INFORMATION ON FORESTS AND FORESTRY IN THE CZECH REPUBLIC BY 2013

MINISTERSTVO ZEMĚDĚLSTVÍ

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2013

CONTENT

1 GENERAL MACROECONOMIC CONDITIONS IN THE CZECH REPUBLIC AND FORESTRY POSITION IN NATIONAL ECONOMY

1.1 General Macroeconomic Conditions of the National Economy

Economic Growth

The year 2013 continued to be characterised with a trend of 2012 and the gross domestic product (GDP) noted a year-on-year decline by 0.9% at constant prices. The situation gradually improved in the course of the year with the fourth quarter bringing a significant increase in economic performance. The mentioned fall in GDP in 2013 was more pronounced in the Czech Republic than in the euro area[1] (-0.5%), while the EU 28 as a whole recorded a very modest increase (0.1%).

In 2012, the Czech Republic reached 81% of the average GDP volume index per capita in the purchasing parity of the EU 27[2]. No improvement in this indicator can be expected assessing the economic development in the country and the entire EU 28 in 2013.

In 2013, supplies contributed to the overall economic deterioration at constant prices adjusted for season variations mainly through formation of the gross fixed capital and household expenditure, which dropped against the preceding year by 4% and 0.2%, respectively. In contrast, a positive effect was recorded in foreign trade (an increase in export and import of goods and services by 0.1% and 0.5% respectively) and predominantly expenditure of governmental institutions, which rose by 1.9%. On the side of demands, the gross value added (GVA) at constant prices adjusted for season variations decreased by 0.8%, agriculture, forestry and fishery being the most significant sectors declining by 9.9%. On a year-on-year basis, the GVA of manufacturing industry was just slightly lower, representing 99.8% of the year 2012.

The total domestic trade balance in 2013 reached positive values again and ended with the highest surplus in the history of the Czech Republic amounting to CZK 188 billion, i.e. a year-on-year increase by CZK 39 billion[3]. This was achieved thanks to a year-on-year improvement in both exports and imports by CZK 56 billion and CZK 17 billion, respectively.

The general unemployment rate in 2013 remained at the values of 2012, with a recorded annual average of 7.0%. Generally, the trend in unemployment throughout the year 2013 was rather positive. In 2013, the average unemployment rate in the Czech Republic was substantially lower than the average of all the EU Member States (10.9%) and the euro area (12.1%), both increasing against 2012 by 0.4% (EU 28) and 0.7% (euro area). The average monthly gross nominal earnings[4] were CZK 25 128 in the year 2013 and represented a slight increase by 0.1%. Taking into account the inflation rate, the real earnings fell by 1.3%. In the entrepreneurial sector, the nominal earnings experienced the first decline in the entire history of the Czech Republic, namely by 0.1%, i.e. a drop by 1.5% in real earnings. Average nominal earnings in the non-entrepreneurial sector noted a certain increase by 0.9%, which helped to mitigate the drop in real earnings to the value of 0.4%.

On a year-on-year basis, the deficit in the state institutions sector in 2013 expressed as a share on GDP was down 2.76%.

The inflation rate went down by 1.9% in 2013, amounting to the value of 1.4%. Prices rose most in food and non-alcoholic beverages (by 4.9%), alcohol and tobacco (by 3.6%), and health sector (by 2.4%). In contrast, the most profound drop in prices was recorded in mail and telecommunication (by 8.9%), garments and footwear (by 0.9%), and transport (by 0.7%). Interest rates on CZK-denominated loans granted to non-financial corporations dropped on average by 0.5%. Compared to 2012, the average nominal exchange rate of the Czech koruna dropped against the euro by 3.3% in 2013, while it strengthened slightly against the dollar by 0.1%. In November, following the Czech National Bank intervention, the koruna weakened significantly against the euro and the dollar.

As stated by the Czech Statistical Office[5], the number of employees in the sectors of agriculture, forestry, and fish culture was 0.9% lower in 2013 against 2012. However, the share of employees in the given sectors on the total number of employees rose by 0.01% to 2.63%, and the share of

1 Total 17 EU Member States formed the euro area in 2013 - Belgium, Finland, France, Ireland, Italy, Luxemburg, Germany, the Netherlands, Portugal, Austria, Spain, Greece, Slovenia, Cyprus, Malta, Slovakia, and Estonia.

2 Also of the EU 28, counting in Croatia, which accessed the EU on 1 July 2013.

3 Based on the data on the balance of payments for Q1-4 2012 and 2013 provided by the Czech National Bank. According to the statistics of external trade in goods across borders, as recorded by the Czech Statistical Office in conformity with the EU regulations, based on customs statistics and valuation of exports at FOB prices and imports at CIF prices, the 2013 balance reached the value of CZK 351 billion, i.e. a year-on-year increment by CZK 45 billion. As stated by the Czech Statistical Office, exports increased by approximately CZK 93 billion and imports by CZK 48 billion.

4 On a full-time equivalent number of employees in national economy.

5 Total number of employees and average gross earnings based on CZ NACE for the Czech Republic nation-wide (on an equivalent number of employees) - preliminary data.

employees in agriculture (including game management and related activities) even increased by 0.02%. Agriculture continues to be characterised with disparity in earnings, these being below the national average. The situation improved in 2013 with the lag being reduced to the level of 80%. Nominal earnings on a full-time equivalent number of employees in agriculture grew by 2.8%, i.e. 2,7% faster than the total national average. As the growth of nominal earnings exceeded inflation, real earnings rose by 1.4%.

Macroeconomic indicators of national economic development[1)]

National economy	Unit	2012	2013
GDP in current prices	CZK billion	3 843.5	3 883.8
	year-on-year index	100.6	101.0
GDP in constant prices 2005 (adjusted for season variations)	year-on-year index	99.0	99.1
Relative GDP per capita[2)]	EU 28 = 100	81	-
	EU 15 = 100	74	-
Average monthly earnings (nominal)[3)]	CZK	25 112	25 128
	year-on-year index	102.7	100.1
Average inflation rate	%	3.3	1.4
Mean interest rates on bank credits[4)]	%	3.69	3.19
Trade balance	CZK billion	148.6	188.0
Current account of balance of payments	CZK billion	-51.3	-56.0
Balance of the state budget	CZK billion	-101.0	-81.3
Consolidated gross debt in the sector of state institutions[5)]	CZK billion	1 775.4	1 788.2
Deficit in the sector of state institutions[5)]	% GDP	-4.20	-1.44
Debt in the sector of state institutions[5)]	% GDP	46.16	46.04
Unemployment rate (mean)[6)]	%	7.0	7.0
Parity (mean) - CZK/€	CZK	25.143	25.974
- CZK/$	CZK	19.583	19.565

Notes:
[1)] Data published by 2 April 2014.
[2)] Purchasing power parity, Eurostat preliminary data for 2013.
[3)] Average monthly gross nominal earnings on a full-time equivalent number of employees in the national economy.
[4)] Interest rates on CZK-denominated loans – situations of trades, 12-month average.
[5)] Balance in the sector of state institutions (ESA 1995).
[6)] Share of unemployed persons in total labour force by Eurostat and ILO.

Source: Czech Statistical Office, Czech National Bank, Eurostat

Share of agriculture[1)], forestry[2)], fishery[3)] and food industry[4)] on the GVA in basic prices (%)

Year	Agriculture	Forestry	Fishery	Food industry
Current prices				
2007	1.66	0.71	0.014	2.45
2008	1.66	0.63	0.012	2.38
2009	1.38	0.52	0.015	2.73
2010	1.07	0.58	0.012	2.43
2011	1.55	0.75	0.019	2.48
2012	1.55	0.79	0.018	2.44
2013	1.57	0.79	0.020	2.44
Constant prices of 2005				
2007	1.02	0.62	0.016	2.52
2008	1.02	0.69	0.015	2.38
2009	1.51	0.64	0.018	2.34
2010	1.97	0.56	0.016	2.22
2011	0.87	0.61	0.024	2.28
2012	0.82	0.63	0.023	2.16
2013	0.72	0.60	0.026	2.19

Notes:
[1)] CZ-NACE 01 Crop and animal production, hunting and related service activities
[2)] CZ-NACE 02 Forestry and logging
[3)] CZ-NACE 03 Fishing and aquaculture.
[4)] CZ-NACE 10+11+12 Manufacture of food products, beverages and tobacco products.

Source: Czech Statistical Office, quarterly accounts results; revised data

1.2 Forest Ownership Structure

Equally to the preceding years, the year 2013 did not bring any substantial changes in the ownership structure of forests.

The state retains its position as the major owner of forests, which are mostly managed by Lesy České republiky (over 50%); military forests and forests in national parks form another significant share. Individuals and municipalities also have their important shares in the forests ownership structure. Other forms of ownership are marginal and statistically insignificant.

The process of restitution has practically been completed with a few exceptions. In certain legally complex cases, courts have still been deciding on the eligibility for restitution of forest properties.

Generally, the forest ownership structure may be characterised as stabilised. Insignificant changes occur continuously as a result of land re-arrangements and ownership changes (purchase, sale and exchange of forest land) mainly aimed at consolidation of forest estates. Greater changes in the forest ownership structure shall occur in the coming years at the expense of state ownership as certain forest land is to be returned to church entities within the process of restitution.

Forest ownership structure in the Czech Republic in 2013

Ownership		Area of forest stands (ha)	Area of forest stands %
State forests		1 552 603	59.74
of which	LČR, s. p.	1 306 187	50.25
	Vojenské lesy a statky ČR, s. p.	124 177	4.78
	Ministry of the Environment (National Parks)	94 670	3.64
	Regional forests (secondary schools and other)	1 648	0.06
	Other	24 724	0.95
	Ministry of the Environment (Nature Conservation Agency of the Czech Republic)	1 198	0.05
Legal persons		76 439	2.94
Municipal forests		438 096	16.86
Forests owned by the Church and other religious entities		1 502	0.06
Forest cooperatives and associations		30 494	1.17
Forests owned by individuals		500 002	19.24
Other forests (not listed elsewhere)		4	0.00
TOTAL		2 599 142	100.00

Source: FMI

2 FOREST SECTOR OVERVIEW

2.1 Forest Reproductive Material

2.1.1 Recognised Sources of Forest Reproductive Material

The central records of recognised sources of forest reproductive material in the Czech Republic are managed by the Forest Management Institute, an authorised person, which keeps the so-called Register of Recognised Sources of Reproductive Material. For each approved unit, the Institute registers the tree species, category of reproductive material, type of source, registration number, location, altitude or altitudinal zone, area, origin, and in case of tested reproductive material also information whether the organism is genetically modified or not.

The Register of Recognised Sources of Reproductive Material is accessible for public on the Internet pages www.uhul.cz in application named ERMA. New application called ERMA2 was introduced in connection with changes in legislation on 1 January 2014 and the section open to public may be accessed on the website of the Ministry of Agriculture www.eagri.cz.

Sources of identified reproductive material

The category of sources of ”identified reproductive material“ represents the lowest qualitative selection. As sources of ”identified reproductive material“ are approved sources of seed or stands ranked in the phenotype category C. Stands of phenotype category A or B may also be approved as sources of ”identified reproductive material“ in case they have not been approved as sources of ”selected“ or ”tested reproductive material“.

As at 31 December 2013, the registered reduced tree area (i.e. the tree area fully useable for standing volume production) amounted to 70 835.18 ha of source type ”stand“ in total 6 595 recognised units. Total 469 recognised units of type ”seed source“ were registered.

Sources of selected reproductive material

Source of ”selected reproductive material“ is the most widespread and utilised source of seed in artificial forest regeneration and reforestation. Only phenotype categories A and B showing the required genetic and morphologic quality, location, area, age, structure, health condition, and a suitable habitat may be approved as source of ”selected reproductive material“. According to its origin, production volume, morphology and health, a stand may be classified to phenotype categories ”A“, ”B“, ”C“, and ”D“. Stands of phenotype category ”A“ represent a high economic value. They are autochthonous or characterised with an outstanding volume or quality of production, morphology, or resistance. Stands of phenotype category ”B“ show above average volumes of production, morphology, and good health. Upon the owner‘s consent, stands of phenotype category ”B“ may be consolidated into a single recognised unit if located within one nature forest area and forest vegetation zone, comprising the same tree species and having the same owner. Stands of phenotype category ”A“ are not consolidated; one forest stand always forms one recognised unit.

At 31 December 2013, the registered reduced tree area amounted to 71 891.07 ha of sources type ”stand“ in 7 087 recognised units. Stands of phenotype category ”A“ covered 8 863.10 ha, while the phenotype category ”B“ represented 63 027.97 ha.

Sources of qualified reproductive material

As sources of ”qualified reproductive material“ may only be recognised such seed orchards, parent trees, clones or clone mixtures that comply with the specified requirements that relate to the establishment and further maintenance of sources of reproductive material, their morphological and genetic quality, location, area, age, structure, and health. A favourable site is another precondition.

Parent trees / clones

As at 31 December 2013, the Register of Recognised Sources of Reproductive Material recorded total 9 070 clones, namely 6 275 clones of conifers and 2 795 clones of broadleaves. The Register comprises clones of total 33 tree species, i.e. 10 conifers and 23 broadleaves.

Clones are mainly registered as recognised for the purposes of establishment of seed orchards. Projects involving establishment of seed orchards thus relate to such registration of clones.

Seed orchards

Seed orchards are established based upon documentation registered and approved by an authorised entity. They may be recognised as sources of qualified reproductive material if their condition and health are in conformity with the mentioned documentation. This means, among other requirements, that the orchard shall retain the desired number and structure of healthy clones and more than a half of the clones shall be at their productive age. Seed orchards shall be managed with the aim of fulfilling their purpose. The period between the establishment of a seed orchard and its actual recognition as a source of qualified reproductive material is relatively long. For this reason, database ERMA also lists established seed orchards that have still not been recognised and are registered under the legislation in force and documentation approved by an authorised entity.

At 31 December 2013, the Register of Recognised Sources of Reproductive Material listed total 139 recognised seed orchards of total 321.91 ha, which are established for 9 conifer and 13 broadleaf tree species.

Clone mixtures

Total 24 recognised clone mixtures for 5 tree species covering an overall area of 22.78 ha were registered in the Czech Republic in 2013. In the same year, the authorised entity neither recognised nor registered any new clone mixture.

Sources of tested reproductive material

The first source of reproductive material was recognised as "tested" in 2005, which was a mixture of poplar clones, sections *Aigeiros* and *Tacamahaca* established and managed by the Forestry and Game Management Research Institute (FGMRI) – Research Station Kunovice. This source of tested reproductive material may be utilised all over the country with respect to the natural climatic conditions. All the currently existing recognised sources of tested reproductive material of cultivated poplars originate from this source. No source of tested reproductive material of any tree species significant for forestry has been approved yet.

More details on the sources of reproductive material in the Czech Republic may be found on the website www.uhul.cz, Report on Management of Reproductive Material of Tree Species in the Czech Republic in 2013.

2.1.2 Forest Nursery Practice

Licences

The basic prerequisite for handling with forest reproductive material (hereinafter referred to as "FRM") is a respective licence. As at 31 December 2013, the central register of seed suppliers of the Ministry of Agriculture listed total 598 licence holders, namely 324 individuals and 274 legal persons.

The register of licence holders entitled to handling with forest reproductive material is available at website www.uhul.cz, part of application ERMA.

Based on the data submitted to the authorised entity (FMI) by licence holders entitled to marketing the forest reproductive material, there were total 199 suppliers owning at least one production plant operating in the sector of forest nursery practice in 2013.

Area of forest nurseries

On the date of 31 December 2013, the total area of forest nurseries marketing FRM amounted to 1 795.831 ha, the actual production area covering 1 404.82 ha. In addition to open production areas, the records listed 3.374 ha of glass greenhouses, 20.415 ha of plastic greenhouses and 8.077 ha of hotbeds.

2.2 Forest Regeneration and Reforestation

Against the preceding year, the area of regenerated forest stands rose by 568 ha, totalling 26 032 ha. This is comparable to the previous two years and corresponds the respective total volume of logging. Natural regeneration went up to 6 112 ha, which is a visible year-on-year increase by 551 ha.

The share of broadleaves in artificial regeneration reached 39.3%, representing improvement by 1% against the preceding year. The share of spruce on artificial regeneration noted a slight decrease by 194 ha when compared to 2012, while the same share of beech rose by 162 ha.

Forest regeneration (ha)

Method of regeneration	2000	2004	2010	2011	2012	2013
Artificial	21 867	19 042	21 859	21 755	19 903	19 920
of which Replanting	4 371	2 766	3 087	3 712	3 751	4 327
Natural	3 422	4 802	5 127	5 075	5 561	6 112
Total	25 309	23 844	26 986	26 830	25 464	26 032

Source: Czech Statistical Office

2.3 Timber Harvest

The raw timber harvest in the Czech Republic in 2013 totalled 15.33 million m^3. Compared to 2012, this was 0.27 million m^3 higher. Salvage cutting substantially contributed to that volume with its share of 27.7% and totalled 4.25 million m^3.

The proportion between planned and salvage cutting was more favourable in the preceding two years (share of salvage cutting on total felling was 25.4% in 2011 and 21.5% in 2012). The current conditions for planned forest management are thus slightly worse.

Comparing the volumes of logged timber in individual species, the volume of harvested broadleaves stagnated, reaching approximately 13.7% of total felling. The proportion of harvested hardwood and softwood is mainly given by the demand on the timber market and by the structure of available reserves in mature stands.

Total annual timber harvest

Harvest	Unit	2000	2002	2004	2006	2008	2010	2011	2012	2013
Conifers	million m^3	12.85	13.01	13.92	16.12	14.88	15.07	13.34	13.06	13.23
Broadleaves		1.59	1.53	1.68	1.56	1.31	1.67	2.04	2.01	2.1
Total		14.44	14.54	15.6	17.68	16.19	16.74	15.38	15.06	15.33
Per capita	m^3	1.41	1.43	1.53	1.72	1.55	1.59	1.47	1.43	1.46
Per 1 ha of forest			5.5	5.9	6.67	6.10	6.30	5.78	5.66	5.76

Note: Volumes are given in m^3 under bark, minimum top diameter 7 cm.

Source: Czech Statistical Office

2.4 Forest Protection

As to forest protection, the year 2013 may generally be described as less favourable, in particular when compared to the year 2012, which recorded very low volumes of damage in all damaging factors (in contrast to the previous period, which was characterised with successive mitigation of the effects of natural disasters and the following outbreak of woodborers in 2007-2009). Great weather differences were seen in individual regions. In general, Moravia and Silesia were affected by incomparably more severe drought and showed both relatively and absolutely higher volumes of damage in most damaging factors than in the larger area of Bohemia. The main damaging factors remained practically the same as in the previous years. Wind and snow break, and direct drought consequences dominated abiotic factors while the prevailing biotic factors were outbreaks of woodborers on spruce stands, the honey fungus, and, last but not least, persisting damage by excessive stocks of hoofed game. The course of the weather was rather unbalanced again and the recorded extremes (floods in Bohemia in June, extremely high temperatures in summer, local windstorms in August causing damage to forests, dry autumn and winter) had both local and countrywide effects. Nevertheless, as mentioned above, Moravia and Silesia were hit by drought more significantly than the rest of the country. In 2013, the volume of salvage cutting in the country amounted to approximately 4.2 million m^3, which is an increase by 0.9 million m^3 against 2012, when timber harvest totalled 3.3 million m^3. The overall salvage cutting thus continued to bring positive figures representing approximately 25% of the total timber harvest in the country.

When compared to 2012, the total damage caused by abiotic factors in 2013 was approximately 30% higher and the damage caused by biotic factors equally noted an increase by nearly a quarter (24%). However, the situation varied largely in individual regions, as was the case in the preceding year. While Bohemia recorded equal or lower damage in all factors as opposed to the previous year (with only exceptional increase), the situation in Moravia and Silesia generally deteriorated with incrementing volumes of damage in most abiotic factors (mainly drought, partly wind and snow breaks) and decisive biotic factors (bark beetle on spruce, the honey fungus, dying ash trees). The chronic problems relating to excessive stocks of hoofed game persisted in a significant part of the country.

Salvage cutting by reason (million m^3)

Year	Reason				
	Abiotic	Air pollution	Insects	Other	Total
	million m^3	million m^3	million m^3	million m^3	million m^3
2003	6.12	0.06	1.26	0.76	8.20
2004	2.76	0.04	1.27	1.30	5.37
2005	2.54	0.02	0.88	1.39	3.83
2006	5.59	0.02	0.96	0.82	7.39
2007	12.92	0.04	1.86	0.68	15.50
2008	7.07	0.04	2.37	0.65	10.13
2009	3.00	0.03	2.64	0.58	6.25
2010	4.08	0.02	1.84	0.38	6.32
2011	2.13	0.02	1.21	0.43	3.79
2012	2.01	0.02	0.98	0.33	3.34
2013	2.50	0.03	1.21	0.46	4.2

Source: FGMRI

2.5 Forest Certification

Overview of certified forests in the Czech Republic

Ownership	PEFC	FSC
	Area of certified forests (ha)	
State forests	1 500 326	35 649
Individuals	90 057	40
Legal persons	52 082	10 284
Municipal forests	184 861	4 044
Total	1 827 326	50 017

Source: FMI

3 MAJOR INDICATORS IN TIMBER PRODUCTION

3.1 Changes in Forest Land Area

The area of forest land in the Czech Republic has been constantly increasing. This is partly thanks to afforestation of new land, which exceeds the extent of transformation of forest land for other purposes, and partly thanks to improvements as to the precision of data from the Land Register. In 2013, the forest land area increased in year-on-year terms by 1 842 ha.

Changes in forest land area

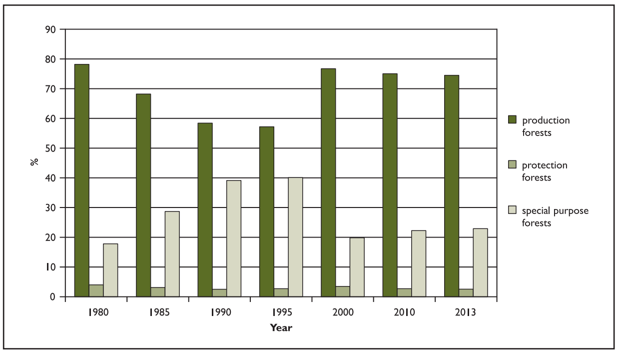
Year	2009	2010	2011	2012	2013
Forest land area	2 655 212	2 657 376	2 659 837	2 661 889	2 663 731

Source: Czech Office for Surveying, Mapping and Cadastre

3.2 Forest Categories by Their Functions

Individual categories of forests are distinguished by their prevailing functions. A slight but persistent increment in the category of special purpose forests may be observed. Among other factors, this is caused by a long-term and stable interest of forest owners in forest categorisation and promotion and enforcement of non-wood forest functions. The recurring decline in the category of protection forests reflects the fact that the existing potential to designate new protection forests is not fully utilised under relatively invariable natural conditions.

Development of forest categories



Source: FMI

Forest categories (ha)

Forest categories	Production forest	Protection forest	Special purpose forest	Total
	1 938 870	64 984	595 287	2 599 142

3.3 Species Composition of Forests

The total area of coniferous species has been constantly decreasing. For example, the area of spruce was reduced by 69 614 ha against 2000. On the contrary, the share of broadleaves, mainly oak and beech, has been growing.

When assessing the species biodiversity of national forests, the overall proportion of individual tree species is the major indicator, along with the distribution of forest stand mixtures within individual units of spatial arrangement of forests. The ratio of mixing of individual tree species within a unit has been continuously increasing in favour of mixed forest stands and the year 2013 witnessed an equivalent trend. It is a result of foresters' permanent efforts to acquire an optimum species composition of forests, a practice that enjoys a long-term support under a goal-oriented national subsidy policy.

Tree species composition of total timber land (ha and %)

Species	Year					
	2000	2008	2010	2011	2012	2013
	Timber land in ha and %					
Norway Spruce	1 397 012	1 362 205	1 347 239	1 341 421	1 334 417	1 327 398
	54.1	52.4	51.9	51.7	51.4	51.1
Fir	23 138	24 658	25 869	26 448	26 859	27 509
	0.9	1.0	1.0	1.0	1.0	1.1
Pine	453 159	440 188	436 308	434 202	432 915	431 721
	17.6	17.0	16.8	16.7	16.7	16.6
Larch	97 170	100 326	100 761	100 817	100 956	100 917
	3.8	3.9	3.9	3.9	3.9	3.9
Other conifers	4 586	5 964	6 352	6 581	6 941	7 048
	0.2	0.2	0.2	0.3	0.3	0.3
Total conifers	1 975 065	1 933 341	1 916 529	1 909 468	1 902 088	1 894 593
	76.5	74.4	73.9	73.6	73.2	72.9
Oak	163 761	175 495	178 466	180 597	182 327	184 180
	6.3	6.8	6.9	7.0	7.0	7.1
Beech	154 791	182 048	189 998	194 257	198 652	202 638
	6.0	7.0	7.3	7.5	7.7	7.8
Birch	74 560	73 764	72 264	71 169	71 026	71 628
	2.9	2.8	2.8	2.7	2.7	2.8
Other broadleaves	183 696	205 991	209 559	211 325	213 145	215 602
	7.1	7.9	8.1	8.1	8.2	8.3
Total broadleaves	576 808	637 299	650 287	657 348	665 151	674 048
	22.3	24.5	25.1	25.3	25.6	25.9
Total excl. unstocked areas	2 551 873	2 570 640	2 566 816	2 566 816	2 567 239	2 568 641
	98.8	99.0	98.9	98.9	98.9	98.8

Source: FMI

3.4 Growing Stock and Increments

Compared to 1930, the total growing stock in Czech forests more than doubled. The factors contributing to the fact are a higher increment and more precise determination using new methods and instruments implemented in the 60's and 70's of the 20th century.

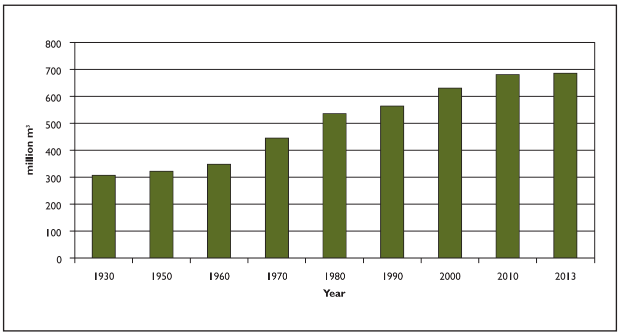
The total growing stock in Czech forests continued to extend also in the year 2013. This was thanks to a slight increase in stand stocking, an increase in the percentage of older stands, and a growth in the current increment. However, not all the stock is equally accessible for felling. The volume of felled timber in protection and special purpose forests is limited by fulfilment of protective functions or by special purpose management. In most cases, no felling operations may be carried out in forests with an increased protection regime, in reserves, and in first zones of national parks. The average growing stock per ha of forest land (i.e. growing stock on timber land including clear-cuts) is 264 m^3.

Growing stock volume (million m^3)

	Growing stock volume								
Year	1930	1950	1960	1970	1980	1990	2000	2010	2013
million m^3	307	322	348	445	536	564	630.5	680.6	687.2

Note: Volume in m^3 u. b., min. top diameter of 7 cm

Development of Growing stock volume



Source: FMI

Total mean and total current annual increments

Increment	Year						
	1950*	1970	1980	1990	2000	2010	2013
	million m^3 u. b. annually						
Total mean	9.0	13.5	16.0	16.3	16.8	17.7	17.9
Total current	9.2	14.8	17.1	17.0	19.8	21.2	21.7
	m^3 u.b. per ha of timber land annually						
Total mean	3.7	5.3	6.2	6.3	6.5	6.8	6.9
Total current	3.8	5.8	6.7	6.6	7.7	8.2	8.4

Note: * Including forests under 10 ha of size, forest not intended for wood supply and afforested non forest land.

Source: FMI

4 FOREST SECTOR ECONOMY

4.1 Economic Situation of Forest Owners

The economic situation of forest owners involved in forest management and other forest-based activities noted further improvement following the positive trend from 2010–2012 and recovering from a serious recession with unfavourable economic results in 2006–2009. Forests owned by the state repeatedly generated the highest profit (including granted contributions and subsidies) (CZK 3 557/ha), followed by private forests (CZK 2 535/ha). Municipal forests recorded the lowest profit (CZK 1 514/ha). The considerable improvement in the economic situation of forest owners was mainly induced by the demand for raw timber, which remained constant despite the sharp growth of average prices of decisive timber assortments (in the Czech Republic and mainly abroad). The domestic wood-processing industry experienced a revival in sales opportunities only in large enterprises with foreign capital and direct relation to export. In contrast, small and medium enterprises paid the price of the ongoing recession in domestic building industry.

Due to the increasing consumption of wood products in neighbouring Germany and Austria, the Czech wood-processing enterprises were forced to pay more for timber supplies - frequently on the edge of profitability of their businesses. The measures adopted to save costs in forestry operations, other activities, and property management also had a positive effect. This is supported by data from a sector statistical survey involving 247 forest owners (or tenants) who manage forests of over 200 ha and represent total 93% of state forests, 42% of municipal forests, and 19% of private forests in the Czech Republic. Out of the total area of Czech forests (i.e. 2 664 thousand ha of forest land as at 31 Dec 2013), the mentioned survey dealt with 67.3% (1 791.8 thousand ha). The economic situation of forest owners (or tenants) who manage forests of over 1 750 thousand ha has been being monitored through this statistical method since 1998, counting with a long-term stable base of respondents and a responsible approach to communicating the required information.

Average prime costs of selected operations (CZK/unit)

Operation	Unit	2010	2011	2012	2013
Forest regeneration	ha	68 854	77 825	66 221	66 469
Tending of young plantations	ha	9 036	9 173	9 051	8 881
Juvenile thinning	ha	7 798	8 401	8 493	8 882
Forest protection	ha	131	90	103	102
Total silviculture	ha of forest	1 836	1 822	1 820	1797
Felling	m^3	267	202	193	191
Skidding	m^3	232	230	229	222
Hauling	m^3	149	181	174	172
Road repairs and maintenance	ha of forest	575	731	737	856

Source: Ministry of Agriculture

Profit of forest owners only from forest activities (excl. subsidies for forest management) (CZK/ha)

Profit before taxation	2010	2011	2012	2013
State forests	1 968	4 017	4 119	3 822
Municipal forests	2 695	2 696	2 523	2 881
Private forests	3 268	3 195	3 371	4 008
Average	2 395	3 610	3 698	3 724

Source: Ministry of Agriculture

Profit of forest owners only from forest activities (including subsidies for forest management) (CZK/ha)

Profit before taxation	2010	2011	2012	2013
State forests	2 112	4 110	4 209	3 955
Municipal forests	3 172	3 305	2 937	3 300
Private forests	3 579	3 515	3 702	4 276
Average	2 632	3 839	3 895	3 933

Source: Ministry of Agriculture

4.2 Social Aspects in the Forest Sector

4.2.1 Labour Market in Forestry

Number of employees in forestry

		2010	2011	2012	2013
Total forest sector		15 150	14 138	13 792	13 339
of which	State	5 130	4 937	4 967	4 997
	Private	8 015	7 162	6 823	6 317
	Municipal	2 005	2 039	2 002	2 025

Source: Ministry of Agriculture

4.2.2 Average Earnings in Forestry

Compared to the preceding year, the average monthly earnings of individuals working in the forest-based sector rose by 2.6% and thus surpassed those in industry (by 0.9%) and in the stagnating national economy. Nevertheless, in absolute numbers, the average earnings of individuals in forestry and forest-based activities, in both entrepreneurial and non-entrepreneurial entities, still lag behind the average earnings in industry (by CZK 1 501) and in the national economy (by CZK 647). The highest average earnings in forestry are recorded in the public sector, where they surpass the average of the private sector by CZK 7 080 and of the sector of municipal forests by CZK 7 027. The data for 2012 in the chart below were updated in the category of industry and entire national economy (specified by the Czech Statistical Office).

Average monthly earnings (CZK)

		2010	2011	2012	2013	2012/2013
		CZK				%
Forestry		21 074	22 154	23 037	23 628	102.6
of which	State forests	24 923	26 346	27 696	28 048	101.3
	Private forests	18 873	19 976	20 385	20 968	102.9
	Municipal forests	20 020	19 655	20 518	21 021	102.5
Industry		23 187	24 068	24 908	25 129	100.9
National economy total		23 004	23 628	24 272	24 275	100.0

Source: Ministry of Agriculture

4.3 State Budget Funds for the Forest Sector

4.3.1 Government Financial Obligations Subject to the Forest Act

The forestry sector in the Czech Republic underwent substantial changes after 1989. The property rights to forests were returned to respective individuals, legal entities, and municipalities. With the aim to secure significant social and publicly beneficial interests in the course of the mentioned changes, and to establish enabling conditions for the main forest functions, the Government of the Czech Republic gradually elaborated and approved policy documents based on the Principles of State Forest Policy adopted in 1994. These were implemented by Act No. 289/1995 Coll. on forests and amendments to other acts (the Forest Act), as amended, and by related decrees adopted by the Ministry of Agriculture, laying down the financial obligations of the state relating to sustainable forest management in the Czech Republic.

The new legislation under the new conditions guarantees balanced enforcement of legitimate interests of forest owners in using their forests as their own property, interests in forest protection as a significant and irreplaceable part of nature and the environment, and the interest of the state in having all the forests in the Czech Republic managed in the future so as they could permanently fulfil all their functions. The support of forest functions exceeds the costs of forest owners they run within common forest management. In determined cases, forest owners are entitled to financial contributions to operations and measures that shall be covered by the state.

In 2013, the state allocated total CZK 212.1 million under the obligations determined by the Forest Act.

The total amount of CZK 11.3 million was granted as part payment to cover the increased costs of planting the minimum number of soil improving and stabilising tree species, which sustained regeneration of 2 173 ha of forest stands comprising 5-30% of such tree species. Such measures supported approximately 13 thousand ha of mixed forests.

Total CZK 155.2 million was paid to cover the activities of licensed forest managers who manage forests of up to 50 ha. The activities were conducted on an area of 399 749 ha.

The state pays the costs of forest management guidelines to forest owners who own a total forest area of up to 50 ha and do not have a forest management plan elaborated for their property. The overall amount allocated for these forest owners reached CZK 17.6 million and provided for management guidelines of total 41 428 ha of forests. The technical units apply to forest management guidelines valid from 1 January 2014 with the funds allocated in 2013.

An amount of CZK 28 million was allocated to finance measures relating to torrent control in forests in the public interest. These measures involved 6.2km of torrents, and repairs and construction of water reservoirs of the total water retention capacity of 31 thousand m^3. Forest soil improvement through water regime control was covered from the state budget in 2013 on an area of 0.7 ha. The technical units only involve actions completed in 2013 and supported from the state budget in the preceding years.

Government financial obligations subject to the Forest Act (CZK million)

Activities	2011	2012	2013
	Allocated		
Soil-improving and stabilising species	14.7	12.3	11.3
Licensed forest managers	157.2	156.5	155.2
Forest management guidelines	26.5	20.6	17.6
Soil improvement and torrent control	38.0	34.8	28
Total	236.4	224.2	212.1

Source: Ministry of Agriculture

4.3.2 State Services Supporting Forest Management

The state provides services free of charge to help forest owners improve the standards of forest management and ensure forest protection against damaging agents. Within its consulting services, the state mainly provides forest owners with up-to-date information concerning preventive protection of their forests and potential protective measures against damaging agents.

State services supporting forest management (CZK million)

Type of service	2010	2011	2012	2013
Aerial liming and fertilisation	17	2	0	0
Aerial fire control services	28	28	27.7	1.2
Large-scale measures in forest protection	1	1	0.7	0
Consultancy	35	36	21.6	19.5
Other services	7	8	0.1	0,8
Total	88	75	50.1	21.5

Source: Ministry of Agriculture

4.3.2.1 Subsidies from the State Budget

Support of forest management in form of subsidies from the state budget was granted under Annex 9 to Act No. 504/2012 Coll., on the state budget of the Czech Republic for the year 2013.

Subsidies for forest management granted from the budget of the Ministry of Agriculture and the budgets of individual regions by their purpose and ownership category (CZK million)

Purpose of subsidy	Ownership category	2010	2011	2012	2013
Regeneration of forests affected by air pollution	Municipal	8.5	8.5	7.3	4.3
	State	0	0	0	0
	Other	2.4	2.1	1.4	0.9
	Total	10.9	10.5	8.7	5.2
Reforestation, establishment of forest stands and their tending	Municipal	73.3	76.5	68.8	43.0
	State	0.1	0.5	0.2	0.4
	Other	129.0	132.4	118.5	91.7
	Total	202.4	209.5	187.5	135.1
Grouping of owners of small-size forests	Other	1.4	0	0	0
	Total	1.4	0	0	0
Green and environmentally friendly technologies	Municipal	6.2	4.9	4.3	3.7
	State	0.01	0.08	0.05	0.07
	Other	14.7	12.5	13.0	14.6
	Total	20.9	17.4	17.3	18.4
Support of endangered wildlife species	Municipal	0.0	0.01	0.01	0.01
	State	0.6	0.7	0.8	0.8
	Other	9.6	8.9	10.0	9.7
	Total	10.2	9.5	10.8	10.5
Elaboration of forest management plans	Municipal	11.0	8.5	10.2	6.7
	State	30.0	0	0	0
	Other	11.3	12.9	15.2	8.7
	Total	52.3	21.4	25.4	15.4
Other forest management	Municipal	0.01	0.06	0.06	0.08
	State	1.7	1.7	1.4	1.7
	Other	0.2	0.5	0.2	0.2
	Total	1.9	2.2	1.6	1.9
Breeding and training of national hunting dog breeds and hunting birds of prey	Municipal	0	0	0	0
	State	0	0	0	0
	Other	2.1	2.3	2.1	1.9
	Total	2.1	2.3	2.1	1.9
Total subsidies	Municipal	98.9	98.5	90.4	57.8
	State	32.5	2.9	2.5	3.0
	Other	171.1	171.6	160.6	127.6
	Total	302.5	272.9	253.5	188.4

Source: Ministry of Agriculture

5 TIMBER MARKET

5.1 Domestic Timber Market

The total timber supplies experienced a year-on-year rise by 270 thousand m^3 amounting to 15 331 thousand m^3, while softwood supplies represented 13 229 thousand m^3 and hardwood supplies totalled 2 102 thousand m^3.

Timber supplies (1 000 m^3)

Supplied assortments (excl. imports)		2011	2012	2013
Roundwood [x)]		8 838	8 621	8 645
of which	Softwood	8 014	7 911	7 925
	Hardwood	824	710	720
Pulpwood [xx)]		4 629	4 420	4 504
of which	Softwood	4 277	3 949	4 037
	Hardwood	352	471	467
Fuelwood		1 914	2 020	2 182
of which	Softwood	1 049	1 196	1 267
	Hardwood	865	824	915
Total timber supplies		15 381	15 061	15 331
of which	Softwood	13 340	13 056	13 229
	Hardwood	2 041	2 005	2 102

Note: x) Including pole and mine timber.
xx) Including groundwood.
The total supplies of roundwood do not include the volumes of logging residues and chips of approximately 1.7 million m^3 in 2011, 1.9 million m^3 in 2012, and 1.8 million m^3 in 2013 (qualified estimate).

Source: Czech Statistical Office, Ministry of Agriculture

5.2 Timber Export and Import

Timber exports and imports in the Czech Republic (1 000 m^3)

Assortment		Exports	Imports
Softwood roundwood and pulp		3 986	2 166
of which	Spruce	3 375	1493
	Pine	450	627
	Others	161	46
Hardwood roundwood and pulp		306	276
of which	Oak	60	89
	Beech	215	69
	Poplar	4	15
	Birch	9	59
	Others	18	44
Industrial roundwood		4 292	2 442
Charcoal		1	16
Fuelwood		172	56
Chips, particles		536	417
Sawdust		569	310
Wood waste		613	304
Total		6 183	3 545

Source: Czech Statistical Office, Ministry of Agriculture

Timber exports and imports in the Czech Republic

	Exports	Imports	Balance	Exports	Imports	Balance	Exports	Imports
	CZK million			1 000 m^3			Average price CZK/m^3	
Total	11 164	5 081	6 083	6 183	3 545	2 638	1 806	1 443
of which								
	11 077	4 436	6 641	6 155	3 079	3 076	1 800	1 441
Germany	4 205	596	3 609	2 374	484	1 890	1 771	1 231
Austria	5 990	154	5 836	3 420	371	3 049	1 751	415
Slovakia	136	659	-1 523	156	1 001	-845	872	1 657

Source: Czech Statistical Office, Ministry of Agriculture

6 RELATED ACTIVITIES AND SECTORS

6.1 Game Management

In 2013, the country registered 5 789 hunting grounds under game management with their total area of 6 873 096 ha. These comprised 196 game preserves of total 46 716 ha and 293 pheasantries of total 97 066 ha. An average area of a hunting ground was 1 187 ha, of a game preserve 238 ha, and of a pheasantry 331 ha.

Hunting of main game species (pcs)

Game	2007	2008	2009	2010	2011	2012	2013
Red Deer	20 217	21 415	21 527	21 820	20 961	23 120	23 593
Fallow Deer	11 395	13 394	13 309	14 209	13 305	14 742	16 570
Mouflon	8 320	9 304	9 118	9 368	8 398	9 378	9 446
Roe Deer	108 992	127 213	131 875	120 206	113 915	108 616	105 686
Wild Boar	121 192	138 854	121 821	144 305	109 563	185 381	152 468
Duck	328 225	315 773	286 024	272 422	277 390	268 485	256 375
Pheasant	664 251	598 176	530 444	528 878	524 674	518 208	459 412
Hare	115 065	105 745	84 111	62 848	47 739	56 310	37 694

Source: Ministry of Agriculture, Ministry of the Environment, Czech Statistical Office

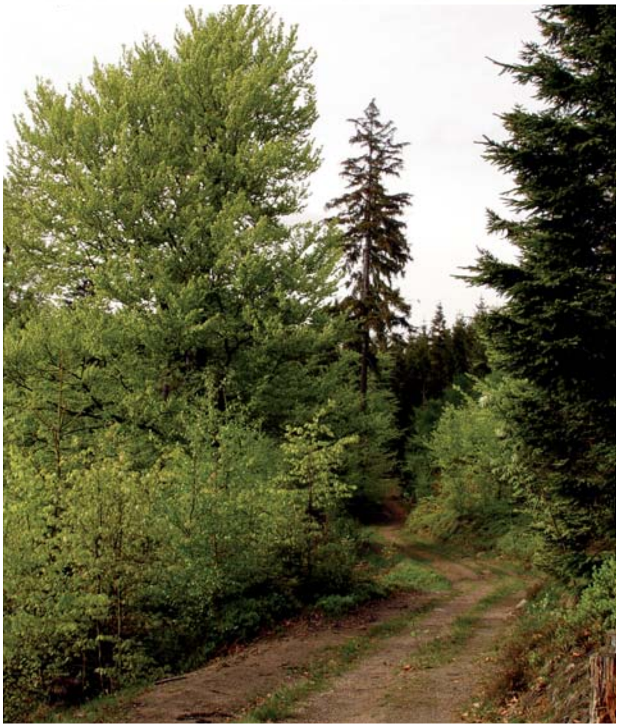
Spring stocks of main game species (pcs)

Game	2007	2008	2009	2010	2011	2012	2013
Red Deer	28 977	29 266	29 895	30 865	30 838	31 818	26 618
Fallow Deer	23 964	25 067	25 701	26 415	26 611	27 745	27 774
Mouflon	20 510	20 182	20 738	21 196	21 294	21 318	19 435
Roe Deer	310 920	318 252	317 596	312 321	302 206	305 052	290 661
Wild Boar	56 986	57 770	57 981	60 500	59 295	64 848	59 175

Source: Ministry of Agriculture, Ministry of the Environment, Czech Statistical Office

6.2 Timber Processing Industry

The total log breakdown in the Czech Republic reached the volume of 6.700 million m^3 of softwood and hardwood roundwood, which was used to produce 3.760 million m^3 of softwood sawn wood and 0.277 million m^3 of hardwood sawn wood. The total production of softwood and hardwood sawn wood hence fell against the preceding year by 222 thousand m^3. Export of softwood and hardwood sawn wood experienced an increase by 316 thousand m^3 while imports dropped by 101 thousand m^3. The domestic consumption of sawn wood was thus significantly lower, namely by 639 thousand m^3, which is a result of a pronounced crisis in the Czech building industry of the past five years. The production of particle boards, plywood, and fibreboards reached the levels comparable to 2012.



Log breakdown and sawn wood production (1 000 m^3)

	2011	2012	2013
Log breakdown	7 000	6 800	6 700
Sawn wood production	4 454	4 259	4 037

Source: Ministry of Agriculture

Market with timber products (1 000 m^3)

Product	Year	Production	Import	Export	Consumption
Softwood roundwood x)	2011	8 014	1 670	3 100	6 584
	2012	7 911	1 000	2 571	6 340
	2013	7 925	1 146	2 797	6 274
Hardwood roundwood x)	2011	824	114	387	551
	2012	710	90	233	567
	2013	720	108	234	594
Softwood sawn wood	2011	4 153	741	3 084	1 810
	2012	3 997	502	2 910	1 589
	2013	3 760	399	3 225	934
Hardwood sawn wood	2011	301	289	240	350
	2012	262	178	242	198
	2013	277	180	243	214
Particle boards	2011	1 052	476	1 339	189
	2012	1 033	480	1 335	178
	2013	1 032	638	1 335	335
Plywood	2011	181	65	128	118
	2012	178	71	117	132
	2013	180	48	119	109
Fibreboards	2011	42	217	97	162
	2012	41	211	85	167
	2013	41	218	91	168
Softwood pulpwood xx)	2011	4 277	1 087	1 564	3 800
	2012	3 949	749	1 040	3 658
	2013	4 037	1 020	1 189	3 868
Hardwood pulpwood	2011	352	22	74	300
	2012	471	36	68	439
	2013	467	168	72	563

Note: x) Including pole and mine timber.
xx) Including groundwood.

Source: Ministry of Agriculture

6.3 Pulp and Paper Industry

The consumption of softwood timber for pulp production reached 3 577 thousand m^3, i.e. 2 374 thousand m^3 of softwood pulp and 1 203 thousand m^3 of softwood chips and particles.

The pulp and paper industry produced total 449 thousand tons of pulp in 2013, chemical pulp representing 445 thousand tons. Compared to 2012 (total 692 thousand tons of pulp), there was an overall reduction in the production by 174 thousand tons, i.e. by 28%. This was mainly given by the fact that company Biocel Paskov is no longer classified among producers of paper pulp but among producers of viscose pulp.

The production of paper, paperboard, and cardboard under CEPI classification used in pulp and paper industry noted a fall by 161 thousand tons compared to 2012 and amounted to total 623 thousand tons, which is a decline by 20%.

Consumption of wood for pulp production in (1 000 m^3)

Timber assortment	Consumption		
	2011	2012	2013
Chips and particles	1 097	1 172	1 203
Pulpwood	2 479	2 287	2 374
Total	3 576	3 459	3 577

Source: Association of the Pulp and Paper Industry

Pulp, paper, paperboard, and cardboard production (1 000 t)

Product	2011	2012	2013
Mechanical pulp	3	0	0
Chemical pulp	697	620	445
Pulp of other fibres	4	3	4
Total	704	623	449
Paper, paperboard, and cardboard	737	784	623

Source: Association of the Pulp and Paper Industry, Czech Statistical Office

7 ABBREVIATIONS

CEPI	Confederation of European Paper Industries
CZK	Czech koruna (currency)
ESA	European System of Accounts
EU	European Union
FGMRI	Forestry and Game Management Research Institute
FMI	Forest Management Institute
FRM	Forest Reproductive Material
FSC CR	Forest Stewardship Council - Czech Republic
GDP	Gross Domestic Product
GVA	Gross Value Added
ILO	International Labour Organization
PEFC CR	Programme for the Endorsement of Forest Certification Schemes – Czech Republic

8 CONTACTS TO SELECTED FORESTRY ORGANISATIONS IN THE CZECH REPUBLIC

Ministry of Agriculture
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Ministry of the Environment
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Czech University of Life Sciences Prague
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Mendel University in Brno
Faculty of Forestry and Wood Technology
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613 00 Brno
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Forest Management Institute
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Forestry and Game Management Research Institute
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The Association of Municipal and Private Forest Owners in the Czech Republic
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Lesy České republiky, s.p. (Forests of the Czech Republic, State Enterprise)
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