified as "Forest" or "Other wooded land".
Other land with tree cover (Subordinated to "Other land")	Land classified as "Other land", spanning more than 0.5 hectares with a canopy cover of more than 10 percent of trees able to reach a height of 5 meters at maturity.
Inland water bodies	Inland water bodies generally include major rivers, lakes and water reservoirs.

1.2 National data

1.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
UNECE/FAO, 2000. Forest Resources of Europe, CIS, North America, Australia, Japan and New Zealand		Forest, OWL	1995, 1975	Secondary data source. Origin of published information not reported.
MCPFE, 2003. State of Europe's Forests 2003				Secondary data source.
FAO, 2001. Global Forest Resources Assessment 2000. FAO Forestry Paper 140.			1990, 2000	Secondary data source.
MCPFE, 2007. State of Europe's Forests 2007			1990, 2000, 2005	Secondary data source.
FAOSTAT data, 2004.		Total area, Land area		

1.2.2 Classification and definitions

The classification and definitions used in the UNECE/FAO report are the same as those being used by FRA.

1.2.3 Original data

Category	Area (1000 ha)	
	1975	**1995**
Forest	5.3	6.9
Other wooded land	0.5	0.5
Sub-total Forest and Other wooded land	**5.8**	**7.4**
Other land		
Sub-total Land area	**16**	**16**
Inland water	0	0
Total area	**16**	**16**

Source: UNECE/FAO 2000, Reference year: 1995 and 1975

1.3 Analysis and processing of national data

1.3.1 Calibration

No calibration is needed.

1.3.2 Estimation and forecasting

UNECE reports an average annual increase of 80 ha per year in the area of forest between 1975 and 1995. No other source has been found indicating that any other change rate should be used. The updated MCPFE State of Europe's Forests 2005 does not indicate any change in forest and other wooded land area. Hence, the change rate between 1995 and 2005 is assumed to be 0 percent, and the same figures (1995) are used for 2000, 2005 and forecasted for 2010. No change is reported for other wooded land between 1975 and 1995. Consequently, the change is assumed to be 0 percent.

1.3.3 Reclassification into FRA 2010 categories

No further reclassification is needed, as the national data already are presented according to the FRA categories.

1.4 Data for Table T1

FRA 2010 categories	Area (1000 hectares)			
	1990	**2000**	**2005**	**2010**
Forest	6.5	6.9	6.9	6.9
Other wooded land	0.5	0.5	0.5	0.5
Other land	9	8.6	8.6	8.6
...of which with tree cover	n.a.	n.a.	n.a.	n.a.
Inland water bodies	0	0	0	0
TOTAL	**16**	**16**	**16**	**16**

1.5 Comments to Table T1

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest		
Other wooded land		
Other land		
Other land with tree cover		
Inland water bodies		

Other general comments to the table

Expected year for completion of ongoing/planned national forest inventory and/or RS survey / mapping	
Field inventory	
Remote sensing survey / mapping	

2 Table T2 – Forest ownership and management rights

2.1 FRA 2010 Categories and definitions

Category	Definition
Public ownership	Forest owned by the State; or administrative units of the public administration; or by institutions or corporations owned by the public administration.
Private ownership	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.
Individuals *(sub-category of Private ownership)*	Forest owned by individuals and families.
Private business entities and institutions *(sub-category of Private ownership)*	Forest owned by private corporations, co-operatives, companies and other business entities, as well as private non-profit organizations such as NGOs, nature conservation associations, and private religious and educational institutions, etc.
Local communities *(sub-category of Private ownership)*	Forest owned by a group of individuals belonging to the same community residing within or in the vicinity of a forest area. The community members are co-owners that share exclusive rights and duties, and benefits contribute to the community development.
Indigenous / tribal communities *(sub-category of Private ownership)*	Forest owned by communities of indigenous or tribal people.
Other types of ownership	Other kind of ownership arrangements not covered by the categories above. Also includes areas where ownership is unclear or disputed.
Categories related to the holder of management rights of public forest resources	
Public Administration	The Public Administration (or institutions or corporations owned by the Public Administration) retains management rights and responsibilities within the limits specified by the legislation.
Individuals/households	Forest management rights and responsibilities are transferred from the Public Administration to individuals or households through long-term leases or management agreements.
Private institutions	Forest management rights and responsibilities are transferred from the Public Administration to corporations, other business entities, private co-operatives, private non-profit institutions and associations, etc., through long-term leases or management agreements.
Communities	Forest management rights and responsibilities are transferred from the Public Administration to local communities (including indigenous and tribal communities) through long-term leases or management agreements.
Other form of management rights	Forests for which the transfer of management rights does not belong to any of the categories mentioned above.

2.2 National data

2.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
MCPFE, 2007. State of Europe's Forests 2007			2005	Secondary data source.

2.2.2 Classification and definitions

National class	Definition
	The definitions of public and private ownership according to UNECE/FAO 2000 are slightly different from those used by FRA 2010 since they do not specify if the ownership relates to the land nor to the trees.

2.2.3 Original data

Forest (1000 ha)								
Public ownership			Private ownership			Other ownership		
1990	2000	2005	1990	2000	2005	1990	2000	2005
6	6.4	6.4	0.5	0.5	0.5	0	0	0

2.3 Analysis and processing of national data

No need to perform calibration, estimation and forecasting and reclassification.

2.4 Data for Table T2

Table 2a - Forest ownership

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	2000	2005
Public ownership	6	6.4	6.4
Private ownership	0.5	0.5	0.5
...of which owned by individuals	n.a.	n.a.	n.a.
...of which owned by private business entities and institutions	n.a.	n.a.	n.a.
...of which owned by local communities	n.a.	n.a.	n.a.
...of which owned by indigenous / tribal communities	n.a.	n.a.	n.a.
Other types of ownership	0	0	0
TOTAL	**6.5**	**6.9**	**6.9**

Note: If other types of ownership is reported, please specify details in comment to the table.

Does ownership of trees coincide with ownership of the land on which they are situated?		Yes
		No
If **No** above, please describe below how the two differ:		

Table 2b - Holder of management rights of public forests

No information is available for this table.

2.5 Comments to Table T2

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Public ownership		
Private ownership		
Other types of ownership		
Management rights		

Other general comments to the table

3 Table T3 – Forest designation and management

3.1 FRA 2010 Categories and definitions

Term	Definition
Primary designated function	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 use.
Protected areas	Areas especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.
Categories of primary designated functions	
Production	Forest area designated primarily for production of wood, fibre, bio-energy and/or non-wood forest products.
Protection of soil and water	Forest area designated primarily for protection of soil and water.
Conservation of biodiversity	Forest area designated primarily for conservation of biological diversity. Includes but is not limited to areas designated for biodiversity conservation within the protected areas.
Social services	Forest area designated primarily for social services.
Multiple use	Forest area designated primarily for more than one purpose and where none of these alone is considered as the predominant designated function.
Other	Forest areas designated primarily for a function other than production, protection, conservation, social services or multiple use.
No / unknown	No or unknown designation.
Special designation and management categories	
Area of permanent forest estate (PFE)	Forest area that is designated to be retained as forest and may not be converted to other land use.
Forest area within protected areas	Forest area within formally established protected areas independently of the purpose for which the protected areas were established.
Forest area under sustainable forest management	To be defined and documented by the country.
Forest area with management plan	Forest area that has a long-term (ten years or more) documented management plan, aiming at defined management goals, which is periodically revised.

3.2 National data

3.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
UNECE/FAO, 2000. Forest Resources of Europe, CIS, North America, Australia, Japan and New Zealand		Areas available for wood supply	1995	Secondary data source.

3.2.2 Classification and definitions

National class	Definition
Forest available for wood supply	Forests 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.
MCPFE class 1.1 for protected and protective forests and OWL	Main management objective is biodiversity. No active, direct human intervention is taking place.
MCPFE class 1.2	Main management objective is biodiversity. Human intervention limited to a minimum.
MCPFE class 1.3	Main management objective is biodiversity. A management with active interventions directed to achieve the specific conservation goal of the protected area is taking place.
MCPFE class 2	Main management objective is protection of landscapes and specific natural elements. Interventions are clearly directed to achieve the management goals landscape diversity, cultural, aesthetics, spiritual and historical value, recreation, specific natural elements.
MCPFE class 3	Main management objective is 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.

3.2.3 Original data

The UNECE/FAO reports that the whole forested area in Liechtenstein (1995) is managed according to a strictly binding management plan. The objective of forest management embraces all activities intended to preserve multiple use forest ecosystems which are able to sustainably satisfy certain human needs as regards forest goods and non-material forest services on the one hand and the needs of plant and fauna species as regards conservation and amelioration of living conditions on the other. According to the multiple functions plan, the predominance of functions is as follows: protection function 40 percent; wood production 32 percent; nature protection 20 percent; recreational function eight percent.

Forest area from T1

FRA 2010 Category	Area (1000 hectares)			
	1990	2000	2005	2010
Forest	6.5	6.9	6.9	6.9

	Forest area (1 000 hectares)			
Multiple function plan	1990	2000	2005	2010
Protection function (40%)	2.60	2.76	2.76	2.76
Wood production (32%)	2.08	2.21	2.21	2.21
Nature protection (20%)	1.30	1.38	1.38	1.38
Recreational function (8%)	0.52	0.55	0.55	0.55
Total	**6.5**	**6.9**	**6.9**	**6.9**

3.3 Analysis and processing of national data

3.3.1 Calibration

No calibration has been made.

3.3.2 Estimation and forecasting

Not needed, the 1995 figures have been used for all reporting years.

3.3.3 Reclassification into FRA 2010 categories

National Class	FRA Categories (primary functions)					
	Production	Protection	Conservation	Social services	Multiple purpose	No or unknown
Protection function		100%				
Wood production	100%					
Nature protection			100%			
Recreational function				100%		

Forest area within protected areas = protection function + nature protection.

3.4 Data for Table T3

Table 3a – Primary designated function

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Production	2.08	2.21	2.21	2.21
Protection of soil and water	2.60	2.76	2.76	2.76
Conservation of biodiversity	1.3	1.38	1.38	1.38
Social services	0.52	0.55	0.55	0.55
Multiple use	0	0	0	0
Other (please specify in comments below the table)	0	0	0	0
No / unknown	0	0	0	0
TOTAL	**6.5**	**6.9**	**6.9**	**6.9**

Table 3b – Special designation and management categories

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Area of permanent forest estate	n.a.	n.a.	n.a.	n.a.
Forest area within protected areas	3.9	4.14	4.14	4.14
Forest area under sustainable forest management	n.a.	n.a.	n.a.	n.a.
Forest area with management plan	6.5	6.9	6.9	6.9

3.5 Comments to Table T3

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Production	The FRA 2005 reported figure has been corrected.	
Protection of soil and water	The FRA 2005 reported figure has been corrected.	
Conservation of biodiversity		
Social services		
Multiple use		
Other		
No / unknown designation		
Area of permanent forest estate		
Forest area within protected areas		
Forest area under sustainable forest management		
Forest area with management plan		

Other general comments to the table

4 Table T4 – Forest characteristics

4.1 FRA 2010 Categories and definitions

Term / category	Definition
Naturally regenerated forest	Forest predominantly composed of trees established through natural regeneration.
Introduced species	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).
Characteristics categories	
Primary forest	Naturally regenerated forest of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.
Other naturally regenerated forest	Naturally regenerated forest where there are clearly visible indications of human activities.
Other naturally regenerated forest of introduced species *(sub-category)*	Other naturally regenerated forest where the trees are predominantly of introduced species.
Planted forest	Forest predominantly composed of trees established through planting and/or deliberate seeding.
Planted forest of introduced species *(sub-category)*	Planted forest, where the planted/seeded trees are predominantly of introduced species.
Special categories	
Rubber plantations	Forest area with rubber tree plantations.
Mangroves	Area of forest and other wooded land with mangrove vegetation.
Bamboo	Area of forest and other wooded land with predominant bamboo vegetation.

4.2 National data

4.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
MCPFE, 2007. State of Europe's Forests 2007			2005	Secondary data source.

4.2.2 Classification and definitions

Class	Definition
Undisturbed by man	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.
Seminatural	Forest/other wooded land which is neither undisturbed by man nor plantation. Includes the subcategory modified natural Forest/other wooded land. The subcategory modified natural includes forest/other wooded land which shows characteristics of the class undisturbed by man, but where there are clear indications of human activities.
Plantation	Forest stands established by planting or/and seeding in the process of afforestation/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

4.2.3 Original data

Forest Undisturbed by man			Semi-natural forest			Plantations		
1990	2000	2005	1990	2000	2005	1990	2000	2005
1.5	1.5	1.5	4.8	5.1	5.1	0.2	0.3	0.3

4.3 Analysis and processing of national data

4.3.1 Calibration

Not needed.

4.3.2 Estimation and forecasting

Primary forest has been reclassified as primary forest in accordance with the FRA 2010 definition and plantations has been reclassified as planted forest. The difference between the total forest area, the primary forest and the plantations, gives the area reported by MCPFE as "semi-natural" forest and this area has been assumed to correspond to the other naturally regenerated forest of FRA 2010. It should be noted that since no information on the regeneration method was available, the previous assumptions may lead to an overestimation of the other naturally regenerated forest, which may include a part of the planted forest. For the reference year 1990, MCPFE reports that all the area classified as semi-natural forest belongs to the subcategory modified natural, while for the reference year 2000 and 2005 this is not any more applicable.

For the year 2010 same figures as 2005 were applied.

4.3.3 Reclassification into FRA 2010 categories

FRA 2010 categories	MCPFE categories		
	Forest undisturbed by man	Semi-natural forest	Plantations
Primary forest	100%		
Other naturally regenerated forest		100%	
Planted			100%

4.4 Data for Table T4

Table 4a

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Primary forest	1.5	1.5	1.5	1.5
Other naturally regenerated forest	4.8	5.1	5.1	5.1
...of which of introduced species	n.a.	n.a.	n.a.	n.a.
Planted forest	0.2	0.3	0.3	0.3
...of which of introduced species	n.a.	n.a.	n.a.	n.a.
TOTAL	**6.5**	**6.9**	**6.9**	**6.9**

Table 4b

FRA 2010 Categories	Area (1000 hectares)			
	1990	2000	2005	2010
Rubber plantations (Forest)	0	0	0	0
Mangroves (Forest and OWL)	0	0	0	0
Bamboo (Forest and OWL)	0	0	0	0

4.5 Comments to Table T4

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Primary forest		
Other naturally regenerating forest		
Planted forest		
Rubber plantations		
Mangroves		
Bamboo		

Other general comments to the table

5 Table T6 – Growing stock

5.1 FRA 2010 Categories and definitions

Category	Definition
Growing stock	Volume over bark of all living trees 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.
Growing stock of commercial species	Growing stock (see def. above) of commercial species.

5.2 National data

5.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
UNECE/FAO, 2000. Forest Resources of Europe, CIS, North America, Australia, Japan and New Zealand			1995	Secondary data source. Growing stock information is a secretariat estimate based on different (unspecified) information sources

5.2.2 Classification and definitions

National class	Definition
Growing stock	The living tree component of the standing volume

5.2.3 Original data

Growing stock on Forest = 1 750 000 m^3
For other wooded land, UNECE/FAO does not provide any information, and no other data sources have been found.

5.3 Analysis and processing of national data

5.3.1 Calibration

No calibration was needed.

5.3.2 Estimation and forecasting

The 1995 figures have been used for 2000, 2005 and 2010. The 1990 figure has been calculated by using the volume per hectare (253.6 m3/ha) figure for 1995 multiplied by the total forest area for 1990.

5.3.3 Reclassification into FRA 2010 categories

Not needed.

5.4 Data for Table T6

Table 6a – Growing stock

FRA 2010 category	Volume (million cubic meters over bark)							
	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Total growing stock	1.65	1.75	1.75	1.75	n.a.	n.a.	n.a.	n.a.
... of which coniferous	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
... of which broadleaved	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Growing stock of commercial species	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Table 6b – Growing stock of the 10 most common species

No information available.

Table 6c – Specification of threshold values

Item	Value	Complementary information
Minimum diameter (cm) at breast height[1] of trees included in growing stock (X)	n.a.	
Minimum diameter (cm) at the top end of stem for calculation of growing stock (Y)	n.a.	
Minimum diameter (cm) of branches included in growing stock (W)	n.a.	
Volume refers to "above ground" (AG) or "above stump" (AS)	n.a.	

5.5 Comments to Table T6

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Total growing stock		
Growing stock of broadleaved / coniferous		
Growing stock of commercial species		
Growing stock composition		

Other general comments to the table

[1] Diameter at breast height (DBH) refers to diameter over bark measured at a height of 1.30 m above ground level or 30 cm above buttresses if these are higher than 1 m.

6 Table T7 – Biomass stock

6.1 FRA 2010 Categories and definitions

Category	Definition
Above-ground biomass	All living biomass above the soil including stem, stump, branches, bark, seeds, and foliage.
Below-ground biomass	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.
Dead wood	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.

6.2 National data

6.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
UNECE/FAO, 2000. Forest Resources of Europe, CIS, North America, Australia, Japan and New Zealand			1995	Secondary data source. Growing stock information is a secretariat estimate based on different (unspecified) information sources

6.2.2 Classification and definitions

National class	Definition
	The UNECE/FAO 2000 report distinguishes two categories of biomass: Above-stump biomass and Stump and root biomass. There is a small difference in the definitions of the biomass fractions as compared to FRA regarding the stump biomass. In UNECE/FAO 2000 the stump biomass is grouped together with the root biomass, while in FRA the above-ground portion of the stump belongs to Above-ground biomass.

6.2.3 Original data

No data on biomass is presented in the data source. The data presented in this table have been derived from the available information on carbon for different biomass categories (see chapter 8.2.3) and applying a default carbon content of 50 percent to derive the biomass figure. The data will then be as follows:

Category	Tg biomass (Oven dry weight)
Above stump biomass	0.82
Stump and root biomass	0.20

Note that one teragram (Tg) is 1 x 10^{12} g and equals one million metric tonne. The above data only refer to forest. No information on biomass of dead wood has been found.

6.3 Analysis and processing of national data

6.3.1 Calibration

No calibration was needed.

6.3.2 Estimation and forecasting

No time series of data is available. Hence, the 1995 figures have been used for 2000, 2005 and 2010. The 1990 figures have been derived by calibrating the biomass stock figures with the total forest area for 1990.

6.3.3 Reclassification into FRA 2010 categories

”Above-stump biomass” is considered to correspond to “Above-ground biomass” and “Stump and root biomass” is considered to correspond to “Below-ground biomass”.
2005 figures were applied also for 2010, since no updated information was available.

6.4 Data for Table T7

FRA 2010 category	Biomass (million metric tonnes oven-dry weight)							
	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Above-ground biomass	0.77	0.82	0.82	0.82	n.a.	n.a.	n.a.	n.a.
Below-ground biomass	0.19	0.20	0.20	0.20	n.a.	n.a.	n.a.	n.a.
Dead wood	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
TOTAL	**n.a.**	**n.a.**	**n.a.**	**n.a.**	n.a.	n.a.	n.a.	n.a.

6.5 Comments to Table T7

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Above-ground biomass		
Below-ground biomass		
Dead wood		

Other general comments to the table

7 Table T8 – Carbon stock

7.1 FRA 2010 Categories and definitions

Category	Definition
Carbon in above-ground biomass	Carbon in all living biomass above the soil, including stem, stump, branches, bark, seeds, and foliage.
Carbon in below-ground biomass	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.
Carbon in dead wood	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.
Carbon in litter	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.
Soil carbon	Organic carbon in mineral and organic soils (including peat) to a specified depth chosen by the country and applied consistently through the time series.

7.2 National data

7.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
UNECE/FAO, 2000. Forest Resources of Europe, CIS, North America, Australia, Japan and New Zealand			1995	Secondary data source. Growing stock information is a secretariat estimate based on different (unspecified) information sources

7.2.2 Classification and definitions

National class	Definition
	The UNECE/FAO 2000 report on two categories: Carbon in above-stump biomass and carbon in stump and root biomass. There is a small difference in the definitions of the biomass fractions as compared to FRA regarding the stump biomass. In UNECE/FAO 2000 the stump biomass is grouped together with the root biomass, while in FRA the above-ground portion of the stump belongs to Above-ground biomass.

7.2.3 Original data

Category	Tg Carbon
Above stump biomass	0.41
Stump and root biomass	0.1

Note that one Teragram (Tg) is 1 x 10^{12} g and equals one million metric tonne.

7.3 Analysis and processing of national data

7.3.1 Calibration

Not needed.

7.3.2 Estimation and forecasting

No time series of data is available. Hence, the 1995 figures have been used for 2000, 2005 and 2010. The 1990 figures have been derived by calibrating the carbon stock figures with the total forest area for 1990.

7.3.3 Reclassification into FRA 2010 categories

Above stump biomass = Above ground biomass
Stump and root biomass = Below ground biomass

7.4 Data for Table T8

FRA 2010 Category	Carbon (Million metric tonnes)							
	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Carbon in above-ground biomass	0.390	0.410	0.410	0.410	n.a.	n.a.	n.a.	n.a.
Carbon in below-ground biomass	0.090	0.100	0.100	0.100	n.a.	n.a.	n.a.	n.a.
Sub-total: Living biomass	***0.480***	***0.510***	***0.510***	***0.510***	n.a.	n.a.	n.a.	n.a.
Carbon in dead wood	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Carbon in litter	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sub-total: Dead wood and litter	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Soil carbon	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
TOTAL	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Soil depth (cm) used for soil carbon estimates	n.a.

7.5 Comments to Table T8

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Carbon in above-ground biomass		
Carbon in below-ground biomass		
Carbon in dead wood		
Carbon in litter		
Soil carbon		

Other general comments to the table

8 Table T9 – Forest fires

8.1 FRA 2010 Categories and definitions

Category	Definition
Number of fires	Average number of vegetation fires per year in the country.
Area affected by fire	Average area affected by vegetation fires per year in the country.
Vegetation fire *(supplementary term)*	Any vegetation fire regardless of ignition source, damage or benefit.
Wildfire	Any unplanned and/or uncontrolled vegetation fire.
Planned fire	A vegetation fire regardless of ignition source that burns according to management objectives and requires limited or no suppression action.

8.2 National data

8.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
UNECE/FAO, 2000. Forest Resources of Europe, CIS, North America, Australia, Japan and New Zealand	M	Area burned	1995	Secondary data source.

8.2.2 Classification and definitions

National class	Definition
Forest Fire	**Fire which breaks out and spreads on forest and other wooded land or which breaks out on other land and spreads to forest and other wooded land.** *Excludes*: Prescribed or controlled burning, usually with the purpose of reducing or eliminating the quantity of accumulated fuel on the ground.

8.2.3 Original data

Category	1990	1991	1992	1993	1994	1995	1996	1997
	1000 hectares							
Area of Forest burned	0	0	0	0	0	0	0	0
Area of Other wooded land burned	0	0	0	0	0	0	0	0
Total area burned	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

8.3 Analysis and processing of national data

8.3.1 Calibration

Not needed.

8.3.2 Estimation and forecasting

From available time series of data (1990-1997) the area of forest burned is zero. The same trend is assumed for reporting years 2000 and 2005.

8.3.3 Reclassification into FRA 2010 categories

No reclassification needed.

8.4 Data for Table T9

Table 9a

FRA 2010 category	Annual average for 5-year period					
	1990		2000		2005	
	1000 hectares	number of fires	1000 hectares	number of fires	1000 hectares	number of fires
Total land area affected by fire	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
... of which on forest	0	n.a.	0	n.a.	0	n.a.
... of which on other wooded land	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
... of which on other land	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Table 9b

FRA 2010 category	Proportion of forest area affected by fire (%)		
	1990	2000	2005
Wildfire			
Planned fire			

8.5 Comments to Table T9

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Area affected by fire		
Number of fires		
Wildfire / planned fire		

Other general comments to the table

9 Table T10 – Other disturbances affecting forest health and vitality

9.1 FRA 2010 Categories and definitions

Term	Definition
Disturbance	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.
Invasive species	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.
Category	**Definition**
Disturbance by insects	Disturbance caused by insect pests.
Disturbance by diseases	Disturbance caused by diseases attributable to pathogens, such as bacteria, fungi, phytoplasma or virus.
Disturbance by other biotic agents	Disturbance caused by biotic agents other than insects or diseases, such as wildlife browsing, grazing, physical damage by animals, etc.
Disturbance caused by abiotic factors	Disturbances caused by abiotic factors, such as air pollution, snow, storm, drought, etc.

9.2 National data

9.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
UNECE/FAO, 2000. Forest Resources of Europe, CIS, North America, Australia, Japan and New Zealand			1995	Secondary data source. Growing stock information is a secretariat estimate based on different (unspecified) information sources
MCPFE, 2007. State of Europe's Forests 2007			2005	Secondary data source.

9.2.2 Classification and definitions

National class	Definition
Not available	

9.2.3 Original data

	Tot. area with damage by known cause	Primarily damaged by (1 000 hectares)					Tot. area with damage by unidentified causes
		Insects and disease	Wildlife and grazing	Fire	Known local pollution sources	Storm wind snow or other identifiable abiotic factors	
Total	0.7	0.1	0.4	0	0.3	0	0

Source: UNECE/FAO, 2000.

The MCPFE 2007 only reports figure on disturbance by insect and diseases for the year 2005.

9.3 Analysis and processing of national data

9.3.1 Calibration

Not needed.

9.3.2 Estimation and forecasting

No time series of data is available, neither any other information that can constitute basis for a trend estimate. The 1995 figures have been used for reporting years 1990 and 2000, no information is available for 2005.

9.3.3 Reclassification into FRA 2010 categories

Not needed.

9.4 Data for Table T10

Table 10a – Disturbances

FRA 2010 category	Affected forest area (1000 hectares)		
	1990	2000	2005
Disturbance by insects	0.1	0.1	n.a.
Disturbance by diseases	n.a.	n.a.	n.a.
Disturbance by other biotic agents	0.4	0.4	n.a.
Disturbance caused by abiotic factors	0.3	0.3	n.a.
Total area affected by disturbances	n.a.	n.a.	n.a.

Notes: The figures for the reporting years refer to the averages of annually affected areas for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively.

The total area affected by disturbances is not necessarily the sum of the individual disturbances as these may be overlapping.

Table 10b – Major outbreaks of insects and diseases affecting forest health and vitality
No information available for this table.

Table 10c – Area of forest affected by woody invasive species
No information available for this table.

9.5 Comments to Table T10

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Disturbance by insects	Includes: disturbance by diseases.	
Disturbance by diseases		
Disturbance by other biotic agents		
Disturbance caused by abiotic factors		
Major outbreaks		
Invasive species		

Other general comments to the table

10 Table T11 – Wood removals and value of removals

10.1 FRA 2010 Categories and definitions

Category	Definition
Industrial roundwood removals	The wood removed (volume of roundwood over bark) for production of goods and services other than energy production (woodfuel).
Woodfuel removals	The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

10.2 National data

10.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
FAOSTAT, 2008		Wood production		

10.2.2 Classification and definitions

National class	Definition
	FAOSTAT uses the same definition of the categories Industrial roundwood and Woodfuel as FRA. It is assumed that the term "Production" used in FAOSTAT can be used as a good estimate of "Removal", although these terms are not identical. FRA requests information on wood removal as volume over bark while the FAOSTAT figures refer to volume under bark. The figures are converted from volume under bark to volume over bark by application of a bark factor. The bark factor used is the "global" default conversion factor of 1.15.

10.2.3 Original data

	Volume m^3 under bark					
Category	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
Industrial roundwood	9 000	9 000	3 333	20 000	18 000	18 000
Woodfuel	4 000	4 000	4 167	4 167	4 167	4 167
Total	**13 000**	**13 000**	**7 500**	**24 167**	**22 167**	**22 167**

	Volume m^3 under bark			
Category	**2003**	**2004**	**2005**	**2006**
Industrial roundwood	18 000	18 000	18 000	18 000
Woodfuel	4 167	4 167	4 167	4 167
Total	**22 167**	**22 167**	**22 167**	**22 167**

The average values (rounded to 1000) over bark.

Category	Volume m3 over bark Average 1998-2002	Volume m3 over bark Average 2002-2005
Industrial roundwood	16 000	21 000
Woodfuel	5 000	5 000
Total	**21 000**	**26 000**

10.3 Analysis and processing of national data

10.3.1 Calibration

Not needed.

10.3.2 Estimation and forecasting

No estimation and forecasting have been done. The estimate for year 2000 has been used for 1990.

10.3.3 Reclassification into FRA 2010 categories

Not needed.

10.4 Data for Table T11

FRA 2010 Category	Industrial roundwood removals			Woodfuel removals		
	1990	2000	2005	1990	2000	2005
Total volume (1000 m^3 o.b.)	16	16	21	5	5	5
... of which from forest	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Unit value (local currency / m^3 o.b.)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total value (1000 local currency)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Note: The figures for the reporting years refer to the averages of annually affected areas for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively.

	1990	2000	2005
Name of local currency	n.a.	n.a.	n.a.

10.5 Comments to Table T11

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Total volume of industrial roundwood removals		
Total volume of woodfuel removals		
Unit value		
Total value		

Other general comments to the table