Forestry Department
Food and Agriculture Organization of the United Nations

GLOBAL FOREST RESOURCES ASSESSMENT 2010

COUNTRY REPORT

GERMANY

FRA2010/076
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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:

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Introduction

The primary information sources for the German reporting on FRA 2010 are the National Forest Inventory (NFI) (in german: Bundeswaldinventur - BWI), the annual forest condition monitoring on Level I and Level II, the German Forest Soil Assessment (BZE I), the Economic Accounting of the German forestry sector and wood industries. In addition few other – rather internal/non-official – sources are considered, which are maintained by the Federal Ministry of Food, Agriculture and Consumer Protection (BMELV), the Federal Research Institute for Rural Areas, Forestry and Fisheries/ Johann Heinrich von Thünen-Institute (vTI), or other national institutions like the Federal Agency for Agriculture and Food (BLE) or the Federal Statistical Office (Destatis).

The German NFI was conducted two times, in 1987 and 2002. In 1987 the two different German states still existed (Federal Republic of Germany and German Democratic Republic) and the first NFI was conducted only in the former Federal Republic of Germany. The second NFI in 2002 was conducted after the re-unification. Reported data for 1990 rely on two different sources: a) the NFI 1, representing the former Federal Republic of Germany and b) the 'Datenspeicher Waldfond', which represents the former German Democratic Republic (GDR) and which was not longer maintained after 1990. As both sources applied different methodologies and have different data acquisition dates, data are not necessarily comparable. Therefore NFI-data on changes from 1990 to 2000 cover only the Federal Republic of Germany, the so called "old Länder". Estimations on total changes for Germany are based on these different data sources, the quality of the change is hardly to judge.

The NFI, the forest condition monitoring and the soil assessment are conducted in responsibility of the Federal States (Laender), but are jointly coordinated and guided by the vTI and the BMELV.

With respect to the forecast to 2010, same data were reported as for 2005, as no new reliable data are available and the dynamics in German forests, especially in forest area are relative low. The next NFI (NFI3), which can be regarded as the main source of requested data by FRA 2010, will be conducted in 2011-2012.

To support the harmonisation process and guarantee comparability between FAO FRA and MCPFE C&I reporting, same data as for the MCPFE reporting in 2007 were used in FRA 2005 and 2010, if data requests were the same.

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
BMELV: Zweite Bundeswaldinventur, 2001-2002	H	Forest area	2002	Field surveys were conducted in 2001 and 2002, see at: www.bundeswaldinventur.de
Statistisches Bundesamt, 2005: Land- und Forstwirtschaft, Fischerei, Fachserie 3/Reihe 5.1 www.destatis.de	H	Total land area; inland water bodies	1992; 1996; 2000; 2004.	
BMELV, Ref. 515 Gartenbau	L	other land with tree cover	2000 onwards	Rough estimates, including fruit orchards, gardens and parks.
Erste Bundeswaldinventur, 1986-1990	H	Forest area	1987	Geographical coverage: Federal Republic of Germany and western Berlin before 1990
Datenspeicher Waldfond (forest database) als Datengrundlage für BML, 1994 Der Wald in den neuen Bundesländern	M	Forest area	1990	Annual forest database of the former German Democratic Republic (GDR)

1.2.2 Classification and definitions

National class	Definition
Forest	Wald im Sinne der BWI ist, unabhängig von den Angaben im Kataster oder ähnlichen Verzeichnissen, jede mit Forstpflanzen bestockte Grundfläche. Als Wald gelten auch kahl geschlagene oder verlichtete Grundflächen, Waldwege, Wald-einteilungs- und Sicherungsstreifen, Waldblößen und Lichtungen, Waldwiesen, Wildäsungsplätze, Holzlagerplätze, im Wald gelegene Leitungsschneisen, weitere mit dem Wald verbundene und ihm dienende Flächen einschließlich Flächen mit Erholungseinrichtungen, zugewachsene Heiden und Moore, zugewachsene ehemalige Weiden, Almflächen und Hutungen sowie Latschen- und Grünerlenflächen. Heiden, Moore, Weiden, Almflächen und Hutungen gelten als zugewachsen, wenn die natürlich aufgekommene Bestockung ein durchschnittliches Alter von fünf Jahren erreicht hat und wenn mindestens 50 % der Fläche bestockt sind. In der Flur oder im bebauten Gebiet gelegene bestockte Flächen unter 1.000 m2, Gehölzstreifen unter 10m Breite und Weihnachtsbaum- und Schmuckreisigkulturen sowie zum Wohnbereich gehörende Parkanlagen sind nicht Wald im Sinne der BWI. Wasserläufe bis 5 m Breite unterbrechen nicht den Zusammenhang einer Waldfläche. Quelle: Allgemeine Verwaltungsvorschrift zur Durchführung der Bundeswaldinventur 2 Translation: Forest within the meaning of the National Forest Inventory (NFI) is any area of ground covered by forest vegetation, irrespective of the information in the cadastral survey or similar records. The term forest also refers to cutover or thinned areas, forest tracks, firebreaks, openings and clearings, forest glades, feeding grounds for game, landings, rides located in the forest, further areas linked to and serving the forest including areas with recreation facilities, overgrown heaths and moorland, overgrown former pastures, alpine pastures and rough pastures, as well as areas of dwarf pines and green alders. Heaths, moorland, pastures, alpine pastures and rough pastures are considered to be overgrown if the natural forest cover has reached an average age of five years and if at least 50% of the area is covered by forest. Areas with forest cover in open pasture land or in built-up areas of under 1000 m², coppices under 10 m wide and the cultivation of Christmas trees and ornamental brushwood as well as parkland attached to country houses are not forest within the meaning of the NFI. Watercourses up to 5 m wide do not break the continuity of a forest area. Source: Survey instructions for the 2nd National Forest Inventory (2001-2002), BMELV, February 2006

1.2.3 Original data

Data for 2002 onwards were taken directly from the NFI2. See Section 1.4, Table T1.

For 1990 data two separate sources of information are used:

- NFI 1, 1987 (covering Federal Republic of Germany before re-unification in 1990) = 7.757.318 ha
- Datenspeicher Waldfond, 1993 (covering German Democratic Republic) = 2.983.328 ha

1.3 Analysis and processing of national data

1.3.1 Calibration

'Other land' is calculated as the difference between 'Total for country' and the sum of 'Forest', 'Other wooded land' and 'Inland water bodies'.

1.3.2 Estimation and forecasting

Forest area reported for 1990 is based on the 1st NFI (year 1987) for the old federal states and those from the forest database of the former German Democratic Republic (GDR) (BML, 1994) for the new federal states.

Areas reported for 2000 are those from the year 2002 found in the 2nd NFI. (Detailed methods are described in: Federal Ministry for Food, Agriculture and Consumer Protection, NFI 2, Inventory and Evaluation Methods, 2006, p. 62 ff.).

Data for 1990 are not fully comparable. The 1st NFI (reference year: 1987) covers only the territory of the Federal Republic of Germany before 1990. Data are complemented by the estimate for the new federal states published in BML 1994. The reference year of the 2nd NFI is 2002.

The annual rate of forest area change is small and no interpolation between 1990 and 2002 has been tried to report on the year 2000. Results of the 2nd NFI were directly used for reporting on the years 2000 and 2005, without inter- or extrapolation.

With respect to the UNFCCC KP reporting in 2008-2012, changes in forest cover need to be estimated. The next NFI will be conducted in 2010-2012, meaning that official statistics for 2008-2009 are not available. As the annual change rate of forest area is nearly zero same data as in 2005 are reported for 2010.

1.3.3 Reclassification into FRA 2010 categories

None

1.4 Data for Table T1

FRA 2010 categories	Area (1000 hectares)			
	1990	2000	2005	2010
Forest	10741	11076	11076	11076
Other wooded land	0	0	0	0
Other land	24136	23801	23801	23801
...of which with tree cover	1400	1400	1400	1400
Inland water bodies	828	828	828	828
Total for country	**35705**	**35705**	**35705**	**35705**

1.5 Comments to Table T1

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest		The annual change rate of forest area is nearly zero. Therefore same data as in 2005 are reported for 2010. Data on changes from 1990 to 2000 are built per saldo based for 1990 on to different sources (NFI for old länder + DSWF for former German Democratic Republic) and for 2002 on NFI 2.
Other wooded land	Data on "other wooded land" are nyther assessed by the NFI nor any other source. Therefore no official statistics are available. OWL is not assessed. Any area that fulfil the OWL criteria of FRA is therefore included under "other land".	
Other land		The annual change rate of other land is nearly zero. Therefore same data as in 2005 are reported for 2010.
Other land with tree cover	Within the NFI no data are assessed on "Other land with tree cover". Reported are only rough estimates on other wooded land, which include about 400.000 ha sparse fruit orchards and about 1.000.000 ha gardens and parks (BMELV, Ref. 515.)	The data rely on an assessment in 2008. As these data are only rough estimates, same data are reported also for the years 2000, 2005 and 2010.
Inland water bodies		The annual change rate of inland water bodies is nearly zero. Therefore same data as in 2005 are reported for 2010.

Other general comments to the table
Differences in 'total for country' and 'inland water bodies' to previous reporting are explained by slight annual changes and errors in rounding off figures. Slight changes in 'total for country' are mainly explained by a) land area development processes along the German cost line and b) higher accuracies and precisions of new geo-graphical assessment procedures. Data are now corrected according to official national statistics (s. Statistisches Bundesamt, 2005). Based on the information in T5, there should still be an increase in the total forest area of about 15,000 to 20,000 ha between 2000 and 2005 (net increase of 4000 and 3000 ha/yr respectively). Yet, the total forest area in T1 is kept as constant. The estimates on afforestation/deforestation and natural expansion are preliminary and awaiting verification by NFI 3 and, therefore, they have not been used in Table T1.

Expected year for completion of ongoing/planned national forest inventory and/or RS survey / mapping	
Field inventory	• Forest Inventory Survey in 2008 (results in 2009) • NFI 3 in 2011/2012 (results in 2014)
Remote sensing survey/mapping	Corine Land Cover (CLC) 2006

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
BMELV: Zweite Bundeswaldinventur, 2001-2002	H	Forest ownership (public, private, other)	2000 2005	
Erste Bundeswaldinventur, 1986-1990	H	Forest ownership (state, community, private forest)	1987	Geographical coverage: Federal Republic of Germany and western Berlin before 1990

2.2.2 Classification and definitions

National class	Definition
State forest (Federal)	Classes of the NFI are (s. NFI 2, English Manual, p. 25): • State forest (Federal) • State forest (Land) • Corporate body forest • Municipal forest • Church forest assigned to corporate body forest • Community forest assigned to corporate body forest • Cooperative forest assigned to corporate body forest • Privately owned forest • Church forest assigned to privately owned forest • Community forest assigned to privately owned forest • Treuhand forest
State forest (Land)	
Community forest	
Private forest	
'Treuhand' forest	

2.2.3 Original data

Original data for 2000 and 2005 (s. NFI 2):

State forest (Federal)	409 339 ha
State forest (Land)	3 276 660 ha
Community forest	2 160 188 ha
Private forest	4 823 721 ha
Treuhand forest	405 887 ha
Total	**11075795 ha**

Total net-changes in forest area in the 'old' Länder in 1987-2002 (NFI 2, Table 2.03.20)

	productive forest, incl. non-stocked area	non-productive forest, stocked area	forest, non-stocked area	Total Net-Changes in forest area
State Forest (Bund)	6 681	-5 593	884	1972

State Forest (Laender)	21 084	-5 272	155	15 967
Community forest	24 131	-15 409	13 002	21 724
Privat forest	38 742	-37 350	12 520	13 911
Total	**90 638**	**-63 625**	**26 561**	**53 574**

Data for 1990:

Total forest area of the former Federal Republic of Germany in 1987 (NFI 1)

	ha	%
State forest (Federal)	170 798	2.2
State forest (Land)	2 218 709	28.2
Community forest	1 829 181	23.2
Private forest	3 652 564	46.4
Total	**7 871 252**	**100**

Total forest area of the new Laender in 1990 (covering former GDR)
(BML, 1990: The forests of the new Laender, NFI 1)

	ha	%
State forest (Federal)	291 054	9.8
State forest (Land)	986 651	33.1
Community forest	254 261	8.5
Private forest	771 870	25.9
Treuhand forest	679 391	22.8
Total	**2 983 328**	**100**

2.3 Analysis and processing of national data

2.3.1 Reclassification into FRA 2010 categories

Reclassification of national categories into FRA 2010 categories:

Manual of the NFI, Chap. 3.2.2: Types of ownership

code		NFI-type	Reclassified to FRA-Class
1	=	State forest (Federal)	Public ownership
2	=	State forest (Land)	Public ownership
3	=	Corporate body forest	Public ownership
30	=	Municipal forest	Public ownership
31	=	Church forest assigned to corporate body forest	Public ownership
32	=	Community forest assigned to corporate body forest	Public ownership
33	=	Cooperative forest assigned to corporate body forest	Public ownership
4	=	Privately owned forest	Private ownership
40	=	Privately owned forest	Private ownership
41	=	Church forest assigned to privately owned forest	Private ownership
42	=	Community forest assigned to privately owned forest	Private ownership
5	=	Forest under Treuhandanstalt administration	Other types of ownership

The use of two-digit codes is optional and to be laid down as standard for each Land. The primary one-digit code numbers may not then be used.

The following codes are used in the Länder:

SH, NW, RP, SL, BE, BB	*One-digit codes[1)]*
HH, NI, HB, HE, BW, BY, MV, SN, ST, TH	*Two-digit codes*

[1)] Cooperative ownership and church forest are as a rule to be assigned to privately owned forest.

2.4 Data for Table T2

Table 2a - Forest ownership

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	2000	2005
Public ownership	5694	5846	5846
Private ownership	4368	4824	4824
...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	0	0	0
...of which owned by indigenous / tribal communities	0	0	0
Other types of ownership	679	406	406
TOTAL	**10741**	**11076**	**11076**

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?	x	Yes
		No
If **No** above, please describe below how the two differ:		

Table 2b - Holder of management rights of public forests

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	2000	2005
Public Administration	5694	5846	5846
Individuals	0	0	0
Private corporations and institutions	0	0	0
Communities	0	0	0
Other	0	0	0
TOTAL	5694	5846	5846

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	'Treuhand' forest: Forest expropriated within the scope of the land reform in the GDR and transferred into public ownership and now either privatised or about to be privatised. (see NFI 2 Glossary).	
Management rights		

Other general comments to the table
Data for 1990 in Table 2.4.a are estimates based on original data (see 2.2.3). Data in Table 2.b, category "Public Administration" = Public ownership Other types of ownership (= Treuhandwald, see T2a) is under management of public administration, now either to be privatised or about to be privatised, therefore here not included.

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
BMELV: Zweite Bundeswaldinventur, 2001-2002	H	Forest ownership	2000 2005	
BMELV/vTI Expert Estimate	L	Protected forest area	2009	
BMELV, 531, 0712 534 - Tabelle 17_MCPFE_Bundesländer.xls	M	Forest area within protected areas		

Polley, H. 2009: Wald in Schutzgebieten - ein Überblick. In: Landbauforschung, Sonderheft 327, Waldstrategie 2020, Tagungsband zum Symposium des BMELV, p. 75-82, vTI Braunschweig	M	Forest area designated for the conservation of biodiversity	2005	Expert estimate based on cited study.

3.2.2 Original data

NFI 2: Forest Ownership/ Forest area with Management Plan

	Forest area [ha]	Source: NFI2
State forest (Bund)	409 340	**2.01.6: forest area [ha] broken down by ownership type and forest category** for 2002 *Germany / incl. inaccessible forest / total forest / incl. gaps in the forest cover or in the stand(15/E104)*
State forest (Land)	3 276 661	dto.
Other forest (Treuhand)	405 887	dto.
Private forest >100 ha, incl. Communal forest > 50 ha	3 436 755	**2.01.7: forest area [ha] broken down by ownership size class and ownership type** for 2002 *Germany / incl. inaccessible forest / total forest / incl. gaps in the forest cover or in the stand, private or communal forest(83/E106)*
Total	7 528 643	

3.3 Data for Table T3

Table 3a – Primary designated function

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Production	0	0	0	0
Protection of soil and water	0	0	0	0
Conservation of biodiversity	0	0	2 897	2 897
Social services	0	0	0	0
Multiple use	10741	11076	8179	8179
Other (please specify in comments below the table)	0	0	0	0
No / unknown	0	0	0	0
TOTAL	10741	11076	11076	11076

Table 3b – Special designation and management categories

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Area of permanent forest estate	10 408	10 568	10 568	10 568
Forest area within protected areas	n.a.	n.a.	2 754	2 754
Forest area under sustainable forest management	10 741	11076	11076	11076
Forest area with management plan	7 528	7 528	7 528	7 528

3.4 Comments to Table T3

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Production		
Protection of soil and water		
Conservation of biodiversity	2 897 ha: Das ist die Vereinigungsfläche Wald für Natura2000-Gebiet, Naturschutzgebiet, Biosphärenreservat und Nationalpark (nicht mit einbezogen Landschaftsschutzgebiet und Naturpark: das wären zusätzlich 4.573 ha) 2 897 ha: forest area of natura2000-network of protected area, protected area, biosphere reserve and national park (not included landscape protection area and nature park: that would be additional 4.573 ha)	For 1990 and 2000: no data are available. Area is included in the figure for multiple use.
Social services		
Multiple use	Reported is the total forest area, as all forest is basically designated for more than one purpose.	
Other		
No / unknown designation		
Area of permanent forest estate	According to the National Forest Act the area of stocked forests can not be simply converted into other land use. The National Forest Act requires complex legal, administrative processes before forest area can be converted into other land use. Area that is designated as forests according to the Forest Act basically has to be retained as forest. (1990: Holzbodenfläche, einschließlich Blöße = 7.555.282 + 2.852.500 = 10.407.782 (Quelle: BWI[1];"Der Wald in den neuen Bundesländern") 2000: Holzboden BWI2) 1990: timberland, inclusiv temporarily unstocked = 7.555.282 + 2.852.500 = 10.407.782 (source: BWI[1];"Der Wald in den neuen Bundesländern") 2000: timberland NFI2)	

Forest area within protected areas	MCPFE-Class 1.2 +1.3, valid as of 24.8.2007	
Forest area under sustainable forest management	Basically all forests in Germany can be regarded as forest under SFM, as the National Forest Act foresees a sustainable management and use of all types of forests independently from its type, size and ownership. (1990: Gesamte Waldfläche = 7.757.318 + 2.983.328 = 10.740.646 (Quelle: BWI[1];"Der Wald in den neuen Bundesländern") 2000: Das ist die Zahl aus BWI[2]) (1990: total forest area = 7.757.318 + 2.983.328 = 10.740.646 (source: BWI[1];"Der Wald in den neuen Bundesländern") 2000: figure of NFI[2])	
Forest area with management plan	Basically all Public Forest and Private forest with more than 100 ha is managed according to a management plan. This includes also forest owned by the Church with more than 50 ha. Small scale private forests might also be managed according a management plan, as long as they are part of a private forest association. Data on this are hardly to estimate.	

Other general comments to the table
The data in this table differ substantially from those provided for FRA 2005 – where none of the forests were classified as multiple use, but split up among primary uses. There had been made a new estimation, because old data could not be reproduced and new gis-layer had been produced.

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
BMELV: Zweite Bundeswaldinventur, 2001-2002	H	Introduced tree species, Type of regeneration	2001-2002	
Expert Estimate, Requardt, 2009	M	Regeneration/ Planting	1990	Based on available NFI 1 and NFI 2 data, data on regeneration and planting were estimated as no official figures are available for the year 1990.

4.2.2 Original data

NFI 2: Forest area of introduced tree species
Table: Fläche der Fremdländer: Waldfläche [ha] nach Land und Baumart - nur Fremdländer
für 2002 Deutschland / nur begehbarer Wald / bestockter Holzboden / ohne Lücken im Hauptbestand bzw. Plenterwald(328/E357) table: area of introduced tree species: forest area [ha] broken down by land and tree size - only introduced tree species for 2002 Germany / only accessible forest / stocked timberland / without gaps in the main stand or plenter forest(328/E357)

Quercus rubra	43960
Robinia pseudoacacia	33778
Aesculus hippocastanum	2539
Castanea sativa	7445
Juglans. spec	1117
Other broadleaves with long life expectancy	1830
Populus trichocarpa (+Hybrids)	24838
Picea Omorika	4169
Other Spruce/ Picea spec.	23454
Other coniferous trees with long life expectancy	1344
Abies spec.	9223
Pseudotsuga menziesii	179607
Pinus nigra	13902
Pinus peuce	35
Other Pines	19859
Larix kaempferi (+Hybrid)	73618
Total	**440719**

NFI 2: Type of regeneration
Table 2.04.5: forest area [ha] broken down by type of forest cover of young forest cover and type of regeneration for 2002 Germany / only accessible forest / stocked timberland / without gaps in the young forest cover (< 4 m height)(241/E349)

	Natural regeneration	Seed	Planting	Coppice shoot	Classification not possible	Total
all types of young forest cover	1.790.648	9.873	384.019	19.948	20.833	2.225.320
%	80,5%	0,4%	17,3%	0,9%	0,9%	

4.3 Analysis and processing of national data

4.3.1 Estimation and forecasting

The NFI 2 has a high proportion of natural regeneration in young forest cover (81%). In old forest cover, the proportion might be lower. 50 % are assumed. Introduced species are supposed to be planted.

No bigger changes are expected, therefore the figures are the same for years 2000 to 2010.

Data on 'Other naturally regenerating forest' are estimated as the following for the years 2000, 2005, 2010:
Angaben aus BWI2 [Thema 72/E322]: (Naturverjüngung der Jungbestockung + Unbekannt+ 50 % der (Bestockter Holzboden - Jungbestockung)-Fremdländer)+50% (Differenz zur Gesamtwaldfläche[= 50 % unbestockter Holzboden])
Figures of NFI2 [Thema 72/E322]: (natural regeneration of the young forest cover + unknown + 50 % of (stocked timberland - young forest cover)-introduced tree species)+50% (difference to total forest area[= 50 % of unstocked timberland])

1790+21+0,5*(10496 -2225)-441+287,5

Data on 'Planted forests' are estimated as the following:
(Rest der Jungbestockung + 50 % der (Bestockter Holzboden - Jungbestockung)+Fremdländer) +50% (Differenz zur Gesamtwaldfläche [= 50 % unbestockter Holzboden])
(rest of young forest cover + 50 % of (stocked timberland – young forest cover)+introduced tree species) +50% (difference to total forest area [= 50 % unstocked timberland])
414+0,5*(10496-2225)+441+287,5
1990: estimates of vTI (Requardt)

4.4 Data for Table T4

Table 4a

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Primary forest	0	0	0	0
Other naturally regenerated forest	5620	5793	5793	5793
...of which of introduced species	n.a.	n.a.	n.a.	n.a.
Planted forest	5121	5283	5283	5283
...of which of introduced species	428	441	441	441
TOTAL	10741	11076	11076	11076

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	In Germany only neglectable areas. Data are not available.	No bigger trend to face
Other naturally regenerating forest		
Planted forest	Introduced species 1990 is an expert estimate.	
Rubber plantations		
Mangroves		
Bamboo		

Other general comments to the table

5 Table T5 – Forest establishment and reforestation

5.1 FRA 2010 Categories and definitions

Term	Definition
Afforestation	Establishment of forest through planting and/or deliberate seeding on land that, until then, was not classified as forest.
Reforestation	Re-establishment of forest through planting and/or deliberate seeding on land classified as forest.
Natural expansion of forest	Expansion of forests through natural succession on land that, until then, was under another land use (e.g. forest succession on land previously used for agriculture).

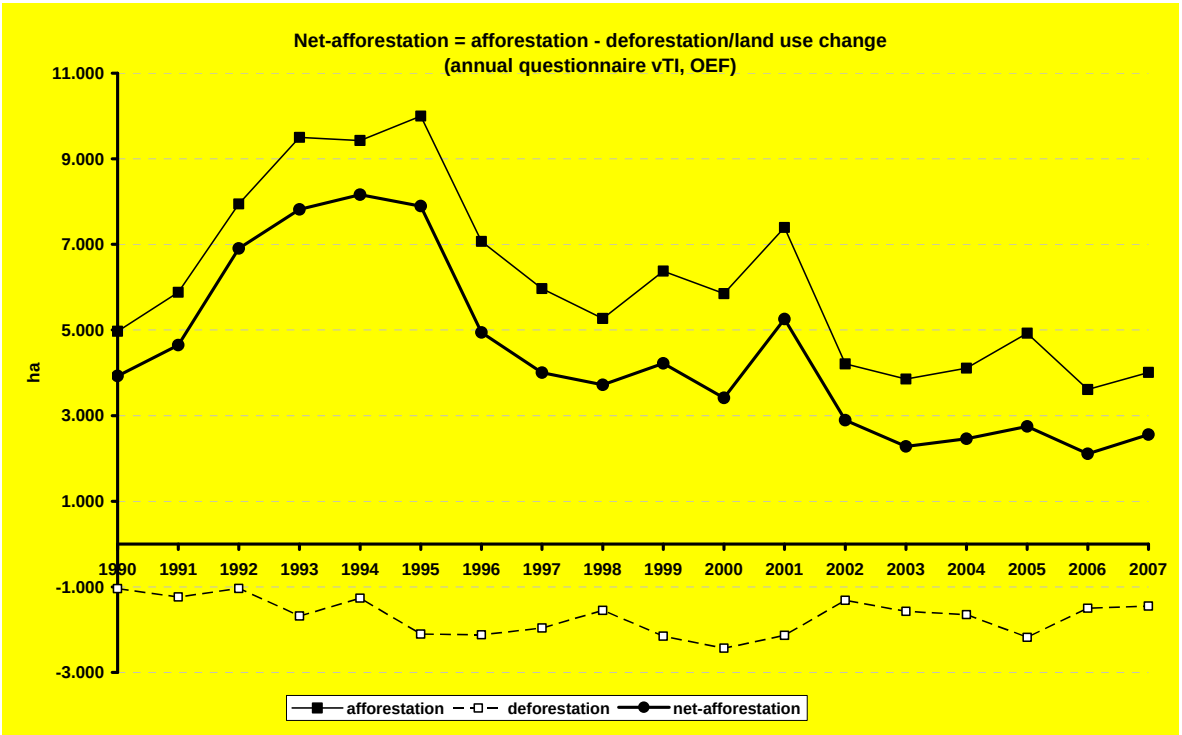
5.2 National data

5.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Estimation based on NFI	M	Afforestation,		
Estimation BMELV	L	Natural Expansion		
Estimation BMELV, 533, Schmitz based on NFI	L	Reforestation		

5.2.2 Original data

Afforestation:



5.3 Analysis and processing of national data

5.3.1 Estimation and forecasting

According to NFI 2 (2002) the area of age class 1-20 years is 1.285.628 ha. 1.285.628 ha divided by 20 years is 64.281 ha per year, which can be accounted as reforestated area. Not included in this estimate is the area of regeneration under trees. This is an underestimation. Included is the area of afforestation which is an overestimation. All types of regeneration are included (planting, seeding, natural regeneration).

5.3.2 Reclassification into FRA 2010 categories

See comments below.

5.4 Data for Table T5

FRA 2010 Categories	Annual forest establishment (hectares/year)			...of which of introduced species [1] (hectares/year)		
	1990	2000	2005	1990	2000	2005
Afforestation	8000	5000	4000	n.a.	n.a.	n.a.
Reforestation	30000	25000	25000	n.a.	n.a.	n.a.
...of which on areas previously planted	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Natural expansion of forest	4000	2000	2000	n.a.	n.a.	n.a.

Note: The reference of the figures is given in chap. 5.5.

5.5 Comments to Table T5

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Afforestation	Estimation based on NFI	It is estimated that the dynamic of afforestation and deforestation is getting smaller
Reforestation	Figures represent rough estimates based on NFI-data. NFI estimates only ca. 20 % artificial regeneration, but the area of planting is larger, as after planting natural regeneration comes up and NFI estimates the product of natural and artificial regeneration. If natural regeneration has the bigger impact area is counted from point of NFI as naturally regenerated, from point of FRA it is planted as well. Area figures are rough estimates.	It is estimated that the dynamic of afforestation and deforestation is getting smaller
Natural expansion of forest	Estimation	It is estimated that the dynamic of afforestation and deforestation is getting smaller

Other general comments to the table
The area of conversion of forest into other land use is not reported as there is no request. Table 1 is the saldo of (afforestation + natural expansion) of T5 – deforestation that is not kept in the FRA-tables. Relation of forest expansion to deforestation is ca. 3/2. Based on the information in T5, there should still be an increase in the total forest area of about 15,000 to 20,000 ha between 2000 and 2005 (net increase of 4000 and 3000 ha/yr respectively). Yet, the total forest area in T1 is kept as constant. The estimates on afforestation/deforestation and natural expansion are preliminary and awaiting verification by NFI 3 and, therefore, they have not been used in Table T1.

aBL ohne/without West-Berlin	Forest area 2002	aus Länderabfrage /from questionaire 1987 - 2002	per year
Aufforstung / afforestation		66.185	4.412
Umwandlung /deforestation		14.454	964
aBL ohne/without West-Berlin	7.947.495	51.731	3.449
nBL mit/with West-Berlin	2002		
Aufforstung / afforestation		28.401	2.840
Umwandlung /deforestation		8.708	871
nBL mit/with West-Berlin	3.128.304	19.693	1.969
Germany	11.075.799		
Aufforstung / afforestation			7.252
Umwandlung /deforestation			1.834
D			5.418
nBL/Germany	0,28244499		
afforestation / deforestation	408%	? Estimation is much too high, deforestation is underestimated Schmitz	

2.03.1: Veränderung der Waldfläche [ha] nach Land und Waldveränderung

für 1987-2002

Alte Bundesländer / einschließlich nicht begehbarer Wald / Vereinigungsfläche gesamter Wald beider Inventuren / einschließlich Lücken in der Bestockung bzw. im Bestand(250/V107k)

2.03.1: change in forest area [ha] broken down by Land and change to the forest

for 1987-2002

old Länder / incl. inaccessible forest / union of the total forest areas of both inventories / incl. gaps in the forest cover or in the stand(250/V107k)

	deforestation	new forest	forest
old Länder	-81.754	135.328	53.574
per year [/15]	-5.450	9.022	3.572
D per year [Faktor Germany: B18]	-6.990	11.570	4.580
new forest/deforestation	166%		

	Annual forest establishment (hectares/year)		
FRA 2010 Categories	**1990**	**2000**	**2005**
Deforestation [not requested in FRA]	7000	4000	3000
saldo	5000	3000	3000

6 Table T6 – Growing stock

6.1 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.

6.2 National data

6.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
BMELV: Zweite Bundeswaldinventur, 2001-2002	H	Cubic meters over bark	2002	
BML, 1994 Der Wald in den neuen Bundesländern	M	Cubic meters over bark	1993	Geographical coverage: German Democratic Republic
BML, 1992 Bundeswaldinventur 1986-1990	H	Cubic meters over bark	1987	Geographical coverage: Federal Republic of Germany before 1990

6.2.2 Original data

Data for 1990 (NFI 1):

Growing stock in 1000 m³			
	old Länder, NFI1 (1987)	new Laender, DSWF (1993)	Total
Quercus spec.	176 322	40 655	216 977
Fagus spec.	406 565	68 821	475 386
Broadleaved tree species with long life expectancy	65 150	20 476	85 626
Broadleaved tree species with short life expectancy	61 824	39 773	101 597
Picea abies	1 015 074	127 003	1 142 077
Abies alba	71 185	153	71 338
Pseudotsuga menziesii	19 645	2 712	22 357
Pinus sylvestriy	347 168	286 863	634 031
Larix spec.	55 251	10 055	65 306
Total	2 218 184	596 511	2 814 695

D**ata for 2000 (NFI2, 2002):**

Species name	Growing Stock in Forests (million m³)
Picea spec.	1231
Pinus spec.	705
Fagus sylvatica	583
Quercus spec.	302
Larix spec.	92
Abies spec.	82
Pseudotsuga menziesii.	50
Broadleaved tree species with short life expectancy	179
Broeadleaved tree species with long life expectancy	157
Total	**3381**

4.03.2: Prognostizierter Vorrat [1000 m³] nach Baumartengruppe und Prognosejahr
für Lauf 38 Bundesszenario5b
Deutschland / nur begehbarer Wald / Holzboden ohne Nutzungsverbot / einschließlich Lücken im Bestand / Bäume ab 7 cm Bhd des Hb oder Pl / Flächenbezug: Ideell(125/P551id)
4.03.2: forecast timber stock [1000 m³] broken down by tree species group and forecast year
for Lauf 38 Bundesszenario5b
Germany / only accessible forest / timberland without logging ban / incl. gaps in the stand / trees > 7 cm DBH, main stand or plenter forest / values per area: ideational(125/P551id)

	2002	2007	2012
all	3.230.975.226	3.304.485.464	3.337.434.180
	100,00%	102,28%	103,29%

4.03.2 shows an increase of growing stock. Data of 2000 are multiplied with that factor. 2007 is given for 2005, 2012 for 2010.

6.3 Analysis and processing of national data

6.3.1 Reclassification into FRA 2010 categories

Growing stock of commercial species according to selected list of species (see original data in Table 6b).

6.4 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	2815	3381	3458	3492	n.a.	n.a.	n.a.	n.a.
... of which coniferous	1935	2159	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
... of which broadleaved	880	1222	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Growing stock of commercial species	2625	3045	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

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

FRA 2010 category / Species name			Growing stock in forest (million cubic meters)		
Rank	**Scientific name**	**Common name**	**1990**	**2000**	**2005**
1st	Picea spec.	Spruce	1142	1231	n.a.
2nd	Pinus spec.	Pine	634	705	n.a.
3rd	Fagus sylvatica	Beech	475	583	n.a.
4th	Quercus spec.	Oak	216	302	n.a.
5th	Larix spec.	Larch	65	92	n.a.
6th	Abies spec.	Fir	71	82	n.a.
7th	Pseudotsuga menziesii	Douglas Fir	22	50	n.a.
8th					
9th					
10th					
Remaining			190	336	n.a.
TOTAL			**2815**	**3381**	n.a.

Note: Rank refers to the order of importance in terms of growing stock, i.e. 1st is the species with the highest growing stock. Year 2000 is the reference year for defining the species list and the order of the species.

Table 6c – Specification of threshold values

Item	Value	Complementary information
Minimum diameter (cm) at breast height[1] of trees included in growing stock (X)	7	
Minimum diameter (cm) at the top end of stem for calculation of growing stock (Y)	7	
Minimum diameter (cm) of branches included in growing stock (W)	7	Branches are assessed only from broadleaved trees and not from coniferous trees.
Volume refers to "above ground" (AG) or "above stump" (AS)	AG	

[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.

6.5 Comments to Table T6

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Total growing stock	Data are only available for the Reference years 1987 and 2002.	Forecasts are based on WEHAM (Waldentwicklungs- und Holzaufkommensmodellierung, modelling of the potential rawwood), Due to high fluctuations on the energy market forecasts are very unsure. Therefore no estimations are made for coniferous or broadleaves.
Growing stock of broadleaved / coniferous		
Growing stock of commercial species		
Growing stock composition		

Other general comments to the table

7 Table T7 – Biomass stock

7.1 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.

7.2 National data

7.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
BMELV: Zweite Bundeswaldinventur, 2001-2002	H	Cubic meters over bark	2002	
BML, 1994 Der Wald in den neuen Bundesländern	M	Cubic meters over bark	1993	Geographical coverage: New federal states
BML, 1992 Bundeswaldinventur 1986-1990	H	Cubic meters over bark	1987	Geographical coverage: Federal Republic of Germany and western Berlin before 1990
National Inventory Report (NIR) for the German Greenhouse Gas Inventory 1990-2004	H		1990-2004	Methodology for the calculating biomass stock, like volume expansion factors, basic density figures, tree roots biomass etc

7.2.2 Classification and definitions

National class	Definition
Above-ground biomass	Living biomass above the soil, including stem, stump, branches, bark, and, in the case of conifers, foliage. Seeds and foliage of deciduous trees not included.
Below-ground biomass	Same definition as used for FRA 2010
Dead wood	Includes standing and lying dead stems and branches equal or larger than 20 cm at the larger end. Stumps were included if 50 cm or more in height or more than 60 cm in diameter

7.2.3 Original data

Above-ground biomass, below-ground biomass and dead wood were calculated back from the carbon stocks included in table T 8, using the national carbon factor 0,5 t C/t dm..

7.3 Analysis and processing of national data

7.3.1 Estimation and forecasting

Methodological details for the calculations of biomass stock, like volume expansion factors, basic density figures, tree roots biomass etc. are described in the National Inventory Report (NIR) for the German Greenhouse Gas Inventory 1990-2004.

See at:
http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/3734.php
Chapter 14.5.1, page 472 ff.

7.4 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	1549	1857	2011	2165	n.a.	n.a.	n.a.	n.a.
Below-ground biomass	415	530	555	645	n.a.	n.a.	n.a.	n.a.
Dead wood	n.a.	55	55	55	n.a.	n.a.	n.a.	n.a.
TOTAL	n.a.	2442	2621	2865	n.a.	n.a.	n.a.	n.a.

7.5 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	Data on deadwood were assessed the first time in the NFI 2, 2002. Data on lying and standing deadwood include all woody debris with a diameter (standing deadwood: DBH) ≥20 cm at the thicker end. Data on stumps were measured only when having a DBH of at least 50 cm or a diameter of 60 cm at felling height.	Within the NFI 1 data on deadwood were not collected. Data on dead wood biomass stock are based on NFI 2 data. For 2000, 2005 and 2010 it was assumed that dead wood biomass stock did and will not significantly change.

Other general comments to the table

8 Table T8 – Carbon stock

8.1 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.

8.2 National data

8.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
BMELV: Zweite Bundeswaldinventur, 2001-2002	H	Cubic meters over bark, dead wood	2002	
BML, 1994 Der Wald in den neuen Bundesländern	M	Cubic meters over bark	1993	Geographical coverage: New Federal States (East Germany)
BML, 1992 Bundeswaldinventur 1986-1990	H	Cubic meters over bark	1987	Geographical coverage: Federal Republic of Germany and Western Berlin before 1990
BMELF, 1997 Bodenzustandserhebung BZE1	H	C-stock in litter and soil	1987-1993	
National Inventory Report (NIR) for the German Greenhouse Gas Inventory 1990-2004	H		1990-2004	Methodology for the calculating biomass stock, like volume expansion factors, basic density figures, tree roots biomass etc

8.2.2 Classification and definitions

National class	Definition
Growing stock	Volume of above-ground woody biomass with a minimum diameter over bark of at least 7 cm
Carbon in above-ground biomass	Carbon in living biomass above the soil, including stem, stump, branches, bark, and, in the case of conifers, foliage. Seeds and foliage of deciduous trees are not included.
Dead wood	Includes standing and lying dead stems and branches equal or larger than 20 cm at the larger end. Stumps were included if 50 cm or more in height or more than 60 cm in diameter
Carbon in litter	The humus layer included in the estimation of soil carbon includes the fine fractions of litter are included in soil carbon.
Soil carbon	Includes carbon in the humic and fumic layers (including litter) and in mineral and organic soil from 0 to 30 cm in depth.

8.2.3 Original data

Estimates on carbon stock are based on the wood volume values derived from the German NFI and BML. Data on 'carbon in litter' are included in the data on 'soil carbon'. Data are based on the national soil condition survey (BZE 1).

8.3 Analysis and processing of national data

8.3.1 Estimation and forecasting

The carbon stocks for 1990, 2000, 2005 and 2010 were estimated separately for old and new federal states, using linear extra- and interpolation of NFI 1 and 2 to get total amounts of C in above-ground and below-ground biomass. Due to this calculation procedure, biomass stocks are not directly comparable to the growing stocks reported in table T6. Biomass stock was converted to carbon stock by using a national carbon fraction of 0.5. Methodological details, like calculation of volume expansion factors, carbon fraction factor, tree roots biomass for carbon accounting etc. are described in the National Inventory Report (NIR) for the German Greenhouse Gas Inventory 1990-2004.

See at:
http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/3734.php
Chapter 14.5.1, page 472 ff.

8.4 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	774	928	1005	1082.	n.a.	n.a.	n.a.	n.a.
Carbon in below-ground biomass	207	265	278	323	n.a.	n.a.	n.a.	n.a.
Sub-total: Living biomass	981	1193	1283	1405	n.a.	n.a.	n.a.	n.a.
Carbon in dead wood	n.a.	27	27	27	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	858	858	858	858	n.a.	n.a.	n.a.	n.a.
TOTAL	**n.a.**	2078	2168	2290	n.a.	n.a.	n.a.	n.a.

Soil depth (cm) used for soil carbon estimates	Humus layer and first 30 cm of mineral soil lying beneath the humus layer

8.5 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	see comments chapter 7.5	see comments chapter 7.5
Carbon in litter	Data on 'carbon in litter' are included in the data on 'soil carbon'. Data are based on the national soil condition survey 1 (BZE 1).	see comment on soil carbon below
Soil carbon	Data on soil carbon stocks are based on national soil condition survey 1 (BZE 1). Reported figures includes carbon in litter.	For 2000, 2005 and 2010 it was assumed that soil carbon stock under existing forest does not change. No conclusions can be drawn regarding soil carbon stock changes, since results from BZE 2 are not available.

Other general comments to the table
Reported carbon budget includes only trees with a minimum diameter of ≥ 7cm.

9 Table T9 – Forest fires

9.1 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.

9.2 National data

9.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Waldbrandstatistik der BLE	H	Disturbance by fire	1977-2006	

9.2.2 Original data

Forest Fire in Germany since 1977 (BLE, 2006)

Year	Burnt area in ha	Number of Fires	Average area of forest fire in ha	Economic impact (estimated) [Mio €]	[€ per burnt ha]	[€ per fire]
1977 1)	613	1 100	0,6	1,3	2 085	1 162
1978 1)	289	634	0,5	0,6	2 123	968
1979 1)	356	700	0,5	0,6	1 723	877
1980 1)	1 545	1 370	1,1	1,9	1 258	1 418
1981 1)	497	644	0,8	1,3	2 572	1 985
1982 1)	751	1 244	0,6	1,9	2 519	1 521
1983 1)	792	1 109	0,7	3,4	4 325	3 089
1984 1)	875	1 163	0,8	2,6	2 980	2 242
1985 1)	242	522	0,5	0,7	2 747	1 273
1986 1)	293	618	0,5	0,7	2 443	1 158
1987 1)	319	484	0,7	0,8	2 564	1 690
1988 1)	282	559	0,5	0,7	2 538	1 281
1989 1)	281	806	0,3	0,9	3 275	1 142
1990 1)	481	1 001	0,5	5,4	11 161	5 363
1991	920	1 846	0,5	1,7	1 834	914
1992	4 908	3 012	1,6	12,8	2 604	4 244
1993	1 493	1 694	0,9	5,4	3 630	3 199
1994	1 114	1 696	0,7	1,3	1 193	784
1995	592	1 237	0,5	1,5	2 505	1 199
1996	1 381	1 748	0,8	4,2	3 048	2 409

1997	599	1 467	0,4	1,5	2 542	1 038
1998	397	1 032	0,4	1,6	4 037	1 554
1999	415	1 178	0,4	1,4	3 477	1 224
2000	581	1 210	0,5	2,1	3 642	1 749
2001	122	587	0,2	0,5	3 598	784
2002	122	513	0,2	0,5	3 715	884
2003	1 315	2 524	0,5	3,2	2 421	1 261
2004	274	626	0,4	0,5	1 816	796
2005	183	496	0,4	0,4	2 147	794
2006	482	930	0,5	0,9	1 894	982
2007	256	779	0,3	0,8	3 216	1 055
2008	539	818	0,7	1	1 786	1 176
Average:						
1977 - 1990 1)	**544**	**854**	**0,6**	**1,6**	**3165**	**1798**
1991 - 2008	**872**	**1300**	**0,6**	**2,3**	**2728**	**1447**

1) only Western Germany

9.3 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	1.375	1445	0.327	904	0.502	1071
... 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	100	100	100
Planned fire	0	0	0

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

9.4 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

10 Table T10 – Other disturbances affecting forest health and vitality

10.1 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.

10.2 National data

10.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
National forest condition monitoring, vTI WOI	M	Disturbance by insects [ha]	1989 - 2007	Annual national forest condition monitoring programme on Level I plots.
Durch Schäden verursachter Holzeinschlag, Ref. 532, BMELV	H	Fellings due to forest damages [m³]		Data are only available in cubic metre. The area affected is based on estimates, taking the amount of fellings due to forest damages into account.
Waldschäden durch Insekten und Krankheiten, JKI, Institut für Pflanzenschutz in Gartenbau und Forst	H	insects and diseases; invasive species		

10.2.2 Classification and definitions

National class	Definition
low	only little damages are visible (not included to affected forest area)
middle	damages are clearly visible
high	appearance of tree is dominated by insect damages

10.2.3 Original data

Fellings due to forest damages in 1000 m³ (Ref. 532, BMELV)

Year	Fellings (F)	Courses											
		Wind/Storm		Snow/Ice		Insects		Other courses		New damages, like air pollution		Total	
	1 000 m³	1 000 m³	% F	1 000 m³	% F	1 000 m³	% F	1 000 m³	% F	1 000 m³	% F	1 000 m³	% F
1991	29278,1	16004,9	54,7	292,3	1,0	2401,0	8,2	289,0	1,0	462,2	1,6	19449,4	66,4
1992	27567,2	2838,7	10,3	69,6	0,3	5354,4	19,4	369,7	1,3	514,1	1,9	9146,5	33,2
1993	27957,6	4146,6	14,8	66,9	0,2	4624,6	16,5	393,4	1,4	963,3	3,4	10194,7	36,5
1994	34616,0	6518,8	18,8	376,9	1,1	2095,5	6,1	444,3	1,3	435,0	1,3	9870,5	28,5
1995	39344,0	2868,2	7,3	254,0	0,6	3455,4	8,8	500,8	1,3	464,9	1,2	7543,4	19,2
1996	37016,0	371,2	1,0	420,3	1,1	2634,1	7,1	530,0	1,4	398,5	1,1	4354,1	11,8
1997	38206,9	1939,6	5,1	885,2	2,3	1048,3	2,7	465,6	1,2	421,9	1,1	4760,7	12,5
1998	39053,3	1182,8	3,0	188,6	0,5	1170,1	3,0	432,8	1,1	386,9	1,0	3361,5	8,6
1999	37635,6	1406,2	3,7	511,1	1,4	1043,9	2,8	476,5	1,3	397,2	1,1	3834,8	10,2
2000	53710,3	27238,3	50,7	876,6	1,6	531,1	1,0	265,9	0,5	258,6	0,5	29170,5	54,3
2001	39482,0	4685,6	11,9	190,3	0,5	2693,0	6,8	263,7	0,7	182,9	0,5	8015,5	20,3
2002	42380,0	2567,1	6,1	708,8	1,7	1075,2	2,5	440,6	1,0	243,9	0,6	5035,6	11,9
2003	51182,0	3363,2	6,6	127,1	0,2	4527,6	8,8	619,3	1,2	238,4	0,5	8875,6	17,3
2004	54504,7	1728,2	3,2	125,5	0,2	6326,2	11,6	1361,5	2,5	293,5	0,5	9834,9	18,0
2005	56946,3	1333,4	2,3	94,3	0,2	4007,7	7,0	630,7	1,1	207,6	0,4	6273,7	11,0
2006	62290,1	1529,5	2,5	770,3	1,2	5021,9	8,1	759,3	1,2	243,2	0,4	8337,6	13,4
2007	76728,1	31331,7	40,8	196,4	0,3	2497,1	3,3	749,0	1	115,8	0,2	34890,0	45,5

1) economic management year 2002

Fellings due to forest damages in 1000 m³ (Durch Schäden verursachter Holzeinschlag, Ref. 532, BMELV)

Category (s. FRA 2010)	Affected forest (1000 m3 / a)		
	1991-1993	1998-2002	2003-2007
Disturbance by insects	4127	1303	4476
Disturbance by diseases			
Disturbance by other biotic agents			
Disturbance caused by abiotic factors	8804	8581	9164
Total volume affected by disturbances	**12930**	**9884**	**13640**

Disturbances by insects are assessed by the annual national forest condition monitoring programme (Level I), and clustered into four different intensity levels:

	Damages by Insects [ha]			
	no	low	middle	high
2000 (average for 1998-2002)	9 538 238	865 762	139 760	23 901
2005 (average for 2003-2007)	8 997 882	1 300 269	197 884	71 626

The intensity levels of insect damages are assessed visually for each individual sample tree:

- no damages visible
- low: only little damages are visible
- middle: damages are clearly visible
- high: appearance of tree is dominated by insect damages

10.3 Analysis and processing of national data

10.3.1 Reclassification into FRA 2010 categories

The national class "low" is not included to FRA "affected forest area – disturbance by insects"
Disturbance caused by abiotic factors are basically storm damages. The area is estimated by dividing the fellings caused by abiotic factors through an average volume per ha of 350 m³.

10.4 Data for Table T10

Table 10a – Disturbances

FRA 2010 category	Affected forest area (1000 hectares)		
	1990	2000	2005
Disturbance by insects	n.a.	164	269
Disturbance by diseases	n.a.	n.a.	n.a.
Disturbance by other biotic agents	n.a.	n.a.	n.a.
Disturbance caused by abiotic factors	25	25	26
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 1998-2002 and 2003-2007 respectively. Because of reunification, first period is 1991-1993

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

Description / name	Tree species or genera affected (scientific name)	Year(s) of latest outbreak	Area affected (1000 hectares)	If cyclic, approx. cycle (years)
Insects				
European spruce bark beetle	*Ips typographus*	After 2003		
Six-toothed spruce bark beetle	*Pityogenes chalcographus*	After 2003		
Pine shoot beetles	*Tomicus piniperda, T. minor*			
Metallic wood-boring beetle	*Phaenops cyanea*	After 2003		
Striped ambrosia beetle	*Trypodendron lineatum*			
European hardwood ambrosia beetle	*Trypodendron domesticum*			
Nun moth	*Lymantria monacha*	2002-2004		
Gypsy moth	*Lymantria dispar*			
Bordered white moth	*Bupalus piniarius*	2005-2007		
Pine-tree lappet	*Dendrolimus pini*	2003-2005		
Pine beauty moth	*Panolis flammea*	2003		
European oak leaf roller	*Tortrix viridana*	2004-2006		
Winter moth	*Operophtera brumata*	2004-2006		
Mottled umber	*Erannis defoliaria*	2003-2007		
Oak processionary moth	*Thaumetopoea processionea*	Since 1990th, 2003, 2007		
Fungi and Fungus like microorganisms				
Diplodia blight of pines	*Diplodia pinea*	Since 1990th		

Swiss needle cast	*Phaeocryptopus gaeumannii*	2004		
Douglas-fir needle cast	*Rhabdocline pseudotsugae*	2004		
Needle cast	*Lophodermium seditiosum*			
Heterobasidium root rot	*Heterobasidion annosum*			
Armillaria root and cambium rot	*Armillaria mellea s. l.*	after 2003		
Phytophthora disease of alder	*Pphytophthora alni s. l.*	Since 1995		
Shoot decline of ash	*Chalara fraxinea*	Since 2002		
Dutch elm disease	*Ophiostoma ulmi, O. novo-ulmi*	1970th up to now		
Chestnut blight	*Cryphonectria parasitica*	Since 1992		

10.5 Comments to Table T10

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Disturbance by insects		
Disturbance by diseases		
Disturbance by other biotic agents		
Disturbance caused by abiotic factors	Mainly storm damage	Because of reunification, no data for 1990 are incorporated in the table. Instead the 1990 figure is based on data from 1991-1993. By this the big storm damage of 1990 are not listed.
Major outbreaks	Table 10b contains the most important species, which are of forest protection interest. The very heterogeneous resources of the regional Forest Research Institutes (federal structure) are the main reason for the lack of comparable data. Affected areas are sometimes assessed but data are not available for all important species and for all regions each year.	
Invasive species		

Other general comments to the table

11 Table T11 – Wood removals and value of removals

11.1 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.

11.2 National data

11.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Dieter, M.; Küppers, J.-G. (2008): Die Forstwirtschaftliche Gesamtrechnung der Bundesrepublik Deutschland ,2006.	M	Value	1991-2006	
vTI, Institute of Forest Based Sector Economics. internal statistics.	M	Volume	1991-2006	

11.2.2 Original data

See Annex 1 FRA_Country Report_Germany_Annex1-FowiGesRechnung T11.pdf

11.2.3 Reclassification into FRA 2010 categories

Original data are only available monetary data (EUR). Data were converted into physical values as requested.

11.3 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.)	37043	47265	58788	7646	12497	16548
... of which from forest	37043	47265	58788	7646	12497	16548
Unit value (local currency/ m^3 o.b.)	45.11	38.43	35.42	6.34	6.23	11.58
Total value (1000 local currency)	1670886	1816398	2082002	48455	77891	191626

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	EURO	EURO	EURO

11.4 Comments to Table T11

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Total volume of industrial roundwood removals	Data of 2005 represent only a 4-year period 2003-2006. Data for 2007 are not yet published. Data of 1990 represent only a two year period 1991-1992, due to German reunification and lack of data before 1991.	Figures for the year 2000 are significantly influenced by the effects of wind throws.
Total volume of woodfuel removals	Data of 2005 represent only a 4-year period 2003-2006. Data for 2007 are not yet published. Data of 1990 represent only a two year period 1991-1992, due to German reunification and lack of data before 1991.	
Unit value	Data of 2005 represent only a 4-year period 2003-2006. Data for 2007 are not yet published. Data of 1990 represent only a two year period 1991-1992, due to German reunification and lack of data before 1991.	
Total value	Data of 2005 represent only a 4-year period 2003-2006. Data for 2007 are not yet published. Data of 1990 represent only a two year period 1991-1992, due to German reunification and lack of data before 1991.	

Other general comments to the table
The year 1990 is not chosen as reference year for Germany because of the reunification in the year 1990. No national data are available for this year. Therefore reported figures for 1990 refer to the year 1991 and 1992. In 1990 an enormous wind throw caused a 2.5 times higher amount of removals than usual. Total removals were taken from physical tables within the German Economic Accounts for Forestry. German Economic Accounts estimate removals according to utilisation data which also take international trade data into consideration. This approach was preferred then using unprecise German removals statistics (as reported to Eurostat and FAOSTAT). Imported roundwood are excluded.

12 Table T12 – Non-wood forest products removals and value of removals

12.1 FRA 2010 Categories and definitions

Term	Definition
Non-wood forest product (NWFP)	Goods derived from forests that are tangible and physical objects of biological origin other than wood.
Value of NWFP removals	For the purpose of this table, value is defined as the market value at the site of collection or forest border.

NWFP categories

Category
Plant products / raw material
1. Food
2. Fodder
3. Raw material for medicine and aromatic products
4. Raw material for colorants and dyes
5. Raw material for utensils, handicrafts & construction
6. Ornamental plants
7. Exudates
8. Other plant products
Animal products / raw material
9. Living animals
10. Hides, skins and trophies
11. Wild honey and bee-wax
12. Wild meat
13. Raw material for medicine
14. Raw material for colorants
15. Other edible animal products
16. Other non-edible animal products

12.2 National data

12.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Economic Accounting of Forestry/ Forstwirtschaftliche Gesamtrechnung der Bundesrepublik Deutschland, verschiedene Jahrgänge	L	Value	2003-2006	Value of forest non-wood products, e.g. ornamental, brushwood, Christmas trees, forest plants, gravel, sand etc.

12.2.2 Original data

According to the Economic Accounting of Forestry, the value of products by hunting and fishery in the forestry sector was about 62 Mio. EURO in the year 2005

12.3 Data for Table T12

Rank	Name of product	Key species	Unit	NWFP removals 2005		NWFP category
				Quantity	Value (1000 local currency)	
1st	Ornamental plants, Christmas trees	coniferous		22 800 000	340 000	6
2nd	game meat				62 000	12
3rd	Other non-wood products				50 400	8
4th						
5th						
6th						
7th						
8th						
9th						
10th						
All other plant products						
All other animal products						
TOTAL					452 400	

	2005
Name of local currency	EURO

12.4 Comments to Table T12

Variable / category	Comments related to data, definitions, etc.
10 most important products	Data are only rough estimates and represent average figures for the years 2003 to 2006.
Other plant products	
Other animal products	
Value by product	
Total value	

Other general comments to the table
For each non-wood good volume / value reported: Plant products: - MCPFE Report "State of European Forests 2003" representing data for 1996, which are predominately based on the assessment UNECE/FAO 2000 and updates. Original data sources are not traceable. Reported data can be regarded only as rough estimates. Animal products: - data for 2005: DJV Handbuch Jagd 2006"

13 Table T13 – Employment

13.1 FRA 2010 Categories and definitions

Category	Definition
Full-time equivalents (FTE)	A measurement equal to one person working full-time during a specified reference period.
Employment	Includes all persons in paid employment or self-employment.
Paid employment	Persons who during a specified reference period performed some work for wage or salary in cash or in kind.
Self-employment	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).

13.2 National data

13.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Economic Accounting of Forestry/ Waldgesamtrechnung 2006, vTI OEF	M	Employment	2006	

13.2.2 Original data

Employment in the forest sector (Economic Accounting of Forestry/ WGR, 2006)

	Number of Persons	FTE
2006	95 321	49 249
2005	91 798	n.a.
2004	94 719	n.a.
2003	92 590	n.a.

13.3 Data for Table T13

FRA 2010 Category	Employment (1000 years FTE)		
	1990	2000	2005
Employment in primary production of goods	n.a.	n.a.	49
...of which paid employment	n.a.	n.a.	24
...of which self-employment	n.a.	n.a.	25
Employment in management of protected areas	n.a.	n.a.	n.a.

13.4 Comments to Table T13

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Employment in primary production of goods		
Paid employment / self-employment	Data are only rough estimates. No official statistics available.	
Employment in management of protected areas		

Other general comments to the table

14 Table T14 – Policy and legal framework

14.1 FRA 2010 Categories and definitions

Term	Definition
Forest policy	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.
Forest policy statement	A document that describes the objectives, priorities and means for implementation of the forest policy.
National forest programme (nfp)	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.
Law (Act or Code) on forest	A set of rules enacted by the legislative authority of a country regulating the access, management, conservation and use of forest resources.

14.2 Data for Table T14

Indicate the existence of the following (2008)			
Forest policy statement with national scope		X	Yes
			No
If Yes above, provide:	Year of endorsement	2009	
	Reference to document	In formulation	
National forest programme (nfp)		X	Yes
			No
If Yes above, provide:	Name of nfp in country	Nationales Waldprogramm	
	Starting year	1999	
	Current status		In formulation
		X	In implementation
		X	Under revision
			Process temporarily suspended
	Reference to document or web site	http://www.nwp-online.de/	
Law (Act or Code) on forest with national scope		X	Yes, specific forest law exists
			Yes, but rules on forests are incorpo-rated in other (broader) legislation
			No, forest issues are not regulated by national legislation
If Yes above, provide:	Year of enactment	1975	
	Year of latest amendment	Changed in 2006 by the Article 213 V v. 31.10.2006 I 2407	
	Reference to document	http://bundesrecht.juris.de/bwaldg/BJNR010370975.html	

In case the responsibility for forest policy- and/or forest law-making is decentralized, please indicate the existence of the following and explain in the comments below the table how the responsibility for forest policy- and law-making is organized in your country.		
Sub-national forest policy statements	X	Yes
		No
If Yes above, indicate the number of regions/states/provinces with forest policy statements	16	
Sub-national Laws (Acts or Codes) on forest	X	Yes
		No
If Yes above, indicate the number of regions/states/provinces with Laws on forests	16	

14.3 Comments to Table T14

Variable / category	Comments related to data, definitions, etc.
Forest policy statement with national scope	Forest Report by Federal Governement (Waldbericht der Bundesregierung), Charta für Forst und Holz, Nationale Biodiversitätsstrategie für Wälder
National forest programme (nfp)	National Forest Programme (Nationales Waldprogramm)
Law (Act or Code) on forest with national scope	Federal Forest Act (Bundeswaldgesetz)
Sub-national forest policy statements	Forest Programmes of the Laender
Sub-national Laws (Acts or Codes) on forest	Forest Acts of the Laender

Other general comments to the table
The basic legal standards for the German forests are set by the Federal Forest Act (BWaldG), which was enacted in 1975. The Act outlines predominant guidelines (frameworks) which are specified and if necessary supplemented at Laender level (BWaldG, §5). Each of the German Laender has its own forest act outlined according to the Federal Forest Act. In addition to the Federal Forest Act, there are several other federal acts, dealing with specific issues of forests and forestry (see BMELV): • the Forest Damage Compensation Act (FSchadG) • the Act on Forest Seed and Planting Stock (FSaatG) • the Nature Conservation Act (BNatSchG) • the Hunting Act (BJagdG)

15 Table T15 – Institutional framework

15.1 FRA 2010 Categories and definitions

Term	Definition
Minister responsible for forest policy-making	Minister holding the main responsibility for forest issues and the formulation of the forest policy.
Head of Forestry	The Head of Forestry is the Government Officer responsible for implementing the mandate of the public administration related to forests.
Level of subordination	Number of administrative levels between the Head of Forestry and the Minister.
University degree	Qualification provided by University after a minimum of 3 years of post secondary education.

15.2 Data for Table T15

Table 15a – Institutions

FRA 2010 Category	2008	
Minister responsible for forest policy formulation : please provide full title	Ilse Aigner, Bundesministerin für Ernährung, Landwirtschaft und Verbraucherschutz (since 2008), see at: German Federal Ministry of Food, Agriculture and Consumer Protection (BMELV)	
Level of subordination of Head of Forestry within the Ministry		1st level subordination to Minister
		2nd level subordination to Minister
	X	3rd level subordination to Minister
		4th or lower level subordination to Minister
Other public forest agencies at national level	Federal Agency for Agriculture and Food (Bundesanstalt für Landwirtschaft und Ernährung (BLE)), See at: http://www.ble.de Federal Research Institute for Rural Areas, Forestry and Fisheries – Johann Heinrich von Thünen-Institute (vTI), incl. 5 forest and timber sector Institutes: • Institute of Wood Technology and Wood Biology • Institute of Forest Based Sector Economics • Institute of World Forestry • Institute of Forest Ecology and Forest Inventory • Institute of Forest Genetics See at: http://www.vti.bund.de Federal Research Centre for Cultivated Plants – Julius Kuehn Institute (JKI), See at: http://www.jki.bund.de	
Institution(s) responsible for forest law enforcement	The Federal Government sets only the forestry policy framework (federal forest act), the concrete formulation and implemenation of forestry policy goals is in the responsibility of the Laender. The Laender have their own forest acts, outlined according to the federal forest act.	

Table 15b – Human resources

FRA 2010 Category	Human resources within public forest institutions					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Total staff	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
...of which with university degree or equivalent	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Notes:
1. Includes human resources within public forest institutions at sub-national level
2. Excludes people employed in State-owned enterprises, education and research, as well as temporary / seasonal workers.

15.3 Comments to Table T15

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Minister responsible for forest policy formulation		
Level of subordination of Head of Forestry within the Ministry		
Other public forest agencies at national level		
Institution(s) responsible for forest law enforcement		
Human resources within public forest institutions		

Other general comments to the table
Germany has a federal structure. Meaning, political power is allocated at three different levels, namely at the community level, the state level (Laender) and the federal level (Bund). The competences are determined in Art. 70 – 75 of the German Constitution (GC). Many legislative and also most of the executive competences are allocated at Laender level (GC, Art. 70-75; Art. 83 ff.), which governments have for example direct contact to the European Commission. Although the Federal Ministry of Food, Agriculture and Consumer Protection (BMELV) is responsible for the forest sector at the national level, forestry competences at the federal (national government) level are rather restricted. The basic legal standards for the German forests are set by the Federal Forest Act (BWaldG), which was enacted in 1975. The Act outlines predominant guidelines (frame law) which are specified and if necessary supplemented at Laender level (BWaldG, §5).

16 Table T16 – Education and research

No data available for this reporting table.

17 Table T17 – Public revenue collection and expenditure

17.1 FRA 2010 Categories and definitions

Category	Definition
Forest revenue	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.
Public expenditure	All government expenditure on forest related activities (further defined below).
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.
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.
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.

17.2 National data

17.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Jahresberichte des BMELV über staatliche Beihilfen	M	Transfer Payments	2000/2005	Internal source BMELV, Ref. 531

17.2.2 Classification and definitions

National class	Definition
Transfer Payments	National aid inclusive EU-payments in the sector of forestry

17.3 Data for Table T17

Table 17a - Forest revenues

FRA 2010 Categories	Revenues (1000 local currency)	
	2000	2005
Forest revenue	n.a.	n.a.

Table 17b - Public expenditure in forest sector by funding source

FRA 2010 Categories	Domestic funding (1000 local currency)		External funding (1000 local currency)		Total (1000 local currency)	
	2000	2005	2000	2005	2000	2005
Operational expenditure	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Transfer payments	192 000	127 000	0	0	192 000	127 000
Total public expenditure	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

If transfer payments are made for forest management and conservation, indicate for what specific objective(s) - Please tick all that apply.		
	x	Reforestation
	x	Afforestation
	x	Forest inventory and/or planning [Vorbereitung für Waldumbau im Rahmen der GAK]
	x	Conservation of forest biodiversity
	x	Protection of soil and water
	x	Forest stand improvement
		Establishment or maintenance of protected areas
	x	Other, specify below
	Road construction and promotion of forestry groupings. Forest monitoring and assessment.	

17.4 Comments to Table T17

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest revenue	No data available	
Operational expenditure	No data available	Decreasing trend, because of extraordinary programme storm 1990 and cuts in funding because of budget consolidation
Transfer payments		

Other general comments to the table