



Forestry Department

Food and Agriculture Organization of the United Nations

**GLOBAL FOREST RESOURCES
ASSESSMENT**

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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).

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The Global Forest Resources Assessment Country Report Series is designed to document and make available the information forming the basis for the FRA reports. The Country Reports have been compiled by officially nominated country correspondents in collaboration with FAO staff. Prior to finalisation, these reports were subject to validation by forestry authorities in the respective countries.

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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 <i>in situ</i> . 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 <i>in situ</i> ; 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
Central Statistical Office;	H	Country area, inland water bodies,	1990 2000	Information achieved from the Central Statistical Office database
Central Statistical Office, Yearbook “Environment 2001”	H	forest area	2000	
Central Statistical Office, Yearbook “Environment 2006”	H	Country area, inland water bodies, forest area	2005	
Central Statistical Office, Yearbook “Environment 2008”	H	Country area, inland water bodies, forest area	2007	
Central Statistical Office, Yearbook “Forestry 1995”	H	forest area	1990, 1994	Definition of forest was changed in 1991. For 1990 forest area doesn’t contain lands related to forestry.
FAOSTAT	H	Country area, Land area	1990 2000 2005	

1.2.2 Classification and definitions

National class	Definition
Forest	(1) Land covered with forest vegetation, of area above 0.1 ha; it includes forest grounds temporarily deprived of forest vegetation, and (2) Lands related to forestry (forest roads, nurseries etc.).
Other wooded land	Not defined.
Other land with tree cover	Not defined.
Inland water bodies	Inland water bodies include rivers, lakes, water reservoirs and interior sea water. Up to 2001 “inland water” was containing ponds and ditches. Since 2001 ponds and ditches have been removed from this category into land area.

1.2.3 Original data

National Categories	Area (1000 hectares)				
	1990	1994	2000	2005	2007
forest - (1)	8694	8732	8865	9000	9049
forest – (2)	should be estimated	188	194	200	206
Other land	21749		21376	21433	21375
Inland water bodies	825		834	636	638
TOTAL	31268^{a)}		31269^{a)}	31269^{a)}	31268^{a)}

- a) Difference between total area results from the change of country borders due to Vistula river-bed alteration and rounding of the numbers.

1.3 Analysis and processing of national data

1.3.1 Calibration

	Land area (1000 hectares)		
	1990	2000	2005
FAOSTAT	30442	30436	30633
National data	30443	30435	30633
Difference FAOSTAT – National data	-1	+1	

The difference has been incorporated into the category for the purpose of this report.

1.3.2 Estimation and forecasting

The area of lands related to forestry (position “2” in forest definition) for year 1990 (187 thou. hectares) is estimated basing on data for 1994. The area of “Other lands” for 2000 and 2005 results from differences between calibrated “Total land area” and “Forest area” for reported years. The area of “Inland water bodies” for 2000 origins from calibration the national data with FAOSTAT figure. FAOSTAT data i.e. country area and inland water from year 2005 were used for year 2010. The area of forests for the 2010 is estimated by extrapolation of national data for 2005 and 2007.

1.4 Data for Table T1

FRA 2010 categories	Area (1000 hectares)			
	1990	2000	2005	2010
Forest	8881	9059	9200	9337
Other wooded land	0	0	0	0
Other land	21561	21377	21433	21296
...of which with tree cover	n.a.	n.a.	n.a.	n.a.
Inland water bodies	827	833	636	636
Total for country	31269	31269	31269	31269

1.5 Comments to Table T1

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest	Definition of forest in Poland is a land use related. Only areas recorded as a forest in the Polish land use register are reported. According to the Polish definitions, the minimum area of forest should be at least 0.1 ha. Up to now there is no data evaluating the share of forest plots greater than 0.1 ha and less than 0.5 ha. The total number of those forest plots is big but we are of the opinion that the area occupied by them is not significant therefore this item has not been adjusted.	
Other wooded land	In the Polish cadastral system categories like “woodlots” (239 thousand ha in 2007), “public and settlement green areas in towns” (68 thousand ha in 2003) exist, but there is no other information about the use and features of that grounds (e.g. green areas could include lawns). Furthermore, there is no available information on other (than mentioned above) trees outside forests, commonly occurring in Poland’s landscapes (trees along roads, water reservoirs, on agricultural lands, etc.) For this purpose these categories were not included under the <i>other wooded land</i> neither <i>other land with tree cover</i> .	
Other land		
Other land with tree cover		
Inland water bodies		There is no consistency between 1990/2000 and 2005/2010 data because of changes in definition of inland water.

Other general comments to the table

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

Field inventory	National forest inventory, planed as 5-year period survey,
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	will be finished in 2009.
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
Central Statistical Office, Yearbook "Forestry 1991"	H	Forest area by categories of ownership	1990	
Central Statistical Office, Yearbook "Forestry 2001"	H	Forest area by categories of ownership	2000	
Central Statistical Office, Yearbook "Forestry 2006"	H	Forest area by categories of ownership	2005	
Central Statistical Office;	H	Share of lands "related to forestry" in ownership categories	2000 2005	Information achieved from the Central Statistical Office database

2.2.2 Classification and definitions

National class	Definition
Public ownership	Coherent with FRA 2010 definitions.
Private ownership	
Individuals (sub-category of Private ownership)	
Private business entities and institutions (sub-category of Private ownership)	
Local communities (sub-category of Private ownership)	

2.2.3 Original data

National Categories		Area (1000 hectares)		
		1990	2000	2005
forest - (1) according to T1	Public	7219	7341	7410
	Private	1475	1524	1590
	...of which owned by individuals	1376	1428	1492
	...of which owned by private business entities and institutions	28	27	30
	...of which owned by local communities	71	69	68
forest – (2) according to T2	total	187 - estimated in T1	194	200
	of which in public [%]		99.9%	99.9%

2.3 Analysis and processing of national data

2.3.1 Calibration

Not needed

2.3.2 Estimation and forecasting

Not needed

2.3.3 Reclassification into FRA 2010 categories

Not needed

2.4 Data for Table T2

Table 2a - Forest ownership

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	2000	2005
Public ownership	7406	7535	7610
Private ownership	1475	1524	1590
...of which owned by individuals	1376	1428	1492
...of which owned by private business entities and institutions	28	27	30
...of which owned by local communities	71	69	68
...of which owned by indigenous / tribal communities	0	0	0
Other types of ownership	0	0	0
TOTAL	8881	9059	9200

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

Does ownership of trees coincide with ownership of the land on which they are situated?	<input checked="" type="checkbox"/>	Yes
	<input type="checkbox"/>	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	7406	7535	7610
Individuals	0	0	0
Private corporations and institutions	0	0	0
Communities	0	0	0
Other	0	0	0
TOTAL	7406	7535	7610

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	All public forests in Poland are managed by public institutions on country or community level.	

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
Forest Management Office (BULiGL). 1991. Update of forest area and wood resources for State Forest Holding.	H	forests functions	1990	for State Forests Holding
Forest Management Office (BULiGL). 2001. Update of forest area and wood resources for State Forest Holding.	H	forests functions	2000	for State Forests Holding
Forest Management Office	H	forests	2005	for State Forests Holding

(BULiGL). 2006. Update of forest area and wood resources for State Forest Holding.		functions		
Central Statistical Office, Yearbook "Forestry 2001"	H	Area of protective forest	2000	for private and community ownership,
		Forest area within protected areas	2000	in national parks
		Area of forests	1990, 2000	for state owned forests managed by other ministries than Ministry of Environment and Agricultural Ownership Agency.
Central Statistical Office, Yearbook "Forestry 2006"	H	Area of forest	1990, 2000, 2005,	in national parks
		Forest area within protected areas	2005	in national parks
		Area of protective forest	2005	for private and community ownership,
		Area of forest	2005	for state owned forests managed by other ministries than Ministry of Environment and Agricultural Ownership Agency.
Central Statistical Office	H	Area of forest with management plans	2000 2005	Information achieved from the Central Statistical Office database

3.2.2 Classification and definitions

Classification is given for years 1990, 2000 and 2005. Some terms given for one year are results of connection of subcategories given for another year.

National class	Definition
Production	Forest area designated primarily for production of wood
Protection of soil and water	<i>Soil protecting (anti-erosion) forests</i> <i>Water protecting forests</i> <i>Timberline zone forests (for 1990 and 2000 only)</i>
Conservation of biodiversity	<i>National Parks</i> <i>Nature Reserves</i> <i>High natural value forest (2000, 2005)</i> <i>Refuge of game (2000, 2005)</i> <i>Seed forests (2000, 2005)</i>
Social services	<i>Forests around health-resorts</i> <i>Forests of recreational sites (1990, 2000)</i> <i>Landscape forests (1990, 2000)</i> <i>Urban forests (2000, 2005)</i> <i>National defence forests (2000, 2005)</i>

	<i>Experimental forests (2000, 2005)</i> <i>Protective forests of community ownership (2000, 2005)</i> <i>Protective forests of private ownership (2000, 2005)</i>
Multiple use	<i>State owned forests managed by other ministries than Ministry of Environment and Agricultural Ownership Agency</i>
Other function	<i>Forests on areas under the influence of industry pollution</i>
No / unknown	<i>Private and community forests except protective</i> <i>Forests owned by Agricultural Ownership Agency</i>

3.2.3 Original data

State Forests Holding (without lands related to forestry)

FRA 2010 Categories / Designated function		Area (1000 hectares)			
		Primary function			
		1990	2000	2005	2007
Forest					
Production		4082	3474	3686	3676
Protection of soil and water:	<i>Soil protecting (anti-erosion) forests</i>	140	279	326	324
	<i>Water protecting forests</i>	561	1232	1430	1467
	<i>Timberline zone forests</i>	2	3	-	-
Conservation of biodiversity:	<i>Reserves</i>	43	66	78	85
	<i>High natural value forest</i>	-	45	52	51
	<i>Refuge of game</i>	-	67	76	75
	<i>Seed forests</i>	-	12	14	14
Social services:	<i>Forests around health-resorts</i>	75	65	60	62
	<i>National defence forests</i>	-	104	141	138
	<i>Experimental forests</i>	-	52	46	46
	<i>Urban forests</i>	-	641	652	653
	<i>Forests of recreational sites</i>	619	65	-	-
	<i>Landscape forests</i>	656	67	-	-
Other	<i>Forests on areas under the influence of industry pollution</i>	627	781	481	467
Total		6805	6953	7042	7060

Other public and private forests (without lands related to forestry)

FRA 2010 Categories / Designated function		Area (1000 hectares)			
		Primary function			
		1990	2000	2005	2007
Forest					
Conservation of biodiversity:	<i>National Parks</i>	113	181	183	184
	<i>Owned by parks</i> <i>In private ownership</i>	6	8	7	7
Social services:	<i>Protective forests of community ownership</i>	-	29	27	25
	<i>Protective forests of private ownership</i>	-	81	82	72
Multiple use	<i>State owned forests managed by other ministries than Ministry of Environment and Agricultural Ownership Agency</i>	211	69	59	58
No / unknown	<i>Private forests except protective forests and areas in national parks</i>	1514	1435	1501	1544
	<i>Community forests except protective</i>	45	50	55	58
	<i>Forest owned by Agricultural Ownership Agency</i>	-	59	44	41
Total			1912	1958	1989

Forest area within protected areas

	Area (1000 hectares)			
	1990	2000	2005	2007
Area of National Parks - IUCN Category II	108	136	139	140
Area of National Parks not classified yet.		44	44	44

Forest area with management plans or equivalents (lands related to forestry are included)

properties	Area (1000 hectares)					
	2000		2005		2007	
	Total	with management plans	Total	with management plans	Total	with management plans
State Forest Holding	7142	7142	7237	7237	7260	7260
National parks	193	193	197	197	198	198
Other state forests	128	45	100	45	89	45
Community forests	80	62	83	62	85	61
Private forests	1516	973	1583	904	1623	842
Total	9059	8414	9200	8445	9255	8406

3.3 Analysis and processing of national data**3.3.1 Calibration****Designated function**

Original data refers only to forests defined in position “1” in the forest definition (Table T1). These figures should be expanded by value of lands related to forestry – position “2” in forest definition.

Area of lands related to forestry by ownership:

	1000 hectares			
	1990	2000	2005	2007
<i>State Forest Holding</i>	183	189	194	200
<i>National Parks</i>	2	3	3	3
<i>Community forests</i>	1	1	2	2
<i>forests managed by other ministries than Ministry of Environment and Agricultural Ownership Agency</i>	1	1	1	1
Total	187	194	200	206

For year 1990 data origins from expert’s estimation.

3.3.2 Estimation and forecasting

Designated function in State Forests Holding after calibration.

The expansion factors for 1990, 2000, 2005 and 2007 are 1.02689, 1.02718, 1.02755 and 1.02833 respectively.

FRA 2005 Categories / Designated function	Area (1000 hectares)			
	Primary function			
	1990	2000	2005	2007
Forest				
Production	4192	3569	3788	3780
Protection of soil and water	723	1555	1804	1843
Conservation of biodiversity	44	195	226	231
Social services	1386	1021	924	924
Other – forest affected by industry pollution	643	802	494	482
Total - Forest	6988	7142	7236	7260

Designated function in other public and private forest - after calibration

FRA 2010 Categories / Designated function	Area (1000 hectares)			
	Primary function			
	1990	2000	2005	2007
Conservation of biodiversity:	121	192	193	194
Social services:	-	110	110	98
Multiple use	212	70	60	59
No / unknown	1560	1545	1601	1644
total	1893	1917	1964	1995

Forecast of area of forest with designated function for year 2010 was made on the basis of data for years 2007, 2005 and anticipated extension of forest made for table T1.

Forest area within protected areas

Forest area of five national parks, established after 1992 and haven't classified by IUCN yet, was included. Lands related to forestry in national parks also were added.

Forest area with management plan

Areas of forest with valid forest management plans (or their equivalents) were reported under this category. This includes all forests managed by the State Forest Holding, forests in national forest parks as well as a part of forests in private ownership and (state) Agricultural Property Agency. In addition, basing on expert assessment, state owned forests mainly managed by other ministries than Ministry of Environment (17.6 thousand ha in 2005) were also included under this category, despite the fact that for these areas the information about present status of fmp is not collected.

3.4 Data for Table T3

Table 3a – Primary designated function

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Production	4192	3569	3788	3768
Protection of soil and water	723	1555	1804	1901
Conservation of biodiversity	165	387	419	434
Social services	1386	1131	1034	1004
Multiple use	212	70	60	58
Other (please specify in comments below the table)	643	802	494	464
No / unknown	1560	1545	1601	1708
TOTAL	8881	9059	9200	9337

Table 3b – Special designation and management categories

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Area of permanent forest estate	8881	9059	9200	9337
Forest area within protected areas	110	183	186	187
Forest area under sustainable forest management	n.a.	8418	8445	8382
Forest area with management plan	n.a.	8418	8445	8382

3.5 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		
Social services		
Multiple use		
Other	Forests on areas under the influence of industry pollution - main goal of management and silvicultural treatment is maintain such forests and keep them in good condition. In special cases reconstruction of stand is or should be made.	
No / unknown designation		
Area of permanent forest estate	According to the binding law, changing of land use from forest to another type is generally forbidden. Area of forest annually deforested during last 10 years amounts to 524 ha (in average). For each case of planned deforestation receiving an acceptance from the Minister of Environment is obligatory.	
Forest area within protected areas		
Forest area under sustainable forest management	Area of forest with valid management plan is reported.	
Forest area with management plan		Decrease of forests with management plan predicted for year 2010, results from situation in private forests. For period 2005-2007 about 5% decrease of area with valid management plan in private forest was reported.

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 <u>outside</u> 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
Central Statistical Office, Yearbook "Forestry 1991"	H	Strictly protected area of forests in national parks and reserves	1991	
Central Statistical Office, Yearbook "Forestry 2001"	H	Strictly protected area of forests in national parks and reserves	2000	
Central Statistical Office, Yearbook "Forestry 2006"	H	Strictly protected area of forests in national parks and reserves	2005	
Central Statistical Office set of publications issued in years 1967-2007	H	Area of forest naturally regenerated, artificially regenerated and afforestation area	1945-2005	
State Forest Holding	H	Area of introduced species in State Forest Holding	2000 2008	Information achieved from databases of stands in SFH
Forest Management Office	M	Private forests – per cent of sample plots on which introduced species are dominant	1998	database of Large Scale Forest Inventory in Private Forests

4.2.2 Classification and definitions

National class	Definition
Primary	Strictly protected area of forests in nature reserves and national parks.
Other naturally regenerated forest	Coherent with FAO definitions
Planted forest	
Planted forest of introduced species	Stands of following dominant species: <i>Robinia pseudoacacia</i> , <i>Quercus rubra</i> , <i>Pinus strobus</i> , <i>Pinus nigra</i> , <i>Pinus rigida</i> , <i>Pinus banksiana</i> , <i>Juglans nigra</i> , <i>Aesculus hippocastanum</i> , <i>Fraxinus pennsylvanica</i> , <i>Picea sitchensis</i> , <i>Picea omorika</i> , <i>Picea pungens</i>

4.2.3 Original data

	Area (1000 hectares)		
	Forest		
	1990	2000	2005
Strictly protected area of forests in national parks and reserves	30	51	54

Area of	Area (1000 hectares)			
	Period			
	1945-1990	1991-2000	2001-2005	2006-2007
Regenerated forest	4140	507	217	96
...of which naturally regenerated	204	43	24	10
...of which artificially regenerated	3936	464	193	86
Afforestation area	1173	149	95	30
Total	5313			
Per cent of naturally regenerated from total	3,84%			

Introduced species:

	Area (1000 hectares)		
	1998	2000*	2008**
Area of stands in State Forest Holding with introduced species as a dominant		12	20
Private forests - per cent of sample plots on which introduced species are dominant	0.47%		

* year 2000 as a central for 10-year period; data comes from original forest management plans that had been made between 1995 and 2005;

** data comes from information system in which stand characteristics are being up-to-dated on annual basis;

4.3 Analysis and processing of national data

4.3.1 Calibration

Not needed

4.3.2 Estimation and forecasting

Other naturally regenerated forest

Area of other naturally regenerated forests in year 1990 was calculated basing on information about characteristics of forest regeneration and afforestation between 1945 and 1990. This data was extended on all area of forests existing in 1990.

To obtain values for year 2000 and 2005, percentage of naturally regenerated forest for year 1990 and registered values of areas of harvested/regenerated forests in given periods were used. Calculation was done in three steps:

- 1) from area of forest in 1990 area of harvested/regenerated forest in next periods was subtracted;
 - 2) result was multiplied by percentage of naturally regenerated forest for year 1990;
- area of naturally regenerated forests from 1990 to reported year was added.

The same method was used for forecasting, where estimation of area of naturally regenerated forest between 2005 and 2010 was made basing on data for years 2006-2007.

	Area (1000 hectares)			
	Forest			
	1990	2000	2005	2010
Total area of forest	8881	9059	9192	9337
...of which primary	30	51	54	54
... other then primary	8851	9058	9138	9283
Naturally regenerated forest other than primary	340 = 8851*0,0384	363=(8851- 507)*0,0384+43	379=(8851-507- 217)*0,0384+43+24	394=(8851-507-217- 240)*0,0384+43+24+25

Planted forest of introduced species

Information about area of stands with introduced species in State Forest Holding in 2008 was used without any changes for reporting years 2005 and 2010. Percentage of introduced species in private forest in 1998 multiplied by area of private forest was used for year 2000 and following. Basing on available data, area of introduced species in remaining forests was estimated on 1 thousand hectares.

4.4 Data for Table T4

Table 4a

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Primary forest	30	51	54	54
Other naturally regenerated forest	340	363	379	394
...of which of introduced species	n.a	n.a	n.a	n.a
Planted forest	8511	8645	8767	8889
...of which of introduced species	n.a	20	28	28
TOTAL	8881	9059	9200	9337

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	The area of primary forest is not directly monitored. For the purpose of this report relevant values were seized with use of protectiveness status – areas strictly protected were qualified.	
Other naturally regenerating forest	Reported value is probably underestimated due to gaps in system of data reporting after the Second World War.	
Planted forest	All stands with introduced species are reported as planted. In fact, some of them are naturally regenerated, but there is no possibility to estimate origin of stands.	Because of differences in methodology of collecting data about planted forest of introduced species reported trend of this sub-category between 2000 and 2005 could be inaccurate.
Rubber plantations	Not applicable	
Mangroves	Not applicable	
Bamboo	Not applicable	

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
Central Statistical Office Yearbooks “Forestry in 1989...1992”; “Forestry 1999... 2008”	H	Afforestation, reforestation and natural succession area	1988-1992, 1998-2002, 2003-2007	
State Forest Holding	H	Area of stand with introduced species as a dominant		Information for State Forest Holding, achieved from SFH database.

5.2.2 Classification and definitions

National class	Definition
Afforestation	Coherent with FAO definitions
Reforestation	
Natural expansion of forest	

5.2.3 Original data

Year	hectares		
	afforestation	reforestation	Natural expansion of forest
1988	7030	62947	-
1989	8627	65712	-
1990	6836	59999	-
1991	7570	56455	-
1992	8866	50318	-

1998	16948	43314	-
1999	19605	43695	-
2000	23404	45542	-
2001	22986	42393	-
2002	20297	36540	-
2003	26494	39630	-
2004	12682	49023	-
2005	12871	49174	268
2006	16932	48758	447
2007	13287	47470	359

Forests in State Forest Holding only. Area of stands with introduced species as a dominant in species composition in 2007.

Age of stands	hectares
≤ 5 year	266
6-10	1011
16-20	677

5.3 Analysis and processing of national data

5.3.1 Calibration

Not needed

5.3.2 Estimation and forecasting

Not needed

5.3.3 Reclassification into FRA 2010 categories

Not needed

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	7786	20648	16453	n.a.	n.a.	n.a.
Reforestation	59086	42297	46811	135	202	53
...of which on areas previously planted	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Natural expansion of forest	n.a.	n.a.	358	n.a.	n.a.	n.a.

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

5.5 Comments to Table T5

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Afforestation		
Reforestation	Area reforestation with introduced species refers only to State Forest Holding. This area is not directly monitored. For the purpose of this report information about species composition of stands was used. Reported value in a part could be a result of replacement species originally planted by introduced species (through natural spreading).	
Natural expansion of forest	Data only for three years are available. Category wasn't recorded before 2005.	

Other general comments to the table

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
Central Statistical Office. Yearbook “Forestry in 1990”	M	Growing stock; Species composition	1990	
State Forest Holding. “Forest Report 2001”	M	Growing stock	2000	
State Forest Holding. “Forest Report 2006”	M	Growing stock	2005	
Central Statistical Office. Yearbooks “Forestry 2001” and “Forestry 2006”	H/M	Growing Stock and species composition	2000, 2005	For State Forest Holding, High quality data of growing stock Medium quality of species composition
Central Statistical Office. Yearbook “Forestry 2001”	L	Growing Stock and species composition	1998	For private and community forests

6.2.2 Classification and definitions

National class	Definition
Growing stock	Volume over bark of all living trees more than 7 cm in diameter at breast height. Branches to a minimum diameter of 7 cm are included, stumps are excluded.
Growing stock of commercial species	Growing stock of all trees except <i>Taxus baccata</i> (<i>strictly protected</i>).

6.2.3 Original data

Growing stock composition by group of species

Dominant species in groups are signed with bold-faced fonts.

Species name (Scientific name and common name)	Growing Stock (million cubic meters)				
	all forests	private and community forests	State Forests Holding		
			1990	2005	2007
Pinus silvestris , Larix decidua – Pine , Larch	973.1	103.4	1025.9	1141.9	1170.8
Picea abies - Spruce	129.7	17.3	103.4	102.8	102.7
Abies alba , Pseudotsuga menziesii – European Silver Fir , Douglas fir	53.2	17.7	35.8	41.7	45.6
Quercus , Fraxinus excelsior, Acer platanoides, Acer pseudoplatanus, Ulmus - Oak , Ash, Maple, Sycamore Maple, Elm	91.2	7.9	96.9	107.3	111.7
Fagus sylvatica - European beech	86.3	7.8	85.2	92.6	98.6
Betula , Robinia pseudoacacia - Birch , Robinia	71.1	13.4	65.4	69.0	70.8
Alnus - Alder	67.0	16.8	57.1	63.7	65.7
Populus tremula , Tilia, Salix, - Aspen , Linden, Willow	5.2	1.8	3.6	3.7	3.9
Populus alba – White Poplar	2.3	0.3	2.4	2.2	1.9
Carpinus betulus - Hornbeam	5.7	2.2	4.4	4.4	4.5
TOTAL	1484.8	188.7	1480.1	1629.3	1676.2

Growing stock

	Volume (million cubic meters over bark)		
	Forest		
	1990	2000	2005
Growing stock	1485	1736	1909
...of which in State Forest Holding		1480	1630
...in national parks		39	42
...in private and community forests		197	220
...remaining public forests		20	17

Values of growing stock for all properties except State Forest come from estimation made for the purpose of Forest Reports.

6.3 Analysis and processing of national data

6.3.1 Calibration

Not needed

6.3.2 Estimation and forecasting

Share of coniferous and broadleaved for years 2000 was calculated with use of the following assumptions:

- species composition in national park is the same as in State Forest Holding,
- species composition in private and community forest is the same as was in 1998,
- species composition in remaining public forests is the same as in private.

For years 2005 and 2010 above approach also was used. For private forests, species composition from year 1998 was adopted. For forests managed by State Forest Holding and forests in national parks, data from SFH for year 2005 and 2007 were applied.

The “Total growing stock” for the year 2010 was predicted using linear extrapolation, what is showed below. Growing stock in SFH was estimated basing on data for 2007 and 2005, for other forests data for 2005 and 2000 were used for forecasting.

	Volume (million cubic meters over bark)		
	Forest		
	2000	2005	2010
Growing stock	1736	1909	2049
...of which in State Forest Holding	1480	1630	1747
...in national parks	39	42	45
...in private and community forests	197	220	243
...remaining public forests	20	17	14

6.3.3 Reclassification into FRA 2010 categories

Not needed

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	1485	1736	1909	2049	0	0	0	0
... of which coniferous	1156	1355	1494	1599	0	0	0	0
... of which broadleaved	329	381	415	450	0	0	0	0
Growing stock of commercial species	1485	1736	1909	2049	0	0	0	0

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
1 st	<i>Pinus silvestris</i> , <i>Pinus spp.</i> , <i>Larix decidua</i>	Scots Pine, Pine, Larch	973	1172	1302
2 nd	<i>Picea abies</i>	Norway Spruce	130	126	127
3 rd	<i>Quercus spp.</i> , <i>Fraxinus excelsior</i> , <i>Acer platanoides</i> , <i>Acer pseudoplatanus</i> , <i>Ulmus</i>	Oak, Ash, Maple, Sycamore Maple, Elm	91	109	120
4 th	<i>Fagus sylvatica</i>	European Beech	86	96	105
5 th	<i>Betula spp.</i> , <i>Robinia pseudoacacia</i>	Birch, Robinia	71	83	88
6 th	<i>Alnus spp.</i>	Alder	67	78	86
7 th	<i>Abies alba</i> , <i>Pseudotsuga menziesii</i>	European Silver Fir, Douglas fir	53	57	65
8 th	<i>Carpinus betulus</i>	Hornbeam	6	7	7
9 th	<i>Populus tremula</i> , <i>Tilia</i> , <i>Salix</i>	Aspen, Linden, Willow	6	6	6
10 th	<i>Populus alba</i>	White Poplar	2	2	3
Remaining			0	0.	0
TOTAL			1485	1736	1909

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	
Volume refers to “above ground” (AG) or “above stump” (AS)	AS	

6.5 Comments to Table T6

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Total growing stock	Reported value consists of high/medium quality data for State Forest Holding and estimation made for remaining forest basing mainly on low quality and out-of-date data for private forests.	
Growing stock of broadleaved / coniferous	Data on country level are available only for groups of species. Additionally, data are collected basing on dominant species in stands. Because of this share of coniferous is probably overestimated while broadleaved species are underestimated	
Growing stock of commercial species	All species growing in forests except <i>Taxus baccata</i> - protected by law, are commercial	
Growing stock of the most common species	Data on country level are available only for groups of species. Additionally, data are collected basing on dominant species in stands but faced-bolded species in table are in fact most common.	

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.

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
The same as for FRA Reporting Table 6				
Forest Management Office. Large area forest inventory in State Forest Holding. 1991	M	Ratio of dead wood to growing stock	1990	Dead wood with diameter larger than or equal 7 cm was measured.
Forest Management Office. Large area forest inventory in State Forest Holding. 2001	M	Ratio of dead wood to growing stock	2001	Dead wood with diameter larger than or equal 7 cm was measured.

7.2.2 Classification and definitions

National class	Definition
Above-ground biomass	Coherent with FAO definitions.
Below-ground biomass	
Dead wood	Minimum diameter equal 7 cm was used. Stumps and dead roots are not included.

7.2.3 Original data

Data on growing stock reported in tables 6a and 6b of this report were obtained.

7.3 Analysis and processing of national data

7.3.1 Estimation and forecasting

Conversion factors from Appendix 5 of “Guidelines ...” were used for estimating biomass. Above ground biomass was estimated independently using BCEF and BEF factors.

Value of BCEF was chosen basing on average growing stock level. The same value of BCEF was used for reported years although average growing stock level differs.

Below ground biomass as well as wood density was calculated using ratios from Appendix 5.

Biomass of dead wood is estimated with ratio factors obtained from large area forest inventories in State Forest Holding. These ratios were used for total growing stock. Ratio for year 2001 was applied for year 2000 as well as year 2005 and 2010.

Estimates with using BCEF

	1990	2000	2005	2010
Total growing stock - million cubic meters over bark	1485	1736	1909	2049
... of which coniferous	1156	1355	1494	1599
... of which broadleaved	329	381	415	450
Total area of forest – million hectares	8.881	9.059	9.200	9.337
... of which grounds related to forestry	0.187	0.194	0.200	0.215
Average growing stock level - m ³ /hectares	171	196	212	225
BCEF for coniferous	0.7	0.7	0.7	0.7
BCEF for broadleaved	0.8	0.8	0.8	0.8
AG biomass of coniferous	809	949	1046	1119
AG biomass of broadleaved	263	305	332	360
AG Total biomass	1072	1254	1378	1479
Ratio of BG to AG for coniferous	0.29	0.29	0.29	0.29
Ratio of BG to AG for Quercus	0.30	0.30	0.30	0.30
Ratio of BG to AG for other broadleaved	0.23	0.23	0.23	0.23
share of Quercus spp. within broadleaved growing stock	0.28	0.29	0.29	0.29
BG biomass of coniferous	235	275	303	325
BG biomass of Quercus spp.	22	27	29	31
BG biomass of other broadleaved	44	50	54	59
BG Total biomass	301	352	386	415
Ratio of dead wood to AG for coniferous	0.013	0.0072	0.0072	0.0072
Ratio of dead wood to AG for broadleaved	0.014	0.0085	0.0085	0.0085
Dead wood biomass of coniferous	11	7	8	8
Dead wood biomass of broadleaved	4	3	3	3
Dead wood total biomass	15	10	11	11

7.3.2 Reclassification into FRA 2010 categories

Not needed

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	1072	1254	1378	1479	0	0	0	0
Below-ground biomass	301	352	386	415	0	0	0	0
Dead wood	15	10	11	11	0	0	0	0
TOTAL	1388	1616	1775	1905	0	0	0	0

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	Stumps and dead roots are not included. Coefficient based on inventory of managed forests.	

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
The same as for FRA Reporting Tables 6 and 7				

8.3 Analysis and processing of national data

8.3.1 Estimation and forecasting

Default factors of carbon fraction in biomass from Appendix 5 of “Guidelines ...” were used.

	1990	2000	2005	2010
AG biomass of coniferous	809	949	1046	1141
AG biomass of broadleaved	263	305	332	362
Carbon fraction in coniferous biomass	0.51	0.51	0.51	0.51
Carbon fraction in broadleaved biomass	0.48	0.48	0.48	0.48
Carbon in above ground biomass	539	630	693	756
BG biomass of coniferous	235	275	303	331
BG biomass of broadleaved	66	77	83	90
Carbon in below ground biomass	152	177	194	212
Dead wood biomass of coniferous	11	7	8	8
Dead wood biomass of broadleaved	4	3	3	3
Dead wood total biomass	8	5	6	6

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	539	630	693	756	0	0	0	0
Carbon in below-ground biomass	152	177	194	212	0	0	0	0
Sub-total: Living biomass	691	807	887	968	0	0	0	0
Carbon in dead wood	8	5	6	6	0	0	0	0
Carbon in litter	n.a.	n.a.	n.a.	n.a.	0	0	0	0
Sub-total: Dead wood and litter	n.a.	n.a.	n.a.	n.a.	0	0	0	0
Soil carbon	n.a.	n.a.	n.a.	n.a.	0	0	0	0
TOTAL	n.a.	n.a.	n.a.	n.a.	0	0	0	0

Soil depth (cm) used for soil carbon estimates	n.a.
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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	Stumps and dead roots are not included.	
Carbon in litter		
Soil carbon		

Other general comments to the table

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 (<i>supplementary term</i>)	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
Central Statistical Office Yearbooks “Forestry in 1998...1992” “Forestry 1999...2008”	H	Burnt area and numbers of fires in forest	1988-1992, 1998-2007	
Central Statistical Office Yearbooks “Environment 2006...2008”	H	Burnt area and number of fires on agricultural land	1998-2007	

9.2.2 Classification and definitions

National class	Definition
Number of fires	Coherent with FAO definitions
Area affected by fire	
Vegetation fire (<i>supplementary term</i>)	
Wildfire	
Planned fire	

9.2.3 Original data

Forest fires

Year	Forest fires		Cultivated plants, meadows and stubbles		Abandoned lands	
	hectares	number of fires	hectares	number of fires	hectares	number of fires
1988	3800	n.a.				
1989	4997	3528				
1990	7341	5756				

1991	2567	3528				
1992	43755	11858				
1998	4019	5946	6234	3635	26561	11545
1999	8307	7013	12896	6814	27484	16017
2000	7013	12428	4679	3360	24264	16024
2001	3429	4480	5448	3866	28509	5448
2002	5200	10101	9142	5516	26293	22537
2003	21500	17088	13718	8567	95906	53367
2004	3781	7006	8705	6771	30626	22543
2005	5826	12169	7535	7635	27991	27991
2006	5912	11828	10999	20875	17999	5909
2007	3564	7101	2691	3150	13961	20269

9.3 Analysis and processing of national data

9.3.1 Calibration

Not needed

9.3.2 Estimation and forecasting

For the purpose of this report number of forest fires in 1988 (not available) was estimated using average area of forest fire in 1989-1991.

9.3.3 Reclassification into FRA 2010 categories

Not needed

9.4 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.	39.9	26946	54.1	46454
... of which on forest	12.5	5587	5.6	7994	8.1	11038
... of which on other wooded land	0	0	0	0	0	0
... of which on other land	n.a.	n.a.	34.3	18952	46.0	35415

Table 9b

FRA 2010 category	Proportion of forest area affected by fire (%)		
	1990	2000	2005
Wildfire	100	100	100
Planned fire	0	00	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

9.5 Comments to Table T9

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Area affected by fire	Included forest, cultivated plants, meadows, stubble-fields and abandoned area fires.	Large influence on reported data and trends of forest fires had very big fires in 1992 and 2003
Number of fires	Included fires in forest, cultivated plants, meadows, stubbles and abandoned area.	
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
Central Statistical Office: Yearbooks Forestry 1989-1993, 1999- 2008.	M	Insects, diseases	1988-1992, 1998-2002	Area of insects and diseases occurrence, where chemical and mechanical control were applied. For diseases data refer only to State Forest Holding.
State Forest Holding. Forest Report 2003...2007	M	Grazing and physical damage made by animals; damages made by abiotic factors	2003-2007	Only for State Forest Holding
Nature Conservation Institute. Polish Academy of Sciences. http://www.iop.krakow.pl	H	Invasive woody species		Information achieved from online database

10.2.2 Original data

Year	Disturbances affecting health and vitality [1000 ha]						
	biotic factors			abiotic factors			
	Insects	Diseases	Grazing and physical damage by animals	Changes of Ground water level	storm	snow	Low and high temperatures
1988	261.26	4.98					
1989	103.42	4.99					
1990	26.12	4.99					
1991	171.30	1.59					
1992	392.66	12.68					
1998	92.54	79.78					
1999	90.71	83.99					
2000	169.56	93.53					
2001	164.51	78.45					
2002	80.32	37.98					
2003	178.56	42.20	70.55				
2004	118.40	50.18	68.06	84.09	163.33	14.94	8.24
2005	118.43	50.64	60.84	84.76	51.09	8.13	1.69
2006	68.09	52.74	59.79	94.41	27.81	81.06	8.07
2007	105.57	47.18	46.28	64.84	273.49	17.03	9.07

10.3 Data for Table T10

Table 10a – Disturbances

FRA 2010 category	Affected forest area (1000 hectares)		
	1990	2000	2005
Disturbance by insects	191	120	118
Disturbance by diseases	6	74	49
Disturbance by other biotic agents	n.a.	n.a.	61
Disturbance caused by abiotic factors	n.a.	n.a.	248
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

Description / name	Tree species or genera affected (scientific name)	Year(s) of latest outbreak	Area affected (1000 hectares)	If cyclic, approx. cycle (years)
Nun moth / <i>Lymantria monacha</i>	<i>Pine / Pinus sylvestris</i>	1997-2004 1993-1994 1979-1985	363 912 3200	
Pine beauty moth / <i>Panolis flammea</i>	<i>Pine / Pinus sylvestris</i>	1997-2002	153	
Pine lapped moth / <i>Dendrolimus pini</i>	<i>Pine / Pinus sylvestris</i>	2000-2004	91	
Pine looper moth / <i>Bupalus piniarius</i>	<i>Pine / Pinus sylvestris</i>	1997	52	
Pine sawflies / <i>Diprionidae</i>	<i>Pine / Pinus sylvestris</i>	2005 1991-1995	50 620	
Oak tortrix moth / <i>Tortricidae</i>	<i>Oak / Quercus</i>	2004-2006	47	
Cockchafers – imago / <i>Melolontha melolontha</i>	<i>Oak and other broadleaved</i>	2007	21	
Spruce engraver beetle / <i>Ips typographus</i>	<i>Norway spruce / Picea abies</i>	2002-up to now	n.a.	

Note: Area affected refers to the total area affected during the outbreak.

Table 10c – Area of forest affected by woody invasive species

Scientific name of woody invasive species	Forest area affected 2005 (1000 hectares)
<i>Robinia pseudoacacia</i>	n.a.
<i>Quercus rubra</i>	n.a.
<i>Acer negundo</i>	n.a.
<i>Prunus serotina</i>	n.a.
Total forest area affected by woody invasive species	n.a.

Note: The total forest area affected by woody invasive species is not necessary the sum of the values above, as these may be overlapping.

10.4 Comments to Table T10

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Disturbance by insects	Reported value refers to area where chemical and mechanical control was applied. Data covers folivorous insects as well as pests affecting young stands. Area of forests damaged by bark and wood-boring beetles is not included. Appearance of pests was observed on bigger area than reported, but partly with	

	<p>small intensity of damages – without necessity of controlling their population. In 2005 folivorous insects appeared on area of 294,000 hectares in State Forest Holding. Species affecting young stand was reported on area of 32,000 hectares.</p> <p>Area of appearance of bark and wood-boring beetles is not available. Disturbances caused by such pests are reported by amount of affected wood. In 2005 more than 3.2 million cubic meters of wood affected by them was removed from forests.</p>	
Disturbance by diseases	In 2005, total area affected by diseases amounts to 464,000 hectares in State Forest Holding. On reported area i.e. 49,000 hectares in 2005, chemical and mechanical method of reducing occurrence of diseases was applied.	
Disturbance by other biotic agents	Area of grazing and physical damage made by wild animals with level of damages above 20% was reported.	
Disturbance caused by abiotic factors		
Major outbreaks	<p>Reported area refers to stands in which reduction of insects and diseases were done. As was stated above pests were observed on a bigger area then reported. Overlapping (double counting) of area during a few year continuing outbreaks is possible.</p> <p>Information about area of appearance of Spruce engraver beetle (<i>Ips typographus</i>) is not available, but in 2007 about 2 million cubic meters of spruce wood affected by this species was removed from forest. In many cases reported species, according to its behaviour, appears on areas affected by other biotic and abiotic factors.</p>	
Invasive species	Reported species make difficulties with natural as well as artificial reforestation.	

Other general comments to the table

There is no possibility to report total area with damages made by disturbance because of overlapping of areas reported for particular categories.

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
Central Statistical Office: Yearbooks “Forestry in 1988...1992”, “Forestry 1999...2008”	H/L	Timber harvested in forests by assortment groups, Timber harvested in woodlots – outside the forests Prices of wood in State Forest Holding	1988-1992; 1998-2007	High quality data for State Forest Holding and national parks. Low quality data for private and public forests other than SFH and national parks.

11.2.2 Classification and definitions

National class	Definition
Industrial removals	The volume of merchantable timber (more than 5 cm diameter under bark) as well as slash (less than 5 cm diameter under bark) used for production of goods and services other than energy production (woodfuel). Includes wood sold as a wood chips.
Woodfuel removals	The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use. Merchantable timber and slash are taken into account.

11.2.3 Original data

Category \ year	removals - in 1000 m ³ of under bark wood				
	1998	1999	2000	2001	2002
A. from forests					
1. Total except chips	24264	22675	18676	18196	22037
...of which coniferous fuelwood	1749	1287	1178	1399	1625
...broadleaved fuelwood	1218	987	890	1293	1433
...slash for industry purpose	820	835	482	500	574
...slash for fuel	739	575	574	670	824
2. chips	n. a.	974	692	640	741
B. outside the forests					
1 sawnwood	568	507	260	221	156
2. other	340	301	395	346	252
State Forest Holding , average prices of wood – PLZ (polish zloty) per cubic meter of under bark wood (without chips)					
	7793	32877	248935	300070	319473

Average prices of some assortments of wood in State Forest Holding in 1993 (except chips) in PLZ per cubic meter of under bark wood

	PLZ	% of Total
Total	398710	100,00%
coniferous fuelwood	104487	26,21%
broadleaved fuelwood	133111	33,39%
slash for industry purpose	112662	28,26%
slash for fuel	73660	18,47%
Broadleaved sawnwood	743985	186,60%

Category \ year	removals - in 1000 m ³ of under bark wood									
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
A. from forests										
1. merchantable timber										
1.1 coniferous										
- sawnwood	8157	8729	9397	8164	8477	9104	10163	9888	10379	12871
- valuable sawnwood (vener, plywood,...)	97	80	73	63	50	64	74	66	66	63
- middle size wood for construction purpose	937	892	833	821	738	709	703	701	681	685
- pulpwood	7126	7343	8507	8256	9458	9685	10320	10249	10120	11525
- fuelwood	540	593	730	743	1105	1276	1088	1015	1080	1231
1.2 broadleaved										
- sawnwood	1962	2191	2190	2212	2126	2338	2571	2517	2464	2600
- valuable sawnwood (vener, plywood,...)	328	327	294	292	271	258	268	245	233	237
- pulpwood	3126	3278	3195	3568	3876	4238	4254	3959	4004	3809
- fuelwood	774	833	806	898	1036	1064	986	1085	1201	1125
2. slash										
2.1 for industry purpose	878	813	706	704	751	807	984	907	820	671
2.2. for fuel	932	937	928	950	1069	1292	1322	1313	1336	1125
3. chips		317	222	190	204	227	260	228	180	149
B. outside the forests										
1 sawnwood		129	137	126	135	146	160	183	183	199
2. other		221	253	240	256	292	311	362	389	420

Category \ year	State Forest Holding , average prices in polish zloty per cubic meter of under bark wood by assortment structure									
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
1. merchantable timber										
1.1 coniferous										
- sawnwood	172	183	190	191	167	163	177	186	188	203
- valuable sawnwood (veneer, plywood,...)	391	400	401	400	322	295	314	334	334	341
- middle size wood for construction purpose	101	106	110	111	102	101	110	128	131	139
- pulpwood	74	79	82	83	79	82	91	103	103	112
- fuelwood	48	50	51	52	48	47	53	61	64	69
1.2 broadleaved										
- sawnwood	175	183	197	197	183	181	199	217	219	230
- valuable sawnwood (veneer, plywood,...)	250	269	288	265	234	235	263	275	267	280
- pulpwood	66	69	71	73	71	72	80	92	93	100
- fuelwood	52	54	57	59	58	58	66	76	79	84
2. slash										
2.1 for industry purpose	28	32	36	39	36	38	45	53	60	68
2.2. for fuel	26	28	29	29	28	27	29	31	31	32
3. chips	50	52	53	53	49	47	58	69	69	76

11.3 Analysis and processing of national data

11.3.1 Calibration

Not needed

11.3.2 Estimation and forecasting

Volume

Following categories from reported original data were included to woodfuel:

- coniferous fuelwood,
- broadleaved fuelwood,
- slash for fuel,
- timber harvested outside the forest - other than sawnwood.

In Poland wood is measured under bark or convert to under bark wood for sale. General conversion factor used to transfer volume of under bark wood to volume of over bark wood equals 1.2

Value

For all timber harvested in forests, prices from State Forest Holding (SFH) were used.

For sawnwood harvested outside the forest, prices of broadleaved sawnwood in SFH were adopted. For other timber outside the forest – prices of broadleaved fuelwood in SFH.

Value of wood reported under bark was divided by volume of over bark wood to obtain prices of over bark wood.

For year 1990 estimation was made basing on average price of all harvested wood in State Forest Holding. Additional data for year 1993 was used for differentiating prices of fuelwood assortments within average price of wood in State Forest Holding in 1988-1992. For chips the same factor as for broadleaved fuelwood was used.

11.4 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.)	22783	29598	35572	4338	3382	4635
... of which from forest	22372	29438	35363	3946	3090	4209
Unit value (local currency / m ³ o.b.)	168958	105	115	42004	37	46
Total value (1000 local currency)	3849370114	3107790	4090780	182213352	125134	213210

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

	1990	2000	2005
Name of local currency	PLZ – Polish zloty	PLN – Polish new zloty = 10000 PLZ	PLN – Polish new zloty = 10000 PLZ

11.5 Comments to Table T11

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Total volume of industrial roundwood removals	There are differences between data reported in this table and corresponding data in FRA 2005 report. In this table volume of slash (less than 5 cm diameter under bark) used for production of goods and wood sold as wood chips was included.	
Total volume of woodfuel removals	There are differences between data reported in this table and corresponding data in FRA 2005 report. In this table volume of slash (less than 5 cm diameter under bark) used for fuel was taken into account.	
Unit value		
Total value		There was a huge inflation rate during 1988-1992 period and after this time. Because of that, big changes in prices and values of wood between 1990 and 2000 are observed. In 1995 denomination of Polish currency was done. 1 PLN (new) = 10000 PLZ (old). Data for year 1990 are reported in PLZ.

Other general comments to the table

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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
<u>Plant products / raw material</u>
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
<u>Animal products / raw material</u>
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
Central Statistical Office, Yearbook "Forestry 2006"	M	Quantity and value of berries, fruits and mushrooms.	2005	
Central Statistical Office, Yearbook "Forestry 2006"	H	Quantity of wild meat	2005	
Central Statistical Office, Yearbook "Forestry 2006"	H	Quantity and value of wild meat	2006	
State Forest Holding. 2006. Financial and economical report of State Forest Holding for year 2005.	H	Quantity of Christmas trees	2005	Data refers only to Christmas trees produced by State Forest Holding

12.2.2 Original data

Name of product	Unit	NWFP removals 2005	
		Quantity	Value (1000 local currency)
Berries	tones	11834	86414
Wild meat	tones	7165	53628
Mushrooms	tones	4186	39113
Forest fruits	tones	7304	7194
Christmas trees	number	49000	n.a.

	Number of hunted games		Wild meat in tones	Value 1000 PLN - Polish new zloty
	2005	2006		
Hart and fallow deer	45044	43446	2608	16295
Roe deer	148375	134469	1810	21681
Wild boar	139216	118435	2096	10898

12.3 Analysis and processing of national data

12.3.1 Calibration

12.3.2 Estimation and forecasting

Using data for 2006, amount and value of wild meat in 2005 was directly estimated.

	ratio	Wild meat in tones	Value 1000 PLN - Polish new zloty
Hart and fallow deer	$1.0368 = 45044 / 43446$	2704	16895
Roe deer	$1.1034 = 148375 / 134469$	1997	23923
Wild boar	$1.1755 = 139216 / 118435$	2464	12810
Sum		7165	53628

12.4 Data for Table T12

Rank	Name of product	Key species	Unit	NWFP removals 2005		NWFP category
				Quantity	Value (1000 local currency)	
1 st	Berries, mainly blueberry	Blueberry / <i>Vaccinium myrtillus</i> ; Lingonberry / <i>Vaccinium vitis-idaea</i> ; Cranberry / <i>Vaccinium oxycoccus</i> ; Rubus / Blackberry and Forest Raspberry; Wild strawberry / <i>Fragaria</i> ;	tones	11834	86414	1
2 nd	Wild meat	Hart, fallow deer, roe, board	tones	7165	53628	12
3 rd	Mushrooms	Chanterelle, <i>Xerocomus</i> , Bolete, <i>Suillus</i> , <i>Tricholoma</i> , Red Pin Mushroom, Honey Fungus, False Morel, <i>Leccinum</i>	tones	4186	39113	1
4 th	Forest fruits	Black Elder / <i>Sambucus nigra</i> ; European Rowan / <i>Sorbus aucuparia</i> ; <i>Rosa Canina</i> ; Hawthorn / <i>Crataegus</i> ; <i>Prunus spinosa</i>	tones	7304	7194	1, 3
5 th	Christmas trees	Spruce, Pine	number	49000	n.a.	6
6 th	n.a	n.a.	n.a.	n.a.	n.a.	n.a.
7 th						
8 th						
9 th						
10 th						
All other plant products						
All other animal products						
TOTAL					n.a.	

	2005
Name of local currency	PLN - Polish new zloty

12.5 Comments to Table T12

Variable / category	Comments related to data, definitions, etc.
10 most important products	In case of plant products (berries, fruits and mushrooms) data refers only to a part of removals subject to statistical assessment. Reported products are also picked by individuals for their own use – out of statistical reporting.
Other plant products	
Other animal products	Additionally to reported species, other ones (hares, partridge, pheasants and ducks, were hunted in 2005, but there is no possibilities to estimate how match of them were connected with forest's ecosystems. Value of wild meat of above species in 2006 amounts to 167 thousand of PLN (0.34% of total value of wild meat in 2006).
Value by product	
Total value	

Other general comments to the table

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 <u>wage or salary</u> in cash or in kind.
Self-employment	Persons who during a specified reference period performed some work for <u>profit or family gain</u> 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
Central Statistical Office, Yearbooks: "Forestry 2006", "Forestry 2001", "Forestry in 1990"	H	Employment in forestry	2005 2000 1990	Average employment in year

13.2.2 Classification and definitions

National class	Definition
Paid employment	Employees hired on the basis of employment contract (labour contract, posting, appointment or election), or service relation.
Self-employment	- employers and self-account workers, i.e. owners and co-owners (including contributing family workers; excluding partners in companies who do not work in them) of entities carrying out economic activity, - agents hired on the basis of an agency contract (including contributing family workers and persons employed by agents),

13.3 Data for Table T13

FRA 2010 Category	Employment (1000 years FTE)		
	1990	2000	2005
Employment in primary production of goods	131	60	48
...of which paid employment	123	44	37
...of which self-employment	8	16	11
Employment in management of protected areas	1	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	Data includes all staff of State Forest Holding without excluding people responsible in part also for managing in protected areas. People involved in picking up berries, fruits and mushrooms, hunting (harvesting wild meat) as well as involved in trade of them are not included. There are more than one hundred thousand of hunter associations' members in Poland.	
Paid employment / self-employment		
Employment in management of protected areas	Data for year 1990 refers to employment in national and landscape parks, to people responsible for forest and non-forest area of parks.	

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	1997		
	Reference to document	Ministerstwo Środowiska, Zasobów Naturalnych i Leśnictwa. Polityka leśna Państwa. Warszawa. 1997 http://www.mos.gov.pl/lesnictwo/polityka_lesna_programy_dzialan/polityka_lesna_panstwa.pdf		
National forest programme (nfp)		X	Yes	
			No	
If Yes above, provide:	Name of nfp in country	National Forest Programme		
	Starting year	2000		
	Current status		X	In formulation
				In implementation
				Under revision
			Process temporarily suspended	
Reference to document or web site	...			
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	1991
	Year of latest amendment	2009
	Reference to document	Forest Act Journal of Laws of the Republic of Poland Dz.U. 1991 nr 101 poz. 444 http://www.cokprm.gov.pl/2,63,g,dzienniki_ustaw_2009,oferta_wydawnicza.html http://isip.sejm.gov.pl/servlet/Search?todo=open&id=WDU19911010444 , http://isip.sejm.gov.pl/servlet/Search?todo=file&id=WDU19911010444&type=3&name=D19910444Lj.pdf

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	<input type="checkbox"/>	Yes
	<input checked="" type="checkbox"/>	No
If Yes above, indicate the number of regions/states/provinces with forest policy statements		
Sub-national Laws (Acts or Codes) on forest	<input type="checkbox"/>	Yes
	<input checked="" type="checkbox"/>	No
If Yes above, indicate the number of regions/states/provinces with Laws on forests		

14.3 Comments to Table T14

Variable / category	Comments related to data, definitions, etc.
Forest policy statement with national scope	
National forest programme (nfp)	
Law (Act or Code) on forest with national scope	
Sub-national forest policy statements	
Sub-national Laws (Acts or Codes) on forest	

Other general comments to the table

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	Minister of Environment	
Level of subordination of Head of Forestry within the Ministry	X	1 st level subordination to Minister
		2 nd level subordination to Minister
		3 rd level subordination to Minister
		4 th or lower level subordination to Minister
Other public forest agencies at national level	State Forest Holding, Forest Management Planning Office, Forest Research Institute	
Institution(s) responsible for forest law enforcement	Ministry of Environment, State Forest Holding National Parks Regional and sub-regional administration	

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	Under Secretary of State in Ministry of Environment is responsible for forestry.	
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

16 Table T16 – Education and research

16.1 FRA 2010 Categories and definitions

Term	Definition
Forest-related education	Post-secondary education programme with focus on forests and related subjects.
Doctor's degree (PhD)	University (or equivalent) education with a total duration of about 8 years.
Master's degree (MSc) or equivalent	University (or equivalent) education with a total duration of about five years.
Bachelor's degree (BSc) or equivalent	University (or equivalent) education with duration of about three years.
Technician certificate or diploma	Qualification issued from a technical education institution consisting of 1 to 3 years post secondary education.
Publicly funded forest research centers	Research centers primarily implementing research programmes on forest matters. Funding is mainly public or channelled through public institutions.

16.2 National data

16.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Central Statistical Office: Yearbooks: "Forestry 2001", "Forestry 2006", "Forestry 2008"	H	Number of graduates: MSc, BSc and women	2000, 2005, 2006, 2007	
Forest Research Institute. 2001. Report about scientific activity of Forest Research Institute in year 2000.	H	Professionals working in publicly funded forest research centres	2000	
Forest Research Institute. 2006. Report about scientific activity of Forest Research Institute in year 2005.	H	Professionals working in publicly funded forest research centres	2005	
Forest Research Institute. web page: www.ibles.pl	H	Professionals working in publicly funded forest research centres	2008	

16.2.2 Original data

Graduates of forestry studies

	2000	2005	2006	2007
Total	564	620	560	747
...of which MSc	350	423	384	392
...of which women	77	183	149	201

16.3 Data for Table T16

FRA 2010 Category	Graduation ¹⁾ of students in forest-related education					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Master's degree (MSc) or equivalent	350	14%	423	30%	392	27%
Bachelor's degree (BSc) or equivalent	214	14%	197	30%	355	27%
Forest technician certificate / diploma	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.
FRA 2010 Category	Professionals working in publicly funded forest research centres ²⁾					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Doctor's degree (PhD)	70	33%	81	33%	75	36%
Master's degree (MSc) or equivalent	78	45%	56	43%	55	45%
Bachelor's degree (BSc) or equivalent	3	100%	3	67%	2	50%

Notes:

1. Graduation refers to the number of students that have successfully completed a Bachelor's or higher degree or achieved a certificate or diploma as forest technician.
2. Covers degrees in all sciences, not only forestry.

16.4 Comments to Table T16

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Graduation of students in forest-related education	For year 2008, data from year 2007 was reported. According to data availability the same percentage of women was reported for MSc and BSc students.	
Professionals working in public forest research centres	Information about scientific staff of Forest Research Institute was reported. Some research programmes are also made on three universities (forestry faculties), not taken into account in this report.	

Other general comments to the table

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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
Central Statistical Office Yearbooks "Forestry 2001", "Forestry 2006"	H	Forest taxes Operational expenditure	2000 2005	Governmental expenditures on forestry, national parks and landscape parks
Central Statistical Office Yearbooks "Forestry 2006",	H	Transfer payments	2005	Subsidies within a framework of Rural Development Programme and Polish afforestation act
State Forest Holding. 2006. Financial and economical report of State Forest Holding for year 2005.	H	Operational expenditure	2005	Subsidies for inspection in private and municipal forests
National Found of Environment Protection and Water Management. "Economical report for year 2000", "Economical report for year 2005"	H	Operational expenditure	2000 2005	For forestry, environment and landscape protection

Regional Funds of Environment Protection and Water Management. “Economical report for year 2005”	H	Operational expenditure	2005	For forestry, environment and landscape protection
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17.2.2 Original data

Forest taxes in 1000 PLN

2000	2005
96427	136846

Expenditure

1. Governmental expenditure on forest sector - in 1000 PLN

	2000	2005
Total	125184	35033
...for individuals	2142	-

2. Governmental expenditure on national and landscape parks - in 1000 PLN

	2000	2005
Expenditure on national parks	51022	50950
...of which for individuals	173	2182
Expenditure on landscape parks	19623	25005
...of which for individuals	42	507
Percentage of forest area in national parks	62%	61%
Percentage of forest area in landscape parks	53%	54%

3. Subsidies, from sub-regional administrative units for State Forest Holding, on inspection in private and municipal forests - in 1000 PLN

	2000	2005
	12912	11372

4. Subsidies from National Fund of Environment Protection and Water Management - in 1000 PLN

	2000	2005
for forestry sector	-	29400
for environment and landscape protection	-	20946
for forestry and environment protection	33963	-

5. Subsidies from Regional Funds of Environment Protection and Water Management - in 1000 PLN

	2000	2005
for environment and landscape protection	n.a.	25176

data from 16 of 17 regional funds.

6. Expenditure on afforestation in private areas - in 1000 PLN

	2000	2005
Within a framework of Rural Development Programme (includes support for afforestation, afforestation bonus, silvicultural bonus and protection against games)	-	50538*
...of which from European Agricultural Guidance and Guarantee Fund	-	30448**
Within a framework of Polish afforestation act from 2001	-	37733

* 112306 and 143246 thousand PLN in 2006 and 2007 respectively,

** 89845 and 114597 thousand PLN in 2006 and 2007 respectively,

17.3 Analysis and processing of national data**17.3.1 Estimation and forecasting**

- a. Points 1-5 from original data, except category “for individuals” refer to operational expenditure. Point 6 refers to transfer payments.
- b. Governmental expenditures connected with forest in National and Landscape Parks were estimated using percentage of forests area in these units.
- c. Subsidies on forestry sector in 2000 (position 4 in original data) were calculated basing on relations between value of forestry and environment protection subsidies in year 2005.
- d. According to available information about utilization of “subsidies for environment and landscape protection” (point 4 and 5 in original data) assumption was made that at least 50% of these subsidies was used on forestry related goals.

17.4 Data for Table T17**Table 17a - Forest revenues**

FRA 2010 Categories	Revenues (1000 local currency)	
	2000	2005
Forest revenue	96427	136846

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	207028	143448	0	0	207028	143448
Transfer payments	2272	59428	0	30448	2272	89876
Total public expenditure	209300	202876	0	30448	209300	233324
If transfer payments are made for forest management and conservation, indicate for what specific objective(s) - Please tick all that apply.	<input type="checkbox"/>	Reforestation				
	<input checked="" type="checkbox"/>	Afforestation				
	<input checked="" type="checkbox"/>	Forest inventory and/or planning				
	<input checked="" type="checkbox"/>	Conservation of forest biodiversity				
	<input checked="" type="checkbox"/>	Protection of soil and water				
	<input checked="" type="checkbox"/>	Forest stand improvement				
	<input checked="" type="checkbox"/>	Establishment or maintenance of protected areas				
	<input checked="" type="checkbox"/>	Other, specify below				
Removing effects of flood, storm etc., Protection against fire (equipment).						

17.5 Comments to Table T17

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest revenue	Forest taxes based on forest area and average price of wood was reported	
Operational expenditure	In many cases, separation of expenditures on forestry from broader categories was not possible. In such cases, estimations were made.	
Transfer payments		

Other general comments to the table