

6

Forestry



6.1 Forests and other wooded land

The EU-28 had close to 182 million hectares (ha) of forests and other wooded land, corresponding to 43% of its land area (excluding lakes and large rivers; see Table 6.1). Wooded land covers a slightly greater proportion of the land than is used for agriculture (some 41%). In seven EU Member States, more than half of the land area was wooded in 2015. Just over three quarters of the land area was wooded in Finland and Sweden, while Slovenia reported 63%; the remaining four EU Member States, each with shares in the range of 54–56%, were Estonia, Latvia, Spain and Portugal, and in Greece the share of wooded area was 50%.

Sweden reported the largest wooded area in 2015 (30.5 million ha), followed by Spain (27.6 million ha), Finland (23.0 million ha), France (17.6 million ha), Germany (11.4 million ha) and Italy (11.1 million ha). Of the total area of the EU-28 covered by wooded land in 2015, Sweden accounted for 16.8%. Spain (15.2%) and Finland (12.7%) were the only other EU Member States to record double-digit shares.

Not all data are available for both forests and other wooded land; ownership is one example. Just 60.3% of the EU-28's forests were privately owned in 2010. There were 11 EU Member States where the share of privately owned forests was above the EU-28 average, peaking at 97.0% in Portugal. By contrast, the share of privately owned forests was below 20% in Poland and Bulgaria (where the lowest proportion was recorded, at 12.1%).

The growing stock of timber in forests and other wooded land in the EU-28 totalled some 26.3 billion m³ (over bark) in 2015: Germany had the highest share (13.9%), followed by Sweden (11.4%) and France (10.9%). Germany also had the largest growing stock in forests available for wood supply in 2015, some 3.5 billion m³, while Finland, Poland, France and Sweden each reported between 2.0 and 2.7 billion m³. The net annual increment — i.e. the average growth in volume of the stock of living trees available at the start of the year minus the average natural mortality of this stock — in forests available for wood supply was also highest in Germany, amounting to 119 million m³ in 2015 (16.5% of the total increase for the EU-28), while Sweden, France and Finland each accounted for between 11% and 13% of the net annual increment in the EU.

**Table 6.1:** Forest area and ownership, 2010 and 2015

	Land area 2010 without inland water (¹)	Forest and other wooded land 2015	Forest 2015	Forest available for wood supply 2015	Forest ownership 2010	
					Public	Private (²)
	(1 000 hectares)				(%)	
EU-28	424 978	181 918	160 931	134 486	39.7	60.3
Belgium	3 038	719	683	670	46.5	53.5
Bulgaria	10 899	3 845	3 823	2 213	87.9	12.1
Czech Republic	7 724	2 667	2 667	2 301	76.6	23.4
Denmark	4 243	658	612	572	23.7	76.3
Germany	34 877	11 419	11 419	10 888	52.0	48.0
Estonia	4 343	2 456	2 232	1 994	41.3	58.7
Ireland	6 839	801	754	632	53.2	46.8
Greece	13 082	6 539	3 903	3 595	77.5	22.5
Spain	50 176	27 627	18 418	14 711	29.2	70.8
France	55 010	17 579	16 989	16 018	24.7	75.3
Croatia	5 659	2 491	1 922	1 740	71.7	28.3
Italy	29 511	11 110	9 297	8 216	33.6	66.4
Cyprus	921	386	173	41	68.8	31.2
Latvia	6 220	3 468	3 356	3 151	52.3	47.7
Lithuania	6 268	2 284	2 180	1 924	61.4	38.6
Luxembourg	259	88	87	86	47.1	52.9
Hungary	8 961	2 190	2 069	1 779	57.6	42.4
Malta	32	0	0	:	:	:
Netherlands	3 376	376	376	301	48.5	51.5
Austria	8 242	4 022	3 869	3 339	25.8	74.2
Poland	30 633	9 435	9 435	8 234	81.9	18.1
Portugal	9 068	4 907	3 182	2 088	3.0	97.0
Romania	23 006	6 951	6 861	4 627	67.0	33.0
Slovenia	2 014	1 271	1 248	1 139	25.3	74.7
Slovakia	4 904	1 940	1 940	1 785	50.2	49.8
Finland	30 391	23 019	22 218	19 465	30.4	69.6
Sweden	41 034	30 505	28 073	19 832	24.3	75.7
United Kingdom	24 251	3 164	3 144	3 144	28.4	71.6
Iceland	10 024	193	49	26	33.3	66.7
Liechtenstein	16	7	6	4	85.7	14.3
Norway	30 547	14 124	12 112	8 259	12.3	87.7
Switzerland	4 000	1 324	1 254	1 208	86.1	13.9
Montenegro	1 345	964	827	675	52.4	47.6
FYR of Macedonia	24 913	1 131	988	804	91.6	8.4
Serbia	8 746	3 228	2 720	:	50.9	49.1
Turkey	76 960	21 862	11 943	8 183	99.9	0.1

(¹) Latest available year; France: only covers the mainland.

(²) Includes any other form of ownership.

Source: Eurostat (online data codes: [demo_r_d3area](#) and [for_area](#)); Food and Agriculture Organization of the United Nations

— Global Forest Resources Assessment, 2015

— Forest Europe 2015, as published on UNECE database (http://w3.unece.org/PXWeb2015/pxweb/en/STAT/STAT__26-TM5TAT1/)

Table 6.2: Timber resources

	Forest and other wooded land		Forest available for wood supply		Roundwood production		
	Growing stock		Net annual increment		Total	Fuelwood	Industrial roundwood
	2015		2010		2014		
	(1 000 m ³ over bark)			(1 000 m ³ under bark)			
EU-28	26 298 812	23 148 685	7 199 950	425 351	98 208	327 143	
Belgium (1)	168 121	170 060	4 610	:	:	:	
Bulgaria	699 000	492 000	14 361	5 570	2 534	3 036	
Czech Republic	791 244	670 898	20 463	15 476	2 111	13 365	
Denmark	125 697	115 701	6 263	3 180	1 950	1 230	
Germany	3 663 000	3 492 665	118 590	54 356	11 114	43 243	
Estonia	483 500	425 500	11 514	8 460	2 691	5 769	
Ireland (1)	74 698	104 000	6 678	2 831	206	2 625	
Greece (2)	205 771	170 385	4 511	:	:	:	
Spain	1 214 079	943 981	35 479	15 911	3 435	12 476	
France (1)	2 860 000	2 697 000	82 871	51 671	27 220	24 451	
Croatia	420 790	388 770	8 144	5 003	1 925	3 078	
Italy (1)	1 448 300	1 285 958	32 543	:	:	:	
Cyprus (1)	10 514	3 556	47	9	5	4	
Latvia	666 900	616 100	19 680	12 597	1 299	11 298	
Lithuania	518 100	418 000	11 030	7 351	2 316	5 035	
Luxembourg (1)	25 961	25 756	650	:	:	:	
Hungary (1)	355 709	330 680	9 775	5 671	2 576	3 095	
Malta (2)	80	0	0	0	0	0	
Netherlands	80 900	64 700	2 738	1 337	357	980	
Austria	1 155 000	1 121 000	25 136	17 089	5 059	12 030	
Poland	2 540 000	2 190 000	62 300	40 565	5 140	35 425	
Portugal (2)	187 800	154 000	19 087	:	:	:	
Romania	1 935 300	1 293 368	29 260	15 068	4 584	10 484	
Slovenia	433 000	393 900	9 165	5 099	1 589	3 511	
Slovakia	532 100	439 600	13 465	:	:	:	
Finland	2 327 748	2 099 415	93 379	57 033	7 832	49 202	
Sweden	2 995 500	2 389 692	79 347	70 100	5 900	64 200	
United Kingdom (1)	380 000	652 000	23 113	11 184	1 823	9 361	
Iceland	535	329	24	:	:	:	
Liechtenstein (1)	1 754	1 399	25	19	19	0	
Norway	1 164 980	1 033 000	25 750	12 386	2 579	9 807	
Switzerland	442 690	426 000	9 001	4 709	1 643	3 066	
Montenegro	964 000	105 000	2 192	915	707	208	
FYR of Macedonia	1 131 000	76 000	4 566	691	577	114	
Serbia	3 228 000	353 000	:	–	–	–	
Turkey	21 862 000	1 032 000	41 536	22 835	4 300	18 535	

(1) Growing stock in forests and on other wooded land: 2010 data.

(2) Growing stock: 2010 data.

Source: Eurostat (online data codes: for_remov and for_vol); Food and Agriculture Organization of the United Nations

— Global Forest Resources Assessment, 2015

— Forest Europe 2015, as published on UNECE database (http://w3.unece.org/PXWeb2015/pxweb/en/STAT/STAT__26-TMSTAT1/)

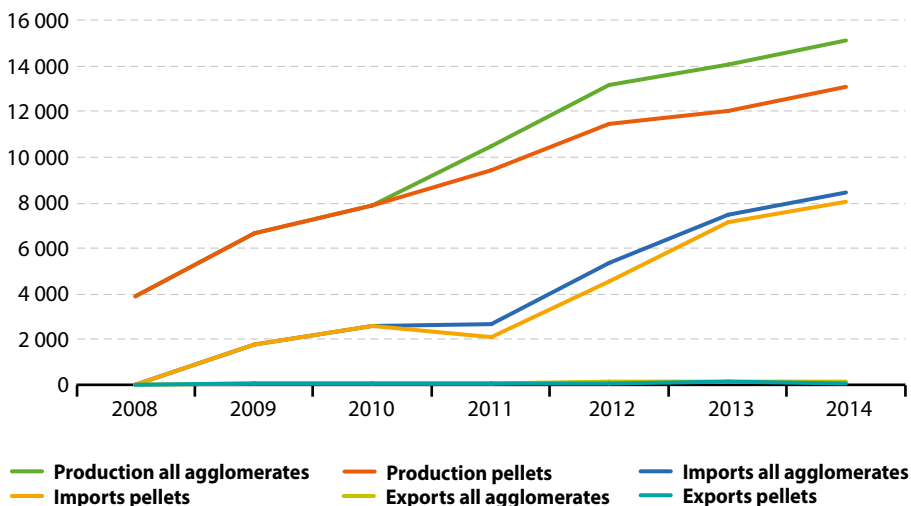


6.2 Primary wood products

Among the EU Member States, Sweden produced the most roundwood (70 million m³) in 2014, followed by Finland, Germany and France (each producing between 52 and 57 million m³) (see Table 6.3). Slightly more than one fifth of the EU-28's **roundwood production** in 2014 was used as fuelwood, while the remainder was industrial roundwood used either for **sawnwood** and veneers, or for pulp and paper production.

In 2014, two EU Member States (Sweden and Ireland) reported that over 90 % of their total roundwood production was industrial roundwood. Denmark, France and Cyprus were the only EU Member States where over half of the roundwood produced in 2014 was fuelwood, while Bulgaria, Hungary, Croatia, Estonia and Lithuania reported proportions between 32 and 45 %. In many EU Member States, however, no estimates of actual fuelwood consumption by households are included in the numbers reported. Separate studies would be needed to produce such estimates, because this wood may be acquired informally, including from forests owned by households. The numbers reported here are probably under-reported in several EU Member States, given the recent increases in the EU's production of wood pellets and other agglomerates used for energy (see Figure 6.1) and the share of wood in gross inland energy consumption (see Figures 6.2 and 6.3).

Figure 6.1: Production and trade in wood pellets and other agglomerates, EU-28, 2008–14
(1 000 tonnes)



Note: EU-27: 2008–11. Data estimated for 2011 (except 'Production'), 2012 and 2013.

Source: Eurostat (online data code: for_basic)

Table 6.3: Roundwood production, 2000–14
(1 000 m³)

	2000	2005	2010	2011	2012	2013	2014
EU-28	411 764	447 502	427 611	433 657p	433 173	434 326	425 351
EA (1)	236 540	232 925	234 993	237 590p	237 347	237 044	225 127
Belgium	4 510	4 950	4 827	5 128	6 663	:	:
Bulgaria	4 784	5 862	5 668	6 205	6 092	6 155	5 570
Czech Republic	14 441	15 510	16 736	15 381	15 061	15 331	15 476
Denmark	2 952	2 962	2 669	2 583	:	3 180	3 180
Germany	53 710	56 946	54 418	56 142	52 338	53 207	54 356
Estonia	8 910	5 500	7 200	7 110	7 290	7 655	8 460
Ireland	2 673	2 648	2 618	2 635	2 580	2 760	2 831
Greece	2 245	1 523	1 048	1 196	:	:	:
Spain	14 321	15 531	16 089	15 428	14 657	15 758	15 911
France	65 865	52 499	55 808	55 041p	51 495	51 671	51 671
Croatia	3 669	4 018	4 477	5 258	5 714	5 436	5 003
Italy	9 329	8 691	7 844	7 744	7 744	:	:
Cyprus	21	10	9	8	11	9	9
Latvia	14 304	12 843	12 534	12 833	12 530	12 708	12 597
Lithuania	5 500	6 045	7 097	7 004	6 921	7 053	7 351
Luxembourg	260	249	275	261	:	:	:
Hungary	5 902	5 940	5 740	6 232	5 946	6 027	5 671
Malta	0	0	0	0	0	0	0
Netherlands	1 039	1 110	1 081	982	8 063	1 108	1 337
Austria	13 276	16 471	17 831	18 696	18 021	17 390	17 089
Poland	26 025	31 945	35 467	37 180	38 015	38 939	40 565
Portugal	10 831	10 746	9 648	10 961	10 711	10 642	:
Romania	13 148	14 501	13 112	14 359	16 088	15 195	15 068
Slovenia	2 253	2 733	2 945	3 388	3 341	3 415	5 099
Slovakia	6 163	9 302	9 599	9 213	8 063	9 168	:
Finland	54 542	52 250	50 952	50 767	49 967	56 992	57 033
Sweden	63 300	98 200	72 200	71 900	69 499	69 600	70 100
United Kingdom	7 791	8 519	9 718	10 020	10 120	10 821	11 184
Iceland	0	0	:	:	4	:	:
Liechtenstein	:	:	25	26	23	19	19
Norway	8 156	9 667	10 443	10 291	10 572	11 598	12 386
Switzerland	9 238	5 285	4 938	4 861	4 466	4 577	4 709
Montenegro	:	:	915	915	915	915	915
FYR of Macedonia	1 052	822	631	597	779	691	691
Turkey	15 939	16 185	20 597	21 039	21 959	20 858	22 835
Brazil	235 402	231 570	235 432	253 144	266 769	264 443	264 443
Canada	201 845	203 121	142 013	148 178	148 183	152 076	154 259
China	323 646	302 037	350 633	346 359	341 662	347 512	347 512
Indonesia	137 830	123 791	113 849	117 994	117 523	115 232	115 232
India	318 553	350 451	358 066	358 293	357 761	357 226	357 226
Russia	158 101	182 000	175 499	191 225	192 055	194 461	203 000
United States	466 549	467 347	376 572	395 141	387 512	396 818	398 693

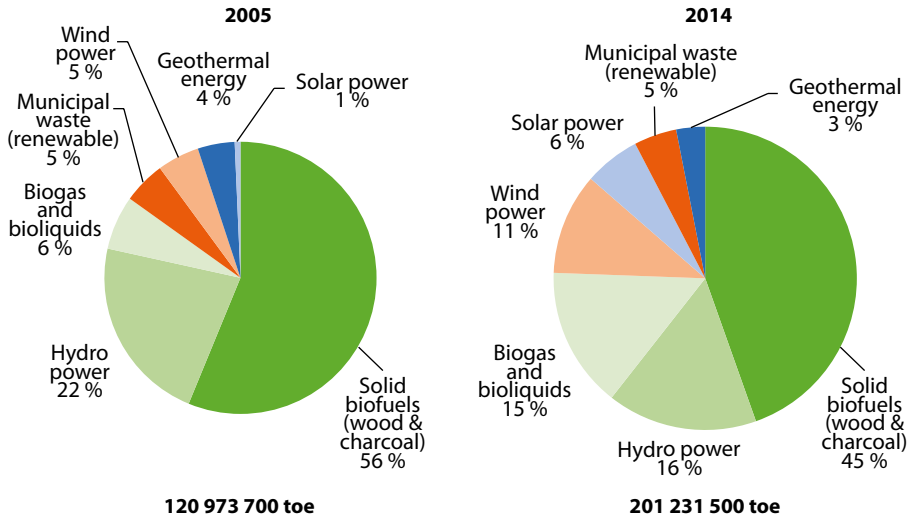
Note: The data that were not available were nevertheless estimated by Eurostat and are included in the EU aggregates.

(1) EA-11 for 2000, EA-12 for 2005, EA-16 for 2010, EA-17 for 2011–13, EA-18 for 2014

Source: Eurostat (online data code: [for_remov](#))



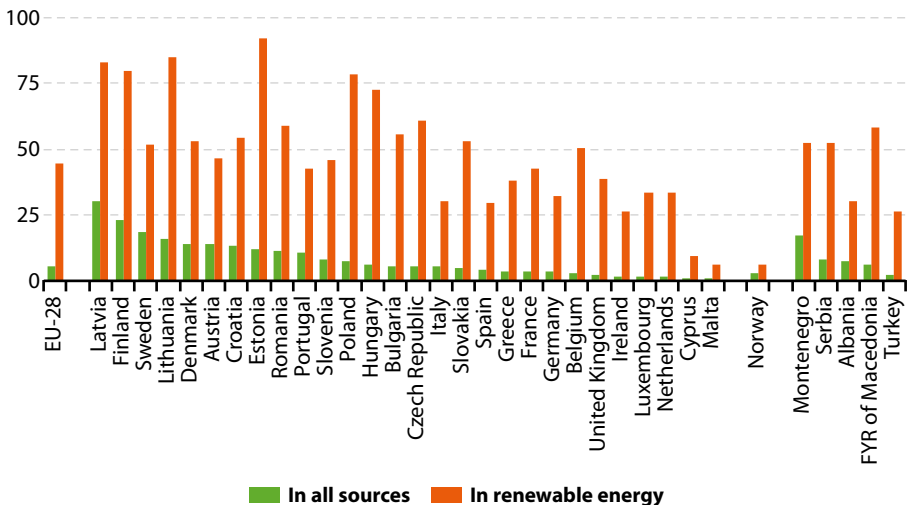
Figure 6.2: Gross inland consumption of renewable energy, EU-28, 2005 and 2014



Source: Eurostat (online data code: [nrg_107a](#))

Figure 6.3: Wood as a source of energy, 2014

(% share of wood and wood products in gross inland energy consumption, in toe)

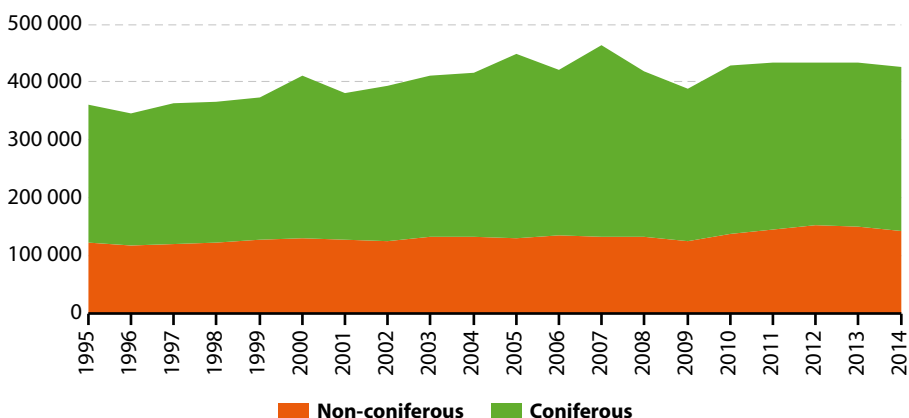


Source: Eurostat (online data codes: [nrg_100a](#) and [nrg_107a](#))

The overall level of EU-28 roundwood production reached an estimated 425 million m³ in 2014, some 37 million m³ (8%) less than the peak output level recorded in 2007. Note that some of the peaks (most recently 2000, 2005 and 2007) in roundwood production were due to forestry and logging having to cope with unplanned numbers of trees that were felled by severe storms.

From 1996 to 2007, there was a steady increase in the level of roundwood production in the EU-28. While the output of non-coniferous (broadleaved or hardwood) species remained relatively stable, there were greater year-on-year differences for coniferous (softwood) species (see Figure 6.4). The effects of the financial and economic crisis led to a drop of the level of EU-28 coniferous production in 2008, a pattern confirmed by a further reduction in 2009. The output has since returned to pre-crisis levels of approximately 280 million m³ per annum. Non-coniferous production increased relative to coniferous production ever since the crisis years. In 2010, EU-28 total roundwood production rebounded strongly by 10% and continued to rise in 2011, levelled out in 2012 and 2013, and decreased by – 2% in 2014.

Figure 6.4: Annual production of roundwood, EU-28, 1995–2014
(1 000 m³)



Note: All data are estimated, 2011 provisional.

Source: Eurostat (online data code: [for_remove](#))

The total output of sawnwood across the EU-28 was approximately 100 million m³ per year from 2010 to 2014, some 14% lower than in 2007, the first year of the global financial and economic crisis, which was also the year of the all-time maximum in production at 116 million m³. The situation has now returned to the average production level of the years preceding the crisis. Germany and Sweden were the EU's leading sawnwood producers, regularly accounting for approximately 21% and 17% of the EU-28 total output over the past few years (see Table 6.4).



Table 6.4: Sawnwood production, 2000–14
(1 000 m³)

	2000	2005	2010	2011	2012	2013	2014
EU-28	100 706	108 706	100 815	101 994	100 058	99 695	101 854
EA (1)	61 337	66 777	59 673	60 627	57 947	57 644	57 048
Belgium	1 150	1 285	1 383	1 388	1 342	:	:
Bulgaria	312	569	554	728	698	803	:
Czech Republic	4 106	4 003	4 744	4 454	4 259	4 037	3 861
Denmark	364	196	448	372	:	358	358
Germany	16 340	21 931	22 059	22 628	21 081	21 459	21 772
Estonia	1 436	2 063	1 771	1 503	1 491	1 558	1 600
Ireland	888	1 015	772	761	782	825	907
Greece	123	191	118	106	:	109	108
Spain	3 760	3 660	2 038	2 162	1 971	2 047	2 245
France	10 536	9 715	8 316	8 675p	8 067	7 901	7 697
Croatia	642	624	677	754	851	1 192	1 294
Italy	1 630	1 590	1 200	1 250	1 370	1 360	1 430
Cyprus	9	4	4	3	3	2	2
Latvia	3 900	4 227	3 150	3 432	3 316	3 367	3 657
Lithuania	1 300	1 445	1 272	1 260	1 150	1 120	1 345
Luxembourg	133	133	94	78	:	:	:
Hungary	291	215	133	:	302	109	121
Malta	0	0	0	0	0	0	0
Netherlands	389	279	231	238	1 430	216	228
Austria	10 390	11 074	9 603	9 636	8 952	8 534	8 351p
Poland	4 262	3 360	4 220	4 422	4 249	4 321	4 719
Portugal	1 427	1 010	1 045	1 044	1 097	854	919
Romania	3 396	4 321	4 323	4 442	5 500	5 532	5 762
Slovenia	439	527	760	703	660	660	700
Slovakia	1 265	2 621	2 576	2 204	1 430	1 430	1 750
Finland	13 420	12 269	9 473	9 750	9 440	10 440	10 940
Sweden	16 176	17 600	16 750	16 500	16 492	16 074	17 500
United Kingdom	2 622	2 780	3 101	3 279	3 409	3 581	3 764
Iceland	0	0	:	:	0	:	:
Liechtenstein	:	:	4	8	:	0	0
Norway	2 280	2 326	2 118	2 271	2 289	2 206	2 407
Switzerland	1 625	1 591	1 457	1 313	1 135	1 044	1 140
Montenegro	:	:	52	58	53	53	53
FYR of Macedonia	36	18	5	3	8	4	4
Turkey	5 528	6 445	6 243	6 461	6 682	6 405	6 635
Brazil	21 300	23 557	17 452	16 201	15 167	15 397	15 397
Canada	50 465	60 187	38 667	38 880	40 564	42 813	43 351
China	6 675	17 960	37 231	44 638	55 740	63 040	68 440
Indonesia	7 900	14 789	6 889	6 889	6 889	6 889	6 889
India	6 500	4 330	4 169	4 169	4 169	4 169	4 169
Russia	20 000	23 913	28 870	31 215	32 230	33 500	33 900
United States	91 076	97 020	60 013	63 174	67 474	71 115	74 803

Note: data that were not available were nevertheless estimated by Eurostat and are included in the EU-aggregates.

(1) EA-11 for 2000, EA-12 for 2005, EA-16 for 2010, EA-17 for 2011–13, EA-18 for 2014.

Source: Eurostat (online data code: [for_swpan](#))

6.3 Wood as a source of energy

Energy supply has always been one of the main uses for wood. Policy interest in energy security and renewable sources of energy, combined with relatively high oil and gas prices, has led in recent years to a reassessment of the possible use of wood as a source of energy. The use of **renewables** is enshrined in legally binding targets that have been set for each EU Member State concerning the role to be played by renewable energy sources through to 2020. The 2016 edition of the indicator report on the Europe 2020 strategy ‘*Smarter, greener, more inclusive?*’ provides information on the progress being made towards the target of achieving a 20% share of renewable energy in final energy consumption by 2020. This goal is designed to help reduce emissions, improve the security of energy supply and reduce dependence on energy imports.

Between 2005 and 2014, the consumption of renewable energy within the EU-28 increased by 66%. Some renewable energy sources grew exponentially. The consumption of solar energy for example, grew by 1 349% between 2005 and 2014. However, the consumption of more established renewable energy sources, such as **biomass** other than wood (including municipal waste) also increased substantially (+ 184%) during the same period. Among renewable energy sources, total biomass (wood and other biomass including **municipal waste**) plays an important role, accounting for just over two thirds (64%) of the **gross inland energy consumption** of renewables in the EU-28 in 2014. As part of this biomass total, wood and agglomerated wood products such as pellets and briquettes provided the highest share of energy from organic, non-fossil materials of biological origin, accounting for almost half (45%) of the EU-28’s gross inland energy consumption of renewables in 2014.

In many EU Member States, wood was the most important single source of energy from renewables. Wood and wood products accounted for 5.6% of the total energy consumed within the EU-28 in 2014. The share of wood and wood products in gross inland energy consumption ranged from over 20% in Latvia and Finland down to less than 1% in Cyprus and Malta.

Wood was the source for more than three quarters of the renewable energy consumed in Estonia, Lithuania, Latvia, Finland and Poland. By contrast, the share of wood in the mix of renewables was relatively low in Cyprus and Malta (where the lowest share was reported, 6.2%); this was also the case in oil- and gas-rich Norway (6.4%).

Wood pellets and other agglomerated wood products are made from dried sawdust, shavings or wood powder, with the raw material being subjected to high pressure to increase the density of the final product. Pellets and agglomerates are currently the most economical way of converting biomass into fuel and are a fast-growing source of energy in Europe. They can be used for power production or directly for combustion in residential and commercial heating.

The EU-28 was the largest global producer of wood pellets, its output reaching an estimated 13.1 million tonnes in 2014; production in the EU-28 rose by 97% overall between 2009 and 2014. The EU-28 is also a net importer of wood pellets: the level of imports from non-EU Member States rose to 8 million tonnes in 2014, an overall increase of 364% compared with 2009. The main suppliers of EU imports were the United States and Canada; much less is supplied by Russia and other countries (i.e. Belarus and Ukraine).



Germany produced an estimated 2.1 million tonnes of wood pellets in 2014, or 16%, of the EU-28's output. Sweden was the second largest producer with around 1.6 million tonnes, followed by Latvia (1.3 million tonnes), France (1.2 million tonnes), Austria and Portugal (945 and 944 thousand tonnes) (see Table 6.5).

Table 6.5: Production and trade in wood pellets, 2010 and 2014
(1 000 tonnes)

	Production		Imports (¹)		Exports (¹)	
	2010	2014	2010	2014	2010	2014
EU-28	7 898	13 123	2 576	8 070	70	98
Belgium	0	:	315	657	38	96
Bulgaria	7	:	1	20	8	155
Czech Republic	85	671	15	299	99	701
Denmark	0	92	1 443	2 106	35	174
Germany	1 744	2 078	270	370	740	627
Estonia	423	720	50	62	421	641
Ireland	28	32	12	0	0	0
Greece	0	0	0	21	0	1
Spain	184	250	13	37	5	40
France	449	1 200	144	138	231	124
Croatia	:	124	:	4	:	161
Italy	539	450	816	1 936	2	11
Cyprus	0	0	0	1	0	0
Latvia	615	1 280	9	88	589	1 277
Lithuania	205	250	44	72	213	300
Luxembourg	8	:	4	:	11	:
Hungary	0	3	43	8	12	13
Malta	0	0	0	0	0	0
Netherlands	120	279	1 024	383	135	233
Austria	686	945	231	342	397	481
Poland	429	620p	34	52	69	274
Portugal	486	944	64	38	550	750
Romania	175	810	3	3	165	413
Slovenia	65	100	45	159	42	111
Slovakia	87	:	4	19	38	98
Finland	177	324	11	46	109	56
Sweden	1 386	1 577	697	522	117	253
United Kingdom	0	335	551	7 220	60	50
Norway	45	57	14	75	1	17
Switzerland	0	160	:	59	:	3

(¹) Extra-EU trade for the EU-28 aggregate.

Source: Eurostat (online data code: [for_basic](#))

Although potential biomass supplies within most EU Member States are substantial, some countries import significant volumes of fuel pellets and other forms of biomass as they seek to meet their renewable energy targets, raising concerns about the impact of importing wood as a source of energy and the consequences this may have on the global sustainability of forests and resulting levels of carbon emissions.

The United Kingdom was the biggest importer of wood pellets in 2014 among the EU-28 Member States, with some 7.2 million tonnes (note that this figure relates to total imports, from non-EU countries as well as from Member States). Denmark and Italy each imported around 2 million tonnes of wood pellets in 2014. By contrast, Latvia was the only EU Member State to export more than 1 million tonnes of wood pellets in 2014, followed by Portugal with 750 thousand tonnes and the Czech Republic with 701 thousand tonnes. The Czech Republic also exported 591 thousand tonnes of other agglomerates, such as wood briquettes ⁽¹⁾.

6.4 Forestry and logging: economic indicators and employment

A range of economic indicators are presented for forestry and logging activities across EU Member States in Table 6.6. The data come from EU forest accounts, which complement the other data collections. These data confirm the information presented at the start of this chapter, insofar as the largest forestry and logging activities on the basis of gross value added generated in 2013 were found in Sweden, Germany and Finland.

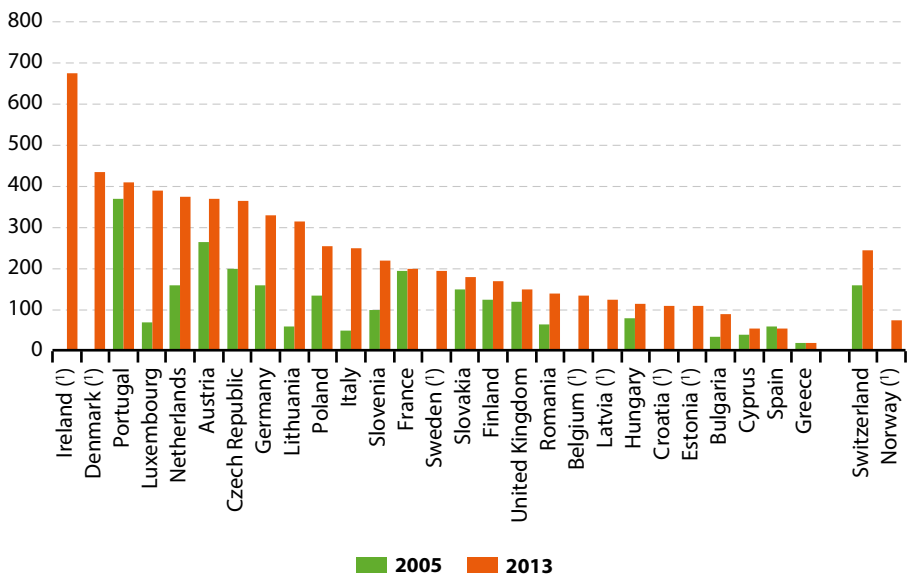
Gross fixed capital formation is an indicator of the level of investment in an industry and as such may show how competitive the industry is, in relation to its total gross value added. On the basis of the information that is available for 21 EU Member States, EUR 2.9 billion was invested in forestry and logging in 2013, amounting to 12.2% of gross value added. Almost half of the investment that took place in 2013 could be attributed to Sweden, Finland and Germany. The highest proportions of gross fixed capital formation compared with value added were recorded in Lithuania (30.4%), Cyprus (28.8%) and Greece (26.3%), although in the case of Cyprus and Greece these figures tended to reflect low levels of added value rather than high levels of investment. They were followed by Sweden (17.8%), while Finland and Austria each recorded proportions of gross fixed capital formation compared with gross value of 13.5%.

⁽¹⁾ See table 'Roundwood, fuelwood and other basic products' ([for_basic](#)).



The ratio of value added generated within the forestry and logging sector compared with the forest area available for wood supply is an indicator that can be used to analyse the productivity of forestry activities across the EU (see Table 6.6 and Figure 6.5). The indicator shows that in 2013, the highest amounts of value added per forest area in the EU were in Ireland, Denmark, Portugal, Luxembourg, the Netherlands and Austria.

Figure 6.5: Forestry and logging value added per forest area available for wood supply, 2005 and 2013
(EUR/hectare)



Note: ranked on 2013. Malta: not applicable. Forest area: 2015 data used for the calculation.

(¹) 2005: not available.

Source: Eurostat (online data codes: [for_eco_cp](#) and [for_area](#))

Table 6.6: Economic indicators for forestry and logging, 2005 and 2013

	Gross output		Gross value added at basic prices		Gross fixed capital formation		Gross value added/forest area available for wood supply		
	(million EUR)								(EUR/hectare)
	2005	2013	2005	2013	2005	2013	2005	2013 (¹)	
EU-28	:	52 715	:	26 155	:	:	:	194	
Belgium	:	436	:	91	:	:	:	135	
Bulgaria	266	579	84	197	11	18	33	89	
Czech Republic	1 424	2 308	496	833	63	107	197	362	
Denmark	:	556	:	249	:	:	:	435	
Germany	4 141	8 780	1 738	3 581	168	272	160	329	
Estonia	:	500	:	216	:	:	:	108	
Ireland	:	998	:	426	:	:	:	674	
Greece	71	79	54	60	4	16	16	17	
Spain	1 582	944	787	762	:	:	57	52	
France	5 531	6 129	2 968	3 136	472	261	195	196	
Croatia	:	299	:	189	:	19	:	109	
Italy	456	2 698	365	2 061	83	222	47	251	
Cyprus	2	5	2	2	2	1	38	55	
Latvia	:	1 020	:	392	:	:	:	124	
Lithuania	172	1 344	102	602	10	183	55	313	
Luxembourg	9	94	6	33	1	3	69	387	
Hungary	339	451	132	200	24	:	79	113	
Malta	:	0	:	0	:	0	:	0	
Netherlands	133	267	46	113	10	7	157	375	
Austria	1 786	2 533	873	1 232	155	167	261	369	
Poland	1 991	4 663	1 110	2 097	137	268	132	255	
Portugal	1 066	1 175	810	856	93	82	367	410	
Romania	531	1 523	314	634	:	47	62	137	
Slovenia	195	385	115	250	8	14	99	220	
Slovakia	624	720	259	322	33	24	148	180	
Finland	3 235	4 655	2 422	3 278	388	442	121	168	
Sweden	:	8 425	:	3 878	:	692	:	196	
United Kingdom	791	1 149	357	464	20	54	118	148	
Norway	:	1 163	:	597	:	66	:	72	
Switzerland	525	778	186	294	83	112	158	244	

(¹) 2015 forest area used for the calculation.

Source: Eurostat (online data codes: [for_eco_cp](#) and [for_area](#))



Table 6.7 provides information in relation to employment within the EU's forestry and logging sector based mostly on the EU Labour Force Survey, completed with some data from EU forest accounts. The largest workforce in the EU's forestry and logging sector was recorded in Poland, with 72 500 persons employed in 2013. There were also relatively large workforces in Romania (53 900), Italy (47 000), Germany (35 300) and France (32 000).

Table 6.7: Employment in forestry and logging, 2005 and 2013

	Persons employed		Persons employed/ forest area available for wood supply		Apparent labour productivity			
	2008 ⁽¹⁾	2013 ⁽²⁾	2005 ⁽³⁾	2013 ⁽⁴⁾	2005 ⁽⁵⁾	2013 ⁽⁵⁾	2005 ⁽⁵⁾	2013
	(1 000)		(persons employed/ 1 000 ha)		(1 000 m ³ removals/ person employed)		(1 000 EUR gross value added/person employed)	
Belgium	3.1	2.3	4.7	3.4	1.6	2.9	:	39.5
Bulgaria	25.0	22.0	9.8	9.9	0.2	0.3	3.4	9.0
Czech Republic	30.9	29.1	12.3	12.6	0.5	0.5	16.0	28.6
Denmark	2.7	3.0	5.1	5.2	1.1	1.1	:	83.0
Germany	44.2	35.3	4.1	3.2	1.3	1.5	39.3	101.5
Estonia	7.1	7.0	3.4	3.5	0.8	1.1	:	30.8
Ireland	1.9	3.2	3.3	5.1	1.4	0.9	:	133.2
Greece	7.1	3.8	2.1	1.1	0.2	:	7.6	15.8
Spain	32.0	23.3	2.3	1.6	0.5	0.7	24.6	32.7
France	48.5	32.0	3.2	2.0	1.1	1.6	61.2	98.0
Croatia	13.0	10.5	7.4	6.0	0.3	0.5	:	18.0
Italy	41.7	47.0	5.4	5.7	0.2	0.2	8.8	43.8
Cyprus	0.9	0.6	21.7	14.6	0.0	0.0	1.8	3.8
Latvia	15.1	19.2	4.9	6.1	0.9	0.7	:	20.4
Lithuania	14.2	12.2	7.7	6.3	0.4	0.6	7.2	49.4
Luxembourg	:	:	:	:	:	:	:	:
Hungary	12.6	21.6	7.5	12.1	0.5	0.3	10.5	9.3
Malta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Netherlands	2.2	2.0	7.5	6.6	0.5	0.6	21.0	56.5
Austria	11.7	9.2	3.5	2.8	1.4	1.9	74.6	133.9
Poland	60.5	72.5	7.2	8.8	0.5	0.5	18.3	28.9
Portugal	16.0	13.1	7.3	6.3	0.7	0.8	50.6	65.3
Romania	49.1	53.9	9.7	11.6	0.3	0.3	6.4	11.8
Slovenia	4.5	3.6	3.9	3.2	0.6	0.9	25.6	69.5
Slovakia	25.4	23.6	14.5	13.2	0.4	0.4	10.2	13.6
Finland	22.7	21.5	1.1	1.1	2.3	2.7	106.7	152.5
Sweden	24.9	24.8	1.2	1.3	3.9	2.8	:	156.4
United Kingdom	21.1	21.4	7.0	6.8	0.4	0.5	16.9	21.7
Norway	4.3	3.2	0.5	0.4	2.2	3.6	:	186.6
Switzerland	7.2	12.4	6.1	10.3	0.7	0.4	25.9	23.7

(1) Belgium, Denmark, Ireland, Cyprus, Lithuania and the Netherlands: unreliable data.

(2) Belgium, Denmark, Cyprus, the Netherlands and Slovenia: unreliable data.

(3) 2008 LFS employment data used for the calculation.

(4) 2015 forest area used for the calculation.

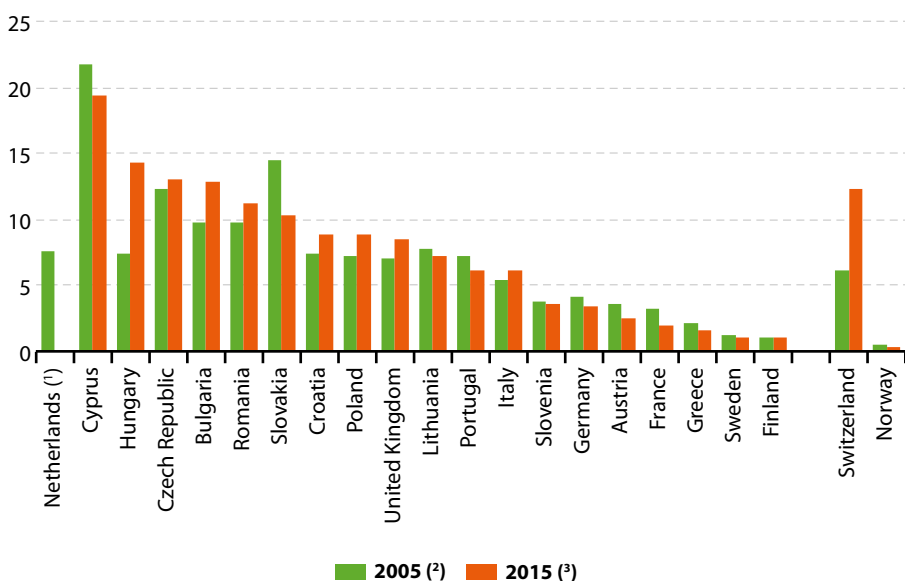
(5) Belgium and Italy: 2012 data.

Source: Eurostat (online data codes: [for_emp_lfs](#), [for_area](#), [for_remov](#) and [for_eco_cp](#))

The ratio of labour input per area of exploited forest provides some information on the labour intensity of the forestry sector across the EU Member States. This indicator varies considerably between countries, ranging from a high of around 14.6 employed persons per 1 000 ha in Cyprus to less than 2 employed persons per 1 000 ha in Spain, Sweden, Greece and Finland. Some of the differences across EU Member States may, at least in part, be explained by factors such as the density of the growing stock, the tree species and the local terrain in areas where forestry and logging takes place.

The labour productivity of the forestry and logging sector (calculated as gross value added per person employed) also varied substantially across the EU Member States in 2013. The highest levels of labour productivity using this measure were recorded in Sweden (EUR 156 400 per person employed) and Finland (EUR 152 500 per person employed), while at the other end of the range, Bulgaria, Cyprus and Hungary recorded productivity levels that were below EUR 10 000 per person employed.

Figure 6.6: Employment per area of forest available for wood supply, 2005 and 2015 (persons employed/1 000 ha)



Note: ranked on 2015. EU Member States that are not shown are not available or not applicable.

(1) 2015 data not available.

(2) 2008 LFS employment data used for the calculation; Cyprus, Lithuania and the Netherlands: LFS data unreliable.

(3) Cyprus, the Netherlands and Slovenia: LFS data unreliable.

Source: Eurostat (online data codes: for_emp_lfs and for_area)



6.5 Wood-based industries

The EU's wood-based industries cover a range of downstream activities, including woodworking industries, large parts of the furniture industry, pulp and paper manufacturing and converting industries, and the printing industry. Together, some 432 000 enterprises were active in wood-based industries across the EU-28; they represented more than one in five (20.8%) manufacturing enterprises across the EU-28, highlighting that - with the exception of pulp and paper manufacturing that is characterised by economies of scale - many wood-based industries had a relatively high number of small or medium-sized enterprises.

The economic weight of the wood-based industries in the EU-28 as measured by gross value added was equivalent to EUR 129 billion or 7.9% of the manufacturing total in 2013. The distribution of value added across each of the four wood-based activities in 2013 is presented in Table 6.8. Within the EU-28's wood-based industries, the highest share was recorded for pulp, paper and paper products manufacturing (32% or EUR 41 billion), while the other three sectors had nearly equal shares — printing and service activities related to printing and the manufacturing of wood and wood products each amounted to 23% of the gross value added of wood based industries while the manufacture of furniture made up 22%.

Table 6.8: Main indicators for wood-based industries, EU-28, 2005 ⁽¹⁾ and 2013

Activity (NACE Rev. 2)	Number of enterprises (1 000)		Gross value added at factor cost (billion EUR)		Number of persons employed (1 000)	
	2005	2013	2005	2013	2005	2013
Manufacturing (C)	2 183	2 080 d	1 668	1 630 d	34 185	29 700 d
Wood-based industries (16+17+31)	472	432	159	129	4 310	3 305
Manufacture of wood and wood products (16)	188	172	36	30	1 292	967
Manufacture of pulp, paper and paper products (17)	21	20 d	46	41	757 d	640
Printing and service activities related to printing (18.1) ⁽²⁾	133	120 du	41	29	978	727
Manufacture of furniture (31)	130 du	120	36	28	1 284	972

(1) 2005: EU-27.

(2) Data based on NACE rev. 1.1.

'd' : definition differs, see metadata.

'u' : low reliability.

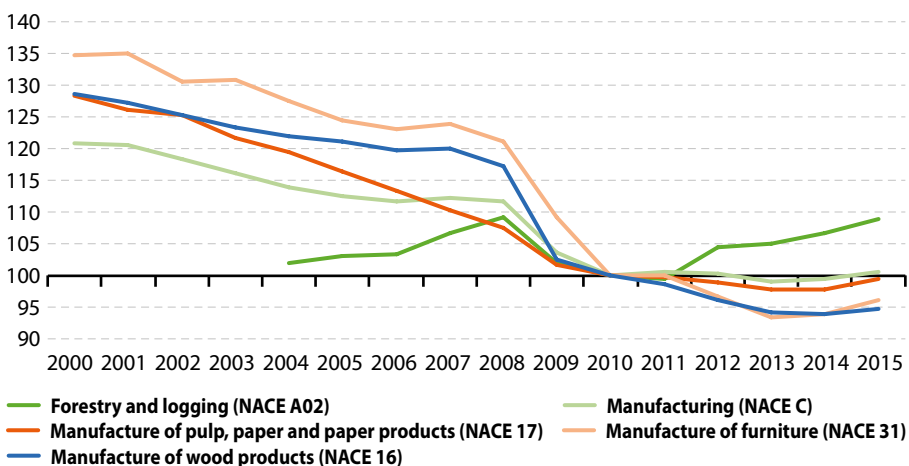
Source: Eurostat (online data codes: sbs_na_ind_r2 and sbs_na_2a_dade)

Between 2005 and 2013 the overall added value generated within the EU-28's manufacturing industries fell by 2.3%. The wood-based industries in the EU-28 experienced a decrease in activity as gross value added fell by 19.1%. Reductions in activity were recorded by all four wood-based industries, with the largest decline in output recorded for printing and service activities related to printing (– 28.0%). The added value generated by the EU-28's wood and wood products manufacturing enterprises fell by 18.2% between 2005 and 2013, and manufacturing of pulp, paper and paper products decreased 9.5%.

Wood-based industries employed 3.3 million persons across the EU-28 in 2013, or 11.1% of the manufacturing total. There were just around 1 million persons employed within both the manufacture of wood and wood products and the manufacture of furniture, 727 000 persons in printing, while the lowest level of labour input (640 000 persons) was recorded for the relatively capital-intensive and highly automated activity of pulp, paper and paper products manufacturing.

A longer time series and fresher data are available concerning the development of employment within three of the wood-based industries. Across the EU-28, manufacturing employment fell by 16.7% during the 2000–15 period, while the largest losses among the three wood-based industries shown in Figure 6.7 were recorded for furniture manufacturing (28.7% fewer persons employed). Pulp, paper and paper products was the least affected manufacturing industry, noting a 22.4% reduction in employment during the 2000–15 period, while employment in manufacturing of wood products dropped by 26.3%. The forestry and logging industry had an employment increase of 6.9% from 2004 to 2015.

Figure 6.7: Employment in wood-based industries compared with total manufacturing, EU-28, 2000–15
(2010 = 100)



Source: Eurostat (online data codes: sts_inlb_a_for_emp_lfs1 and for_emp_lfs)



Each of these wood-based industries, in keeping with most manufacturing sectors, experienced a reduction in the number of persons employed during the 2000–15 period. The development of EU-28 employment for wood and wood products and furniture manufacturing closely followed the overall pattern for total manufacturing during the period 2000–08. Thereafter, with the onset of the global financial and economic crisis, job losses for these two wood-based industries accelerated at a faster pace than the manufacturing average. In contrast, employment in the upstream supply of timber to the wood-based industries presented a peak in 2008 (following the 2007 storms) and an increase from 2011 onward.

6.6 Tropical wood imports to the EU

The EU has agreed a voluntary scheme titled the [Forest Law Enforcement, Governance and Trade \(FLEGT\) action plan](#) to fight illegal logging and associated trade. One key element of the plan is to ensure that only legally harvested timber is imported to the EU. The EU's legal framework for the scheme is [Regulation \(EC\) No 2173/2005](#) adopted in December 2005 'on the establishment of a FLEGT licensing scheme for imports of timber into the European Community' and a 2008 [Regulation \(EC\) No 1024/2008](#) laying down detailed measures for the introduction of the scheme.

Bilateral FLEGT agreements between the EU and various tropical wood producing nations are designed to halt trade in illegal timber, notably with a license scheme to verify the legality of timber exported to the EU. Agreements have been concluded or are being negotiated with fifteen tropical countries that have signed or are in the process of signing voluntary partnership agreements (VPAs) with the EU: Cameroon, the Central African Republic, Ghana, Indonesia, Liberia, Democratic Republic of the Congo, Cote d'Ivoire, the Democratic Republic of the Congo, Gabon, Guyana, Honduras, Laos, Malaysia, Thailand and Vietnam.

Table 6.9 (and Figure 6.8) shows the value of all wood imports to the EU-28 from the 15 FLEGT-VPA countries, while Table 6.10 (and Figure 6.9) shows the value of imports of wood specified as tropical. Both tables also show the respective total imports to the EU-28 from all countries of the world.

Table 6.9 shows the potential value of all legal timber that could enter the EU from its partners with bilateral FLEGT agreements. The value of these [imports reached](#) a peak of EUR 2.7 billion in 2007, before falling by 10% in 2008 and by another 33% in 2009 (see Figure 6.8). This shows how hard the global financial and economic crisis hit these high-value imports. There was a modest recovery in 2010, but a further decline in the period 2011–14, at the end of which the EU-28's imports from these countries totalled only EUR 1 372 billion.

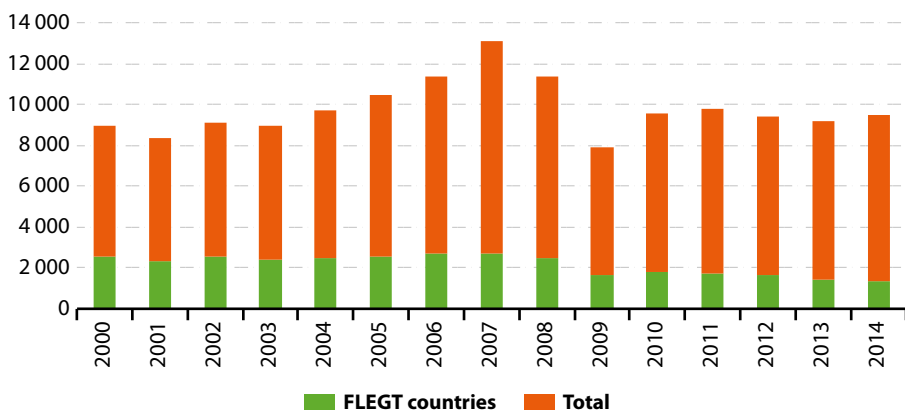
Table 6.9: Total wood imports to the EU and the share of FLEGT countries, EU-28, 2000–14
(million EUR)

	2000	2005	2010	2011	2012	2013	2014
All countries of the world	8926.0	10427.4	9532.6	9767.1	9421.3	9209.0	9463.6
FLEGT-VPA countries⁽¹⁾	2583.3	2564.6	1827.3	1758.8	1618.9	1414.3	1371.9
Cameroon	467.3	427.1	269.1	298.5	277.6	231.6	229.4
Central African Republic	30.4	24.7	10.1	10.7	9.7	6.8	5.6
Congo	83.3	101.1	79.9	60.8	53.9	65.3	64.8
Côte d'Ivoire	24.8	69.5	57.9	56.5	42.2	42.7	32.0
Democratic Republic of the Congo	204.2	269.9	168.5	161.8	140.8	147.1	143.8
Gabon	261.9	244.4	120.7	102.1	100.2	86.1	94.5
Ghana	126.4	121.9	50.3	50.3	42.0	35.4	34.8
Guyana	70.3	:	2.3	16.2	11.0	4.7	2.3
Honduras	12.7	4.7	2.3	2.4	3.5	3.0	4.1
Indonesia	2.7	5.5	7.6	4.7	4.3	2.3	2.0
Laos	588.0	703.2	494.0	470.4	428.6	363.8	362.8
Liberia	1.3	0.2	0.2	0.2	:	0.2	0.3
Malaysia	557.6	439.0	441.4	408.1	376.4	316.5	310.9
Thailand	128.2	120.1	63.0	57.5	60.6	44.5	48.6
Vietnam	24.1	33.5	60.0	58.5	68.1	64.4	36.0

(¹) Forest Law Enforcement, Governance and Trade – Voluntary Partnership Agreement (FLEGT-VPA) countries are producers of tropical wood that have signed or are about to sign a VPA with the EU. The agreement requires licensing arrangements to ensure that timber placed on the EU market is from legal sources.

Source: Eurostat (online data code: [for_trop](#))

Figure 6.8: FLEGT countries' share in total wood imports to the EU-28, 2000–14
(million EUR)



Source: Eurostat (online data code: [for_trop](#))



Table 6.10 and Figure 6.9 show that approximately 80 % of the EU-28's tropical wood imports (in value terms) came from the 15 FLEGT-VPA countries during the 2000–14 period. The main exporters in 2014 were Cameroon (20.3 % of the total), followed by Malaysia (19.2 %) and Indonesia (10.7 %).

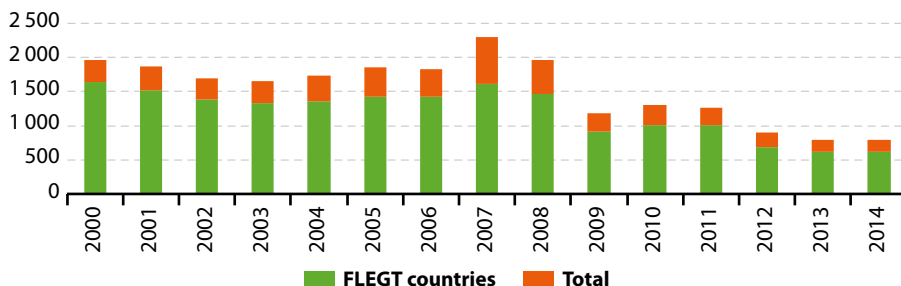
Table 6.10: Tropical wood imports, EU-28, 2000–14
(million EUR)

	2000	2005	2010	2011	2012	2013	2014
All countries of the world	1 966.1	1 856.3	1 303.6	1 268.3	897.1	786.5	786.7
FLEGT-VPA countries⁽¹⁾	1 633.3	1 429.0	1 011.9	1 001.1	690.6	612.1	618.0
Cameroon	421.8	384.1	253.0	277.9	204.6	162.6	160.0
Central African Republic	29.5	22.3	9.8	10.3	9.2	5.9	4.8
Congo	68.2	89.0	55.7	54.2	35.9	44.0	48.8
Côte d'Ivoire	201.8	195.3	103.8	87.8	69.4	57.3	65.3
Democratic Republic of the Congo	18.6	60.2	47.6	51.1	36.8	35.8	27.0
Gabon	195.9	226.0	161.6	158.2	54.6	57.9	53.4
Ghana	102.0	85.4	35.1	33.2	15.8	14.1	14.4
Guyana	0.3	1.6	2.5	1.2	1.7	1.3	1.8
Honduras	0.1	0.1	0.3	0.2	0.5	0.7	1.8
Indonesia	122.8	88.8	107.3	102.7	85.9	80.1	83.9
Laos	0.1	0.0	0.1	0.0	0.0	0.0	0.3
Liberia	61.2	:	1.2	5.6	5.6	2.5	2.2
Malaysia	390.9	258.3	228.7	213.9	165.0	147.4	151.4
Thailand	19.9	17.4	4.8	4.1	5.2	1.4	1.8
Vietnam	0.2	0.4	0.3	0.7	0.5	0.9	1.3

(¹) Forest Law Enforcement, Governance and Trade – Voluntary Partnership Agreement (FLEGT-VPA) countries are producers of tropical wood that have signed or are about to sign a VPA with the EU. The agreement requires licensing arrangements to ensure that timber placed on the EU market is from legal sources.

Source: Eurostat (online data code: for_trop)

Figure 6.9: FLEGT countries' share in tropical wood imports to the EU-28, 2000–14
(million EUR)



Source: Eurostat (online data code: for_trop)

DATA SOURCES AND AVAILABILITY

Eurostat, the [Timber Committee](#) of the [United Nations Economic Commission for Europe \(UNECE\)](#), [Forestry Section](#) of the [United Nations Food and Agriculture Organisation \(FAO\)](#) and the [International Tropical Timber Organisation \(ITTO\)](#) collect and collate statistics on the production and trade of wood through their [Joint forest sector questionnaire](#). Each partner collects data from a different part of the world; Eurostat is responsible for the data collection exercise pertaining to the EU Member States and [EFTA countries](#).

Eurostat produces annual data on forestry using two questionnaires:

- [Joint Forest Sector Questionnaire \(JFSQ\)](#) on production and trade in wood and wood products;
- [European Forest Accounts \(EFA\) Questionnaire](#); countries are currently providing data on economic accounts for forestry and logging, forming part of an environmental satellite accounts initiative that started in the late 1990s.

The JFSQ provides data on primary wood products. The data have also been used for modelling whether supply will match demand in the future due to competing uses for material and energy, and for estimating carbon in harvested wood products for post-Kyoto negotiations.

The collection of data for EFA restarted in 2008 after a break of several years. This data provides, among others, information relating to the economic viability of forestry, employment in forestry and logging and the multi-functionality of forests. Note that the monetary values concern current basic prices (in other words, the analysis of time series is not adjusted for inflation).