Forestry Department
Food and Agriculture Organization of the United Nations

GLOBAL FOREST RESOURCES ASSESSMENT 2010

COUNTRY REPORT

RUSSIAN FEDERATION

FRA2010/173
Rome, 2010

Contents

Report preparation and contact persons

The present report was prepared by the following persons:

Name (FAMILY NAME, First name)	Institution / address	E-mail	Tel/Fax	Tables
Filipchuk Andrey	International Centre of Forests VNIILM / 141200, Institutskaya, 15, Pushkino, Moscow region, Russia	afilipchuk@yandex.ru	+7 499 709 46 60	1-17
Moiseev Boris	International Centre of Forests VNIILM / 141200, Institutskaya, 15, Pushkino, Moscow region, Russia	bmoiseev@yandex.ru	+7 495 604 45 70	1-17

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
Forest resources USSR (under the count on 01.01.1998). The statistical collection / Goscomles USSR, M., 1990 (in Russian).	H	Forest lands	1990	total coverage
Forest resources of Russia (as of 01.01.1998). Handbook / VNIIClesresurs, M., 1999 (in Russian).	M	Forest lands	2000	total coverage
Forest resources of Russia (as of 01.01.2003).Handbook / VNIILM, M., 2003 (in Russian).	M	Forest lands	2005	total coverage
The state (national) report on a status and use of lands of Russian Federation in 2001/ Roszemkadastr, M., 2002 (in Russian).	M	Other lands with tree cover	1990 2000	partial coverage
Roslesinforg Forest Resources Database as of 01.01.2008 http://www.roslesinforg.ru/	M	Forest lands	2010	total coverage

1.2.2 Classification and definitions

National class	Definition
Forests	
Forest lands	The forest lands include stocked forest lands and unstocked forest lands. This term completely corresponds to definitions "Forest + Other wooded land" in the FAO terms.
Stocked forest lands, included:	- consist from closed stands of trees and bushes with relative stand density equal or more than 30 %.
Forest tree stands	- aggregate of trees and shrubs forming a forest cover.
Bushes (shrubs)	- bush tangle usually having height up to 6 m and less.
Unstocked forest lands	include sparse stands with crown density of trees and bushes less than 30 %, cutting down area, burned forest lands and glade.
Urban forests	Urban forest parks include stocked forest lands and unstocked forest lands
Non-Forest with tree cover:	
Fruit plantations	Fruit trees in agricultural production systems
Field-protective belts	Field-protective tree belts (of width less then 20 m) in agricultural production systems

1.2.3 Original data

National classification	Years			
	1988	1998	2003	2008
Forest Lands				
Stocked forest lands	771109.2	774250.9	776144.6	796194.4
included:				
forest tree stands	723693.7	702644.3	702975.5	720613.9
bushes (shrubs)	47415.5 [3)]	71606.6	73169.1	75580.5
Unstocked forest lands	112984.4	107723.3	106830.6	94570.1
Total forest lands	**884093.6**	**881974.2**	**882975.2**	**890764.5**
included Urban forest	153.0	1099.1	1016.1	1149.7
Non-forest lands				
Other non-forest lands	**754040.4**	**756159.8**	**755163.8**	**747374.5**
included lands with tree cover	4820.0	4724.7	4698.5	4500.0 [1)]
Total land area[2)]	1638134.0	1638134.0	1638139.0	1638139.0
Inland water bodies [2)]	71690.0	71690.0	71685.0	71685.0
Total for country[2)]	**1709824.0**	**1709824.0**	**1709824.0**	**1709824.0**

Notes:
1). Assessment based on expert knowledge.
2). FAOSTAT data.
3). 27574.3 th. ha of Dwarf Siberian Pine stands (stocked forest lands) was included to a category "forest tree stands" in State account of forest resources - SAFR-1988. It has come in category "bushes" after SAFR-1993.

1.3 Analysis and processing of national data

1.3.1 Calibration

Source	Inland water bodies	Total land area	Total country area
National data (1988,1998)	71690.0	1638134.0	**1709824.0**
FAOSTAT (1990, 2000)	71690.0	1638134.0	**1709824.0**
National data (2003, 2008)	71685.0	1638139.0	**1709824.0**
FAOSTAT (2005)	71685.0	1638139.0	**1709824.0**

Note:
There is no need to perform calibration since the national land area data matches the FAOSTAT land area.

1.3.2 Estimation and forecasting

a) The extrapolation and forecast of the national data cannot be carried out, since the data of forest management are heterogeneous for 1800 forest enterprises, and their prescription realization changes from 5 to 50 years.

b) The increase in stocked forest lands of more than 20 million ha is not realistic for the period 2003-2008 and the large positive change rate in Table 1.2.3 does not accurately reflect the actual trend (see Table 5 data). In order to meet the FRA objective of realistic assessment of trends, the area of Forest in 2010 was estimated through expert's assessment of the approximate change of forest area in the period 2003-2008 (~ 300 000 hectares) that well corresponds to data in Table 5 and which is one of the methods recommended by FAO. The area of Other Wooded Land in 2010 was also assessed on the basis of expert evaluation, assuming an increase of this category of about 50 000 hectares since 2005.

1.3.3 Reclassification of the SAFR data into FRA 2010 categories, %%

National classes	FRA 2010 Categories				
	Forest	OWL	Other Land	Total	OLWTC
Forests:					
Forest tree stands	99.8	0	0.2	100	0.1
Bushes (shrubs)	0	100	0	100	0
Unstocked forest lands	100	0	0	100	0
Non-forests:					
Other Non-forest Land	0	0	100	100	0.2
Total land area	49.4	4.5	46.1	100	0.3

Notes:
OWL = Other wooded land
OLWTC = Other land with tree cover. This is a subcategory of "Other land", hence the percentage given in this reclassification matrix refers the percentage of the area of "Other land" that has tree cover.

Result of reclassification for example SAFR- 2003:

National categories	FRA 2010 Categories (1000 ha)				
	Forest*	OWL*	Other Land	Total	OLWTC
Forests:					
Forest tree stands	701959.4	0	1016.1	702975.5	1016.1
Bushes (shrubs)	0	73169.1	0	73169.1	n.a.
Unstocked forest lands	106830.6	n.a.	0	106830.6	n.a.
Non-forest:					
Other land	0	0	755163.8	755163.8	4698.5
Total land area	**808790.0**	**73169.1**	**756179.9**	**1638139.0**	**5714.6**

Note: *) – expert assessment.

1.4 Data for Table T1

FRA 2010 categories	Area (1000 hectares)			
	1990	2000	2005	2010
Forest	808949.9	809268.5	808790.0	809090.0 *)
Other wooded land	74989.8	71606.6	73169.1	73220.0 *)
Other land	754194.3	757258.9	756179.9	755829.0
...of which with tree cover	4973.0	5823.8	5714.6	5649.7
Inland water bodies	71690.0	71690.0	71685.0	71685.0
Total for country	**1709824.0**	**1709824.0**	**1709824.0**	**1709824.0**

Note: *) – expert assessment.

1.5 Comments to Table T1

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest	The national data on forests of Russia given in TBFRA 2000 are based on SAFR -1993 years, which data are incomplete and have low reliability. The causes lay in range of political and economic instability of Russia in this period. Therefore distinctions exist between our data for 2000 (FRA2005) and national data TBFRA 2000 (FRA 2000).	The increase of the forest areas is caused by settling of farmlands by wood vegetation. Wood plantations do not play an essential role in this trend, it means natural expansion of forest.
Other wooded land	All area (bushes) of Dwarf Siberian Pine (27574,3 th. ha) were classified as Forest in the SAFR 1988 while in subsequent SAFRs they were classified as bushes (OWL). The figure for 1990, based on SAFR 1988, has therefore been adjusted in order to correspond to the definitions used for SAFR 1998 and SAFR 2003.	
Other land	FAOSTAT data	
Other land with tree cover	Figure for 2010 - assessment based on expert knowledge.	
Inland water bodies	FAOSTAT data	

Other general comments to the table
The database of the State account of forest resources (SAFR) of Russia for 1988 were used for the characteristic of FRA –1990 data; the SAFR database of 1998 - for FRA-2000; the SAFR database of 2003 - for FRA-2005 without extrapolations. Data for FRA-2010 have been received on the basis of expert estimations and SAFR-2008 data. The fullest SAFR is carried out once to five years on the basis of data of the forest inventory. The forest inventory has been lead 5 - 50 years back by different taxators with different accuracy and errors. The areas of wood enterprises constantly vary in this or that side. SAFR cannot reflect all current changes. They reflect only the general tendency with the big mistake and uncertainty. The increase in the area of forests occurs due to the agricultural lands growing wood vegetation.

Expected year for completion of ongoing/planned national forest inventory and/or RS survey / mapping	
Field inventory	2009
Remote sensing survey / mapping	n.a.

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
Forest Code of the Russian Federation	M	Public ownership	1997	It has lost a validity in 2007
Forest Code of the Russian Federation	L	Public ownership, Public Administration	2006	The new Forest Code (2006) is installed since 2007.

2.2.2 Classification and definitions in 2005

National class	Definition
Public ownership	Forest resources and forest lands owned by the State
Public Administration (as for 2005)	1. The Ministry of natural resources of the Russian Federation 2. The Ministry of agriculture of the RF 3. The Ministry of education of the RF 4. The Ministry of defence of the RF 5. The city authorities

2.2.3 Original data (Roslesinforg, 2003)

Public Administration (as for 2003)	Forest lands, 1000 ha	%
1. The Ministry of natural resources of the Russian Federation (RF)	838124.4	94.9
2. The Ministry of agriculture of the RF	39695.1	4.5
3. The Ministry of education of the RF	318.0	0.04
4. The Ministry of defence of the RF	3821.6	0.4
5. The city authorities	1016.1	0.1
Total	**882975.2**	**100**

2.3 Data for Table T2

Table 2a - Forest ownership

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	**2000**	**2005**
Public ownership	808949.9	809268.5	808790.0
Private ownership	0	0	0
...of which owned by individuals	0	0	0
...of which owned by private business entities and institutions	0	0	0
...of which owned by local communities	0	0	0
...of which owned by indigenous / tribal communities	0	0	0
Other types of ownership	0	0	0
TOTAL	**808949.9**	**809268.5**	**808790.0**

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

Does ownership of trees coincide with ownership of the land on which they are situated?	Yes	until the end of 2006
	No	from the beginning 2007
If **No** above, please describe below how the two differ:		
The new Forest Code (2006) is installed since 2007. According to it, forest resources on the rented land could be owned by the private companies and other users, while the all rights to management of forests are transferred to region authorities of the RF. However they will be under the general management of Federal agency of forestry (Rosleshoz) of the Ministry of Agriculture of the Russian Federation.		

Table 2b - Holder of management rights of public forests

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	**2000**	**2005**
Public Administration	808949.9	721556.5	671357.6
Individuals*	0	0	0
Private corporations and institutions (tenants)	0	87712.0	137432.4
Communities	0	0	0
Other	0	0	0
TOTAL	**808949.9**	**809268.5**	**808790.0**

* Individuals could rent state forest lands, but there is no data on this category. Total area of rented forests, that could include area rented by individuals, is reported under category “Private corporations and institutions”.

2.4 Comments to Table T2

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Public ownership	Forest resources and forest lands owned by the State, according to Forest Code of the RF in 1997.	The new Forest Code (2006) is installed since 2007. According to it, the forest resources on the rented land could be owned by the private companies and other users.
Private ownership	No	
Other types of ownership	No	
Management rights of the Private corporations and institutions	The private companies and other users rent of the state forest lands for the purpose of resources used.	Long-term (<50; <100 yr) rent of forest lands for the purpose of wood cutting, conducting hunting, non-wood forest using, recreation, etc.

Other general comments to the table
Individuals could rent state forest lands, but there is no data on this category. Total area of rented forests, that could include area rented by individuals, is reported under category "Private corporations and institutions".

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 resources USSR (under the count on 01.01.1998). The statistical collection / Goscomles USSR, M., 1990. (in Russian).	H	Forest lands	1990	total coverage in 1988
Forest resources of Russia (as of 01.01.1998). Handbook /	M	Forest lands	2000	total coverage in 1998

VNIIClesresurs, M., 1999 (in Russian).				
Forest resources of Russia (as of 01.01.2003). Handbook / VNIILM, M., 2003.(in Russian).	M	Forest lands	2005	total coverage in 2003
Roslesinforg Forest Resources Database as of 01.01.2008 (office data)	M	Forest lands	2010	total coverage in 2008

3.2.2 Classification and definitions

National class	Definition
Till 2007*	
First (1) group	Forests which principal assignment is to perform water conservation, protective, sanitary, hygienic and health improving functions;
Second (2) group	Forests in areas with high density of the population, having both protective and limited exploitation value, and also forests with insufficient raw material resources and with imposed strict mode of forest use;
Third (3) group	Forests of forest-rich areas having mainly operational importance and intended for continuous meeting of requirements of economy in timber, without damaging the protective properties of these forests.
After 2006**	
Protective forests	Protective forests are a subject to development with a view of preservation, water-security, protective, sanitary-and-hygienic, improving and other useful functions of forests with simultaneous use of forests under condition of if this use is compatible to a special-purpose designation of protective forests and useful functions carried out by them.
Operational forests	Operational forests are a subject to development with a view of steady, as much as possible effective reception of high-quality wood and other wood resources, products of their processing with maintenance of preservation of useful functions of forests.
Reserve forests	The remote forests which will not be developed in 20 and more years

NOTE:

*** -** According to the RF Forest Code (1997)

** - According to the RF Forest Code (2006)

3.2.3 Original data (for Rosleshoz management forests in 2008)

National Categories / Designated function	Original forest lands, 1000 ha	% %
Protective forests*)	180696.7	21.1
Operational forests	462342.4	54.0
Reserve forests	212602.3	24.9
Total	**855641.4**	**100.0**

*) – Protective forest lands included 17572.2 th. ha of protected forest area (strict reservations -zapovedniks, national and natural parks, nature monuments and others), which are under management of the Ministry of natural resources and ecology of the Russian Federation.

3.3 Analysis and processing of national data

3.3.1 Reclassification into FRA 2010 categories

FRA 2010 Categories / Designated function	National categories
Forest:	
Production	Operational forests having mainly wood production importance.
Protection of soil and water	Protective forests carrying out soil and water protective of function.
Conservation of biodiversity	Protective forests of strict reservations (zapovedniks), national and nature parks, nature monuments.
Social services	Protective forests of green zones of settlements and preservation of resorts.
Multiple purpose	Other forest lands of the Protective forests .
Other	Reserve forests - the remote forests which will not be developed 20 and more years
No or unknown function	

The database of the State account of forest resources (SAFR) of Russia for 1988 were used for the characteristic of FRA –1990; the SAFR database of 1998 - for FRA-2000; the SAFR database of 2003 - for FRA-2005; the SAFR database of 2008 – for FRA-2010 without extrapolations.

Reclassification into FRA 2010 categories, 1000 ha

National Categories / Designated function	Original forest lands	FRA 2010 Categories
Protective forests	180696.7	180696.7
Operational forests	462342.4	415791.0
Reserve forests	212602.3	212602.3
Total	**855641.4**	**809090.0**

3.4 Data for Table T3

Table 3a – Primary designated function

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Production	446678.6	411437.1	413103.0	415791.0
Protection of soil and water	58695.4	70385.8	70555.7	71436.3
Conservation of biodiversity	11814.5	16190.2	16487.8	17572.2
Social services	17376.2	11827.0	12337.2	12945.4
Multiple use	56309.5	87745.5	87060.6	78742.8
Other *)	218075.7	211682.9	209245.7	212602.3
No / unknown	0	0	0	0
TOTAL	**808949.9**	**809268.5**	**808790.0**	**809090.0**

Note: *) – reserve forests.

Table 3b – Special designation and management categories

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Area of permanent forest estate	144195.6	186148.5	186441.3	180696.7
Forest area within protected areas	11814.5	16190.2	16487.8	17572.2
Forest area under sustainable forest management	590874.2	597585.6	599544.3	596487.7
Forest area with management plan	**808949.9**	**809268.5**	**808790.0**	**809090.0**

3.5 Comments to Table T3

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Production		The increase of the Production forests is caused by settling of farmlands by wood vegetation.
Protection of soil and water		The increase of the forest areas is caused by strengthening of nature protection tendencies in forestry.
Conservation of biodiversity		The increase of the forest areas is caused by strengthening of nature protection tendencies in forestry.
Social services		The increase of the forest areas is caused by strengthening of recreation tendencies in forests.
Multiple use		
Other	Reserve forests	
No / unknown designation		
Area of permanent forest estate	All Protective forest lands (previously I-group of the forest lands)	
Forest area within protected areas	Forest lands of the strict reservations, national and nature parks, nature monuments.	
Forest area under sustainable forest management	Operational and Protective forest lands (All forest lands without Reserve forests)	
Forest area with management plan	Total forest lands of the RF. All forests of the country are under management plans, but forest inventory is carried out by different methods and with different accuracy. Periodic forest inventories = 10-20 yr.	

Other general comments to the table
The database of the State account of forest resources (SAFR) of Russia for 1988 were used for the characteristic of FRA –1990; the SAFR database of 1998 - for FRA-2000; the SAFR database of 2003 - for FRA-2005 without extrapolations. Data for FRA-2010 have been received on the basis of expert estimations and SAFR-2008 data.

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
Forest resources USSR (under the count on 01.01.1998). The statistical collection / Goscomles USSR, M., 1990. (in Russian).	H	Forest lands	1990	total coverage
Forest resources of Russia (as of 01.01.1998). Handbook / VNIIClesresurs, M., 1999 (in Russian).	M	Forest lands	2000	total coverage
Forest resources of Russia (as of 01.01.2003). Handbook / VNIILM, M., 2003.(in Russian).	M	Forest lands	2005	total coverage
Roslesinforg Forest Resources Database as of 01.01.2008	M	Forest lands	2010	total coverage

4.2.2 Classification and definitions

National class	Definition
Primary forests	Undisturbed by man forest is climax forest (boreal climax of succession) where there are ecological processes are not significantly disturbed. Climax forests are mature and overmature stands of coniferous tree species. All Reserve forests and the mature forest in protected areas are considered as a primary forest (expert data).
Other naturally regenerated forest	It is equal to Total forest lands minus Primary forest minus Planted forest areas.
Planted forest	All planted forests of the RF

4.2.3 Original data (for Rosleshoz management forests in 2008)

National Categories as for 2008	Forest area (1000 hectares)	% %
Primary forest*)	265257.0	31.7
Other naturally regenerated forest	555105.1	66.2
Planted forest	17707.1	2.1
TOTAL	**838069.2**	100

Note: *) – expert assessment.

4.3 Analysis and processing of national data

4.3.1 Reclassification into FRA 2010 categories

National Categories as for 2008	Original Forest area (1000 hectares)	% %	FRA-2010 forest area (1000 ha)
Primary forest	265 257.0	31.7	256 481.5
Other naturally regenerated forest	555 105.1	66.2	535617.6
Planted forest	17 707.1	2.1	16990.9
TOTAL	**838 069.2**	100	**809090.0**

4.4 Data for Table T4

Table 4a

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Primary forest	241725.7	258130.8	255469.8	256481.5
Other naturally regenerated forest	554573	535777.3	536357.7	535617.6
...of which of introduced species	0	0	0	0
Planted forest	12651.2	15360.4	16962.5	16990.9
...of which of introduced species	n.a.	n.a.	71.3	0
TOTAL	**808949.9**	**809268.5**	**808790.0**	**809090.0**

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	Assessment based on expert knowledge. The area of primary forests is not taken into account in the forest management, therefore these data is not present in the State account of forest resources (SAFR). We assumed that all mature and over-mature coniferous stands of trees as primary, as they are a climatic climax in terrain of Russia. .	The increase of the forest area is caused by accumulation of tree stands of low productivity and stands in the remote lands.
Other naturally regenerating forest		
Planted forest	Total planted forest	
...of which of introduced species	Forest area with the dominated by introduced tree species included area of stand with domination of Robinia pseudacacia, Armeniaca vulgaris, Gleditsia sp., Quercus suber, Junglans regia, Morus sp. Data for another introduced tree species is absent.	
Mangroves	No	
Bamboo	No	

Other general comments to the table
The database of the State account of forest resources (SAFR) of Russia for 1988 were used for the characteristic of FRA –1990; the SAFR database of 1998 - for FRA-2000; the SAFR database of 2003 - for FRA-2005 without extrapolations. Data for FRA-2010 have been received on the basis of expert estimations and SAFR-2008 data.

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
The basic parameters of forestry activity for 1988, 1992-2007 years/ Roslesinforg, M:, 2008 (in Russian)	M	Afforestation Reforestation Planted areas	1990 2000 2005	

5.2.2 Classification and definitions

National class	Definition
Afforestation	Artificial wood planting on the agricultural land
Reforestation	Natural and/or artificial re-establishment of a forest stand on the cut down and burnt forest lands.
Natural expansion of forest	There is no official definition

5.2.3 Original data

Years	1988	1992	1993	1994	1995	1996	1997
Afforestation, ha	85 215	78 886	67 931	63 116	46 033	19 920	21 833
Reforestation, 1000 ha	1 311.5	1 126.2	1 416.7	2 024.3	2 401.4	1 905.5	1 927.7
...of which on areas previously planted, 1000 ha	352.9	430.5	441.8	538.5	529.9	511.7	451.8

Table 5.2.3 continuation

1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
17 596	28 452	27 745	23032	20 480	18 210	14 345	6 571	8 500	6 705
2048.1	1752.7	1931.7	1434.0	1 317.3	1 198.8	813.9	1 137.0	1 105.9	1 030.1
438.3	420.4	402.8	346.3	316.2	292.8	269.8	244.5	229.7	216.2

5.3 Data for Table T5

FRA 2010 Categories	Annual forest establishment (hectares/year)			...of which of introduced species (hectares/year)		
	1990	2000	2005	1990	2000	2005
Afforestation	82 051	23 461	11 907	0	0	0
Reforestation	1 219 850	1 697 760	1 057 140	0	0	0
...of which on areas previously planted	391700	384 800	250 600	n.a.	n.a.	n.a.
Natural expansion of forest*)	n.a.	43 250	58 320	0	0	0

Note: *) – expert assessment.

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

5.4 Comments to Table T5

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Afforestation		Area reduction is connected with reduction of financing of these works.
Reforestation	In the Russian Federation, reforestation includes assistance to natural renewal on the cut down and burnt forest lands.	Area reduction is connected with reduction of financing of these works.
Natural expansion of forest	The statistical account is not conducted	

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
Zagreev V.V. et al. All-union specifications for taxation of forests / M., Kolos, 1992 (in Russian).	H	Complementary information	1990-2005	
Forest resources USSR (under the count on 01.01.1998). The statistical collection / Goscomles USSR, M., 1990. (in Russian).	H	Growing Stock	1988	total data
Forest resources of Russia (as of 01.01.1998). Handbook / VNIIClesresurs, M., 1999.(in Russian).	M	Growing Stock	1998	total data
Forest resources of Russia (as of 01.01.2003).Handbook / VNIILM, M., 2003.(in Russian).	M	Growing stock	2003	total data
Roslesinforg Forest Resources Database as of 01.01.2008 (http://www.roslesinforg.ru/)	M	Growing stock	2008	total data

6.2.2 Classification and definitions

National class	Definition
Growing stock of forest stands	Volume over bark of all living trees 8 cm in diameter at breast height and more than. Includes the stem above stump and excluded branches.
Growing stock of coniferous stands	Its included mixed forest stands. The mixed forests are not excreted in national data of the account of forest resources.
Growing stock of broadleaved stands	Growing stock of deciduous forests (excluded Larch stands).
Growing stock of commercial species	All species are commercial

6.2.3 Original data in 2008

National class	Million m^3
Growing stock of the Rosleshoz management forests	76 404.08
Growing stock of the other forest managements	6 894.12
Total growing stock	**83 298.20**
...of which growing stock of bushes	1 775.35

6.3 Analysis and processing of national data

6.3.1 Calibration, million m^3

National class in 2008	Rosleshoz forests	% %	FRA - 2010 Forest
Growing stock of forest stands	76 404.08	100	81522.85
Growing stock of coniferous stands	57 704.43	75.5	61570.40
Growing stock of broadleaved stands	18 699.65	24.5	19 952.45

Note: Growing stock for coniferous and broadleaved stands are determined for the Rosleshoz forest land in 2008.

6.3.2 Estimation and forecasting

The database of the State account of forest resources (SAFR) of Russia for 1988 were used for the characteristic of FRA –1990; the SAFR database of 1998 - for FRA-2000; the SAFR database of 2003 - for FRA-2005; the SAFR database of 2008 – for FRA 2010 without extrapolations.

6.3.3 Reclassification into FRA 2010 categories

FRA 2010 Categories	National categories
Total Growing stock	Growing stock is determined for the stocked forest land only (Total = 83 298.2 mill m^3 in 2008). It was re-counted (on %%) for Growing stock of FRA-2010.
Growing stock composition	Growing Stock composition (as in 2003) is known for the Rosleshoz forests only. It was re-counted (on %%) for Growing stock of FRA-2005.

Growing stock composition

FRA 2005 category / Species name (Scientific name and common name)	Growing Stock in Forests (million cubic meters)		
	FRA-2005	% %	National data as in 2003 (without bushes)
Larch (Larix - 4 species)	24950.84	31.0	23107.99
Pine (Pinus – 6 species)	16202.61	20.1	15005.90
Birch (Betula – 10 species)	11549.62	14.4	10696.57
Spruce (Picea – 6 species)	10807.36	13.4	10009.14
Pine siberian stone (Pinus sibirica-1sp.)	8419.63	10.5	7797.76
Aspen (Populus tremula – 1 species)	3331.99	4.1	3085.89
Fir (Abies – 4 species)	2742.84	3.4	2540.26
Oak (Quercus – 5 species)	897.52	1.1	831.23
Lime (Tilia – 6 species)	598.69	0.7	554.47
Beech (Fagus – 2 species)	228.52	0.3	211.64
Remainder of species (136 species)	749.43	0.9	694.08
Total (181 native species)	**80479.05**	**100.0**	**74534.93**

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	80039.64	80270.39	80479.05	81522.85	1604.82	1593.30	1651.05	1775.35
... of which coniferous	63123.53	57787.58	58461.14	61570.40	n.a.	n.a.	n.a.	n.a.
... of which broadleaved	16916.11	22482.81	22017.91	19952.45	n.a.	n.a.	n.a.	n.a.
Growing stock of commercial species	80039.64	80270.39	80479.05	81522.85	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
1st	Larix	Larch - 4 species	27245.49	25338.11	24950.84
2nd	Pinus	Pine– 6 species	15663.76	16289.58	16202.61
3rd	Betula	Birch -10 species	11653.77	11022.96	11549.62
4th	Picea	Spruce – 6 species	9388.64	10915.47	10807.36
5th	Pinus sibirica	Pine siberian stone -1sp.	8212.07	8457.73	8419.63
6th	Populus tremula	Aspen - 1 species	2905.44	3237.76	3331.99
7th	Abies	Fir - 4 species	2865.42	2682.57	2742.84
8th	Quercus	Oak – 5 species	856.42	858.75	897.52
9th	Tilia	Lime - 6 species	480.24	570.99	598.69
10th	Fagus	Beech - 2 species	192.10	201.26	228.52
Remaining		136 species	576.29	695.21	749.43
TOTAL		**181 native species**	**80039.64**	**80270.39**	**80479.05**

Notes: Pinus sibirica is allocated as the most important species of the Pine.

Table 6c – Specification of threshold values

Item	Value	Complementary information
Minimum diameter (cm) at breast height of trees included in growing stock (X)	8	For tree stands
Minimum diameter (cm) at the top end of stem for calculation of growing stock (Y)	6	
Minimum diameter (cm) of branches included in growing stock (W)		Branches and stump not included.
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	The estimates of growing stock are made for Stocked forest land only.	The total stock increase according to increase of the forest area. However rate of a total stock deposition is much less than rate of the forest area increase.
Growing stock of coniferous	The so-called mixed forests enter into a category of coniferous forests. However the mixed forests do not enter into a category deciduous forests.	A change occurred in 1995 to the forest classification system. Before 1995 a forest was classified as "coniferous forest" if needleaved trees occupied 30-40% of the crown cover. The threshold was increased to 50% (or more) while after 1995. The different classification system adopted after 1995, thus brought to a decrease of the area occupied by the coniferous forests, which does not correspond to a real decrease of the coniferous forest area.
Growing stock of commercial species	All native species.	
Growing stock composition	Growing Stock composition in 2003 was re-counted (on %%) for Growing stock of FRA-2005.	
Other general comments to the table		
Pinus sibirica is allocated as the most important and valuable species of the Pine.		

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
Forest resources USSR (under the count on 01.01.1998). The statistical collection / Goscomles USSR, M., 1990. (in Russian).	H	Growing Stock	1988	All Forest lands
Forest resources of Russia (as of 01.01.1998). Handbook / VNIIClesresurs, M., 1999.(in Russian).	M	Growing Stock	1998	All Forest lands
Forest resources of Russia (as of 01.01.2003).Handbook / VNIILM, M., 2003.(in Russian).	M	Growing stock	2003	All Forest lands
Roslesinforg Forest Resources Database as of 01.01.2008	M	Growing stock	2008	All Forest lands
Bazilevich N.I. A biological productivity of Boreal Eurasia ecosystems - M.: Nauka, 1993. (in Russian)	M	Biomass stock	1990-2010	Conversion factors
Zagreev V.V. et al. All-union specifications for taxation of forests / M., Kolos, 1992 (in Russian).	H	Complementary information	1990-2005	Conversion factors
Moiseev B., Filipchuk A. Method of Carbon Balance Assessment for the Russian Forests// World Climate Change Conference, Moscow, 2003 (in English).	M	Biomass stock	1990-2005	Conversion factors

7.2.2 Classification and definitions

National class	Definition
Above-ground biomass	All living biomass above the soil. The account is made for Stocked forest land only.
Below-ground biomass	All biomass of live roots.
Dead wood	All non-living woody biomass. Dead wood does not include a litter and the dead roots in soils.

7.2.3 Original data in 2005

Species	Growing stock, mill m3	Basic density t/m3	Stem biomass, mill tone	BEF m3/tone	AGB, mill tone	R	BGB, mill tone	D/L	DWB, mill tone	Total, mill tone
Larch	24950.84	0.52	12974.4	1.48	19202.1	0.25	4800.5	0.26	6182.6	30185.2
Pine	16202.61	0.42	6805.1	1.37	9323.0	0.30	2796.9	0.20	2428.1	14548.0
Birch	11549.62	0.51	5890.3	1.30	7657.4	0.20	1531.5	0.14	1314.9	10503.8
Spruce	10807.36	0.40	4322.9	1.43	6181.7	0.25	1545.4	0.23	1769.2	9496.3
Pine siberian stone	8419.63	0.35	2946.9	1.46	4302.5	0.25	1075.6	0.23	1231.4	6609.5
Aspen	3331.99	0.40	1332.8	1.32	1759.3	0.20	351.9	0.20	423.0	2534.2
Fir	2742.84	0.40	1097.1	1.35	1481.1	0.20	296.2	0.17	305.2	2082.5
Oak	897.52	0.58	520.6	1.40	728.8	0.30	218.6	0.14	135.6	1083.0
Lime	598.69	0.35	209.5	1.35	282.8	0.20	56.6	0.11	38.9	378.3
Beech	228.52	0.58	132.5	1.35	178.9	0.30	53.7	0.14	33.3	265.9
Remainder of species	749.43	0.46	344.7	1.38	475.7	0.25	118.9	0.17	102.1	696.7
Total	**80479.05**	**0.45**	**36576.8**	**1.41**	**51573.3**	**0.25**	**12845.8**	**0.23**	**13964.1**	**78383.5**

Thresholds used for "woody biomass" (e.g. minimum diameter): 4 cm.
Mean conversion factors used:
Basic density = 0.45 tone/m^3;
Biomass expansion factors (BEF) = 1.41 m3/tone ;
Root factors (R) = 0.25;
Dead-live ratios (D/L) = 0.23 (excluded litter).

7.3 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	52103.2	51471.1	51573.5	52000.0	450.0	400.0	450.0	500.0
Below-ground biomass	12904.0	12842.4	12845.9	13000.0	225.0	200.0	225.0	250.0
Dead wood	14195.0	14022.3	13964.1	14356.0	450.0	400.0	450.0	500.0
TOTAL	**79202.2**	**78335.8**	**78383.5**	**79356.0**	**1125.0**	**1000.0**	**1125.0**	**1250.0**

Note: *) – expert assessment according to Bazilevich, 1993

7.4 Comments to Table T7

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Above-ground biomass	According to Bazilevich method (1993)	The total biomass increase according to increase of the forest area for 2000-2010 period.
Below-ground biomass	According to Bazilevich method (1993)	
Dead wood	According to Bazilevich method (1993)	In this work mass of a litter have increased in 2 times in comparison with data of the national report for FRA-2005. Therefore above-ground dead wood has decreased accordingly. The total sum of a mortmass has not changed.

Other general comments to the table
Account of the Biomass stock for OWL is made according to Bazilevich, 1993. The OWL bushes grow in severe conditions of northern and mountain forest-tundra. Dead wood decays slowly there. Therefore stocks of deadwood can surpass stocks of living biomass. The below-ground biomass can reach 50 % from an above-ground biomass in northern conditions. We believe that all calculations of biomass stocks are carried out at a level of expert estimations.

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
Moiseev B.N. & Filipchuk A.N.. Carbon balance for Russian forests // Use and protection of natural resources of Russia, № 4-5, 2003 (in Russian).	M	Carbon in biomass	1990 - 2010	
Bazilevich N.I. A biological productivity of Boreal Eurasia ecosystems - M.: Nauka, 1993. (in Russian)	M	Carbon in dead wood and litter	1990 - 2010	The method of calculations is used
Moiseev B., Filipchuk A. Method of Carbon Balance Assessment for the Russian Forests// World Climate Change Conference, Moscow, 2003 (in English).	M	Carbon in biomass	1990 - 2010	
Senkin N.I. (Сенькин Н.И.) A database on stores of a humus in soils of Russian regions (http://www.biodat.ru/db/dv/gumus.htm)	L	Soil carbon	1990 - 2010	Recalculation is made for the forest lands only and for soil depth = 0.3 m .

8.2.2 Classification and definitions

National class	Definition
Carbon in above-ground biomass	Carbon in all living biomass above the soil, including stem, stump, branches, bark.
Carbon in below-ground biomass	Carbon in all living biomass of roots.
Carbon in dead wood biomass	Carbon in all non-living woody biomass. Dead wood includes dry trees, trees lying on the surface, dead branches, roots and stumps.
Carbon in litter	Carbon in all non-living biomass in various states of decomposition above the mineral or organic soil. This includes the dead branches (small), bark, seeds and foliage.
Soil carbon	Organic carbon in mineral and organic soils (including peat) to a specified depth = 0.3 m.

8.2.3 Original data

Example of calculation of the carbon stock in wood litter in 2005

Spesies	Forest area, 1000 ha	Litter, tone C/ha	Total Litter, mill tone C
Larch (Larix)	291554.3	13.7	3994.3
Pine (Pinus)	129592.7	13.7	1775.4
Birch (Betula)	117929.6	7.9	931.6
Spruce (Picea)	85163.1	13.7	1166.7
Pine siberian stone (Pinus sibirica)	45066.8	11.8	531.8
Aspen (Populus tremula)	22696.0	7.9	179.3
Fir (Abies)	16470.6	7.9	130.1
Oak (Quercus)	7538.7	8	59.6
Lime (Tilia)	3623.4	5.9	21.4
Beech (Fagus)	871.1	6	5.1
Remainder of species	88283.9	7.9	697.4
Total	**808790.0**		**≈ 9500**

8.3 Analysis and processing of national data

8.3.1 Estimation and forecasting

Table 7 data have been used for calculations of the wood carbon.

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	26052	25736	25787	26000	225.0	200.0	225.0	250.0
Carbon in below-ground biomass	6452	6421	6423	6500	110.0	100.0	110.0	120.0
Sub-total: Living biomass	**32504**	**32157**	**32210**	**32500**	**335**	**300**	**335**	**370**
Carbon in dead wood	7317	7228	7198	7400	225.0	200.0	225.0	250.0
Carbon in litter	9600	9500	9500	9600	n.a.	n.a.	n.a.	n.a.
Sub-total: Dead wood and litter	**16917**	**16728**	**16698**	**17000**	**225.0**	**200.0**	**225.0**	**250.0**
Soil carbon*)	78000	78000	78000	78000	2000	2000	2000	2000
TOTAL	**127421**	**126885**	**126908**	**127500**	**2560**	**2500**	**2560**	**2620**

Note: *) – expert assessment.

Soil depth (cm) used for soil carbon estimates	**30**
Carbon coefficient for the wood biomass	**0.50 C/tone**
Carbon coefficient for the soil humus and litter (Chestnih et al, 2004)	**0.57 C/tone**

8.5 Comments to Table T8

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Carbon in above-ground biomass		The carbon stock is estimated with an error +/- 20…30%. Under this data it is impossible to define authentically about stock tendencies in time.
Soil carbon	The stock of carbon in forest soil (96 tone C/ha) be well agreed with literary data: Stolbovoi, 2002 = 81 tone C/ha; Chestnih et al, 2004 = 103 tone C/ha. Low stock of carbon in OWL soil (26 tone C/ha) is caused by severe climatic and ecological conditions of forest-tundra and mountain forest-tundra (Dwarf Siberian Pine).	

Other general comments to the table
The estimation of stores of Carbon in forest ecosystems is carried out with the large error (± 20%) and uncertainty. The annual change of carbon store cannot be determined on these data for the large terrains. The annual change should be defined on the Net Annual Increment (NAI) data and Biomass expansion factors according to TBFRA-2000 method (UN-ECE/FAO Forest Resources Assessment, 2000).

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
The basic parameters of forestry activity for 1988, 1992-2007 years / Roslesinforg, M:, 2008 (in Russian)	L	partial coverage	1988-2007	The data are underestimated.

9.2.2 Classification and definitions

National class	Definition
Disturbance by fire	Disturbance caused by wildfire, independently whether it broke out inside or outside the forest.

9.2.3 Original data

National data for forest area of disturbance by fire, 1000 ha (Roslesinforg, 2008):

1988 - 700,12	1995 - 351,47	2002 – 1 273,5
1989 - 648,94	1996 - 1807,05	2003 - 2 099.6
1990 - 965,00	1997 - 669,27	2004 – 442. 2
1991 - 569,00	1998 - 2277,05	2005 – 736. 3
1992 - 522,29	1999 - 678,36	2006 - 1 274.4
1993 - 733,61	2000 - 1240,44	2007 – 853. 1
1994 - 518,76	2001 - 868,05	

National data for number of fire (Roslesinforg, 2008):

Years	1988	1992	1993	1994	1995	1996	1997	1998	1999
Number of fires	16 964	21 034	16 952	18 542	24 295	28 260	27 555	24 127	31 641

Years	2000	2001	2002	2003	2004	2005	2006	2007
Number of fires	18 757	20 868	37 323	27 922	22 200	16 170	25 531	16 087

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*)	681.1	15675	1267.5	26543	1081.1	21583
... of which on forest	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
... of which on other wooded land	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
... of which on other land	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

*) – encompasses fires on forest and other wooded land.

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	Only for Rosleshoz forest lands and OWL of the RF. According to the forest flammability analysis, over the past 10 years, up to 72% of forest fires are caused by humans, about 7% result from agricultural burnings, 7% originate from lightning and 14% of fires are due to other causes.	The quantity and fire area have cyclic character in the time period.
Number of fires		
Wildfire / planned fire		

Other general comments to the table
Rosleshoz carries out gathering the statistical information on fires in a forests and OWL together.

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
The basic parameters of forest activity for 1988, 1992-2007 - Roslesinforg, 2008 (office database)	M	partial coverage	1988-2007	The data are underestimated.

10.2.2 Classification and definitions

National class	Definition
Disturbance by insects	Disturbance caused by insect pests that are detrimental to tree health.
Disturbance by diseases	Disturbance caused by diseases attributable to pathogens, such as bacteria, fungi or virus.

10.2.3 Original data

See final reporting table.

10.3 Data for Table T10

Table 10a – Disturbances

FRA 2010 category	Affected forest area (1000 hectares)		
	1990	2000	2005
Disturbance by insects	1717.6	4953.0	1668.3
Disturbance by diseases	124.2	956.8	1132.4
Disturbance by other biotic agents	n.a.	n.a.	n.a.
Disturbance caused by abiotic factors	174.0	508.1	1351.0
Total area affected by disturbances	**2015.8**	**6417.9**	**4151.7**

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.

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)
Fomitopsis annosa, Phellinus pini, Phellinus igniarius	Spruce and Pine stands of the central part of the European Territory of Russia	2005	18.4	
Phellinus pini, Peridermium pini, Fomitopsis annosa	Coniferous forests of the Irkutsk region	2006	36.7	
Lymantria dispar, Dendrolimus superans sibiricus	Fur-Spruce stands of Krasnoyarsk region	1996	190	
Ips typographus etc	Spruce stands of the central part of the European Territory of Russia	2004	210	
Complex of factors	Spruce and Pine stands of the Arkhangelsk region	2005	391.5	

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)
Total forest area affected by woody invasive species	

Note: n.a.

10.4 Comments to Table T10

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Disturbance by insects		The outbreaks quantity and area affected have cyclic character in the time period.
Disturbance by diseases		
Disturbance by other biotic agents		
Disturbance caused by abiotic factors		
Major outbreaks		
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
The basic parameters of forest activity for 1988, 1992-2007 - Roslesinforg, 2008 (office database)	M	Wood removals	1988 – 2007	Incomplete data
The departmental (accounting) data of NIPIEI lesprom (data from N.A. Burdin)	M	Value of removals	2000; 2005	Incomplete data

11.2.2 Classification and definitions

National class	Definition
Wood removals	The wood removed (volume of roundwood over bark)
Unit value	Data from N.A. Burdin (national correspondent)

11.2.3 Wood removals original data, 1000 m^3

Years	Industrial roundwood	Woodfuel	Total
1988	317605	71578	389183
1989	309224	64688	373912
1990	276850	58767	335617
1991	274300	81100	355400
1992	164000	64524	228524
1993	136030	39020	175050
1994	79780	32020	111800
1995	82750	33460	116210
1996	73005	38269	111274
1997	88374	46290	134664

Years	Industrial roundwood	Woodfuel	Total
1998	85929	44250	130179
1999	94600	49000	143600
2000	105800	52300	158100
2001	117800	46900	164700
2002	118600	46400	165000
2003	125133	48960	174093
2004	129097	49280	178377
2005	134377	50600	184977
2006	135256	50026	185282
2007	150485	55659	206144

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.)[1)]	268395.8	104545.8	134869.6	68131.4	47770.0	50905.0
... of which from forest	268395.8	104545.8	134869.6	68131.4	47770.0	50905.0
Unit value (roubles / m^3 o.b.) [2)]	n.a.	391	600	n.a.	93	130
Total value (1000 roubles)	n.a.	40877408	80921760	n.a.	4442610	6617650

Note: 1) The figures for the reporting years refer to the averages removals for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively.
2) Expert assessment. Strong inflation of rouble occurred in current of 1990-2000. Average cost in rubles to calculate difficultly for 5 years. Official statistical data at cost of wood removals are absent.

	1990	2000	2005
Name of local currency	rouble	rouble	rouble

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	According to expert estimations, illegal cuttings reach 20-30 % from total amount of the wood preparations.	Incomplete data
Total volume of woodfuel removals		Incomplete data
Unit value	Cost of wood unit be accepted as an expert estimation.	
Total value		

Other general comments to the table

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
Expert assessment according to: Agirbov Y.I., Indolov V.M. Modern a condition of the Russian market of fruit-berry production // Proceedings of the International scientifically-practical conference of scientists МАДИ [ГТУ], РГАУ-МСХА, ЛНАУ. Moscow-Lugansk, 2007. т.2. Economy and management, с.129-133.	L	**NWFP**	2005	Statistical data are absent on all country.
ROSSTAT, 2007	M	Wild meat	2005	Data by amount of heads

12.2.2 Original data (expert assessment)

Name of product	Quantity, tone/2005 yr	Value, rouble/kg
Fruits and berries	435000	120
Mushrooms	217500	100
Nuts	72500	200
Medicinal plant	145000	75
Birch sap	43500	25
Honey	290000	150
Wild meat	11000	130

12.3 Data for Table T12

Rank	Name of product	Key species	Unit	NWFP removals 2005		NWFP category
				Quantity	Value (1000 rouble)	
1st	Fruits and berries	cranberry, cowberry	tone	435000	52200000	1
2nd	Mushrooms	aspen mushroom, birch mushroom	tone	217500	21750000	1
3rd	Nuts	Pine siberian, hazel grove	tone	72500	14500000	1
4th	Medicinal plant	n.a.	tone	145000	10875000	3
5th	Birch sap	Birch	tone	43500	1087500	7
6th	Honey	Lime honey	tone	290000	43500000	11
7th	Wild meat	Moose, wild boar, deers	tone	11005	1430000	12
TOTAL					**145342500**	

	2005
Name of local currency	rouble

12.4 Comments to Table T12

Variable / category	Comments related to data, definitions, etc.
10 most important products	
Other plant products	
Other animal products	
Value by product	
Total value	

Other general comments to the table
1. Value of NWFP unit be accepted as an expert estimation. 2. According to experts, the estimated annual commercial yield of berries (cranberry, cowberry, blueberry) makes up 4 mill. tones and mushrooms make up about 2.1 mill. tones. The stocks of medicinal plants (Panax quinquefolium, Eleutherococcus senticosus, Rhodiola rosen, Schizandra chinensis, etc.) are of great demand both at the domestic and international markets and are extensively growing in the forests. The economic value of non-timber forest products and services offered by forests, growing at permafrost soils, is higher than the growing timber value. Strengthening and developing recreational values, tourism, hunting and nature protection is in many cases more profitable than wood harvesting.

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
Expert assessment	L	partial coverage	1990	Workers and employees occupied in a forest
The branch review, ZAO "RosBusinessConsulting ", February 2001. http://www.ecsocman.edu.ru/db/msg/163704.html	M	total	2000	Workers and employees occupied in a forest
ROSSTAT, 2008	M	total	2005	Workers and employees occupied in a forest

13.2.2 Original data

See final reporting table.

13.3 Data for Table T13

FRA 2010 Category	Employment (1000 years FTE)		
	1990	2000	2005
Employment in primary production of goods	900*)	474	444
...of which paid employment	n.a.	n.a.	n.a.
...of which self-employment	n.a.	n.a.	n.a.
Employment in management of protected areas	n.a.	n.a.	3.8

*) – expert assessment.

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	The workers and employees of Rosleshoz system (forestry) and wood procuring industry.	
Paid employment / self-employment	n.a.	
Employment in management of protected areas	n.a.	

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			Yes
		X	No
If Yes above, provide:	Year of endorsement		
	Reference to document		
National forest programme (nfp)		X	Yes
			No
If Yes above, provide:	Name of nfp in country	Concept of developing forest management of Russian Federation in 2003-2010	
	Starting year	2003	
	Current status		In formulation
		X	In implementation
			Under revision
			Process temporarily suspended
	Reference to document or web site	www.rosleshoz.gov.ru	
Law (Act or Code) on forest with national scope		X	Yes, specific forest law exists
			Yes, but rules on forests are incorporated in other (broader) legislation
			No, forest issues are not regulated by national legislation
If Yes above, provide:	Year of enactment	2006	
	Year of latest amendment	2008	
	Reference to document	Forest Code of Russian Federation	

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		Yes
	x	No
If Yes above, indicate the number of regions/states/provinces with forest policy statements		
Sub-national Laws (Acts or Codes) on forest		Yes
	x	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	n.a.
Sub-national Laws (Acts or Codes) on forest	n.a.

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 Agriculture of the Russian Federation	
Level of subordination of Head of Forestry within the Ministry	X	1st level subordination to Minister
		2nd level subordination to Minister
		3rd level subordination to Minister
		4th or lower level subordination to Minister
Other public forest agencies at national level	Ministry of Nature Resources and Ecology of the RF	
Institution(s) responsible for forest law enforcement	Federal Agency of Forestry (Rosleshoz) Regional authorities	

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	1st level subordination to Minister: Forest Department 2nd level subordination to Minister: Federal Agency of Forestry (Rosleshoz)	
Other public forest agencies at national level	At regional level: Regional forest agencies subordinated to Regional authorities	
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 a 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
The state report on a condition and use of forest resources of the Russian Federation in 2005 (in Russian)	L	Forest-related education	2005	Graduation of students
The newspaper «Forests of Russia» № 29, 2008	L	Forest technician certificate / diploma	2008	Graduation of students
The state report on a condition and use of forest resources of the Russian Federation in 2005 (in Russian)	M	Doctor's degree (PhD)	2005	Professionals working
	M	Master's degree (MSc) or equivalent	2005	Professionals working

16.2.2 Original data

See final reporting table

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	n.a.		3700		3000	
Bachelor's degree (BSc) or equivalent	n.a.		n.a.		n.a.	
Forest technician certificate / diploma	n.a.		8800		9500	
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)	n.a.		240		n.a.	
Master's degree (MSc) or equivalent	n.a.		1076		n.a.	
Bachelor's degree (BSc) or equivalent	n.a.		n.a.		n.a.	

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	Expert assessment.	
Professionals working in public forest research centres		

Other general comments to the 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
Substantive provisions of forest management for 1988, 1992-2007. – Roslesinforg, 2008 (office database)	H	Forest revenue	1998-2002	2 860 – 13 416 mill. roubles
	H	Forest revenue	2003-2007	16 328 – 40 877 mill. roubles
	H	Operational expenditure	1998-2002	3 741 – 15 497 mill. roubles
	H	Operational expenditure	2003-2007	19 550 – 42 170 mill. roubles

17.2.2 Classification and definitions

National class	Definition
Forest revenue	The Forest revenue includes budgetary financing (federal + regional), off-budget incomes and incomes from forest used. It includes a payment for the cutting of forest stands which is released on a root (wood taxes).
Operational expenditure	It is actual expenses for forestry conducting (reforestation, preventive maintenance and suppression of fires, forest shelter works, the payment of workers, other forest actions and services). They do not include an expense for wood cutting operation.

17.2.3 Original data

Forest revenue of the Rosleshoz, million roubles

1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
2 860	5 578	7 825	9 782	13 416	16 328	24 368	27 277	34 872	40 877

Operational expenditure of the Rosleshoz, million rouble

1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
3 741	6 306	8 751	10 614	15 497	19 550	23 024	24 953	30 135	42 170

17.3 Analysis and processing of national data

17.3.1 Estimation and forecasting

Substantial growth of the wood income and expenses on forestry conducting to the greatest degree speaks inflation in a national economy.

17.4 Data for Table T17

Table 17a - Forest revenues

FRA 2010 Categories	Revenues (1000 roubles)	
	2000	2005
Forest revenue	7 892 240	28 744 580

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 roubles)	
	2000	2005	2000	2005	2000	2005
Operational expenditure	n.a.	n.a.	n.a.	n.a.	8 983 235	27 966 472
Transfer payments	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total public expenditure					**8 983 235**	**27 966 472**

If transfer payments are made for forest management and conservation, indicate for what specific objective(s) - Please tick all that apply		
		Reforestation
		Afforestation
		Forest inventory and/or planning
		Conservation of forest biodiversity
		Protection of soil and water
		Forest stand improvement
		Establishment or maintenance of protected areas
		Other, specify below

17.5 Comments to Table T17

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest revenue		Substantial growth of the Forest revenue and Operational expenditure on forestry conducting to the greatest degree results from inflation in a national economy.
Operational expenditure		
Transfer payments		

Other general comments to the table