

GLOBAL FOREST RESOURCES ASSESSMENT 2015

COUNTRY REPORT

Slovakia

Rome, 2014

FAO, at the request of its member countries, regularly monitors the world's forests and their management and uses through the Global Forest Resources Assessment (FRA). This country report is prepared as a contribution to the FAO publication, the Global Forest Resources Assessment 2015 (FRA 2015).

The content and the structure are in accordance with the recommendations and guidelines given by FAO in the document Guide for country reporting for FRA 2015 (<http://www.fao.org/3/a-au190e.pdf>). These reports were submitted to FAO as official government documents.

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TABLE OF CONTENTS

Report preparation and contact persons.....	4
1. What is the area of forest and other wooded land and how has it changed over time?	5
2. What is the area of natural and planted forest and how has it changed over time?	13
3. What are the stocks and growth rates of the forests and how have they changed?	18
4. What is the status of forest production and how has it changed over time?	34
5. How much forest area is managed for protection of soil and water and ecosystem services?	45
6. How much forest area is protected and designated for the conservation of biodiversity and how has it changed over time?	51
7. What is the area of forest affected by woody invasive species?	55
8. How much forest area is damaged each year?	58
9. What is the forest area with reduced canopy cover?	64
10. What forest policy and regulatory framework exists to support implementation of sustainable forest management SFM?	65
11. Is there a national platform that promotes stakeholder participation in forest policy development?	68
12. What is the forest area intended to be in permanent forest land use and how has it changed over time?	70
13. How does your country measure and report progress towards SFM at the national level?	73
14. What is the area of forest under a forest management plan and how is this monitored?	76
15. How are stakeholders involved in the management decision making for publicly owned forests?	78
16. What is the area of forest under an independently verified forest certification scheme?	79
17. How much money do governments collect from and spend on forests?	81
18. Who owns and manages the forests and how has this changed?	83
19. How many people are directly employed in forestry?	91
20. What is the contribution of forestry to Gross Domestic Product (GDP)?	94
21. What is forest area likely to be in the future	95

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Introductory Text

Place an introductory text on the content of this report

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Desk Study?

Check "yes" if this survey is a Desk Study, "no" otherwise	
Desk Study?	no

1. What is the area of forest and other wooded land and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

1.1 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 ; 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".
...of which with tree cover (<i>sub-category</i>)	Land considered as "Other land", that is predominantly agricultural or urban lands use and has patches of tree cover that span 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. It includes both the forest and non-forest tree species.
Inland water bodies	Inland water bodies generally include major rivers, lakes and water reservoirs.
Forest expansion	Expansion of forest on land that, until then, was not defined as forest.
...of which afforestation (<i>sub-category</i>)	Establishment of forest through planting and/or deliberate seeding on land that, until then, was not defined as forest.
...of which natural expansion of forest (<i>sub-category</i>)	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).
Deforestation	The conversion of forest to other land use or the longterm reduction of the tree canopy cover below the minimum 10 percent threshold.
...of which human induced (<i>sub-category</i>)	Human induced conversion of forest to other land use or the permanent reduction of the tree canopy cover below the minimum 10 percent threshold.
Reforestation	Natural regeneration or re-establishment of forest through planting and/or deliberate seeding on land already in forest land use.
...of which artificial reforestation (<i>sub-category</i>)	Re-establishment of forest through planting and/or deliberate seeding on land already in forest land use.

1.2 National data

1.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Forest Information Centre (LIC) of Lesoprojekt Zvolen	Area of forest stands, other land with tree cover	1990,2000,2005	Databases of national forest inventory, so called "white plots"

2	Statistical Yearbook of the SR 1991, 2001, 2006	Other land, Inland Water Bodies	1990, 2000, 2005	N/A
3	Konôpka, J. et al. 2001: Report on Forestry in the SR, Green Report.	Area of forest land and forest stands	1990, 2000	N/A
4	Moravčík, M. et al. 2006: Report on Forestry in the SR, Green report. http://www.nlcsk.sk/nlc_sk/ustavy/lvu/vyskum/olspe/koncepcne_prace_pre_mpsr/zelena_sprava.aspx	Area of forest land and forest stands	2005	N/A
5	Moravčík, M. et al. 2007: Prognosis and Vision of development of Slovak Agriculture, Food industry, Forestry and Rural areas – part Forestry. http://www.nlcsk.sk/files/2225.pdf	Area of forest land and forest stands; Area of reforestation	1990, 1998-2002, 2003-2007, 2010	N/A
6	Remiš, J. et al. 1998: Prognosis and Concept of forestry SSR by 2010	Area of reforestation	1990	N/A
7	Konôpka, J. et al. 1999: Analysis of development and of current status of forestry in SR (1990-1998). Lesnícke štúdie č. 55.	Area of reforestation	1995-1998	N/A
8	Konôpka, J. et al. 2000-2002: Report on Forestry in the SR (Green Reports).	Area of reforestation	1999-2001	N/A
9	Annual reports of Agricultural Payment Agency in 2005-2008	Area of reforestation	2002-2007	N/A
10	Report on Forestry in the SR, Green report; 2008-2012 http://www.nlcsk.sk/nlc_sk/ustavy/lvu/vyskum/olspe/koncepcne_prace_pre_mpsr/zelena_sprava.aspx	Area of forest land and forest stands; Area of reforestation	2008-2012	N/A
11	National Forest Inventory; performed in 2005-2006; National Forest Centre; http://www.nlcsk.sk/nlc_sk/ustavy/lvu/vyskum/odbor_inventarizacie_a_manazmentu_lesa/niml.aspx	Other land with tree cover	2005-2006	N/A
12	Annex 2 of the Guidelines for Country Reporting to FRA 2010, www.fao.org/forestry/site/fra .	Inland water bodies	1990, 2000, 2005, 2010	N/A

1.2.2 Classification and definitions

National class	Definition
FOREST = FOREST STANDS	Forest is Forest land spanning more than 0.3 hectares with trees higher than 5 meters and a canopy cover of more than 30 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use. Forests are Forest lands: - covered by forest stands, - where forest stands were removed temporarily and shall be regenerated - reforested (clearings after felling); - skidding roads and dividing lines on forest lands up to 4 m wide; - with industrial plantations.
Forest land	According to the Article 3 of the Act No. 326/2005 of Coll. on forests Forest Land comprises: - Forest stands - Unstocked forest land (land without forest stands that serves the forestry): - land with established forest nurseries and seed orchards, - lands temporarily exempted from fulfillment of forest functions or limited in utilization of forest functions, - without forest stands serving forestry and necessary for its activities mainly lands with dividing lines and forest roads wider than 4 m, permanent log yards, - lands that were declared as a forest land by the state forest authority.
Other land	Agricultural lands, residential areas, other built-up lands, barren areas.
Other land with tree cover	Forest (Forest stands) on other lands.
Area of reforestation	National classes and definitions are compliant with FRA

1.2.3 Original data

1.1.1 Original data					
	Area (1 000 ha)				
	1990	2000	2005	2010	2012
Forest lands ¹⁾	1 977	1 998	2 006	2 017	2 012
... of which Forest stands ²⁾	1 922	1 921	1 932	1 933	1 940
Other wooded land	n. a.	n. a.	n. a.	n. a.	n. a.
Other land ³⁾	2 833	2 812	2 804	2 793	2 869

... of which land with tree cover ⁴⁾	26	30	32	275±3.7 ⁷⁾	275±3.7 ⁷⁾
Inland water bodies ⁵⁾	93	93	93	93	93
Together ⁶⁾	4 903	4 903	4 903	4 903	4 903

Druh	Year						
	2005	2006	2007	2008	2009	2010	2012
	area (ha)						
Forest land	2 006 172	2 007 006	2 006 601	2 007 441	2 009 264	2 010 817	2 012 414
Forest stands	1 931 645	1 932 049	1 932 942	1 933 591	1 937 685	1 938 904	1 940 300

¹⁾⁻⁴⁾ refer to the definitions listed in Table 1.2.2 and sources of information listed in Table 1.2.1

^{5) and 6)} Annex 2 of the Guidelines for Country Reporting to FRA 2010, www.fao.org/forestry/site/fra

⁷⁾ Information originating from the National inventory and forest monitoring (NIFM).

In 2004-2006, there was carried out National inventory and forest monitoring (NIFM). Main objective of the NIFM in Slovakia is to construct a new comprehensive inventory system that will provide for chosen time moments an objective, actual and complex set of information on the state and development of all components of forest ecosystems on regional and national level as well. There was used combined ground-photo method with systematic allocation of sampling plots (total number: 1422) on the whole territory of the country in the network 4x4 km

This method allowed determination of the area as well as stand characteristics of all forests irrespectively of the land use category, including forests on other lands (other land with tree cover). It was found out that area of forests (corresponding forest definition in table 1.2.2) on other lands is up to 275±3.7 ths. ha.

Area of reforestation by planting and seeding and its share on total reforestation

(the rest is secured by natural regeneration)

Years	2003	2004	2005	2006	2007	2003-2007
Ha	9 623	8 866	8 922	9 256	9 027	9 139
%	70.9	63.5	66.1	59.5	65.9	65,2
Years	1998	1999	2000	2001	2002	1998-2002
Ha	11 842	11 290	12 923	12 053	10 681	11 758
%	86.0	82.7	85.8	79.9	74.6	81,8
						1988-1992
						15 500

Area of afforestation

Year (ha)								
1985	1990	1995	1996	1997	1998	1999-2003	2004-2006	2007
4450	2305 *)	234	128	118	187	0	92,1	0

*) *Prognosis by Remiš et al. (1988)*

1.3 Analysis and processing of national data

1.3.1 Adjustment

Not needed.

1.3.2 Estimation and forecasting

Forecasting for the years 2010 and 2015 was done following the source: Moravčík, M. et al. 2007: Prognosis and Vision of development of Slovak Agriculture, Food industry, Forestry and Rural areas – part Forestry.

Estimation of afforestation in ha

	1990	2000	2005
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Afforestation	Prognosis of afforestation by Remiš et al. 1988	Average of the real afforestation in 1998-2002	Average of the real afforestation in 2003-2007
	2305	37.4	18.4

1.3.3 Reclassification

Forest = Forest Stands.
Other land with tree cover in 2010 and 2015 = Forests on other lands according to information originating from the NIFM.
Other land with tree cover in 1990, 2000 and 2005 = so called “white plots” found out in the scope of forest management planning.

1.4 Data

Table 1a













Categories		Area (000 hectares)				
		1990	2000	2005	2010	2015
 Forest		1922	1921	1932	1939	1940
 Other wooded land		0	0	0	0	0
 Other land		2887	2888	2877	2870	2869
 ... of which with tree cover		26	30	32	275	275
 Inland water bodies		95	95	95	95	95
	TOTAL	4904.00	4904.00	4904.00	4904.00	4904.00

Table 1b

Categories		Annual forest establishment / loss (000 hectares per year)				...of which of introduced species (000 hectares per year)			
		1990	2000	2005	2010	1990	2000	2005	2010
 Forest expansion		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
 ... of which afforestation		2.305	0.0374	0.0184	N/A	0.15	0.01	0.005	N/A

	... of which natural expansion of forest	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Deforestation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	... of which human induced	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Reforestation	15.5	11.758	9.139	16.43	N/A	N/A	N/A	0.35
	... of which artificial	15.5	11.758	9.139	10.107	0.55	0.46	0.4	0.35

Tiers

Category	Tier for status	Tier for reported trend
Forest	Tier 3	Tier 3
Other wooded land	Tier 1	Tier 1
Forest expansion	Tier 3	Tier 3
Deforestation	N/A	N/A
Reforestation	Tier 3	Tier 3

Tier criteria

Category	Tier for status	Tier for reported trend
<ul style="list-style-type: none"> Forest Other wooded land Afforestation Reforestation Natural expansion of forest Deforestation 	Tier 3 : Data sources: Either recent (less than 10 years ago) National Forest Inventory or remote sensing, with ground truthing, or programme for repeated compatible NFIs Tier 2 : Data sources: Full cover mapping / remote sensing or old NFI (more than 10 years ago) Tier 1 : Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

1.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trends
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Forest	Forest is Forest land spanning more than 0.3 hectares with trees higher than 5 meters and a canopy cover of more than 30 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.	Since the first forest inventory in the years 1949-53, the area of both "Forest lands" and "Forest stands" have increased as a result of: 1) active afforestation of lands not suitable for agriculture, 2) restoration of the timberline and subalpine forests, 3) increase of the area of abandoned agricultural lands naturally colonized by forest trees. Between 1950 and 1995, the area of "Forest lands" as well as of "Forest stands" increased approximately linearly. Since 1990, this trend has been slowed down due to a low interest in re-categorization agricultural lands colonized by forest into the land use category of Forest Land, as well as reduced afforestation.
Other wooded land	There may exist areas of other wooded land within the areas classified as Other land.	N/A
Other land	N/A	N/A
Other land with tree cover	Forests on other lands, if their status corresponds with forest definition given in table 1.2.2 in the country report.	Application of National inventory and forest monitoring in 2004-2006 allowed determination of other land with tree cover with much greater precision. It was found out that area of forests (corresponding forest definition in table 1.2.2 in the country report) on other lands is up to 275±3.7 ths. ha.
Inland water bodies	N/A	N/A
Forest expansion	N/A	Afforestation in Slovakia is not priority because of relatively high forest percentage. Therefore there is obvious systematical decrease of this activity. There was adopted governmental programme for afforestation in 1994 but because of lack of money it was abolished in 1999. In 2004-2006 there was performed some afforestation in the scope of Plan of rural development in Slovakia.
Deforestation	N/A	N/A
Reforestation	N/A	Gradual decrease the area of reforestation resides in enlargement extent of natural regeneration of forests in Slovakia (see chapter 5.2.3 in the country report) mainly through the wider application of shelterwood system in forest regeneration.

Other general comments to the table

N/A

2. What is the area of natural and planted forest and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

2.1 Categories and definitions

Term	Definition
Naturally regenerated forest	Forest predominantly composed of trees established through natural regeneration.
Naturalized introduced species	Other naturally regenerated forest where the tree species are predominantly non-native and do not need human help to reproduce/maintain populations over time.
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).
Category	Definition
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.
...of which of introduced species (<i>sub-category</i>)	Other naturally regenerated forest where the trees are predominantly of introduced species.
...of which naturalized (<i>sub-sub category</i>)	Other naturally regenerated forest where the trees are predominantly of naturalized introduced species.
Planted forest	Forest predominantly composed of trees established through planting and/or deliberate seeding.
...of which of introduced species (<i>sub-category</i>)	Planted forest where the planted/seeded trees are predominantly of introduced species.
Mangroves	Area of forest and other wooded land with mangrove vegetation.
...of which planted (<i>sub-category</i>)	Mangroves predominantly composed of trees established through planting.

2.2 National data

2.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Forest Information Centre Lesoprojekt Zvolen	Areas of forests: Primary, other naturally regenerated and planted	1990	Databases containing forest inventory data 1978-1991
2	Forest Information Centre Lesoprojekt Zvolen	Areas of forests: Primary, other naturally regenerated and planted	2000	Databases containing forest inventory data 1991-2000
3	Forest Information Centre Lesoprojekt Zvolen	Areas of forests: Primary, other naturally regenerated and planted	2005	Databases containing forest inventory data 1995-2004

4	KORPEL, Š.: Primeval Forests of Slovakia, Príroda, Bratislava,	Area of primary forests in Slovakia	1989	Results of a long term research of natural forests
5	National Forest Centre - Institute for Forest Resources and Information Zvolen; Department of Forestry Information	Areas of forests: Primary, other naturally regenerated and planted	2010, 2015	Databases containing forest inventory data 2005-2012

2.2.2 Classification and definitions

National class	Definition
N/A	National classes and definitions are compliant with FRA
Primary (primeval) forests	They were determined on the basis of these database indicators: long-term non-intervention status, diverse age and stand structures, and the class of naturalness as a synthetic descriptor of the compliance of current tree species composition with the model and potential natural vegetation according to the typological units (Natura 2000). Two highest classes of naturalness (1st and 2nd), i.e. natural or only slightly deviating tree species composition, were considered. Of the compartments fulfilling the aforementioned conditions, only those belonging to the category of protective and special purpose forests with the priority of nature conservation function, were accepted. The final area was compared with data published in the book “Primeval Forests of Slovakia” of KORPEL, 1989, which summarized the results of a long term research into the natural forests of Slovakia.
Other naturally regenerated forest	We consider a former Modified natural forest (these both categories have corresponding definitions): The area includes forests originating in natural regeneration, taking into the account their management condition and applied regeneration system. This category excludes stands in the 4th (low) naturalness class, consisting predominantly of non-native tree species which presence does not match with fit the forest site type nor potential natural forest vegetation. It includes forest stands covered by the nature protection degree 3 and higher, if they meet the above mentioned criteria. These are prevailingly naturally regenerated forests, however with clearly visible indications of human activities
Planted forests	Remaining categories of semi-natural forests and plantations.

2.2.3 Original data

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2.3 Analysis and processing of national data

2.3.1 Adjustment

Not needed.

2.3.2 Estimation and forecasting

In 2015 we don't expect significant changes in reported figures for 2005 and 2010, therefore we carried out expert estimation according to observed trends.

Primary (primeval) forests : Their area was determined on the basis of these database indicators: long-term non-intervention status, diverse age and stand structures, and the class of naturalness as a synthetic descriptor of the compliance of current tree species composition with the model and potential natural vegetation according to the typological units (Natura 2000). Two highest classes of naturalness (1st and 2nd), i.e. natural or only slightly deviating tree species composition, were considered. Of the compartments fulfilling the aforementioned conditions, only those belonging to the category of protective and special purpose forests with the priority of nature conservation function, were accepted. The final area was compared with data published in the book "Primeval Forests of Slovakia" of KORPEL, 1989, which summarized the results of a long term research into the natural forests of Slovakia.

Other naturally regenerated forest we consider a former Modified natural forest (these both categories have corresponding definitions): The area includes forests originating in natural regeneration, taking into the account their management condition and applied regeneration system. This category excludes stands in the 4th (low) naturalness class, consisting predominantly of non-native tree species which presence does not match with fit the forest site type nor potential natural forest vegetation. It includes forest stands covered by the nature protection degree 3 and higher, if they meet the above mentioned criteria. These are prevailingly naturally regenerated forests, however with clearly visible indications of human activities

Into category **Planted forests** we have inserted the remaining categories of semi-natural forests and plantations.

Introduced forest tree species

- Other naturally regenerated forests of introduced species include solely Robinia pseudoacacia, regenerated mostly by sprouting there.
- Planted forests of introduced species is minor, covered mostly by Pinus nigra (1900 ha), followed by Quercus rubra (1000 ha) and Pseudotsuga menziesii (800 ha). Other introduced species are scarce and their total areas are less than 150 ha.

2.3.3 Reclassification

Not needed

2.4 Data

Table 2a







Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Primary forest	24	24	24	24	24
	Other naturally regenerated forest	938	939	943	953	956
	... of which of introduced species	24.2	25	24.9	24.9	25
	... of which naturalized	N/A	N/A	N/A	N/A	N/A
	Planted forest	960	958	965	962	960
	... of which of introduced species	20.4	19.4	18.5	19	19
TOTAL		1922.00	1921.00	1932.00	1939.00	1940.00

Table 2b

Primary forest converted to (000 ha)								
1990-2000			2000-2010			2010-2015		
Other natural regeneration	Planted	Other land	Other natural regeneration	Planted	Other land	Other natural regeneration	Planted	Other land
0	0	0	0	0	0	0	0	0

Table 2c

Categories	Area (000 hectares)				
	1990	2000	2005	2010	2015
Mangroves (forest and OWL)	0	0	0	0	0
... of which planted	0	0	0	0	0

Tiers

Category	Tier for status	Tier for reported trend
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Primary forest	Tier 3	Tier 3
Other naturally regenerated forest	Tier 3	Tier 3
Planted forest	Tier 3	Tier 3
Mangroves	Tier 1	Tier 1

Tier Criteria

Category	Tier for status	Tier for reported trend
Primary forest/Other naturally regenerated forest/Planted forest	Tier 3 : Data sources: Recent (less than 10 years) National Forest Inventory or remote sensing with ground truthing or data provided by official agencies or programme for repeated compatible NFIs Tier 2 : Data sources: Full cover mapping/ remote sensing or old NFI (more than 10 years) Tier 1 : Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

2.5 Comments

Category	Comments related to data definitions etc	Comments on reported trend
Primary forest	N/A	N/A
Other naturally regenerating forest	N/A	N/A
Planted forest	N/A	N/A
Mangroves	N/A	N/A

Other general comments to the table
N/A

3. What are the stocks and growth rates of the forests and how have they changed?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

3.1 Categories and definitions

Category	Definition
Growing stock	Volume over bark of all living trees with a minimum diameter of 10 cm at breast height (or above buttress if these are higher). Includes the stem from ground level up to a top diameter of 0 cm, excluding branches.
Net Annual Increment (NAI)	Average annual volume of gross increment over the given reference period less that of natural losses on all trees, measured to minimum diameters as defined for "Growing stock".
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 2 mm 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.
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 soil depth of 30 cm.

3.2 National data

3.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Summary Forest Management Plan 1988; Lesoprojekt Zvolen	Growing stock of wood, tree species, age classes, yield classes	1988.	N/A
2	Summary information on Forests 2000, 2005 Lesoprojekt Zvolen; Summary Information on Forests 2007, 2010, 2012 National Forest Centre	Growing stock of wood, tree species, age classes, yield classes	2000, 2005, 2007, 2010, 2012	Some complementary data were obtained also from other sources of Forest Information Centre

3	MINDÁŠ, J. ET AL. 1997: Carbon stock and balance in the forests of Slovakia ¹)	Stock of biomass and carbon	1996.	For quantification of carbon stock and its change in respective years in forest ecosystems of Slovakia.
4	ŠMELKO, Š. ET AL. 2008: National forest inventory and monitoring in Slovakia in 2005-2006. National Forest Centre.	Dead wood	2005 -2006	National Forest Inventory and Monitoring (NFIM SR) For quantification of dead wood in the years 2000 and 2007 in forest land of Slovakia.
5	Report on Forestry in the SR, Green report. National Forest Centre and Ministry of Agriculture and Rural Development of the SR.	Litter and Soil carbon	1990 - 2007, 2010, 2012	N/A
6	Report on Forestry in the SR, Green report. National Forest Centre and Ministry of Agriculture and Rural Development of the SR	N/A	2006, 2008, 2011, 2013	N/A
7	Summary information on Forests. National Forest Centre - Institute of Forest Resources and Information.	Net annual Increment	2008, 2011, 2013	N/A

3.2.2 Classification and definitions

National class	Definition
Growing stock	Volume over bark of all living trees with a minimum diameter of 7 cm at breast height. Includes the stem from ground level up to a top diameter of 7 cm, excluding branches below 7 cm. National minimum diameter, top diameter and inclusion branches over 7 cm differ from FRA 2015 definition.
Above-ground biomass	All living biomass above the soil including stem stump branches bark seeds and foliage. National definition complies with the FRA 2010 definition
Below-ground biomass	All biomass of live roots. Fine roots of less than 2 mm diameter are excluded. National definition complies with the FRA 2010 definition
Dead wood biomass	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.

3.2.3 Original data

VOLUME OF GROWING STOCK

FRA category	Volume (million m ³)										
	Forest stands						Other wooded land				
	1988	2000	2003	2005	2007	2012	1988	2000	2003	2004	2005
Growing stock under bark (national definition)	341.9	410.0	428.3	438.9	445.9	466,1	n. a.	n. a.	n. a.	n. a.	n. a.
Growing stock over bark	389.3	463.2	481.9	494.6	502.4	532,1	n. a.	n. a.	n. a.	n. a.	n. a.

Growing stock under bark		year							
		2005	2006	2007	2008	2009	2010	2012	
Total	Together	438,9	443,8	445,9	452,1	456,4	461,95	466,07	
(mil. m ³)	Coniferous	207,35	209,8	209,2	211,2	211,5	212,16	211,93	
	Broadleaved	231,55	234,0	236,7	240,9	244,9	249,79	254,14	
per 1 ha (m ³)	Average	229	231	232	235	237	239	241	
	Coniferous	264	268	269	272	274	276	278	
	Broadleaved	204	206	207	210	212	215	217	

The original data on growing stock based on national definitions, in accordance with the law, refer to the volume of wood with DBH over 7 cm under bark. They had to be converted into the volume over bark. The conversion coefficients for *Bark* were derived from the “Rastové tabuľky hlavných drevín” [Yield Tables of Main Tree Species] (Halaj, J. – Petráš, R. 1998) and “Rastové tabuľky topoľových klonov” [Yield Tables of Poplar Clones] (Mecko, J. et al. 1997) for this purpose. The mean values of the Coefficients of Bark were derived for each age class according to the mean site indexes of all 21 tree species or tree species groups listed in the summaries of the national forest inventory. The mean site indexes are a little changed in the evaluated years.

FRA Categories/ Species name (Scientific and common name)	Growing Stock in Forest stands					
	(Million m ³)					
	1988	2000	2003	2005	2007	2010
<i>Picea abies</i> / Norway spruce	131.3	156.3	158.2	162.1	162.8	163,7
<i>Fagus sylvatica</i> / European beech	107.6	139.2	149.6	154.1	157.3	166,6
<i>Quercus</i> / Oak including <i>Q. petraea</i> (sessile oak), <i>Q. robur</i> (pedunculate oak) and <i>Q. cerris</i> (Turkey oak).	57.2	60.4	61.1	62.6	63.9	66,5
Genus <i>Pinus</i> / Pine including <i>P. silvestris</i> (Scots pine) and <i>P. nigra</i> (Austrian black pine)	24.6	29.4	30.6	31.3	32.0	33
<i>Abies alba</i> / European silver fir	34.8	27.6	26.8	26.8	27.1	27,6
<i>Carpinus betulus</i> / European hornbeam	11.4	18.2	21.2	21.7	22.1	22,9

<i>Larix decidua</i> / European larch	4.6	7.2	8.0	8.5	8.8	9,7
Genus <i>Acer</i> / maple including <i>Acer platanoides</i> (Norway maple), <i>Acer pseudoplatanus</i> (sycamore maple) and <i>Acer campestre</i> (field maple)	3.3	5.0	5.6	5.9	6.3	7,1
Genus <i>Fraxinus</i> ⁴⁾ including <i>Fraxinus excelsior</i> (common ash) and <i>Fraxinus angustifolia</i> (narrow-leaved ash)	2.7	5.0	5.5	5.8	6.0	6,7
<i>Robinia pseudoacacia</i> / black locust	3.9	4.8	4.6	4.7	4.6	4,7
Other tree species	7.9	10.1	10.7	11.0	11.5	5,6
TOGETHER	389.3	463.2	481.9	494.6	502.4	514,1

BIOMASS

FRA Category	Biomass (million metric tonnes oven-dry weight)				
	Original data				
	1988	2000	2005	2007	2012
Above-ground biomass	261.4	315.3	335.9	341.8	362,2
Below-ground biomass	56.1	68.1	72.9	74.3	78,6
Dead wood biomass	24.5	29.4	31.0	31.0	31,0
TOTAL	342.0	412.8	439.8	447.1	471,8

3) Above-ground biomass was determined as a sum of tree biomass of tree species and the biomass of foliage. Original data of growing stock of wood with dbh > 7 cm under bark for Table 6 were re-calculated to trees growing stock over bark using the Coefficients of Wood with dbh > 7 cm, derived from “Rastové tabuľky hlavných drevín” [Yield Tables of Main Tree Species] (Halaj, J. – Petráš, R. 1998) and “Rastové tabuľky topoľových klonov” [Yield Tables of Poplar Clones] (Mecko, J. et al. 1997). The mean values of the Coefficients of Wood with dbh > 7 were derived according to the age classes for the mean site indexes of all 21 tree species or tree species groups listed in the Summary information of Forest Information Centre. The mean site indexes are a little changed in the individual evaluated years.

4) Oven-dry weight of the biomass was a product of the growing stock of individual tree species and their wood density in an oven-dry weight. The values of wood density of the tree species were adopted from Požgaj, A. et al. 1993: Structure and properties of wood.

5) The assessment of the below-ground biomass follows the available results of scientific studies. It is an expert estimate based on the following proportions in the tree above-ground biomass over bark: coniferous tree species 20%, broadleaved tree species 25%.

6) The assessment of the biomass of foliage, thin twigs and seeds follows the available results of scientific studies. It is an expert estimate based on the domestic yield tables for coniferous and broadleaved tree species and the following proportions in the above-ground plus below-ground biomass: coniferous tree species 15%, broadleaved tree species 2%.

7) The dead wood biomass was determined by two ways:

- The first way on the basis of data from findings by Forest Information Centre of Lesoprojekt Zvolen and the available results of scientific studies as a following proportion in the growing stock: coniferous tree species 15%, broadleaved tree species 10%. By the mentioned estimate is dead wood biomass determined for the years 1988, 2000 and 2003.
- The second way for the years 2005 and 2007 on the basis of data from National forest inventory and monitoring (NFIM) in Slovakia in 2005 as of 31.12.20005 (volume dead wood biomass in m³ over bark). Dead wood biomass was converted to oven-dry weight biomass by weighted arithmetical averages of wood density in an oven-dry weight of coniferous and broadleaved tree species groups. They were derived from the actual tree species composition in volume of growing stock of wood with dbh > 7 cm over bark.

CARBON

FRA 2005 Categories						
	Carbon (million metric tonnes) in Forest					
	1988	2000	2005	2007	2012	
Carbon in above-ground biomass	129.4	156.1	166.3	169.2	179,3	
Carbon in below-ground biomass	27.8	33.7	36.1	36.7	38,9	
Sub-total: Carbon in living biomass	157.2	189,8	202.4	205.9	218,2	
Carbon in dead wood	12.1	14.5	15.3	15.3	15,3	
Carbon in litter	16.2	19.5	20.4	21.2	23,1	
Sub-total: Carbon in dead wood and litter	28.3	33.0	35.7	36.5	38,4	

The original data for calculation of the carbon stock are presented in Table 7. The original data for litter and soil carbon were obtained from analysis of soil and litter samples collected on ICP Forest level I monitoring plots, which are established in the network of 16 x 16 km.

For converting biomass stock (above-ground and below-ground biomass, dead wood, litter, soil) was used **national carbon fraction 0.495** .

Year	Carbon volume in forests		
	In living biomass	In dead biomass	In soil

	Above-ground	Below-ground	Deadwood	Humus	
	mil. ton				
2012	179,3	38,9	15,3	23,1	270,5
2011	178,3	38,5	16,3	22,4	270,5
2010	173,6	37,6	15,3	22,4	270,5
2005	166,3	36,1	15,3	20,4	270,5
2000	156,1	33,7	14,5	19,5	270,5
1990	133,9	28,8	12,5	16,7	270,5

3.3 Analysis and processing of national data

3.3.1 Adjustment

Not needed.

3.3.2 Estimation and forecasting

Data for 1990 were determined by means of linear interpolation of the data from 1988 and 2000.

The forecast for 2010 is a linear extrapolation of the data from 2005 and 2007.

The forecast for 2015 was obtained by using the same volume what was reported in 2012

FRA Categories	Forest (volume in million m ³ over bark)									
	Original data					Converted for FRA				
	1988	2000	2005	2007	2012	1990	2000	2005	2010	2015
Growing stock o. b.	389.3	463.2	494.6	502.4	532,1	401.6	463.2	494.6	514.1	532,1

FRA Categories/ Species name (Scientific and common name)	Growing Stock in Forest stands				
	(Million m ³)				
	1988	1990 ^{*)}	2000	2005	2010
<i>Picea abies</i> / Norway spruce	131.3	135.5	156.3	162,1	163,7
<i>Fagus sylvatica</i> / European beech	107.6	112.9	139.2	154,1	166,6
<i>Quercus</i> / Oak	57.2	57.7	60.4	62,6	66,5
<i>Pinus</i> / Pine	24.6	25.4	29.4	31,3	33
<i>Abies alba</i> / European silver fir	34.8	33.6	27.6	26,8	27,6
<i>Carpinus betulus</i> / European hornbeam	11.4	12.5	18.2	21,7	22,9
<i>Larix decidua</i> / European larch	4.6	5.0	7.2	8,5	9,7
<i>Acer</i> / Maple	3.3	3.6	5.0	5,9	7,1
<i>Fraxinus</i> / Ash	2.7	3.1	5.0	5,8	6,7
<i>Robinia pseudoacacia</i> / black locust	3.9	4.1	4.8	4,7	4,7
Other tree species	7.9	8.2	10.1	11,1	5,6
TOTAL	389.3	401.6	463.2	494,6	514,1

^{*)}Figures referring to 1990 represent a linear interpolation of the data from 1988 and 2000

FRA Category	Biomass (million metric tonnes oven-dry weight)									
	Original data					Re-calculated for FRA				
	1988	2000	2005	2007	2012	1990	2000	2005	2010	2015
Above-ground biomass	261.4	315.3	335.9	341.8	362,2	270.4	315.3	335.9	350.6	362,2
Below-ground biomass	56.1	68.1	72.9	74.3	78,6	58.1	68.1	72.9	76.4	78,6
Dead wood biomass	24.5	29.4	31.0	31.0	31,0	25.3	29.4	31.0	31.0	31,0
TOTAL	342.0	412.8	439.8	447.1	471,8	353.8	412.8	439.8	458.0	471,8

CARBON

FRA 2005 Categories	Carbon (Million metric tonnes)									
	Original date					Converted for FRA				
	1988	2000	2005	2007	2012	1990	2000	2005	2010	2015
Carbon in above-ground biomass	129.4	156.1	166.3	169.2	179,3	133.9	156.1	166.3	173.6	179,3
Carbon in below-ground biomass	27.8	33.7	36.1	36.7	38,9	28.8	33.7	36.1	37.6	38,9
Sub-total: Carbon in living biomass	157,2	189,8	202.4	205.9	218,2	162.7	189,8	202.4	211.2	218,2

Carbon in dead wood	12.1	14.5	15.3	15.3	15,3	12.5	14.5	15.3	15.3	15,3
Carbon in litter	16.2	19.5	20.4	21.2	23,1	16.7	19.5	20.4	22,4	23,1
Sub-total: Carbon in dead wood and litter	28.3	33.0	35.7	36.5	38,4	29.2	34.0	35.7	37,7	38,4
Soil carbon to a depth of <u>80</u> cm	270.5	270.5	270.5	270.5	270,5	270.5	270.5	270.5	270.5	270,5

Data for 1990 were determined by linear interpolation of data of the years 1988 and 2000.

Prospective forecasting for the year 2010 is a linear extrapolation of data for 2005 and 2007


2012 = 2015

3.3.3 Reclassification

Not needed.

3.4 Data

Table 3a

Category		Growing stock volume (million m ³ over bark)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
	Total growing stock	401.6	463.2	494.6	514.1	532.1	N/A	N/A	N/A	N/A	N/A



	... of which coniferous	199.5	220.5	228.7	234	240.4	N/A	N/A	N/A	N/A	N/A
	... of which broadleaved	202.1	242.7	265.9	280.1	291.7	N/A	N/A	N/A	N/A	N/A

Table 3b

Category/Species name			Growing stock in forest (million cubic meters)			
Rank	Scientific name	Common name	1990	2000	2005	2010
1 st	<i>Picea abies</i>	Norway spruce	135.5	156.3	162.1	163.7
2 nd	<i>Fagus sylvatica</i>	European beech	112.9	139.2	154.1	166.6
3 rd	<i>Q. petraea</i> , <i>Q. robur</i> , <i>Q. cerris</i>	Sessile oak, pedunculate oak and Turkey oak.	57.7	60.4	62.6	66.5
4 th	<i>P. silvestris</i> <i>P. nigra</i>	Scots pine and Austrian black pine	25.4	29.4	31.3	33
5 th	<i>Abies alba</i>	European silver fir	33.6	27.6	26.8	27.6
6 th	<i>Carpinus betulus</i>	European hornbeam	12.5	18.2	21.7	22.9
7 th	<i>Larix decidua</i>	European larch	5	7.2	8.5	9.7
8 th	<i>Acer platanoides</i> , <i>Acer pseudoplatanus</i> , <i>Acer campestre</i>	Norway maple, sycamore maple and field maple	3.6	5	5.9	7.1
9 th	<i>Fraxinus excelsior</i> , <i>Fraxinus angustifolia</i>	Common ash and narrow-leaved ash	3.1	5	5.8	6.7
10 th	<i>Robinia pseudoacacia</i>	black locust	4.1	4.8	4.7	4.7
Remaining			8.2	10.1	11.1	5.6
TOTAL			401.60	463.20	494.60	514.10

THE PRE-FILLED VALUES FOR GROWING STOCK REFER TO THE FOLLOWING THRESHOLD VALUES (SEE TABLE BELOW)

Item	Value	Complementary information
Minimum diameter (cm) at breast height of trees included in growing stock (X)	7	Diameter over bark.

Minimum diameter (cm) at the top end of stem for calculation of growing stock (Y)	7	Diameter over bark.
Minimum diameter (cm) of branches included in growing stock (W)	7	Diameter over bark.
Volume refers to above ground (AG) or above stump (AS)	AG	N/A

PLEASE NOTE THAT THE DEFINITION OF GROWING STOCK HAS CHANGED AND SHOULD BE REPORTED AS GROWING STOCK DBH 10 CM INCLUDING THE STEM FROM GROUND LEVEL UP TO A DIAMETER OF 0 CM, EXCLUDING BRANCHES.

Table 3c




Category		Net annual increment (m ³ per hectare and year)				
		Forest				
		1990	2000	2005	2010	2015
	Net annual increment	5.85	6.58	6.87	6.97	7.16
	... of which coniferous	N/A	N/A	N/A	8.46	8.74
	... of which broadleaved	N/A	N/A	N/A	6.01	6.16

Table 3d











Category		Biomass (million metric tonnes oven-dry weight)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
	Above ground biomass	270.4	315.3	335.9	350.6	362.2	N/A	N/A	N/A	N/A	N/A
	Below ground biomass	58.1	68.1	72.9	76.4	78.6	N/A	N/A	N/A	N/A	N/A
	Dead wood	25.3	29.4	31	31	31	N/A	N/A	N/A	N/A	N/A
TOTAL		353.80	412.80	439.80	458.00	471.80	.00	.00	.00	.00	.00

Table 3e

Category		Carbon (Million metric tonnes)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015

	Carbon in above ground biomass	133.9	156.1	166.3	173.6	179.3	N/A	N/A	N/A	N/A	N/A
	Carbon in below ground biomass	28.8	33.7	36.1	37.6	38.9	N/A	N/A	N/A	N/A	N/A
	<i>Subtotal Living biomass</i>	162.7	189.8	202.4	211.2	218.2	N/A	N/A	N/A	N/A	N/A
	Carbon in dead wood	12.5	14.5	15.3	15.3	15.3	N/A	N/A	N/A	N/A	N/A
	Carbon in litter	16.7	19.5	20.4	22.4	23.1	N/A	N/A	N/A	N/A	N/A
	<i>Subtotal Dead wood and litter</i>	29.2	34	35.7	37.7	38.4	N/A	N/A	N/A	N/A	N/A
	Soil carbon	270.5	270.5	270.5	270.5	270.5	N/A	N/A	N/A	N/A	N/A
TOTAL		462.40	494.30	508.60	519.40	527.10	.00	.00	.00	.00	.00

Tiers

Variable/category	Tier for status	Tier for trend
Total growing stock	Tier 3	Tier 3
Net annual increment	Tier 2	Tier 2
Above ground biomass	Tier 1	Tier 2
Below ground biomass	Tier 1	Tier 2
Dead wood	Tier 1	Tier 2
Carbon in above-ground biomass	Tier 1	Tier 2
Carbon in below ground biomass	Tier 1	Tier 2
Carbon in dead wood and litter	Tier 1	Tier 2
Soil carbon	Tier 1	Tier 2

Tier criteria

Category	Tier for status	Tier for reported trend
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Total growing stock	Tier 3: Data sources Recent 10 years National Forest Inventory or remote sensing with ground truthing or programme for repeated compatible NFI 10 years Domestic volume functions Tier 2: Data sources/registers and statistics modelling or old NFI 10 years or partial field inventory Tier 1: Other data sources	Tier 3: Estimate based on repeated compatible tiers 3 (tier for status) Domestic growth functions Tier 2: Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 tier for status Tier 1: Other
Net annual increment	Tier 3: Scientifically tested national volume and growth functions Tier 2: Selection of volume and growth functions as relevant as possible Tier 1: Other	Tier 3: Confirmation/adjustment of functions used through scientific work Tier 2: Review work done to seek alternative functions Tier: 1 Other
Biomass	Tier 3: Country-specific national or sub-national biomass conversion expansion factors applied or other domestic or otherwise nationally relevant biomass studies Tier 2: Application of country specific national or sub-national biomass conversion factors from other country with similar climatic conditions and forest types Tier 1: International/regional default biomass expansion factors applied	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other
<ul style="list-style-type: none"> Carbon in above ground biomass Carbon in below ground biomass Carbon in dead wood and litter Soil carbon 	Tier 3: Country-specific national or sub-national biomass conversion expansion factors applied Tier 2: Application of country specific national or sub-national biomass conversion factors form from other country with similar climatic conditions and forest types Tier 1: International/regional default biomass expansion factors applied	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

3.5 Comments on growing stock biomass and carbon

Category	Comments related to data definitions etc	Comments on the reported trend
Total growing stock	The presented data on growing stock show a high accuracy since they result from a regular yearly updating of the growing stock on approximately 1/10 of the forest stand area. The stand-wise forest inventory is based on the statistical survey of the growing stock in young and medium-age stands and full measurement of mature stands.	The growing stock shows a long-term increasing trend, which is associated mainly with uneven age structure and over-proportional representation of medium-age stands (50 to 100-years-old), use of more precise domestic yield tables for the main tree species since 1993, assumed positive effects of high nitrogen deposition originating in air pollution and of the climate change.
Growing stock of broadleaved coniferous	N/A	N/A
Growing stock composition	N/A	N/A
Net annual increment	N/A	N/A

Above-ground biomass	N/A	The above-ground biomass shows a long-term increasing trend. Assumed reasons are the same as they are mentioned in comments on growing stock in the country report.
Below-ground biomass	N/A	N/A
Dead wood	Years 1988-2003: Considered minimal diameter at breast height of standing trees for determination of dead wood biomass is 10 cm. Considered minimal diameter at smaller end of tree residuals left on the ground for determination of dead wood biomass is 10 cm. Considered minimal diameter of branches for determination of dead wood biomass is 10 cm. Considered minimal diameter of roots for determination of dead wood biomass is 10 cm. Years 2005-2007: Considered minimal diameter at breast height of standing trees for determination of dead wood biomass is 7 cm. Considered minimal diameter at smaller end of tree residuals left on the ground for determination of dead wood biomass is 7 cm. Considered minimal diameter of branches for determination of dead wood biomass is 7 cm. Considered minimal diameter of roots for determination of dead wood biomass is 7 cm.	Dead wood shows increasing trend.
Carbon in above-ground biomass	For converting above-ground biomass to carbon was used default global carbon fraction 0.495.	The carbon in above-ground biomass shows a long-term increasing trend. Assumed reasons are the same as they are mentioned in comments to growing stock in the country report.
Carbon in below-ground biomass	For converting below-ground biomass to carbon was used default global carbon fraction 0.495.	N/A
Carbon in dead wood	For converting dead wood biomass to carbon was used default global carbon fraction 0.495.	N/A
Carbon in litter	N/A	N/A
Soil carbon	Soil carbon we have reported without any change for long time, because there are no updated data for this indicator in Slovakia	N/A

Other general comments to the table

N/A

4. What is the status of forest production and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

4.1 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.
Non wood forest product (NWFP)	Goods derived from forests that are tangible and physical objects of biological origin other than wood.
Commercial value of NWFP	For the purpose of this table, value is defined as the commercial market value at the forest gate.
Category	Definition
Production forest	Forest area designated primarily for production of wood, fibre, bio-energy and/or non-wood forest products.
Multiple use forest	Forest area designated for more than one purpose and where none of these alone is considered as the predominant designated function.
Total wood removals	The total of industrial round wood removals and woodfuel removals.
...of which woodfuel	The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

4.2 National data

4.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Forest Information Centre (LIC) of the Lesoprojekt	Area of functional types	1990	N/A
2	Konôpka, J. et al. 2002: Report on Forestry in the SR, Green Report.	Area of functional types Forest area within protected areas (also for 1990)	2000	N/A
3	Moravčík, M. et al. 2006: Report on Forestry in the SR, Green report.	Area of functional types Forest area within protected areas	2005	N/A
4	Moravčík, M. et al. 2008: Report on Forestry in the SR, Green report.	Area of functional types Forest area within protected areas	2007	Estimation of the year 2010
5	Hunting statistical yearbook, 2010	Animal products	2010	only value of products are recorded
6	Statistical records for the Green report, 2010	Plant products	2010	N/A

7	Research study: Research, Classification and Application of Forest Functions in Landscape	Food (berries and mushrooms)	2008	N/A
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4.2.2 Classification and definitions

National class	Definition
Production	Includes wood production and other productive functions.
Erosion-control	If a forest protects soil against destruction by surface water runoff causing area or rill erosion.
Water-management	If a forest improves runoff conditions either „qualitatively“ by balancing fluctuating water courses or „quantitatively“ by increasing the amount of water in water courses.
Avalanche-control	If a forest serves to prevent avalanches.
Bank-protection	If a forest protects banks of water courses and water bodies against water erosion and/or protects the water quality.
Deflation-control	If a forest protects soil against wind erosion preventing its „drifting away“ or capturing the soil particles drifted from open areas.
Water-protection	If a forest is situated in a protection zone of water resources, spa springs or springs of mineral table waters.
Recreational	If a forest serves primarily recreation. Forest stands are maintained species rich and esthetically forceful to meet the needs and interests of visitors.
Spa-therapeutic	If a forest is used for therapeutical purposes in the surroundings of spas and medical facilities. Their management aims at the creation of hygienically favourable and esthetically forceful nature environment meeting the needs of persons under medical care or receiving spa treatment.
Nature-protection	If a forest is utilised for conservation of its natural values as regards its origin, beauty and biological diversity.
Pollution-control	If a forest buffers negative impacts of industrial pollution on humans and nature; it is applied either if the life expectancy of forest vegetation is apparently reduced due to the pollution, or for the improvement of air quality and physical environment;.
Game-management	If a forest is intended primarily for breeding and protection of game. The management objective is to provide an appropriate forest habitat for the game.
Educational-research	If a forest serves primarily to the educational, scientific and research purposes.

4.2.3 Original data

Reported area of 285 ths. ha (production forests) and 1 132 ths. ha (multiple use forests) in 2015 results from real functional designation of forest stand area in 2012.

1.	FRA Category / Associated functions	Area (1000 ha)			
		Main functions			
		1990	2000	2005	2010
	Production	655	280	125	129,3
	Protection of soil and water	245	327	344	342,3
	Conservation of biodiversity	80 ^{*)}	51 ^{*)} (81) ^{**)}	57 ^{*)} (81) ^{**)}	36,2 ^{*)} (81) ^{**)}
	Social services	182	265	223	236,3
	Multiple purpose	760	998	1 183	1 188,8
	No or unknown functions	0	0	0	0
	Together – Forest	1 922	1 921	1 932	1 932.9

^{*)}Area according to the functional types, Forest Information Centre of Institute for Forest Resources and Informatics Zvolen

^{**)Area of forests under the 4th and 5th degree of nature protection, Ministry of the Environment. This was used for further estimation.}

The original data are already reclassified according to the Reclassification described in 3.3.

The area of forest stands for biodiversity conservation refers to the data of the Ministry of the Environment for forests in the 4th and 5th degree of nature protection (DNC). There was a difference in the area of this functional category between the data according to functional types and Ministry of Environment, which was subtracted from the area of “Multiple purpose forests”.

Derivation of the area of forests for „Conservation of biodiversity“:

2000 : Source Ministry of the Environment of SR, Green Report 2002:

4th DNC: 6 872 (Protected Range) + 3 861 (Protection Zone of the 5th protection degree) = 10 733
x 0.65 (forest coverage) = 6 976 ha

5th DNC: 98 752 x 0.75 = 74 064

Together (4th+5th) = 81 040 ha.

2005 : Status as of 31 December 2005 according to the Ministry of the Environment (Green Report 2006)

4th DNC: 17 598 x 0.65 (forest coverage of protected territories) = 11 439 ha

5th DNC: 93 067 x 0.75 (forest coverage) = 69 800 ha

Together (4th+5th) = 81 239 ha

2007 = 2010 : Status as of 31 December 2007 according to the Ministry of the Environment (Green Report 2008)

4th DNC: 12 633 ha

5th DNC: 68 719 ha

Together (4th+5th) = 81 352 ha

Original data for “Forest area within protected areas”

Indicators		Large-scale protected areas (PA)		Small-scale PA	Total
		Protected landscape areas As a rule 2 nd DNC	National parks ^{*)} the 3 rd DNC PZ = 2 nd DNC	Protected range and Nature reserves ^{*)} 4 th and 5 th DNC	
1990	Area (ha)	854 090	448 877	51 128	1 354 095

	Forest coverage (%)	71	66,7	75	-
	Forest area (ha)	606 403	299 401	38 346	944 150
2000	Area (ha)	623 971	481 343	109 485	1 214 799
	Forest coverage (%)	71	66,7	74	-
	Forest area (ha)	443 019	321 240	81 040	845 299
	Area (ha)	522 679	588 018	110 665	1 221 362
2005	Forest coverage (%)	73	72,5	73	-
	Forest area (ha)	381 507	426 562	81 239	889 308

*) Including protection zone (PZ) of the protected territories

Original data for “Forest area within protected areas” in 2007 (= 2010)

Protected area	Degree of nature protection (DNC) (ha)					Total
	1	2	3	4	5	
Protected Landscape Area (PLA) ¹	-	354 450	-	-	-	354 450
National Park (NP) ¹	-	-	225 286	-	-	225 286
NP protection zones (PZ)	-	117 885	-	-	-	117 885

	PLA and NP zones, (Area in ha reduced by SSPA area)	A	-	-	-	-	1 107	1 107
		B	-	-	-	3 921	-	3 921
		C	-	-	15 826	-	-	15 826
		D	-	28 667	-	-	-	28 667
Small-scale protected areas (SSPA)	(National) Nature Reserve ((N)NR)	-	-	-	-	5 427	67 270	72 697
	(National) Nature Monument ((N)NM)	-	-	-	-	1 022	342	1 364
	Protected Landscape Element (PLE)	-	-	-	-	3	-	3
	Protected Range (PR)	-	-	62	1 232	-	-	1 294
	SSPA protection zones	-	-	327	1 028	-	-	1 355
SAC – Territories of European significance – outside of national network of PA		-	67 748	-	-	-	-	67 748
SAC – Protected bird territories – outside of national network of PA		212 044	-	-	-	-	-	212 044
Total		212 044	568 750	241 501	12 633	68 719		1 103 647

Source: Moravčík, M. et al. 2008: Report on Forestry in the SR, Green report.

4.3 Analysis and processing of national data

4.3.1 Adjustment

Not needed.

4.3.2 Estimation and forecasting

The state as of 31 December 2007 has been used as a forecast for 2010 since no significant changes are expected in both “functional typisation” and forest area within protected areas till 2010.

The state as of 31 December 2012 has been used as a forecast for 2015 for both production and multiple use forests because no significant changes are expected in functional typisation.

4.3.3 Reclassification

Classification of forests according to their functions was done according to their primary function.

Production = Area of forest stands intended solely for the production function.

Protection of soil and water = Area of forest stands which main function is „erosion-control“, „water-management“, „avalanche-control“, „bank-protection“, „deflation-control“, „water-protection“.


Conservation of biodiversity = Area of forest stands under the most strict 4th and 5th degree of nature conservation according to the Act on nature and landscape protection.

Social services = Area of forest stands which main function is „recreational“, „spa-therapeutic“, „pollution-control“, „game-management“, „educational-research“.

Multiple purpose = Area of forest stands which main function is production but have also another associated function(s).

4.4 Data

Table 4a

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Production forest	655	280	125	129	285


	Multiple use forest	760	968	1159	1145	1132
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Table 4b

Rank	Name of product	Key species	Commercial value of NWFP removals 2010 (value 1000 local currency)	NWFP category
1 st	Food	berries, mushrooms	3287.4	1
2 nd	Hides skins and trophies	N/A	2756.7	10
3 rd	Wild meat	N/A	2100.2	12
4 th	Living animals	N/A	528.4	9
5 th	Fodder	N/A	236	2
6 th	Other plant products	Christmas trees	31.9	8
7 th	Ornamental plants	decorative coniferous branches	10.6	6
8 th	N/A	N/A	N/A	N/A
9 th	N/A	N/A	N/A	N/A
10 th	N/A	N/A	N/A	N/A
TOTAL			8951.20	

2010

Name of local currency

EURO

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 beewax
12 Wild meat
13 Raw material for medicine
14 Raw material for colorants
15 Other edible animal products
16 Other non-edible animal products

Table 4c Pre-filled data from FAOSTAT

Year	FRA 2015 category (1000 m ³ u.b.)	
	Total wood removals	...of which woodfuel
1990	5276	643
1991	4429	N/A
1992	4048	N/A
1993	5249	490
1994	5318	628
1995	5323	436
1996	5460	505
1997	4945	339
1998	5519	249
1999	5795	261
2000	6163	277
2001	5787.9	268
2002	5782	259
2003	6355	304

2004	7240	304
2005	9302	297
2006	7868.5	307.1
2007	8131.5	416.6
2008	9268.6	554.5
2009	9087	586.1
2010	9599.1	509.9
2011	9212.9	643

Tiers

Category	Tier for status	Tier for reported trend
Production forest	Tier 3	Tier 3
Multiple use forest	Tier 3	Tier 3

Tier Criteria

Category	Tier for status	Tier for reported trend
Production forest Multiple use forest	Tier 3: Updated including field verifications national forest maps including functions Tier 2: Forest maps older than 6 years including forest functions Tier 1: Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

4.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Production forest	N/A	The area of production forests is stabilized and lately again gently increasing
Multiple use forest	N/A	The area of multiple use forests is stabilized, but area of the subcategory "protected forests" has been increasing
Total wood removals	N/A	We can observe continuous increasing the total wood removals mainly because of salvage cuttings and uneven age composition of forests.
Commercial value of NWFP	N/A	N/A

Other general comments to the table

N/A

5. How much forest area is managed for protection of soil and water and ecosystem services?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

5.1 Categories and definitions

Category	Definition
Protection of soil and water	Forest area designated or managed for protection of soil and water
...of which production of clean water (<i>sub-category</i>)	Forest area primarily designated or managed for water production, where most human uses are excluded or heavily modified to protect water quality.
...of which coastal stabilization (<i>sub-category</i>)	Forest area primarily designated or managed for coastal stabilization.
...of which desertification control (<i>sub-category</i>)	Forest area primarily designated or managed for desertification control.
...of which avalanche control (<i>sub-category</i>)	Forest area primarily designated or managed to prevent the development or impact of avalanches on human life assets or infrastructure.
...of which erosion, flood protection or reducing flood risk (<i>sub-category</i>)	Forest area primarily designated or managed for protecting communities or assets from the impacts of erosion riparian floods and landslides or for providing flood plain services.
...of which other (<i>sub-category</i>)	Forest area primarily designated or managed for other protective functions.
Ecosystem services, cultural or spiritual values	Forest area primarily designated or managed for selected ecosystem services or cultural or spiritual values.
...of which public recreation (<i>sub-category</i>)	Forest area designated or managed for public recreation.
...of which carbon storage or sequestration (<i>sub-category</i>)	Forest area designated or managed for carbon storage or sequestration.
...of which spiritual or cultural services (<i>sub-category</i>)	Forest area designated or managed for spiritual or cultural services.
...of which other (<i>sub-category</i>)	Forest area designated or managed for other ecosystem services.

5.2 National data

5.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Summary information on state of forests in Slovakia 2000, 2005, 2010; 2012 National Forest Centre	Area of forests on soil and water protection, and on ecosystem services, cultural and spiritual values	2000, 2005, 2010, 2012	N/A

2	Global Forest Resources Assessment 2010, Slovakia, Country Report	N/A	1990, 2000, 2005	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

5.2.2 Classification and definitions

National class	Definition
Erosion-control	If a forest protects soil against destruction by surface water runoff causing area or rill erosion.
Water-management	If a forest improves runoff conditions either „qualitatively“ by balancing fluctuating water courses or „quantitatively“ by increasing the amount of water in water courses.
Avalanche-control	If a forest serves to prevent avalanches
Bank-protection	If a forest protects banks of water courses and water bodies against water erosion and/or protects the water quality.
Deflation-control	If a forest protects soil against wind erosion preventing its „drifting away“ or capturing the soil particles drifted from open areas.
Water-protection	If a forest is situated in a protection zone of water resources, spa springs or springs of mineral table waters
Recreational	If a forest serves primarily recreation. Forest stands are maintained species rich and esthetically forceful to meet the needs and interests of visitors.
Spa-therapeutic	If a forest is used for therapeutical purposes in the surroundings of spas and medical facilities. Their management aims at the creation of hygienically favourable and esthetically forceful nature environment meeting the needs of persons under medical care or receiving spa treatment.
Nature-protection	If a forest is utilised for conservation of its natural values as regards its origin, beauty and biological diversity
Pollution-control	If a forest buffers negative impacts of industrial pollution on humans and nature; it is applied either if the life expectancy of forest vegetation is apparently reduced due to the pollution, or for the improvement of air quality and physical environment
Game-management	If a forest is intended primarily for breeding and protection of game. The management objective is to provide an appropriate forest habitat for the game
Educational-research	If a forest serves primarily to the educational, scientific and research purposes

5.2.3 Original data

Reported area of protection soil and water forests results from real functional designation of forest stand area in 2012. Their status as of 31 December 2012 has been used as a forecast for 2015 because no significant changes are expected in functional typisation and designation.

5.3 Analysis and processing of national data

5.3.1 Adjustment

5.3.2 Estimation and forecasting






Reported area of protection soil and water forests results from real functional designation of forest stand area in 2012. Their status as of 31 December 2012 has been used as a forecast for 2015 because no significant changes are expected in functional typisation and designation.



5.3.3 Reclassification

Protection of soil and water = Area of forest stands which main function is „erosion-control“, „water-management“, „avalanche-control“, „bank-protection“, „deflation-control“, „water-protection“.

5.4 Data

Table 5a

Categories		Forest area (1000 hectares)				
		1990	2000	2005	2010	2015
	Protection of soil and water	245	327	344	353	350
	... of which production of clean water	N/A	N/A	N/A	22	19
	... of which coastal stabilization	N/A	N/A	N/A	0.5	0.5
	... of which desertification control	N/A	N/A	N/A	N/A	N/A
	... of which avalanche control	N/A	N/A	N/A	1.4	1.4

	... of which erosion, flood protection or reducing flood risk	N/A	N/A	N/A	327.1	327.1
	... of which other (please specify in comments below the table)	N/A	N/A	N/A	2	2

Other						
N/A						

Table 5b

Categories	Forest area (1000 hectares)				
	1990	2000	2005	2010	2015
Ecosystem services, cultural or spiritual values	427	592	567	254	106
...of which public recreation	24	24	24	24	24
...of which carbon storage or sequestration	N/A	N/A	N/A	N/A	N/A
...of which spiritual or cultural services	N/A	N/A	N/A	N/A	N/A
...of which other (please specify in comments below the table)	N/A	N/A	N/A	N/A	N/A

Tiers

Category	Tier for reported trend	Tier for status
Protection of soil and water	Tier 3	Tier 3
Ecosystem services, cultural or spiritual values	Tier 3	Tier 3

Tier criteria

Category	Tier for status	Tier for reported trend
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Protection of soil and water	Tier 3: High reliability data derived either from high intensity sample survey or data obtained from national or state agencies responsible for regulations or legislation relating to soil and water protection. Tier 2: Approaches based on low intensity or incomplete sample-based surveys or studies that provide data for specific areas that is extrapolated through statistical analysis to national level estimates. Tier 1: Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other
<ul style="list-style-type: none"> • Cultural or spiritual values • Public recreation • Spiritual or cultural services • Other 	Tier 3: High reliability data derived either from high intensity sample survey or data obtained from national or state agencies responsible for regulations. Tier 2: Approaches based on low intensity or incomplete sample-based surveys or studies that provide data for specific areas that is extrapolated through statistical analysis to national level estimates. Tier 1: Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

5.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Protection of soil and water	This category includes all Slovak „protective forests“ as well as „special purpose forests within buffer zones of water reservoirs“	The area of these forests is rather stabilised or very slowly increasing due to identification of new sites “of protective nature” and changing requirements of water managers (see below).
Production of clean water	This category includes only forests within buffer zones of water reservoirs, which would normally be managed as commercial forests (protective forests in buffer zones are excluded). However, majority of protective forests have some impact on the quality of surface water.	The area of these forests slightly fluctuates in time as it depends on the requirements of water managers and their attitude.
Coastal stabilization	In Slovakia they are not considered as an independent category, we identified them only through “forest function type”, which is not absolutely reliable.	Because of non-existent legislative base for this category, the trends are unknown.
Desertification control	Desertification is not observed in Slovakia.	n/a
Avalanche control	These forest are, in Slovakia, not considered as an independent category, we identified them only through “forest function type”, which is not absolutely reliable.	The area of these forests is stabilised.
Erosion, flood protection or reducing flood risk	This category is prevalent. In Slovakia we do not distinguish between erosion protection and water functions as these functions usually overlap.	The area of these forests is rather stabilised or very slowly increasing due to identification of new sites “of protective nature”, which is based on the survey of natural conditions.

Other protective functions	This category includes windbreaks protecting adjacent agricultural land. They are identified only through “forest function type”, which is not absolutely reliable.	N/A
Ecosystem services, cultural or spiritual values	N/A	N/A
Public recreation	Based on Forest Act, almost all Slovak forests (excluding strict nature reserves, military forests and game enclosures) are accessible for public recreation. Some of these forests are accessible only using marked paths because of nature conservation interests. However, only small part of these forests (24 thousand hectares) is directly managed as “recreational forests”.	The change of related legislative norms is not expected. Therefore, the area of forests accessible for public recreation will slowly increase with the increase of forest area. The area of forests directly managed for recreation is decreasing because of lack of financial resources for their maintenance.
Carbon storage or sequestration	This category is not designated in national legislation	N/A
Spiritual or cultural services	This category is not designated in national legislation	N/A
Other ecosystem services	This category is not designated in national legislation	N/A

Other general comments to the table

N/A

6. How much forest area is protected and designated for the conservation of biodiversity and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

6.1 Categories and definitions

Category	Definition
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.
Forest area within protected areas	Forest area within formally established protected areas independently of the purpose for which the protected areas were established.

6.2 National data

6.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Forest Information Centre (LIC) of the Lesoprojekt Zvolen.	Area of functional types.	1990	N/A
2	Konôpka, J. et al. 2002: Report on Forestry in the SR, Green Report. Forest Research Institute Zvolen and Ministry of Agriculture of the SR.	Area of functional types; Forest area within protected areas (also for 1990).	2000	N/A
3	Moravčík, M. et al. 2006: Report on Forestry in the SR, Green report. National Forest Centre and Ministry of Agriculture of the SR.	Area of functional types; Forest area within protected areas.	2005	N/A
4	Moravčík, M. et al. 2008: Report on Forestry in the SR, Green report. National Forest Centre and Ministry of Agriculture of the SR.	Area of functional types; Forest area within protected areas.	2007	Estimation of the year 2010
5	Database of the National Forest Centre - Institute for Forest resources and Information Zvolen	Area of forest function types; GIS layer of forest stands.	2012	N/A
6	GIS layer of the Ministry of Environment and State Natura Conservancy	Borders of protected areas (several categories and 5 levels of protection).	2012	N/A

7	Green report, 2012. National Forest Centre and Ministry of Agriculture and Rural Development of the SR. http:// www.mpsr.sk/sk/index.php? navID=1&id=6916	Forest area within protected areas.	2012	N/A
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6.2.2 Classification and definitions

National class	Definition
N/A	See 4.2.2
N/A	N/A
N/A	N/A
N/A	N/A

6.2.3 Original data

See 4.2.3

6.3 Analysis and processing of national data

6.3.1 Adjustment

<p>The categories of Slovak protected areas are partially incompatible with IUCN categories as well as with MCPFE classes. There is no unambiguous conversion of them to international classifications. Vast majority of Slovak protected areas (except for strict “small-scale” reserves) meet the criteria for IUCN categories V and VI. The classification of rather extensive Natura 2000 sites is still unclear – they should be oriented on biodiversity conservation, however, their protection is many times identical to the protection of IUCN categories V and VI.</p>

6.3.2 Estimation and forecasting



See 4.3.2

6.3.3 Reclassification

See 4.3.3.

6.4 Data

Table 6

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Conservation of biodiversity	80	81	81	81	87
	Forest area within protected areas	944	845	889	1104	1132

Tiers

Category	Tier for status	Tier for reported trend
Conservation of biodiversity	Tier 3	Tier 3
Forest area within protected areas	Tier 3	Tier 3

Tier criteria

Category	Tier for status	Tier for reported trend
<ul style="list-style-type: none"> Conservation of biodiversity Forests within protected areas 	Tier 3: Data obtained from national or state agencies responsible for conservation and protected area or legislation relating to area protection. Tier 2: Studies that provide data for specific areas that is extrapolated through statistical analysis to national level estimates Tier 1 Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

6.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Conservation of biodiversity	N/A	N/A

Forest area within protected areas	<p>Act on protection of nature and landscape together with Act on forests are valid for forests in protected areas. Unfortunately application of these acts leads frequently to considerable problems related to securing sustainable forest management - these acts are not harmonized in some approaches. The area of protected territories is too extensive including forest ecosystems whose status is not sustained without human intervention including disturbance events of a calamitous. Application of the Act on protection of nature and landscape hampers or obstructs implementation of measures prescribed to control insect outbreaks in protected areas. Such approach has resulted in many mountain forest reserves turning into epicentres of bark beetle outbreaks from which these spread further to adjacent forest stands. In MCPFE 2007 we reported only area of protective forests (soil, water and other ecosystem functions) 334,3 ths ha. It is the same as data in table 3a of the country report. But in forest area within protected areas there are all forests included in all categories of protected areas (territories) listed in tables on page 16 in the country report(Original data for).</p>	The increase of the area of forests within protected areas in 2007 (2010), 2013 (2015) is caused by inclusion of the NATURA 2000 protected areas (SACs).
Other general comments to the table		
N/A		

7. What is the area of forest affected by woody invasive species?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

7.1 Categories and definitions

Category	Definition
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.

7.2 National data

7.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Summary information on forests in Slovakia 2005, 2010 National Forest Centre	Invasive woody species	2005, 2010	N/A
2	ŠMELKO, Š., ET AL. 2008: National Forest Inventory and Monitoring in Slovakia	Invasive woody species	2005, 2010	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

7.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

7.2.3 Original data

Data listed in reporting tables were obtained from sources of:
- Summary information on forests in Slovakia 2005, 2010 (Robinia pseudoacacia)
- National Forest Inventory and Monitoring in Slovakia (other invasive woody species)

No important invasive shrubs are present Slovak forests

7.3 Analysis and processing of national data

7.3.1 Adjustment

7.3.2 Estimation and forecasting

7.3.3 Reclassification

7.4 Data

Table 7

Scientific name of woody invasive species	Forest area affected (000 ha)	
	2005	2010
<i>Robinia pseudoacacia</i>	33.144	33.304
<i>Ailanthus altissima</i>	N/A	0.103
<i>Negundo aceroides</i>	N/A	0.235
<i>Fraxinus pennsylvanica</i>	N/A	0.37
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
Total	33.144	34.012

Tiers

Category	Tier for status	Tier for reported trend
Invasive species	Tier 3	Tier 3

Tier Criteria

Category	Tier for status	Tier for reported trend
Invasive species	Tier 3: Systematic assessment in forest inventory or other survey (e.g. by conservation department) within the last 5 years) Tier 2: Systematic assessment in forest inventory or other survey (e.g. by conservation department conducted more than 5 years ago) Tier 1: Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

7.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Invasive species	It is unclear, what the term “affected” means. Our figure represents the area covered by invasive tree species (crown projection), however, the area affected by the spread of these species is larger.	N/A

Other general comments to the table

N/A

8. How much forest area is damaged each year?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

8.1 Categories and definitions

Category	Definition
Number of fires	Number of fires per year
Burned area	Area burned per year
Outbreaks of insects	A detectable reduction in forest health caused by a sudden increase in numbers of harmful insects.
Outbreaks of diseases	A detectable reduction in forest health caused by a sudden increase in numbers of harmful pathogens, such as bacteria, fungi, phytoplasma or virus.
Severe weather events	Damage caused severe weather events, such as snow, storm, drought, etc.

8.2 National data

8.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Surovec et al., 1989-93: Occurrence of injurious agents in the forests of Slovakia for the years 1990-4 and their forecasts, Forest Research Institute Zvolen	Data on disturbance by all kinds of harmful agents	1988-1994	N/A
2	Varinsky et al. 1999-2004: Occurrence of injurious agents in the forests of Slovakia for the years 1998-2003 and their forecasts, Forest Research Institute Zvolen	Data on disturbance by all kinds of harmful agents	1998-2003	N/A
3	Kunca A. et al. 2005-8: Occurrence of injurious agents in the forests of Slovakia for the year 2004-7 and their forecasts, National Forest Centre - Forest Research Institute Zvolen	Data on disturbance by all kinds of harmful agents	2005-2008	N/A
4	Konôpka, J. et al. 1994-2003: Report on Forestry in the Slovak Republic (Green Report). Forest Research Institute in cooperation with Ministry of Agriculture of the SR.	Data on disturbance by all kinds of harmful agents	1993-2002	N/A

5	Moravčík, M. et al. 2004-2008: Report on Forestry in the Slovak Republic (Green Report). National Forest Centre in cooperation with Ministry of Agriculture and Rural Development of the SR	Data on disturbance by all kinds of harmful agents	2003-2007	N/A
6	Kunca A., Zúbrik M. 2006: Wind damage on November 2004, National Forest Centre - Forest Research Institute Zvolen	Data on wind damage	2006	N/A
7	Konôpka J. et al. 2008: Snow breakages in the forest of Slovakia, National Forest Centre - Forest Research Institute Zvolen	Data on snow damage	2008	N/A
8	Konôpka J. et al. 2008: Dangerous wind directions In Slovakia, National Forest Centre - Forest Research Institute Zvolen	Data on wind damage	2008	N/A
9	Kunca A. et al. 2009-13: Occurrence of injurious agents in the forests of Slovakia for the year 2008-12 and their forecasts, National Forest Centre - Forest Research Institute Zvolen	Data on disturbance by all kinds of harmful agents	2009-2013	N/A

8.2.2 Classification and definitions

National class	Definition
Disturbance by insects	Disturbances by bark beetles of dying wood or deadwood and disturbances by leaf-eating insects in heavily defoliated forest stands in m3
Disturbance by diseases	Area of forest stands visibly damaged by fungal diseases in ha
Disturbance by wind, rime, frost, snow, drought	Wood originating from the salvage cuttings attributed to individual damaging factors in m3
Disturbance by game (browsing and peeling) and grazing	Area of young growths and forest stands damaged or destroyed
Disturbance by fire	Burned area and number of fire cases (we have available data only for forests, not for other areas)

8.2.3 Original data

Outbreaks of bark beetles (in thousand m3 of infested wood processed per year) in the last decade:
--

2003-420, 2004-832, 2005-859, 2006-1169, 2007-2010, 2008-2812, 2009-3183, 2010-2882, 2011-1910, 2012-1861

Forest fires (in ha of burned forest area per year) in the last decade :

2003-1567, 2004-157, 2005-503, 2006-280, 2007-679, 2008-118, 2009-510, 2010-192, 2011-403, 2012-1683.

Windstorms (in thousand m³ of wind-damaged wood processed per year):

2003-1607, 2004-1096, 2005-5177, 2006-1684, 2007-1944, 2008-2331, 2009-1076, 2010-1794, 2011-1650, 2012-1010

8.3 Analysis and processing of national data

8.3.1 Adjustment

As for calibration of certain kinds of disturbances, the national forestry records do not refer to the area of disturbed stands but to the volume of deadwood or losses on forest production. Thus, conversion from cubic meters to net cleared area of forest on hectare base has been done for the following kinds of disturbances: abiotic factors (windstorms, rime and drought), fungal diseases, insects (prevailing bark beetles). As the disturbances by storms and bark beetles occur mostly in older stands, the mean standing stock of 400 m³ per hectare has been used for their conversion. Disturbances by rime, fungi and drought did not appear as age-specific. The mean standing stock (wood under bark) per hectare of 181 m³, 213 m³, and 220 m³ has been implemented for the years 1990, 2000, and 2005, respectively.

8.3.2 Estimation and forecasting

Disturbances by insects: Bark beetles: the outbreaks followed large damage caused by wind, snow as well as physiological weakening of trees by drought or fungal diseases. Important outbreaks were since 1997, but extremely critical situation occurred after a large wind calamity in Norway spruce stands on November 2004 (northern and central parts of Slovakia). Traditionally, the most important species in the Norway spruce stands is *Ips typographus*.

Leaf-eating insects: the most frequent and harmful species is gypsy moth (*Lymantria dispar*) acting in oak stands. Their gradation usually occurs once in 6-10 years. The most serious outbreak was recorded in the year of 2005. Gradation of cockchafers of *Melolontha* sp. takes place in Slovakia each 4-5 years, the last large episode was recorded in 2003 with epicentre in south-western Slovakia.

Disturbances by diseases : they tend to be decreasing in the last decade. We mean mainly multi-casual yellowing of Norway spruce stands and forest decline due to fungal diseases of *Armillaria* sp. and *Heterobasidion* sp. The mentioned forest declines are typical for north-western regions of Slovakia (i.e. Kysuce and Orava).

Other disturbances:

Wind storms: large windstorms occur once in 6-8 years, but their trend is growing especially in the last decade. Large damage by wind occurred in 1996, 1999 and 2004. Especially the last one on November 2004 was extremely large, specifically 5.3 million m³, i.e. circa 30 thousand ha. As much as 2 million m³ (i.e. 12 thousand ha) was damaged in the Tatra National Park. Some part of calamity wood could not be processed because of juridical rules (Nature Protection Act No. 543/2002). Consequences of calamity wood left in the Tatra National Park occurred since spring 2005 in form of heavy bark beetle outbreak, which has been continuously destroying the forests.

Snow damage: the largest snow calamity has been recorded in the winter 2005/2006 in the northern and central Slovakia. The volume of wood damage was nearly 460 thousand m³ (its area equals circa 2.5 thousand ha).

Rime: very large rime calamity occurred in the central and southern Slovakia in January 2001. On the other hand, rime damage in other years of the last decade was low.

Drought: the worst situation in meteorological conditions was recorded in summer 2003, which was exceptionally intensive all over Europe. Consequently, forests manifested increased defoliation.



Air pollution: after the serious situation in the 1980s and 1990s the last decade is rather favourable. Emission of noxious matters had been cut in early 1990s, but some problems are still linked to soil acidification (residua of air pollution from the past).

Game disturbance : showed very high level in 1990s, recently, we recorded decreasing trend of damage.

8.3.3 Reclassification

8.4 Data

Table 8a

Category		000 ha, number of fires									
		2003		2004		2005		2006		2007	
		000 ha	#	000 ha	#	000 ha	#	000 ha	#	000 ha	#
	Total land area burned	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	... of which forest area burned	1.567	852	0.157	155	0.503	286	0.28	238	0.679	463
Category		2008		2009		2010		2011		2012	



		000 ha	#	000 ha	#	000 ha	#	000 ha	#	000 ha	#
	Total land area burned	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	... of which forest area burned	0.118	182	0.51	347	0.192	123	0.403	303	1.683	517

Table 8b

Outbreak category	Description/name	Year(s) of latest outbreak	Area damaged (000 hectares)
1	Ips typographus	2003-2012	68.6
1	Pityogenes chalcographus	2007-2012	2.4
1	Lymantria dispar	2002-2012	51.427
1	Tortricidae	1995-1999	22
1	Geometridae	2004-2006	10.5
2	Armillaria spp.	2003-2012	12.6
3	Windstorm	November 2004 - large forest area was damaged by strong windstorm, the damaged wood was processed mainly in 2005 (over 5 mill. m3)	30
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Outbreak category
1 Insects
2 Diseases
3 Severe weather events

Tiers

Category	Tier for status	Tier for trend
Area affected by fire	Tier 3	Tier 3

<ul style="list-style-type: none"> • Insects • Diseases • Severe weather events 	Tier 3	Tier 3
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Tier criteria

Category	Tier for status	Tier for reported trend
Burned area	Tier 3 : National fire monitoring routines Tier 2 : Remote sensing surveys Tier 1 : Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other
<ul style="list-style-type: none"> • Insects • Diseases • Severe weather events 	Tier 3 : Systematic survey (e.g. via inventory or aerial damage assessment) Tier 2 : Management records Tier 1 : Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

8.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Burned area	Only for forests	The trend is not clear (rather large inter-annual fluctuation)
Insects	Especially bark beetles	Clearly increasing trend
Diseases	Mostly Armillaria spp.	The trend is not so clear (slightly increasing)
Severe weather events	Prevailing windstorms	The trend of the last decade is not clear (rather large inter-annual fluctuation)

Other general comments to the table

N/A

9. What is the forest area with reduced canopy cover?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

Category	Definition
Reduction in canopy cover	Forest that has undergone a reduction of canopy cover of more than 20% between the years 2000 and 2010 within the forest canopy cover range of 30-80% as detected by the MODIS VCF sensor.

Table 9

Category	Area of forest with reduced canopy cover (000 ha)
Reduction in canopy cover	5.126

Tiers

Category	Tier for reported trend
Reduction in canopy cover	Tier 1

Tier criteria

Category	Tier for reported trend
Reduction in canopy cover	Tier 3 : Remote sensing with ground truthing and/or Landsat imagery Tier 2 : Remote sensing using Modis (using pre-filled data provided by FAO) Tier 1 : Expert opinion

Comments

Category	Comments related to data definitions etc
Reduction in canopy cover	In Slovakia, “reduced canopy cover” does not represent the permanent quality of forests, whether they are degraded or not. There are several issues related to the suitability of “canopy cover” as the indicator of “forest degradedness”. Forest stand age: younger stands are, in Slovak climate, able to recover from serious canopy reduction rather quickly. It suggests that assessing such reduction in younger stands is unimportant. Forest stories: in Slovak climate, natural regeneration of the forests with reduced canopy is usually rather fast, resulting in two-storied stands. It is unclear, whether such stands should be considered as “reduced canopy” ones or they should be taken as not degraded. Thirdly, the most important question is how to assess forest stands with intentionally reduced canopy, e.g. during the regeneration period. Such canopy reduction apparently does not represent degradation of stand. We are also unclear about the relation between defoliation and reduced canopy. Strictly said, severe defoliation represents one of two possible types of the canopy reduction. However, defoliation is traditionally reported in different chapters of FRA reports. Methodology: in Slovakia we have no regular data on “canopy reduction”, however, we regularly (as a part of forest management plans renewals) monitor the “stocking levels” of each forest stand. These figures closely correlate with canopy density.

Other general comments

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10. What forest policy and regulatory framework exists to support implementation of sustainable forest management SFM?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

10.1 Categories and definitions

Category	Definition
Policies supporting sustainable forest management	Policies or strategies that explicitly encourage sustainable forest management.
Legislation and regulations supporting sustainable forest management	Legislation and regulations that govern and guide sustainable forest management, operations and use.

10.2 National data

10.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National Forest Programme of the Slovak Republic (NFP SR). http://www.forestportal.sk/SitePages/lesne_hospodarstvo/doc/nlp_sr.pdf	Policy document. Elaborated by National Forest Centre and Ministry of Agriculture and Rural Development of the SR	2007	No. 531 Resolution of the National Council of the Slovak Republic of 20 September 2007; Resolution of the Government of the Slovak republic No. 549 of 27 June 2007
2	Action Plan of the National Forest Programme of the Slovak Republic (AP of NFP SR). http://www.forestportal.sk/SitePages/lesne_hospodarstvo/lesnicka_politika/narodna_politika/akcny_plan/akcny_plan.aspx	Regulation. Elaborated by National Forest Centre and Ministry of Agriculture and Rural Development of the SR	2008	Approved by the Government of the SR.
3	Rural Development Programme of the Slovak Republic 2007 – 2013 (RDP SR) http://www.mpsr.sk/en/index.php?navID=1&id=19	Programme / Regulation. Elaborated by the Ministry of Agriculture and Rural Development of the SR. National Forest Centre participated in elaboration of document in the Forestry measures.	2007-2013	Approved by the Government of the SR.
4	National Programme of Timber Potential Utilization in Slovakia	Policy document. Elaborated by National Forest Centre and Ministry of Agriculture and Rural Development of the SR	2013	Approved by the Government of the SR.

5	Development of Vision, Prognosis and Forest Development Strategy in Slovakia (MORAVČÍK, M. ET AL., 2009), http://www.nlcsk.sk/files/2225.pdf	Regulation. Elaborated by National Forest Centre and Ministry of Agriculture and Rural Development of the SR	2009	Approved by the Ministry of Agriculture and Rural Development of the SR
6	Act No. 326/2005 of the Coll. on Forests as amended. http://www.zakonypreludi.sk/zz/2005-326	legislative act	N/A	Approved by the National Council the SR.

10.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

10.2.3 Original data

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10.3 Data

Table 10

Category				
	National	Sub-national		
		Regional	Provincial/State	Local
Policies supporting sustainable forest management	yes	no	no	no
... of which, in <u>publicly</u> owned forests	yes	no	no	no
... of which, in <u>privately</u> owned forests	yes	no	no	no
Legislation and regulations supporting sustainable forest management	yes	no	no	no
... of which, in <u>publicly</u> owned forests	yes	no	no	no

... of which, in <u>privately</u> owned forests	yes	no	no	no
--	-----	----	----	----

10.4 Comments

Variable / category	Comments related to data definitions etc
Policies supporting sustainable forest management	All owners categories are treated in the same policy documents
Legislation and regulations supporting sustainable forest management	All owners categories are treated in the same legislative documents

Other general comments

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11. Is there a national platform that promotes stakeholder participation in forest policy development?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

11.1 Categories and definitions

Category	Definition
National stakeholder platform	A recognized procedure that a broad range of stakeholders can use to provide opinions, suggestions, analysis, recommendations and other input into the development of national forest policy.

11.2 National data

11.2.1 Data sources

	References to sources of information	Years	Additional comments
1	National Forest Programme of the Slovak Republic (NFP SR)	2007	Policy document. Ministry of Agriculture and Rural Development is responsible for compilation/review of the NFP. It secures it in close cooperation with its professional organization and Forest owners associations.
2	Council of Non-state Forest Owner Associations	N/A	institution - one of the main target is the promoting of non-state forest owners participation in the national forest policy and legislation development
3	Union of Regional Associations of Non-state Forest Association of Municipal Forests in Slovakia	N/A	institution - one of the main target is the promoting of non-state forest owners participation in the national forest policy and legislation development
4	N/A	N/A	N/A

Table 11

Is there a national platform that promotes or allows for stakeholder participation in forest policy development?	yes
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11.3 Comments

Category	Comments related to data definitions etc
National stakeholder platform	NFP SR is basic document that guarantees a sustainable forest management in the forests and its priority is also strengthening cooperation, coordination and communication including the promoting stakeholder participation.

Other general comments

12. What is the forest area intended to be in permanent forest land use and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

12.1 Categories and definitions

Category	Definition
Forest area intended to be in permanent forest land use	Forest area that is designated or expected to be retained as forest and is highly unlikely to be converted to other land use.
...of which permanent forest estate (<i>sub-category</i>)	Forest area that is designated by law or regulation to be retained as forest and may not be converted to other land use.

12.2 National data

12.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Act No. 326/2005 of the Coll. on Forests as amended.	Act	2005	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

12.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

12.2.3 Original data

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12.3 Analysis and processing of national data



12.3.1 Adjustment

12.3.2 Estimation and forecasting

12.3.3 Reclassification

12.4 Data

Table 12

Categories		Forest area 2010 (000 ha)
	Forest area intended to be in permanent forest land use	1939
	... of which permanent forest estate	1939

Tiers

Category	Tier for status
Forest area intended to be in permanent forest land use	Tier 3
Permanent forest estate	Tier 3

Tier Criteria

Category	Tier for status
Forest area intended to be in permanent forest land use	Tier 3 : National or sub-national land use plans strategy documents or other reports within the past 10 years Tier 2 : National or sub-national land use plans strategy documents or other reports within the past 20 years Tier 1 : Other
Permanent forest estate	Tier 3 : National or sub-national land use plans strategy documents or other reports within the past 10 years Tier 2 : National or sub-national land use plans strategy documents or other reports within the past 20 years Tier 1 : Other

12.5 Comments

Category	Comments related to data definitions etc
Forest area intended to be in permanent forest land use	N/A
Permanent forest estate	Exemption of forest to other land use is possible only on the basis of the decision of respective organ of state forestry administration and against payment of levy for loss of public-beneficial forest functions

Other general comments

13. How does your country measure and report progress towards SFM at the national level?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

13.1 Categories and definitions

Category	Definition
Forest area monitored under a national forest monitoring framework	Forest area monitored by a national monitoring framework or systems that provide measurement based periodic monitoring of forest extent and quality.
Forest reporting at national scale	National reporting of forest extent and characteristics that includes some measure of progress toward sustainable forest management.

13.2 National data

13.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National Inventory and Monitoring of Forests of Slovakia. National Forest Centre.	Periodic inventory and assessment.	2005, 2006: the 1st ten year (decennial) cycle of the national forest inventory	It provides data that are obtained by mathematical-statistics method of determining the conditions of forests for national or regional level.
2	Monitoring of forests condition. National Forest Centre - Forest Research Institute Zvolen.	Periodic inventory and assessment.	Annually	It provides data on forests health conditions indicators and factors (anthropogenic and natural), which influence the conditions of the forests
3	Detailed monitoring of forests conditions	Continuous forest inventory and other field assessments.	Annually 1/10 of the area of forests in Slovakia	It provides all necessary data on forests on the basis of description of forest stands in the framework of forest management plans elaboration
4	Complex monitoring of forests conditions for framework or specific planning. National Forest Centre - Institute for Forest Management Planning Zvolen	The basis for the detailed monitoring of forest conditions.	Annually 1/10 of the area of forests in Slovakia	It provides the management models, basic decisions, principles of management.

5	Obtaining of the economic information on management activities of forest management and its subjects. National Forest Centre	Periodic economic information on forestry.	Annually	It provides economic data on forestry operations. It is submitted by professional forest managers to the NFC through specified blanks introduced by decree on forest management record.
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13.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

13.3 Data

Table 13a

Category	% of total forest area	Most recent year	Check all boxes that apply					
			Continuous	Periodic	Permanent ground plots	Temporary ground plots	Aerial/ remote sensing sample based	Aerial/ remote sensing full coverage
Forest inventory	100	2013	yes	yes	yes	no	yes	yes
Other field assessments	100	2013	yes	yes	yes	no	yes	yes
Updates to other sources	N/A	N/A	yes	yes	no	no	no	no
Expert estimate	N/A	N/A						

Table 13b

Type of forest reporting used at national scale	Check boxes that apply
1 Criteria and Indicators reporting	yes
2 Periodic national state of the forest report	yes
3 Other (please document)	yes
4 None	no

Other type of forest reporting

Forest management plans, Summary information on forests in Slovakia; information brochures
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13.4 Comments

Category	Comments
N/A	N/A
N/A	N/A
N/A	N/A

Other general comments

2005, 2006 periodic inventory. 2004-2013 continuous, detailed monitoring of forests conditions
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14. What is the area of forest under a forest management plan and how is this monitored?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

14.1 Categories and definitions

Category	Definition
Forest area with management plan	Forest area that has a long-term documented management plan, aiming at defined management goals which is periodically revised
...of which for production (<i>sub-category</i>)	Forest management plan mainly focused on production
...of which for conservation (<i>sub-category</i>)	Forest management plan mainly focused on conservation
Monitoring of forest management plans	Government monitoring of forest management plan implementation conducted through field visits or audits of forest management plan performance

14.2 National data

14.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	National Forest Centre - Institute for Forest Management Planning	N/A	Annually - approximately 1/10 of all territory of forests area	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

14.3 Data

Table 14a

Forest plan type	Forest area 2010 (000 ha)
Forest area with management plan	1939
... of which for production	807
... of which for conservation	1132

Table 14b

Indicate which (if any) of the following are required in forest management plans in your country	
1 Soil and water management	yes

2 High conservation value forest delineation	yes
3 Social considerations community involvement	no

Table 14c

Percent of area under forest management plan that is monitored annually	10
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Tiers

Category	Tier for status
Forest area with management plan	Tier 1
Percent of area under forest management plan that is monitored annually	Tier 3

Tier criteria

Category	Tier for status
Forest area with management plan	Tier 3 : Reports that describe national records 5 years old or less that contain long-term forest monitoring plans Tier 2 : Industry or other records indicating the presence of a long-term forest management plan Tier 1 : Other
Percent of area under forest management plan that is monitored annually	Tier 3 : Government documentation of monitoring extent Tier 2 : Reports from forest managers or other documental sources Tier 1 : Other

14.4 Comments

Category	Comments
Forest area with management plan	Detailed 10-years forest management plans are elaborated for all forests in Slovakia
Monitoring of forest management plan performance	Forest management plan performance is monitored by bodies of state administration periodically at the end of its validity
N/A	N/A

Other general comments

"Soil and water management" and "High conservation value" are treated in FMP process through the forest categorization and special regime of management corresponding to particular forest categories.
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15. How are stakeholders involved in the management decision making for publicly owned forests?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

15.1 Categories and definitions

Category	Definition
Stakeholder involvement	Stakeholder involvement is defined as significant inputs into at least one aspect of forest management at the operational scale

Table 15

Please indicate the type of stakeholder involvement in forest management decision making required in your country	
1. Planning phase	yes
2. Operations phase	yes
3. Review of operations	yes

Tiers

Category	Tier for status
Type of stakeholder inputs	Tier 3

Tier criteria

Category	Tier for status
Type of stakeholder inputs	Tier 3 : Government (national or sub-national) documentation of stakeholder inputs Tier 2 : Government (national or subnational) requirement but stakeholder inputs not documented Tier 1 : Other

15.2 Comments

Category	Comments
N/A	N/A
N/A	N/A
N/A	N/A

Other general comments

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16. What is the area of forest under an independently verified forest certification scheme?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

16.1 Categories and definitions

Category	Definition
FSC certification	Forest area certified under the Forest Stewardship Council certification scheme
PEFC certification	Forest area certified under the Programme for the Endorsement of Forest Certification scheme
Other international forest management certification	Forest area certified under an international forest management certification scheme with published standards and is independently verified by a third-party, excluding FSC and PEFC certification.
Certified forest area using a domestic forest management certification scheme	Area certified under a forest management certification scheme with published standards that are nationally recognized and independently verified by a thirdparty

16.2 Data

Table 16a













International forest management certification		Forest area (000 ha)						
		2000	2001	2002	2003	2004	2005	2006
	FSC	0	0	0	0	0	115	162
	PEFC	0	0	0	0	0	72	336
	Other	0	0	0	0	0	0	0
		2007	2008	2009	2010	2011	2012	
	FSC	162	174	147	140	140	147	
	PEFC	1167	1221	1266	1262	1240	1239	
	Other	0	0	0	0	0	0	

Table 16b

Domestic forest management certification		Forest area (000 ha)						
		2000	2001	2002	2003	2004	2005	2006
	N/A	0	0	0	0	0	0	0
	N/A	0	0	0	0	0	0	0
	N/A	0	0	0	0	0	0	0

		2007	2008	2009	2010	2011	2012	
		0	0	0	0	0	0	
		0	0	0	0	0	0	
		0	0	0	0	0	0	

Tier criteria

Category	Tier for status
International forest management certification	Tier 3: International forest management scheme records maintained by the certifying organization for the reporting year Tier 2: International forest management scheme records reported by the certifying organization for a period 2 years prior to the reporting year Tier: 1 Other
Domestic forest management certification	Tier 3: National registry reports for domestic forest management certification maintained by the certifying organization for the reporting year Tier 2: Domestic forest management scheme records reported by the certifying organization for a period 2 years prior to the reporting year Tier: 1 Other

Tiers

Category	Tier for status
International forest management certification	Tier 3
Domestic forest management certification	N/A

16.3 Comments

Category	Comments related to data definitions etc
Certified forest area using an international forest management certification scheme	N/A
Domestic forest management certification	N/A

Other general comments

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17. How much money do governments collect from and spend on forests?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

17.1 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 revenue include: <ul style="list-style-type: none"> • <u>Goods</u> : roundwood; sawnwood; biomass; woodbased panels; pulp and paper and non-wood forest products. • <u>Services</u> : including concession fees and royalties, stumpage payments, public timber sales revenue taxes and charges based on forest area or yield, taxes on domestic trade and export of forest products, special levies on forestry activities and payments into forest related funds, other miscellaneous inspection, licence and administrative fees levied by forest administrations, permit and licence fees for recreation and other forest related activities.
Public expenditure on forestry	All government expenditure on forest related activities.

17.2 National data

17.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Konôpka, J. et al. 2001: Report on Forestry in the SR, Green Report.	revenue, public expenditures	2000	N/A
2	Moravčík, M. et al. 2006: Report on Forestry in the SR, Green report.	revenue, public expenditures	2005	N/A
3	Moravčík, M. et al. 2008: Report on Forestry in the SR, Green report.	sanctions	2007	N/A
4	Slovak hunting association http://www.polovnictvo.sk/	Licence fees for hunting	2000-2007	N/A
5	Report on forestry in the SR, Green report 2011	N/A	2011	N/A

17.3 Data

Table 17

Category	Revenues / expenditures (000 local currency)		
	2000	2005	2010
Forest revenue	58602	58922	2629
Public expenditure on forestry	572000	520800	17360

	2000	2005	2010
Name of Local Currency	SKK	SKK	EUR

17.4 Comments

Category	Comments related to data definitions etc
Forest revenue	It includes: Payments for forest land exemption (an estimation in the amount of 55 mil. SKK per year), Penalties and sanctions for the violation of enforced regulations, Licence fee for hunting (an estimation in the amount of 3.3 mil. SKK). Forest revenue in 2010 amounts 2629 ths. Euro without taxes. Including Value added tax it amounts 51699 ths. Euro.
Public expenditure on forestry	It includes: expenditure on regional forest offices and state forestry administration, research and training (since 2006 National Forest Centre) and on other public agencies (Svätý Anton Museum and Forestry and Wood-processing Industry Museum) It includes: all expenditures on forest management to state and non-state forest enterprises.
Other general comments	N/A

Other general comments

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18. Who owns and manages the forests and how has this changed?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

18.1 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.
...of which owned by the state at national scale (sub-category)	Forest owned by the State at the national scale or administrative units of the public administration or by institutions or corporations owned by the public administration.
...of which owned by the state at the sub-national government scale (sub-category)	Forest owned by the State at the sub-national government scale 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 cooperatives corporations and other business entities, private, religious and educational institutions, pension or investment funds, NGOs, nature conservation associations and other private institutions.
...of which individuals (sub-category)	Forest owned by individuals and families.
...of which private business entities and institutions (sub-category)	Forest owned by private corporations cooperatives companies and other business entities as well as private nonprofit organizations such as NGOs nature conservation associations, and private religious and educational institutions etc.
...of which local tribal and indigenous communities (sub-category)	Forest owned by a group of individuals belonging to the same community residing within or in the vicinity of a forest area or forest owned by communities of indigenous or tribal people The community members are coowners that share exclusive rights and duties and benefits contribute to the community development.
Unknown ownership	Forest area where ownership is unknown includes areas where ownership is unclear or disputed.
Categories related to management rights of public forests	Definition
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 companies	Forest management rights and responsibilities are transferred from the Public Administration to corporations, other business entities private cooperatives, private nonprofit 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.

18.2 National data

18.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Forest Information Centre of the Lesoprojekt (Institute of Forest Management Planning).	Forest ownership and management rights	1990	N/A
2	Summary information on status of forests in SR as of 31 December 2000	Holder of management rights	2000	National Forest Centre - Institute of Forest Resources and Information Zvolen
3	Konôpka, J. et al. 2001: Report on Forestry in the SR, Green Report.	Forest ownership and management rights	2000	N/A
4	Moravčík, M. et al. 2006: Report on Forestry in the SR, Green report.	Forest ownership and management rights	2005	N/A
5	Report on Forestry in the SR, Green report.	Forest ownership and management rights	2010	N/A

18.2.2 Classification and definitions

National class	Definition
N/A	National classes and definitions are compliant with FRA
N/A	N/A
N/A	N/A
N/A	N/A

18.2.3 Original data

<p>• For Table 18a</p> <p>Structure of forest area according to ownership</p>			
Ownership	Forestarea (ths ha)		
	1990	2000	2005
<i>State</i>	1 912 905	821 125	807 753
<i>Municipal</i>		185 030	187 816

Public	1 912 905	1 006 155	995 569
<i>Private</i>		287 199	275 243
<i>Shared</i>		476 158	480 160
<i>Church</i>		63 634	65 242
<i>Agricultural co-operatives</i>	8 800 ^{*)}	2 770	2 635
Non-public	8 800	829 761	823 280
Unknown	0	85 498	112 796
Total	1 921 705	1 921 414	1 931 645

^{*)} Till 1991 forests of agricultural co-operatives were in professional care of the state organizations

• **For Table 18b**

Forest managed by state, municipalities and non-public subjects

Forests used (managed) by	Forestarea (ths ha)		
	1990	2000	2005
State	1 921 705	1 198 665	1 130 786 ^{*)}
Municipality	-	162 535	168 770
Public subjects	1 921 705	1 361 200	1 299 556
Non-public subjects	-	560 214	632 089
Total	1 921 705	1 921 414	1 931 645

^{*)} State subjects (organizations) manage all state forests and part of non-state forests: unknown, those that have not been returned so far to their original owners in the scope of restitution process, and leased non-state forests.

Developmnet of forest ownersip (2002-2010)

	state	private	shared	church	agricultural	municipal	unknown	together
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	Forest stand area (ha); ownership / management rights							
2010	793 168	239 030	484 057	57 031	5 514	181 013	179 091	1 938 904
	1 074 278	124 167	531 301	27 969	5 544	175 645	-	1 938 904
2009	791 660	260 376	502 881	58 526	5 603	188 054	130 584	1 937 684
	1 059 940	134 390	531 828	31 107	5 088	175 331	-	1 937 684
2008	777 107	252 192	495 051	57 818	4 437	187 818	159 167	1 933 590
	1 067 124	139 080	519 361	32 530	5 232	170 263	-	1 933 590
2007	799 067	275 164	493 261	62 313	4 195	189 875	109 067	1 932 942
	1 072 765	139 824	502 677	40 810	5 227	171 639	-	1 932 942
2006	794 047	289 897	489 677	59 427	3 834	189 845	105 322	1 932 049
	1 083 537	139 961	492 065	38 817	5 080	172 589	-	1 932 049
2005	807 753	275 443	480 160	65 242	2 635	187 816	112 796	1 931 645
	1 130 786	121 372	456 162	47 449	4 106	168 770	-	1 931 645
2004	811 935	282 839	470 900	66 642	3 208	190 502	104 666	1 930 692
	1 146 259	119 938	443 636	48 253	4 793	167 813	-	1 930 692
2003	814 576	231 259	469 130	61 430	2 379	186 519	164 017	1 929 310
	1 185 971	113 968	416 966	40 188	4 946	167 271	-	1 929 310
2002	825 374	249 172	462 808	61 207	1 899	187 311	140 938	1 928 709
	1 201 879	117 688	398 222	39 815	4 301	166 804	-	1 928 709

	2002	2003	2004	2005	2006	2007	2008	2009	2010
	Forest stand area (%); ownership / management rights								
State	42,8	42,2	42,1	41,8	41,1	41,4	40,2	40,9	40,9
	62,3	61,5	59,4	58,5	56,1	55,5	55,1	54,8	55,4
Private	12,9	12	14,6	14,2	15	14,3	13	13,4	12,3
	6,1	5,9	6,2	6,3	7,2	7,2	7,2	6,9	6,4
Shared	24	24,3	24,4	24,9	25,3	25,5	25,6	26	25,0
	20,6	21,6	23	23,8	25,5	26	26,9	27,4	27,4
Church	3,2	3,2	3,4	3,4	3,1	3,2	3	3	2,9
	2,1	2,1	2,5	2,5	2	2,1	1,7	1,6	1,4
Agriculture cooperatives	0,1	0,1	0,2	0,1	0,2	0,2	0,2	0,3	0,3
	0,2	0,2	0,2	0,2	0,3	0,3	0,3	0,3	0,3
Municipal	9,7	9,7	9,9	9,7	9,8	9,8	9,7	9,7	9,4
	8,7	8,7	8,7	8,7	8,9	8,9	8,8	9	9,1
Non- state together	49,9	49,3	52,5	52,3	53,4	53,0	51,5	52,4	49,9
	37,7	38,5	40,6	41,5	43,9	44,5	44,9	45,2	45,6
Unknown	7,3	8,5	5,4	5,9	5,5	5,6	8,2	6,7	9,2

18.3 Analysis and processing of national data

18.3.1 Adjustment

Not needed









18.3.2 Estimation and forecasting

Not needed

18.3.3 Reclassification

18.4 Data

Table 18a

Categories		Forest area (1000 hectares)			
		1990	2000	2005	2010
	Public ownership	1922	1006	996	974
	... of which owned by the state at national scale	N/A	N/A	808	793
	... of which owned by the state at the sub-national government scale	N/A	N/A	0	0
	Private ownership	0	830	823	786
	... of which owned by individuals	0	287	275	239
	... of which owned by private business entities and institutions	0	67	68	63
	... of which owned by local, tribal and indigenous communities	0	476	480	484
	Unknown ownership	0	85	113	179
TOTAL		1922.00	1921.00	1932.00	1939.00

Tiers

Category	Tier for status	Tier for reported trend
Public ownership	Tier 3	Tier 3
Private ownership	Tier 3	Tier 3
Unknown ownership	Tier 3	Tier 3

Tier criteria

Category	Tier for status	Tier for reported trend
Ownership	Tier 3: National forestry statistics registers of land titles or maps on land ownership or all forest area under one ownership category that is five years old or less. Tier 2: National forestry statistics registers of land titles or maps on land ownership or questionnaires that are more than five years old. Tier 1: Other	Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other

Table 18b - Holder of management rights of public forests

Categories	Forest area (000 hectares)			
	1990	2000	2005	2010
Public Administration	1922	1006	996	974
Individuals	0	0	0	0
Private companies	0	0	0	0
Communities	0	0	0	0
Other	0	0	0	0
TOTAL	1922.00	1006.00	996.00	974.00

Category	Tier for reported trend	Tier for status
Public Administration	Tier 3	Tier 3
Individuals	Tier 3	Tier 3
Private companies	Tier 3	Tier 3
Communities	Tier 3	Tier 3
Other	Tier 3	Tier 3

18.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Public ownership	N/A	The area of forests used by state subjects has fallen since 2002 by 6.9 percent (from 62.3 to 55.4 per cent). State entities also manage 14.5 percent of forests pending restoration of ownership rights, forests of unknown owners and leased forests.

Private ownership	N/A	The process of forest ownership rights restitution is still open and thus more changes are due. The largest area of unresolved forests is in private hands. Majority of these forests are of a very limited size, of individual or shared ownership, and impossible to identify in the field. In addition, there is a group of forest owners who still have not applied for their ownership rights. Before the year 1991 all forests were held and managed by state organizations and agricultural co-operatives
Unknown ownership	There are included forests with unknown ownership into this category. Nearly all these forests are managed by those state organizations that managed them before starting the restitution process in 1991; that is their obligation appointed by respective law.	N/A
Management rights	According to respective appointments of the act on forests the state forests can be managed by only state organizations established for this purpose. Municipal forests are managed by business entities and institutions established by respective municipalities (joint-stock companies, limited companies and so on).	N/A

Other general comments to the table

N/A

19. How many people are directly employed in forestry?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

19.1 Categories and definitions

Category	Definition
Full-time equivalents (FTE)	A measurement equal to one person working full-time during a specified reference period.
Employment in forestry	Employment in activities related to production of goods derived from forests. This category corresponds to the ISIC/NACE Rev. 4 activity A02 (Forestry and logging).

19.2 National data

19.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Lacko, M. et al., 1992: Prognoses and documents on the care of workers in the forest sector, FRI Zvolen	1992	Data series 1988-1992	Forest Research Institute Zvolen
2	Konôpka, J. et al. 2003: Report on Forestry in the SR, Green Report.	2000	Data series 1998-2002	Forest Research Institute Zvolen
3	Moravčík, M. et al. 2004-08: Report on Forestry in the SR. (Green reports).	2003-2007	Data series 2003-2007	National Forest Centre
4	Statistical Office of SR: National statistics on employment www.statistics.sk	2000-2007	N/A	Statistical Office of the SR
5	Report on Forestry in the SR	N/A	2010	National Forest Centre, Ministry of Agriculture of the SR

19.2.2 Classification and definitions

National class	Definition
N/A	Compliant with FRA definition
N/A	N/A
N/A	N/A
N/A	N/A

19.2.3 Original data

Employment in Slovakia is monitored in accordance with the provisions of EU regulations (Council Regulation (EC) No 577/98 on the organization of a labour force sample survey in the Community). The methodology fully corresponds with the recommendations of the International Labour Organization (ILO) and allows for classification according to the Sectoral Classification of Economic Activities (SCEA).

Summarized data originating in the above mentioned sources of information are present in the national reporting table.

Original data for the employment in management of protected areas



year	number of rangers	number of forestry specialists
2000	25	21
2005	107	33
2008	86	35

An absolute number of full-time employees in the state sector organizations are calculated from the data provided by a special survey questionnaire issued by Ministry of Agriculture of the SR.

In forestry worked 19,9 thousand employees in 2010. About 9 thousand employees worked in non-state forest and supply firms of mentioned number (19,9).

19.3 Data

Table 19

Category		Employment (000 years FTE)			
		1990	2000	2005	2010
	Employment in forestry	36.3	24.8	23.6	19.9
	... of which female	N/A	N/A	N/A	1.3

19.4 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
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Employment in forestry	The number of workforce employed in the industry of forestry, timber felling and associated services (SCEA 02).	N/A
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Other general comments to the table

N/A

20. What is the contribution of forestry to Gross Domestic Product (GDP)?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

20.1 Categories and definitions

Category	Definition
Gross value added from forestry (at basic prices)	This category corresponds to the ISIC/NACE Rev. 4 activity A02 (Forestry and logging).

20.2 Data

Table 20 (Pre-filled data from UNdata/EUROSTAT)

Category	Million	Currency	Year for latest available information
Gross value added from forestry (at basic prices)	308.3	Euro	2011

20.3 Comments

Category	Comments
Gross value added from forestry	Determined according to IEEAF methodology. Years: 2009: 223,8 mill. Euro. 2010: 218,2 mill. Euro

Other general comments

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21. What is forest area likely to be in the future

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

21.1 Categories and definitions

Category	Definition
Government target/aspiration for forest area	Government target/aspiration for forest area for a specific year.
Forests earmarked for conversion	Forest area that is allocated/classified or scheduled to be converted into non-forest uses.

21.2 National data

21.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	Moravčík, M. et al: Vision, prognosis and strategy of forestry development in Slovakia. Forestry studies. 61, 2009	N/A	2009	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

21.3 Data

Table 21a

Category	Forest area (000 ha)	
	2020	2030
Government target/aspiration for forest area	2035	2045

Table 21b

Category	Forest area (000 ha)
	2013
Forests earmarked for conversion	N/A

21.4 Comments

Category	Comments
Government target/aspiration for forest area	This target is based on both policy and government levels. It is set in the measures of the documents like for example: National Forest Programme (NFP), Action Plan of the NFP, Programme of Rural Development.
Forests earmarked for conversion	N/A

Other general comments

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