Framework Convention on Climate Change

FCCC/WEB/AGI/2018

29 June 2018

Aggregate information on greenhouse gas emissions by sources and removals by sinks for Parties included in Annex I to the Convention

Note by the secretariat

Contents

I. Mandate

1. The Conference of the Parties (COP), by its decision 13/CP.20, adopted the revised guidelines for the technical review of greenhouse gas (GHG) inventories from Parties included in Annex I to the Convention (Annex I Parties). As part of the process for the technical review of GHG inventories, the COP requested the secretariat to compile and tabulate aggregate information on greenhouse gas emissions by sources and removals by sinks and trends from the latest available GHG inventory submissions of Annex I Parties and publish this information in a stand-alone document.[1]

2. Pursuant to decision 4/CMP.11, the initial check and the scope of the individual review shall be conducted consistent with the initial assessment and apply the relevant provisions for the review contained in decision 13/CP.20.

3. The COP, by its decision 24/CP.19, adopted the revised "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories" (hereinafter referred to as the UNFCCC reporting guidelines) and a revised set of common reporting format (CRF) tables[2] to be used by Annex I Parties to report quantitative GHG inventory data. Similarly, the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP), by decision 6/CMP.9, adopted the revised CRF tables[3] that Parties shall use for reporting information on anthropogenic greenhouse gas emissions by sources and removals by sinks from land use, land-use change and forestry (LULUCF) activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol in the second commitment period.

II. Comparison of greenhouse gas inventory information

A. Approach

4. This document contains GHG inventory information compiled in tabular format. The tables provide information on emissions by sources and removals by sinks, implied emission factors (IEFs), and activity data (AD) reported by Annex I Parties. In addition, the tables contain information on the methods and emission factors used, activity data from international sources and other information relating to GHG inventory estimates. This information is provided for both the base year/period and for the year 2016.

5. Where it has been submitted by Annex I Parties listed in annex B to the Kyoto Protocol, pages 50–73 of this document also contain inventory information on anthropogenic GHG emissions by sources and removals by sinks from LULUCF activities under Article 3, paragraph 3, forest management under Article 3, paragraph 4, and any elected activities under Article 3, paragraph 4, of the Kyoto Protocol, reported in accordance with decision 15/CMP.1, in conjunction with decision 3/CMP.11.

6. The information provided in this document is based on information in the CRF tables of the 2018 national GHG inventories submission, received from Parties as at 27 May 2018. It does not cover information contained in inventory submissions from previous years.

7. The inventory data is presented according to the sectors, subsectors and categories specified in the CRF tables.

[1] Decision 13/CP.20, paragraph 8.
[2] The tables, agreed in decision 24/CP.19, can be accessed here: <http://unfccc.int/5333.php>.
[3] The tables, agreed in decision 6/CMP.9, can be accessed here: <http://unfccc.int/7969.php>.

8. As at 27 May 2018, 44 Parties had submitted their CRF tables, including Kazakhstan, which is an Annex I Party for the purposes of the Kyoto Protocol, while remaining a Party not included in Annex I to the Convention for the purposes of the Convention.

9. Four Parties, Denmark, the European Union (EU), France and the United Kingdom of Great Britain and Northern Ireland, provided more than one set of CRF tables in order to address the different geographical areas used for reporting under the Convention and for reporting under the Kyoto Protocol. For the purposes of the this document, the following naming conventions are used to identify inventory submissions under the Convention: Denmark (Convention), covering the Kingdom of Denmark (Denmark mainland, Greenland and Faroe Islands); European Union (Convention), covering its 28 member States; France (Convention) covering metropolitan France, the French Overseas Departments, the French Overseas Collectivities and New Caledonia; and United Kingdom of Great Britain and Northern Ireland (Convention), covering United Kingdom, the Crown Dependencies, Bermuda, Cayman Islands, Falkland Islands and Gibraltar. The following naming conventions are used to identify inventory submissions under the Kyoto Protocol: Denmark (KP), covering Denmark mainland; European Union (KP), covering its 28 member states and Iceland; France (KP), covering metropolitan France and the French Overseas Departments (including Mayotte); and United Kingdom of Great Britain and Northern Ireland (KP), covering United Kingdom, the Crown Dependencies, Cayman Islands, Falkland Islands and Gibraltar.

10. The information contained in this report is not intended as a judgment of whether inventory problems exist, but as an indication of potential issues that need to be considered further during the individual review by the expert review team.

B. Explanatory notes to the tables

11. Blank cells in a table indicate that a Party did not report information for a given category, gas, AD or other parameter. Where a Party's value is very small compared with that of other Parties, it has been rounded to zero (0.0 or 0.00). Where a Party reports a zero numerical value, a zero value (0) is shown.

12. In tables where shares or contributions of categories, gases, AD or other parameters to a total are shown (e.g. contribution of specific fuel type to the total emissions of a combustion category), where a Party reports a notation key, zero value (0) or blank in either the numerator or denominator of the calculation, the share or contribution to the total is shown using the symbol "–".

13. The differences in AD between the values reported by Parties and international data sources were calculated as percentage deviations from the AD provided by the Party. A positive number indicates that the data from the international data source are higher than the data reported by the Party. Similarly, a negative number indicates that data from the international data source are lower than the data reported by the Party.

14. References to the base year refer to 1990, except for the following Parties with economies in transition which, in accordance with decisions 9/CP.2 and 11/CP.4, use base years other than 1990: Bulgaria (1988), Hungary (average 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986).

15. The column "Share of national total" in the tables indicates the contribution of that category to the Party's national total of GHG emissions in terms of carbon dioxide equivalent, without emissions and removals from LULUCF including indirect CO_2 emissions where reported.

16. Where Parties used notation keys “NO”, “NE”, “NA”, “IE” or “C”, these have been reproduced verbatim from the CRF tables provided by Parties. The notation keys, as described in the UNFCCC reporting guidelines, are as follows:

NO	Not occurring	IE	Included elsewhere
NE	Not estimated	C	Confidential
NA	Not applicable		

17. Where Parties used notation keys “R”, “NO”, “NR” or “IE”, these have been reproduced verbatim from the tables provided by Parties. The notations keys, as described in the tables referred to in decision 6/CMP.9, are as follows:

R	Reported	NR	Not reported
NO	Not occurring	IE	Included elsewhere

18. Tables on energy indicate whether IEFs given in the CRF are based on gross calorific value (GCV) or net calorific value (NCV). Australia, Canada, Japan, New Zealand and United States of America reported energy data on a GCV basis, whilst Denmark reported using a combination of GCV and NCV. Hence, reported IEFs are about 5 per cent lower for liquid, solid and other fuels, and about 10 per cent lower for gaseous fuels than would have been the case if the data were given on a net calorific value (NCV) basis.

19. The following chemical formulae or abbreviations for GHGs are used in this document:

C	carbon
CH_4	methane
CO_2	carbon dioxide
HFCs	hydrofluorocarbons
N_2O	nitrous oxide
NF_3	nitrogen trifluoride
NMVOC	non-methane volatile organic compound
PFCs	perfluorocarbons
SF_6	sulphur hexafluoride

20. To indicate the methods and emission factors used by Parties, the following abbreviations have been used (see also footnotes to Summary table 3 of the CRF) in this document:

Methods:		Emission factors:	
D	IPCC default	D	IPCC default
RA	Reference approach	CR	CORINAIR
T1	IPCC tier 1	CS	Country specific
T1a	IPCC tier 1a	PS	Plant specific
T1b	IPCC tier 1b	M	Model
T1c	IPCC tier 1c	OTH	Other
T2	IPCC tier 2		
T3	IPCC tier 3		

CR	CORINAIR
CS	Country specific
M	Model
OTH	Other

21. The following units have been used in this document:

kg	kilogram (10^3 grams)
kt	kilotonne (10^9 grams)
Mg	megagram (10^6 grams) – same as tonne
t	tonne (10^6 grams)
Mt	megatonne (10^{12} grams)
TJ	terajoule (10^{12} joules)
PJ	petajoule (10^{15} joules)
km	kilometre
ha	hectare
kha	thousand hectares
m^3	cubic metre

22. The following abbreviations have been used in this document:

AB	area burned
AD	activity data
BB	biomass burned
CO	carbon monoxide
CRF	common reporting format
CSC	carbon stock change
dm	dry matter
DOM	dead organic matter
EF	emission factor
FAO	Food and Agriculture Organization of the United Nations
GCV	gross calorific value
GHG	greenhouse gas
IEA	International Energy Agency
IEF	implied emission factor
LPG	liquefied petroleum gas
LULUCF	land use, land-use change and forestry
N	nitrogen
NCV	net calorific value
NIR	national inventory report

NMVOC	non-methane volatile organic compounds
NO_X	nitrogen oxides
yr	year

C. List of sectoral figures and tables with information submitted under decision 24/CP.19

1. General

Figure number	Figure name
Figure G.1	GHG emissions by gas (with LULUCF): base year and 2016
Figure G.2	GHG emissions by gas (without LULUCF): base year and 2016
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2. Energy

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Table 1.2	Stationary combustion: liquid fuels – CO_2 (2016)
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Table 1.4	Stationary combustion: gaseous fuels – CO_2 (2016)
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Table 1.11c	Fugitive emissions from fuels: oil and natural gas – natural gas – CH_4, CO_2 (2016)
Table 1.11d	Fugitive emissions from fuels: oil and natural gas – venting and flaring – CH_4, CO_2 (2016)
Table 1.12	CO_2 transport and storage (2016)

3. Industrial processes and product use

Figure number	Figure name
Figure 2.1	Contribution of subsectors to total GHG emissions in the Industrial Processes and Product Use sector

Table number	Table name
Table 2.1	Mineral industry – CO_2 (2016)
Table 2.2	Chemical industry – CO_2 and N_2O (2016)
Table 2.3	Metal industry – CO_2 (2016)
Table 2.4	HFCs, PFCs, SF_6 and NF_3 (2016)

4. Agriculture

Figure number	Figure name
Figure 3.1	Contribution of subsectors to total GHG emissions in the Agriculture sector

Table number	Table name
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Table 3.2	Manure management – CH_4 (2016)
Table 3.3	Manure management – N_2O (2016)
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Table 4.3	Cropland – AD, IEFs, carbon stock changes in pools and net CO_2 emissions/removals (2016)
Table 4.4	Grassland – AD, IEFs, carbon stock changes in pools and net CO_2 emissions/removals (2016)
Table 4.5	Land area (2016)

6. Waste

Figure number	Figure name
Figure 5.1	Contribution of subsectors to total GHG emissions in the Waste sector

Table number	Table name
Table 5.1a–b	Solid waste disposal on land, biological treatment of solid waste, incineration and open burning of waste and wastewater treatment and discharge (2016)

D. List of tables with information submitted under Article 7, paragraph 1, of the Kyoto Protocol in accordance with decisions 15/CMP.1, in conjunction with 3/CMP.11, and 6/CMP.9

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Table 6.3(i)	Revegetation - area and implied carbon stock change factors from the change in carbon stocks for the base year
Table 6.3(j)	Wetland drainage and rewetting - area and implied carbon stock change factors from the change in carbon stocks for 2016
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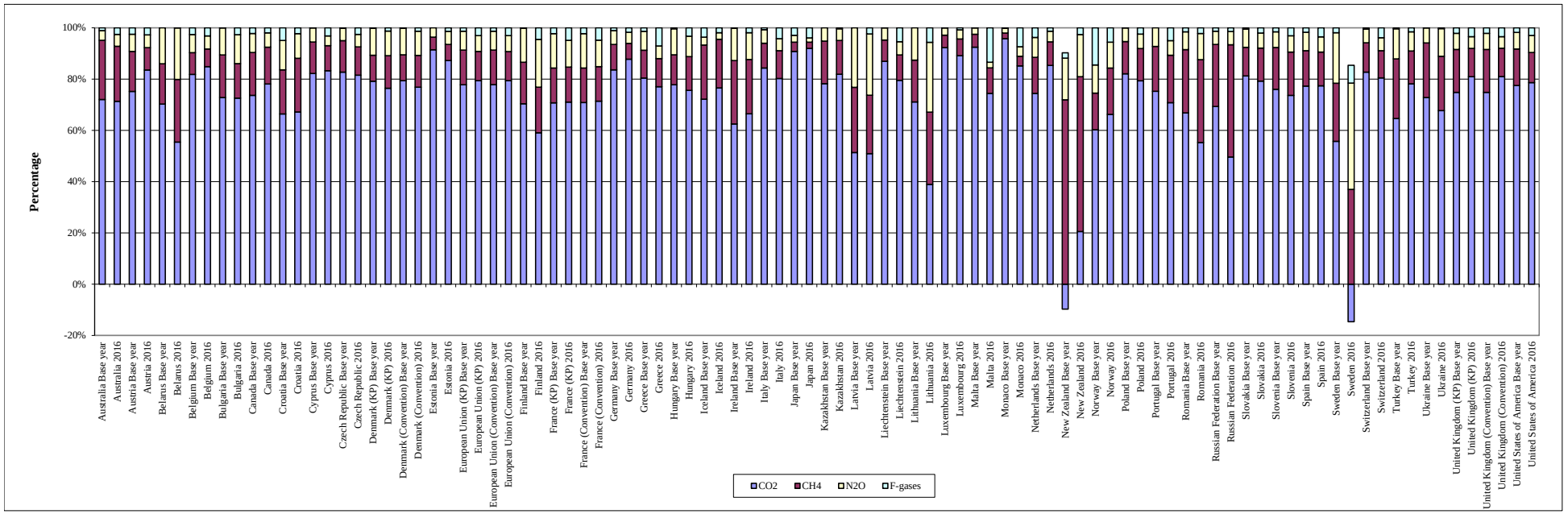
Table 6.7(c)	Emissions from biomass burning on grazing land management land

Table 6.7(d)	Emissions from biomass burning on revegetation land
Table 6.7(e)	Emissions from biomass burning on wetland drainage and rewetting land

Figure G.1

GHG emissions by gas[a] (with LULUCF): base year[b] and 2016

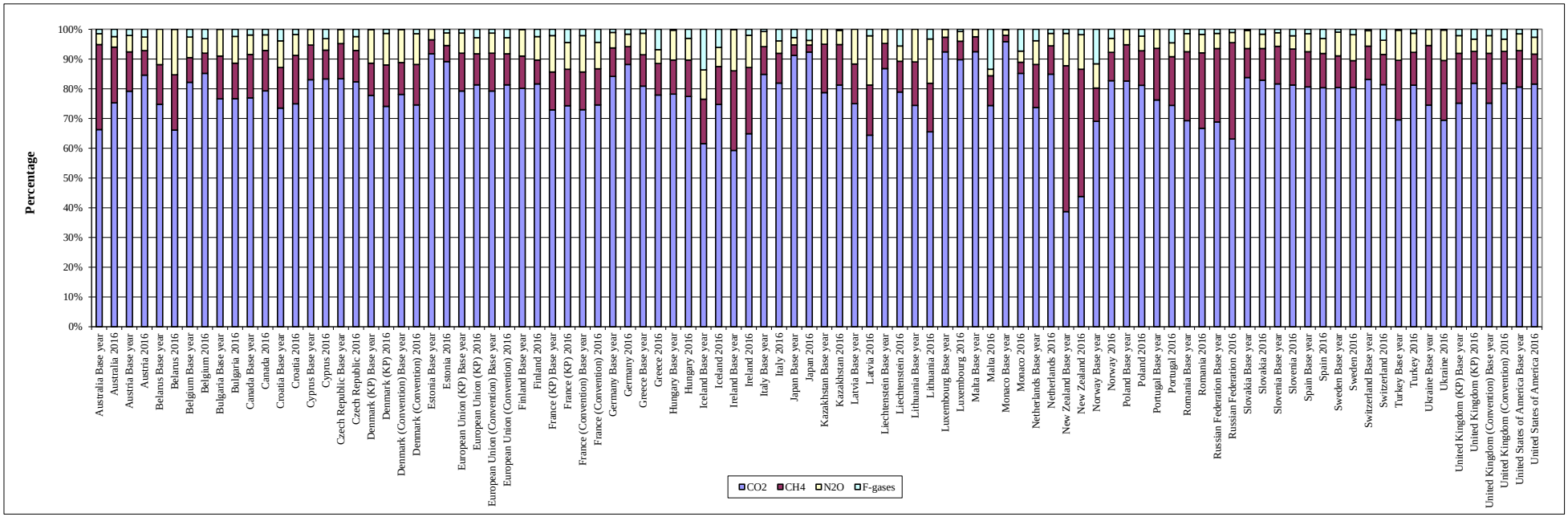


[a] The national totals and emissions by CO_2 in this graph include indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Canada, Czech Republic, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] In accordance with the UNFCCC reporting guidelines on annual inventories of Annex I Parties the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2, 11/CP.4, and 7/CP.12 some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Croatia (1990), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Figure G.2

GHG emissions by gas[a] (without LULUCF): base year[b] and 2016

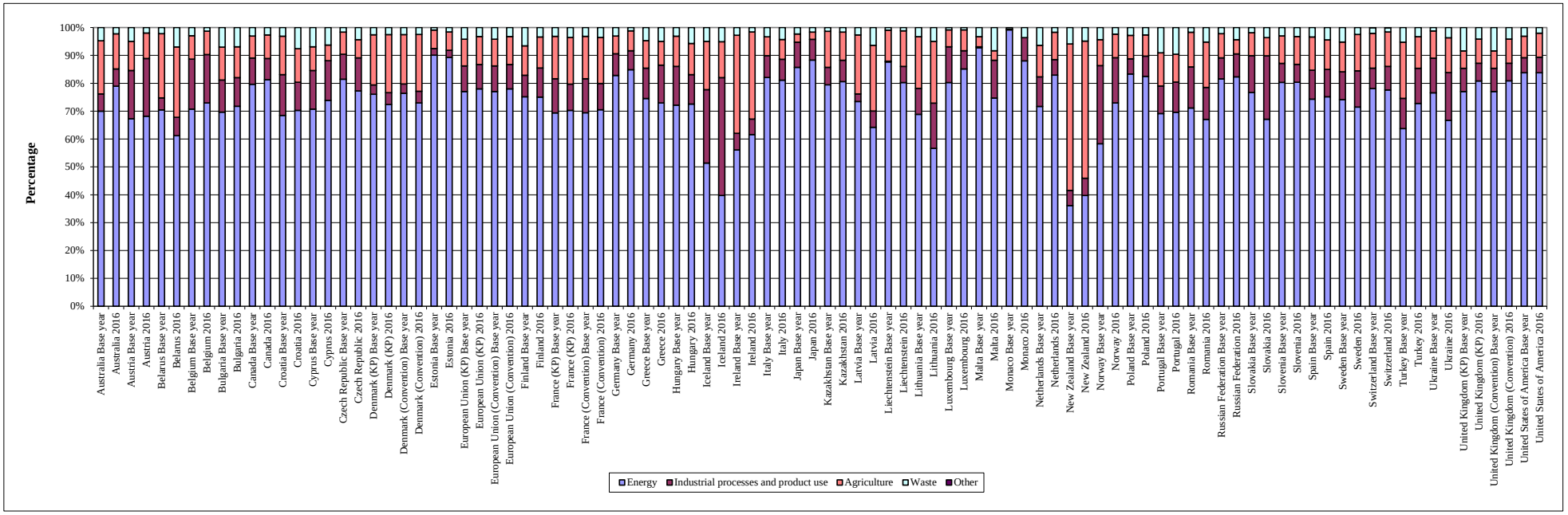


[a] The national totals and emissions by CO_2 in this graph include indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Canada, Czech Republic, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] In accordance with the UNFCCC reporting guidelines on annual inventories of Annex I Parties the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2, 11/CP.4, and 7/CP.12 some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Croatia (1990), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Figure G.3

GHG emissions[a] by sector (without LULUCF): base year[b] and 2016



[a] The national and sectoral totals in this graph include indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Canada, Czech Republic, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] In accordance with the UNFCCC reporting guidelines on annual inventories of Annex I Parties the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2, 11/CP.4, and 7/CP.12 some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Croatia (1990), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table G.1

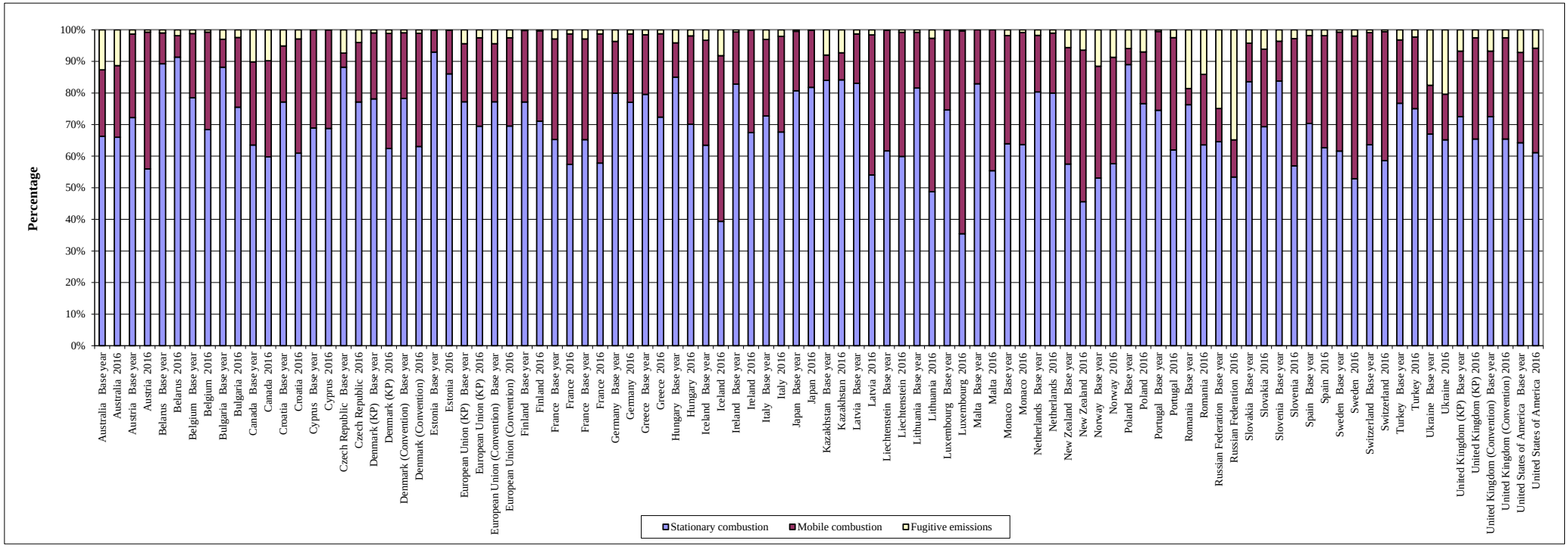
Submissions used in this report

Party	Initial submission date	CRF for years	NIR	CRF submission date and version used in this report	CRF Reporter version (version used in this report)	CRF KP LULUCF [a] submission date and version used in this report	CRF KP LULUCF [a] Reporter version (version used in this report)
Australia	13 April 2018	1990-2016	13 April 2018	13 April 2018 (1)	6.0.5	13 April 2018 (1)	6.0.5
Austria	12 April 2018	1990-2016	12 April 2018	12 April 2018 (3)	6.0.5	12 April 2018 (3)	6.0.5
Belarus	13 April 2018	1990-2016	13 April 2018	13 April 2018 (3)	6.0.5		
Belgium	13 April 2018	1990-2016	13 April 2018	13 April 2018 (2)	6.0.5	13 April 2018 (2)	6.0.5
Bulgaria	14 April 2018	1988-2016	12 April 2018	14 April 2018 (1)	6.0.5	14 April 2018 (1)	6.0.5
Canada	13 April 2018	1990-2016	13 April 2018	13 April 2018 (3)	6.0.5	NA	NA
Croatia	12 April 2018	1990-2016	24 May 2018	24 May 2018 (2)	6.0.5	24 May 2018 (2)	6.0.5
Cyprus	13 April 2018	1990-2016	09 May 2018	08 May 2018 (8)	6.0.5	08 May 2018 (8)	6.0.5
Czech Republic	12 April 2018	1990-2016	12 April 2018	12 April 2018 (1)	6.0.5	12 April 2018 (1)	6.0.5
Denmark (KP)	13 April 2018	1990-2016	12 April 2018	13 April 2018 (2)	6.0.5	13 April 2018 (2)	6.0.5
Denmark (Convention)	13 April 2018	1990-2016	12 April 2018	14 April 2018 (1)	6.0.5	NA	NA
Estonia	14 April 2018	1990-2016	13 April 2018	22 May 2018 (4)	6.0.5	22 May 2018 (4)	6.0.5
European Union (KP)	14 April 2018	1990-2016	25 May 2018	25 May 2018 (2)	6.0.5	25 May 2018 (2)	6.0.5
European Union (Convention)	14 April 2018	1990-2016	25 May 2018	25 May 2018 (2)	6.0.5	NA	NA
Finland	6 April 2018	1990-2016	06 April 2018	06 April 2018 (3)	6.0.5	06 April 2018 (3)	6.0.5
France (KP)	13 April 2018	1990-2016	15 March 2018	13 April 2018 (2)	6.0.5	13 April 2018 (2)	6.0.5
France (Convention)	13 April 2018	1990-2016	15 March 2018	13 April 2018 (2)	6.0.5	NA	NA
Germany	5 April 2018	1990-2016	13 April 2018	05 April 2018 (1)	6.0.5	05 April 2018 (1)	6.0.5
Greece	15 April 2018	1990-2016	15 April 2018	15 April 2018 (1)	6.0.5	15 April 2018 (1)	6.0.5
Hungary	13 April 2018	1985-87, 1986-2016	13 April 2018	13 April 2018 (3)	6.0.5	13 April 2018 (3)	6.0.5
Iceland	12 April 2018	1990-2016	13 April 2018	07 May 2018 (3)	6.0.5	07 May 2018 (3)	6.0.5
Ireland	13 April 2018	1990-2016	12 April 2018	13 April 2018 (2)	6.0.5	13 April 2018 (2)	6.0.5
Italy	13 April 2018	1990-2016	13 April 2018	13 April 2018 (1)	6.0.5	13 April 2018 (1)	6.0.5
Japan	24 April 2018	1990-2016	24 April 2018	24 April 2018 (1)	6.0.5	24 April 2018 (1)	6.0.5
Kazakhstan	23 April 2018	1990-2016		23 April 2018 (1)	6.0.5	23 April 2018 (1)	6.0.5
Latvia	13 April 2018	1990-2016	13 April 2018	10 May 2018 (3)	6.0.5	10 May 2018 (3)	6.0.5
Liechtenstein	12 April 2018	1990-2016	12 April 2018	12 April 2018 (1)	6.0.5	12 April 2018 (1)	6.0.5
Lithuania	13 April 2018	1990-2016	13 April 2018	13 April 2018 (1)	6.0.5	13 April 2018 (1)	6.0.5
Luxembourg	5 April 2018	1990-2016	05 April 2018	05 April 2018 (1)	6.0.5	05 April 2018 (1)	6.0.5
Malta	12 April 2018	1990-2016	12 April 2018	12 April 2018 (9)	6.0.5	12 April 2018 (9)	6.0.5
Monaco	14 April 2018	1990-2016	14 April 2018	14 April 2018 (1)	6.0.5	14 April 2018 (1)	6.0.5
Netherlands	13 April 2018	1990-2016	13 April 2018	13 April 2018 (6)	6.0.5	13 April 2018 (6)	6.0.5
New Zealand	12 April 2018	1990-2016	12 April 2018	12 April 2018 (1)	6.0.5	12 April 2018 (1)	6.0.5
Norway	13 April 2018	1990-2016	13 April 2018	13 April 2018 (1)	6.0.5	13 April 2018 (1)	6.0.5
Poland	10 April 2018	1988-2016	25 May 2018	25 May 2018 (3)	6.0.5	25 May 2018 (3)	6.0.5
Portugal	11 April 2018	1990-2016	10 May 2018	07 May 2018 (3)	6.0.5	07 May 2018 (3)	6.0.5
Romania	13 April 2018	1989-2016	07 May 2018	07 May 2018 (3)	6.0.5	07 May 2018 (3)	6.0.5
Russian Federation	14 April 2018	1990-2016	13 April 2018	14 April 2018 (1)	6.0.5	14 April 2018 (1)	6.0.5
Slovakia	10 April 2018	1990-2016	15 May 2018	15 May 2018 (3)	6.0.5	15 May 2018 (3)	6.0.5
Slovenia	13 April 2018	1986-2016	13 April 2018	13 April 2018 (4)	6.0.5	13 April 2018 (4)	6.0.5
Spain	2 April 2018	1990-2016	02 April 2018	02 April 2018 (1)	6.0.5	02 April 2018 (1)	6.0.5
Sweden	13 April 2018	1990-2016	13 April 2018	13 April 2018 (3)	6.0.5	13 April 2018 (3)	6.0.5
Switzerland	13 April 2018	1990-2016	13 April 2018	13 April 2018 (2)	6.0.5	13 April 2018 (2)	6.0.5
Turkey	14 April 2018	1990-2016	20 April 2018	14 April 2018 (1)	6.0.5	NA	NA
Ukraine	23 May 2018	1990-2016	23 May 2018	23 May 2018 (1)	6.0.5	23 May 2018 (1)	6.0.5
United Kingdom of Great Britain and Northern Ireland (KP)	12 April 2018	1990-2016	15 April 2018	12 April 2018 (2)	6.0.5	12 April 2018 (2)	6.0.5
United Kingdom of Great Britain and Northern Ireland (Convention)	12 April 2018	1990-2016	15 April 2018	13 April 2018 (1)	6.0.5	NA	NA
United States of America	12 April 2018	1990-2016	12 April 2018	12 April 2018 (1)	6.0.5	NA	NA

[a] The tables of the common reporting format for the purpose of submission of information on anthropogenic greenhouse gas emissions by sources and removals by sinks from LULUCF activities under Article 3, paragraph 3, forest management, and, if any, elected activities under Article 3, paragraph 4, in accordance with Article 5, paragraph 2, of the Kyoto Protocol. These tables are contained in the annex to decision 6/CMP.9.

Figure 1.1

Contribution of subsectors to total GHG emissions in the Energy sector[a, b]



[a] In accordance with the UNFCCC reporting guidelines on annual inventories of Annex I Parties the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2, 11/CP.4, and 7/CP.12 some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Croatia (1990), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

[b] Indirect CO_2 emissions are excluded from the totals in this graph.

Table 1.1

CO_2 emissions from fuel combustion: reference approach and sectoral approach[a]

	Reference approach	Sectoral approach	Difference
	(kt CO_2)		(%)
Australia Base year	254 499	251 676	1.12
Australia 2016	378 502	378 347	0.04
Austria Base year	52 093	51 197	1.75
Austria 2016	53 988	52 990	1.88
Belarus Base year	–450	96 398	-100.47
Belarus 2016	–913	54 692	-101.67
Belgium Base year	91 890	101 458	-9.43
Belgium 2016	78 138	84 081	-7.07
Bulgaria Base year[b]	84 096	77 902	7.95
Bulgaria 2016	42 329	40 716	3.96
Canada Base year	423 609	417 227	1.53
Canada 2016	512 964	503 277	1.92
Croatia Base year[b]	20 188	20 079	0.54
Croatia 2016	16 067	15 988	0.50
Cyprus Base year	4 281	3 911	9.48
Cyprus 2016	6 270	6 396	-1.98
Czech Republic Base year	150 790	146 805	2.71
Czech Republic 2016	94 926	94 414	0.54
Denmark Base year (KP)	51 178	51 343	-0.32
Denmark 2016 (KP)	33 825	35 214	-3.94
Denmark Base year (Convention)	51 810	52 633	-1.56
Denmark 2016 (Convention)	34 357	36 520	-5.92
Estonia Base year	36 108	36 093	0.04
Estonia 2016	17 251	17 217	0.20
European Union (KP) Base year	4 010 493	4 100 471	-2.19
European Union (KP) 2016	3 133 677	3 213 030	-2.47
European Union (Convention) Base year	4 008 507	4 096 802	-2.16
European Union (Convention) 2016	3 132 032	3 209 352	-2.41
Finland Base year	53 042	52 531	0.97
Finland 2016	43 986	43 126	2.00
France Base year (KP)	367 252	358 761	2.37
France 2016 (KP)	313 812	312 075	0.56
France Base year (Convention)	369 830	360 951	2.46
France 2016 (Convention)	320 465	318 041	0.76
Germany Base year	987 138	985 705	0.15
Germany 2016	743 659	751 700	-1.07
Greece Base year	74 770	74 622	0.20
Greece 2016	64 067	65 346	-1.96
Hungary Base year[b]	74 442	74 210	0.31
Hungary 2016	42 485	42 748	-0.61
Iceland Base year	1 671	1 761	-5.13
Iceland 2016	1 292	1 646	-21.48
Ireland Base year	30 470	30 140	1.09
Ireland 2016	37 701	37 335	0.98
Italy Base year	398 840	405 572	-1.66
Italy 2016	330 476	332 444	-0.59
Japan Base year	1 058 996	1 076 239	-1.60
Japan 2016	1 129 023	1 144 623	-1.36
Kazakhstan Base year	267 911	245 155	9.28
Kazakhstan 2016	234 739	243 535	-3.61
Latvia Base year	19 036	18 724	1.67
Latvia 2016	6 557	6 827	-3.96
Liechtenstein Base year	199	199	0.01
Liechtenstein 2016	149	148	0.79
Lithuania Base year	32 460	32 240	0.68
Lithuania 2016	10 994	10 726	2.51
Luxembourg Base year	10 156	10 181	-0.25
Luxembourg 2016	8 444	8 424	0.25
Malta Base year	1 588	1 938	-18.04
Malta 2016	1 386	1 419	-2.32

Table 1.1

CO_2 emissions from fuel combustion: reference approach and sectoral approach[a]

	Reference approach	Sectoral approach	Difference
	($kt\ CO_2$)		(%)
Monaco Base year	95	95	0.00
Monaco 2016	67	67	0.00
Netherlands Base year	153 040	154 537	-0.97
Netherlands 2016	158 689	157 971	0.45
New Zealand Base year	22 769	22 056	3.23
New Zealand 2016	29 694	28 919	2.68
Norway Base year	24 040	26 189	-8.21
Norway 2016	32 546	34 765	-6.38
Poland Base year[b]	481 478	438 518	9.80
Poland 2016	297 765	297 392	0.13
Portugal Base year	40 165	40 151	0.04
Portugal 2016	46 706	45 028	3.73
Romania Base year[b]	181 966	174 075	4.53
Romania 2016	63 483	63 383	0.16
Russian Federation Base year	2 361 136	2 264 027	4.29
Russian Federation 2016	1 447 022	1 409 644	2.65
Slovakia Base year	52 455	53 535	-2.02
Slovakia 2016	25 909	25 436	1.86
Slovenia Base year[b]	15 282	15 410	-0.83
Slovenia 2016	13 548	13 523	0.18
Spain Base year	216 399	207 194	4.44
Spain 2016	227 204	235 837	-3.66
Sweden Base year	53 512	51 524	3.86
Sweden 2016	40 799	36 028	13.24
Switzerland Base year	41 198	40 873	0.79
Switzerland 2016	37 275	36 951	0.88
Turkey Base year	130 567	124 602	4.79
Turkey 2016	345 518	346 749	-0.36
Ukraine Base year	608 895	588 769	3.42
Ukraine 2016	179 261	177 719	0.87
United Kingdom of Great Britain and Northern Ireland (KP) Base year	546 788	565 927	-3.38
United Kingdom of Great Britain and Northern Ireland (KP) 2016	368 791	377 600	-2.33
United Kingdom of Great Britain and Northern Ireland (Convention) Base year	547 568	566 635	-3.36
United Kingdom of Great Britain and Northern Ireland (Convention) 2016	369 504	378 309	-2.33
United States of America Base year	4 793 871	4 867 840	-1.52
United States of America 2016	5 012 053	5 088 925	-1.51

[a] Indirect CO_2 emissions are excluded from the totals in this table.

[b] In accordance with the UNFCCC reporting guidelines on annual inventories of Annex I Parties the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2, 11/CP.4, and 7/CP.12 some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Croatia (1990), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.2

Stationary combustion: liquid fuels - CO_2 (2016)

	Share of national total[a]	IEF in CRF based on GCV or NCV[b]	Energy industries						Manufacturing industries and construction			Other sectors						Other		
			Methods and EF used[c]		CO_2 IEF				Method and EF used[d]		CO_2 IEF	Method and EF used[e]		CO_2 IEF				Method and EF used[f]		CO_2 IEF
			Methods	EF	Total	Public electricity and heat production	Petroleum refining	Manufacture of solid fuels and other energy industries	Methods	EF	Total	Methods	EF	Total	Commercial / Institutional	Residential	Agriculture / Forestry / Fishing	Methods	EF	Stationary
	%				(t/TJ)						(t/TJ)			(t/TJ)						(t/TJ)
Australia	7.38	GCV	T2	CS, PS	68	69	62	70	T2	CS	69	T2	CS	69	69	62	70	T1	CS	
Austria	11.42	NCV	T1, T2	CS, D	78	79	77	NO	T1, T2, T3	CS, D	76	D, T1, T2, T3	CS, D	75	75	75	74	T1, T2	CS, D	
Belarus	18.00	NCV	T1	D	69	69	NO	NO	T1	D	66	T1	D	72	74	71	74	T1	D	73
Belgium	13.98	NCV	CS, T1, T3	D, PS	65	58	65	NO	CS, T1, T3	D, PS	74	CS, T1, T3	D	74	74	74	74	T1	D	
Bulgaria	5.30	NCV	T1, T2	CS, D	76	93	66	NO	T1, T2	CS, D	79	T1, T2	CS, D	72	71	63	74	T1, T2	CS, D	77
Canada	11.08	GCV	T2	CS	62	77	63	56	T1, T2	CS	69	T1, T2	CS	68	66	69	70	T3	CS	
Croatia	12.83	NCV	T1	D	70	75	70	NO	T1	D	85	T1	D	72	72	70	74	NA	NA	
Cyprus	49.77	NCV	CS,T1	CS, D	78	78	NO	NO	CS, T1	CS, D	86	T1	D	71	69	70	73	T1	D	74
Czech Republic	1.48	NCV	T1,T2	CS, D	60	68	55	74	T1, T2	CS, D	72	T1, T2	CS, D	73	72	66	74	T1	D	
Denmark (KP)	9.80	NCV	T1, T2, T3	CS, D, PS	60	77	58	NO	CR, M, T1, T2, T3	CS, D, PS	82	CR, M, T1, T2, T3	CS, D	74	73	73	74	CR, T2	CS	NO
Denmark (Convention)	11.49				62	77	58	73			81			74	73	73	74			NO
Estonia	3.76	NCV	T1, T2, T3	CS, D, PS	75	75	NO	IE, NO	T1, T2, T3	CS, D, PS	73	T1, T2	CS, D	72	72	69	73	T2	CS	
European Union (KP)	9.94				69	77	67	72			79			73	73	72	74			74
European Union (Convention)	9.92				69	77	67	72			79			73	73	72	74			74
Finland	16.30	NCV	T3	CS, D, PS	59	74	52	NO	CS, M, T2, T3	CS, D, PS	69	CS, M, T1, T2, T3	CS, D	74	74	74	74	T1	CS	71
France (KP)	12.59		T2, T3	CS, PS	64	76	58	NO	T2, T3	CS, PS	77	T1, T2	CS, D	74	74	73	74	NA	NA	
France (Convention)	12.98		T2, T3	CS, PS	65	76	58	NO	T2, T3	CS, PS	77	T1, T2	CS, D	74	74	73	74	NA	NA	
Germany	9.70	NCV	CS	CS	72	77	71	80	CS	CS, D	98	CS, T1, T2, T3	CS, D	74	73	74	74	CS, D, M	CS, D, M	74
Greece	19.46	NCV	T1, T2	D, PS	72	77	69	NO	T1, T2	CS, D, PS	84	T1, T2	CS, D	73	69	73	71	T1	D	
Hungary	5.65	NCV	T1, T2, T3	CS, D, PS	64	77	64	NO	T1, T2, T3	CS, D, PS	78	T1, T2	CS, D	71	71	64	73	T1	D	
Iceland	15.24	NCV	T1	D	74	74	NO	NO	T1	D	74	T1, T2	D	75	66	68	75			
Ireland	10.35	NCV	T1, T3	CS, D, PS	77	78	77	73	T1, T2, T3	CS, D, PS	77	T1, T2	CS, D	72	73	72	73	NA	NA	
Italy	9.62	NCV	T3	CS	73	76	73	NO	T2	CS	80	T2	CS	71	67	70	74	T2	CS	
Japan	17.14	GCV	CS, T2	CS	68	70	66	70	CS, T2	CS	67	T2	CS	67	68	65	70	NA	NA	
Kazakhstan	6.06	NCV	T1	D	73	77	71	73	T1	D	75	T1	D	65	72	63	65	T1	D	72
Latvia	7.21	NCV	T2	CS	75	76	NO	75	T1, T2, T3	CS, D, PS	73	T1, T2	CS, D	73	73	70	74	T1	D	
Liechtenstein	20.67	NCV	T2	CS	NA, NO		NA, NO	NO	T1, T2	CS, D	74	T1, T2	CS, D	144	147	147	73	NA	NA	
Lithuania	9.77	NCV	T1, T2, T3	CS, D, PS	68	74	68	73	T1, T2	CS, D	72	T2, T3	CS	70	71	68	72	T2	CS	
Luxembourg	9.90	NCV	T2	CS	74	74	NO	NO	T1, T2	CS, D, PS	74	T1, T2	CS, D	73	73	74	74	T1,T2	CS,D	NO
Malta	41.26	NCV			79	79	NO	NO	T1	D	73	T1	D	70	73	64	74	T1	D	NO
Monaco	14.69	NCV	T1, T2	CS, D	77	77	NO	NO			IE, NO	T1, T2	CS, D	74	IE	74	NO	NA	NA	
Netherlands	9.76	NCV	CS, T2	CS, D	67	58	69	NO	T2	CS, D	67	T1, T2	CS, D	72	73	71	72	T2	CS	
New Zealand	5.21	GCV	T2	CS	63	70	63	70	T2	CS	68	T2	CS	68	67	61	70			
Norway	14.07	NCV	T1, T2, T3	CS, PS	61	54	51	73	T1, T2, T3	CS, PS	65	T1, T2	CS, PS	73	74	72	74	T1, T2	CS, D	71
Poland	3.82	NCV	T1, T2	CS, D	70	77	69	74	T1, T2	CS, D	69	T1, T2	CS, D	72	72	64	74	NA	NA	
Portugal	11.25	NCV	T2	CR, D, PS	61	77	55	NO	T2, T3	CR, D, OTH, PS	74	T1, T2	CR, D	69	69	64	74	NA	NA	
Romania	7.08	NCV	T1, T2	CS, D	66	77	62	68	T1, T2	CS, D	76	T1, T2	CS, D	71	70	64	79	T1, T2	CS, D	79
Russian Federation	6.61	NCV	T1, T2	CS, D	67	73	61	74	T1, T2	CS, D	74	T1, T2	CS, D	66	76	63	74	T1, T2	CS, D	73
Slovakia	4.51	NCV	T2, T3	CS, PS	73	78	73	63	T2	CS	93	T1, T2	CS, D	72	68	63	73	T1,T2	CS, D	65
Slovenia	7.23	NCV	T1, T2	CS, D, PS	73	73	NO	NO	T1, T2, T3	CS, D, PS	76	T1, T2	CS, D	72	72	72	74	T1	D	
Spain	15.84	NCV	T1, T2	CS, D, OTH, PS	67	80	56	74	T1, T2	CS, D, M, OTH, PS	86	T1, T2, T3	CS, D, M, OTH	72	73	69	73	T1	D, M	IE, NO
Sweden	18.22	NCV	T2	CS	70	75	69	IE, NO	T1, T2	CS	65	T1, T2	CS	72	72	72	73			NO
Switzerland	23.69	NCV	T2, T3	CS	58	74	57		T2, T3	CS	73	T1, T2, T3	CS, D	74	74	74	73	T2,T3	CS	
Turkey	6.99	NCV	T2, T3	CS, D, PS	74	75	73		T2	CS, D	93	T2	CS	69	58	68	72			
Ukraine	1.20	NCV	T1, T2, T3	CS, D	72	77	74	65	T1, T2	CS, D	76	T1, T2	CS, D	68	73	63	65	T1	D	
United Kingdom of Great Britain and Northern Ireland (KP)	8.76	NCV	T1, T2	CS, D	70	76	68	72	T1, T2, T3	CS, D	72	T1, T2, T3	CS, D	73	75	72	75	T1	CS	IE, NO
United Kingdom of Great Britain and Northern Ireland (Convention)	8.86	NCV	T1, T2	CS, D	70	77	68	72	T1, T2, T3	CS, D	72	T1, T2, T3	CS, D	73	75	72	75	T1	CS	IE, NO
United States of America	8.24	GCV	T2	CS	83	83	83	83	T2	CS	70	T2, T3	CS, D	65	67	64	70	CS, T2	CS	26

Note: This table includes data from categories 1.A.1 Energy industries, 1.A.2 Manufacturing industries and Construction, 1.A.4 Other sectors and 1.A.5. Other.

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Canada, Czech Republic, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] The following Parties reported energy data on a gross calorific value (GCV) basis: Australia, Canada, Japan, New Zealand, United States of America. Hence, reported IEFs are about 5 per cent lower for liquid and solid fuels and biomass, and about 10 per cent lower for gaseous fuels than would have been the case if the data were given on a net calorific value (NCV) basis.

[c] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.1 Energy industries.

[d] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.2 Manufacturing industries and Construction.

[e] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.4 Other sectors.

[f] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.5 Other.

Table 1.3

Stationary combustion: solid fuels - CO_2 (2016)

	Share of national total[a]	IEF in CRF based on GCV or NCV[b]	Energy industries						Manufacturing industries and construction			Other sectors						Other		
			Methods and EF used[c]		CO_2 IEF				Method and EF used[d]		CO_2 IEF	Method and EF used[e]		CO_2 IEF				Method and EF used[f]		CO_2 IEF
			Methods	EF	Total	Public electricity and heat production	Petroleum refining	Manufacture of solid fuels and other energy industries	Methods	EF	Total	Methods	EF	Total	Commercial / Institutional	Residential	Agriculture / Forestry / Fishing	Methods	EF	Stationary
	%				(t/TJ)						(t/TJ)			(t/TJ)						(t/TJ)
Australia	31.09	GCV	T2	CS, PS	91	91	NO	80	T2	CS	82	T2	CS	91	90	95	NO	T1	CS	
Austria	3.56	NCV	T1, T2	CS, D	94	94	NO	IE, NO	T1, T2, T3	CS, D	91	D, T1, T2, T3	CS, D	94	95	94	94	T1, T2	CS, D	
Belarus	2.24	NCV	T1	D	98	98	NO	NO	T1	D	100	T1	D	98	98	98	97	T1	D	97
Belgium	6.40	NCV	CS, T1, T3	D, PS	209	238	NO	40	CS, T1, T3	D, PS	98	CS, T1, T3	D	95	NO	95	95	T1	D	
Bulgaria	40.18	NCV	T1, T2	CS, D	104	104	NO	100	T1, T2	CS, D	98	T1, T2	CS, D	95	97	95	99	T1, T2	CS, D	NO
Canada	8.91	GCV	T2	CS	91	91	NO	NO	T1, T2	CS	69	T1, T2	CS	93	95	89	NO	T3	CS	
Croatia	10.66	NCV	T1	D	95	95	NO	NO	T1	D	99	T1	D	98	96	98	NO			
Cyprus	0.02	NCV	CS, T1	CS, D	NO	NO	NO	NO	CS, T1	CS, D	95	T1	D	NO	NO	NO	NO	T1	D	NO
Czech Republic	44.24	NCV	T1, T2	CS, D	97	98	NO	94	T1, T2	CS, D	92	T1, T2	CS, D	94	98	94	97	T1	D	
Denmark (KP)	16.60	NCV	T1, T2, T3	CS, D, PS	95	95	NO	NO	CR, M, T1, T2, T3	CS, D, PS	96	CR, M, T1, T2, T3	CS, D	95	NO	98	95	CR, T2	CS	
Denmark (Convention)	16.15				95	95	NO	NO			96			95	NO	98	95			
Estonia	64.83	NCV	T1, T2, T3	CS, D, PS	76	103	NO	23	T1, T2, T3	CS, D, PS	98	T1, T2	CS, D	94	NO	94	94	T2	CS	
European Union (KP)	21.38				102	102	59	98			115			95	95	95	95			100
European Union (Convention)	21.41				102	102	59	98			115			95	95	95	95			100
Finland	17.24	NCV	T3	CS, D, PS	104	104	NO	96	CS, M, T2, T3	CS, D, PS	87	CS, M, T1, T2, T3	CS, D	92	NO	88	92	T1	CS	NO
France (KP)	6.65		T2, T3	CS, PS	121	111	37	204	T2, T3	CS, PS	122	T1, T2	CS, D	95	95	95	NO			
France (Convention)	6.97		T2, T3	CS, PS	121	111	37	204	T2, T3	CS, PS	118	T1, T2	CS, D	95	95	95	NO			
Germany	34.13	NCV	CS	CS	105	104	41	142	CS	CS, D	137	CS, T1, T2, T3	CS, D	98	98	98	98	CS, D, M	CS, D, M	99
Greece	24.65	NCV	T1, T2	D, PS	123	123	NO	NO	T1, T2	CS, D, PS	94	T1, T2	CS, D	99	IE, NO	99	99	T1	D	
Hungary	13.86	NCV	T1, T2, T3	CS, D, PS	112	116	NO	51	T1, T2, T3	CS, D, PS	81	T1, T2	CS, D	102	96	102	96	T1	D	
Iceland	–	NCV	T1	D	NO	NO	NO	NO	T1	D	NA, NO	T1, T2	D	NO	NO	NO	NO			
Ireland	8.84	NCV	T1, T3	CS, D, PS	93	93	NO	NO	T1, T2, T3	CS, D, PS	95	T1, T2	CS, D	96	NO	96	NO			
Italy	10.77	NCV	T3	CS	103	95	NO	182	T2	CS	77	T2	CS	NO	NO	NO	NO	T2	CS	
Japan	34.44	GCV	CS, T2	CS	89	89	90	81	CS, T2	CS	94	T2	CS	94	94	NO	110			
Kazakhstan	44.67	NCV	T1	D	96	96	96	96	T1	D	91	T1	D	96	96	96	96	T1	D	97
Latvia	1.52	NCV	T2	CS	103	103	NO	NO	T1, T2, T3	CS, D, PS	103	T1, T2	CS, D	102	102	103	103	T1	D	
Liechtenstein	–	NCV	T2	CS	NA, NO		NA, NO	NO	T1, T2	CS, D	NA, NO	T1, T2	CS, D	NO		NO	NO			
Lithuania	3.19	NCV	T1, T2, T3	CS, D, PS	95	95	NO	NO	T1, T2	CS, D	97	T2, T3	CS	95	95	95	95	T2	CS	
Luxembourg	1.78	NCV	T2	CS	NO	NO	NO	NO	T1, T2	CS, D, PS	95	T1, T2	CS, D	98	NO	98	NO	T1, T2	CS, D	NO
Malta	–	NCV			NO	NO	NO	NO	T1	D	NO	T1	D	NO	NO	NO	NO	T1	D	NO
Monaco	–	NCV	T1, T2	CS, D	NO	NO	NO	NO			NO	T1, T2	CS, D	NO	NO	NO	NO			
Netherlands	20.31	NCV	CS, T2	CS, D	103	104	NO	84	T2	CS, D	53	T1, T2	CS, D	101	101	101	NO	T2	CS	
New Zealand	3.32	GCV	T2	CS	92	92	NO	NO	T2	CS	92	T2	CS	92	92	92	92			
Norway	1.18	NCV	T1, T2, T3	CS, PS	91	91	NO		T1, T2, T3	CS, PS	121	T1, T2	CS, PS	103	NO	103	NO	T1, T2	CS, D	
Poland	50.22	NCV	T1, T2	CS, D	99	101	95	48	T1, T2	CS, D	106	T1, T2	CS, D	94	95	94	94			
Portugal	15.52	NCV	T2	CR, D, PS	92	92	NO	NO	T2, T3	CR, D, OTH, PS	95	T1, T2	CR, D	NO	NO	NO	NO			
Romania	15.95	NCV	T1, T2	CS, D	90	90	NO	90	T1, T2	CS, D	94	T1, T2	CS, D	90	90	90	NO	T1, T2	CS, D	NO
Russian Federation	11.31	NCV	T1, T2	CS, D	94	95	NA	69	T1, T2	CS, D	60	T1, T2	CS, D	95	95	95	95	T1, T2	CS, D	95
Slovakia	21.69	NCV	T2, T3	CS, PS	117	101	NO	194	T2	CS	120	T1, T2	CS, D	99	98	100	101	T1, T2	CS, D	103
Slovenia	27.38	NCV	T1, T2	CS, D, PS	102	102	NO	NO	T1, T2, T3	CS, D, PS	102	T1, T2	CS, D	96	NO	96	NO	T1	D	
Spain	12.68	NCV	T1, T2	CS, D, OTH, PS	97	98	NO	42	T1, T2	CS, D, M, OTH, PS	139	T1, T2, T3	CS, D, M, OTH	103	103	103	NO	T1	D, M	IE, NO
Sweden	8.37	NCV	T2	CS	175	206	NO	93	T1, T2	CS	106	T1, T2	CS	NO	NO	NO	NO			NO
Switzerland	0.94	NCV	T2, T3	CS	NO	NO	NO	NO	T2, T3	CS	95	T1, T2, T3	CS, D	93	NO	93	NO	T2, T3	CS	
Turkey	28.45	NCV	T2, T3	CS, D, PS	104	103	NO	153	T2	CS, D	95	T2	CS	95	93	100	NO			
Ukraine	24.36	NCV	T1, T2, T3	CS, D	93	94	NA, NO	61	T1, T2	CS, D	78	T1, T2	CS, D	94	91	95	93	T1	D	
United Kingdom of Great Britain and Northern Ireland (KP)	9.03	NCV	T1, T2	CS, D	91	90	NO	140	T1, T2, T3	CS, D	158	T1, T2, T3	CS, D	94	95	94	NO	T1	CS	IE, NO
United Kingdom of Great Britain and Northern Ireland (Convention)	9.01	NCV	T1, T2	CS, D	91	90	NO	140	T1, T2, T3	CS, D	158	T1, T2, T3	CS, D	94	95	94	NO	T1	CS	IE, NO
United States of America	20.21	GCV	T2	CS	91	91	91	91	T2	CS	90	T2, T3	CS, D	89	89	NA, NO	90	CS, T2	CS	89

Note: This table includes data from categories 1.A.1 Energy industries, 1.A.2 Manufacturing industries and Construction, 1.A.4 Other sectors and 1.A.5 Other.

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Canada, Czech Republic, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] The following Parties reported energy data on a gross calorific value (GCV) basis: Australia, Canada, Japan, New Zealand, United States of America. Hence, reported IEFs are about 5 per cent lower for liquid and solid fuels and biomass, and about 10 per cent lower for gaseous fuels than would have been the case if the data were given on a net calorific value (NCV) basis.

[c] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.1 Energy industries.

[d] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.2 Manufacturing industries and Construction.

[e] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.4 Other sectors.

[f] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.5 Other.

Table 1.4

Stationary combustion: gaseous fuels - CO_2 (2016)

	Share of national total[a]	IEF in CRF based on GCV or NCV[b]	Energy industries						Manufacturing industries and construction			Other sectors						Other		
			Methods and EF used[c]		CO_2 IEF				Method and EF used[d]		CO_2 IEF	Methods and EF used[e]		CO_2 IEF				Method and EF used[f]		CO_2 IEF
			Methods	EF	Total	Public electricity and heat production	Petroleum refining	Manufacture of solid fuels and other energy industries	Methods	EF	Total	Methods	EF	Total	Commercial / Institutional	Residential	Agriculture / Forestry / Fishing	Methods	EF	Stationary
	%				(t/TJ)						(t/TJ)			(t/TJ)						(t/TJ)
Australia	13.03	GCV	T2	CS, PS	51	51	48	51	T2	CS	51	T2	CS	51	51	51	51	T1	CS	
Austria	19.31	NCV	T1, T2	CS, D	55	55	55	55	T1, T2, T3	CS, D	55	D, T1, T2, T3	CS, D	55	55	55	55	T1, T2	CS, D	
Belarus	34.60	NCV	T1	D	56	56	NO	NO	T1	D	56	T1	D	56	56	56	56	T1	D	56
Belgium	26.42	NCV	CS, T1, T3	D, PS	56	56	56	NO	CS, T1, T3	D, PS	56	CS, T1, T3	D	56	56	56	56	T1	D	
Bulgaria	7.65	NCV	T1, T2	CS, D	56	56	56	56	T1, T2	CS, D	56	T1, T2	CS, D	56	56	56	56	T1, T2	CS, D	NO
Canada	27.23	GCV	T2	CS	50	48	48	51	T1, T2	CS	49	T1, T2	CS	48	48	48	48	T3	CS	
Croatia	16.95	NCV	T1	D	56	56	56	56	T1	D	56	T1	D	56	56	56	56			
Cyprus	–		CS, T1	CS, D	NO	NO	NO	NO	CS, T1	CS, D	NO	T1	D	NO	NO	NO	NO	T1	D	NO
Czech Republic	12.04	NCV	T1, T2	CS, D	55	55	55	55	T1, T2	CS, D	55	T1, T2	CS, D	55	55	55	55	T1	D	
Denmark (KP)	13.97	NCV	T1, T2, T3	CS, D, PS	57	57	NO	58	CR, M, T1, T2, T3	CS, D, PS	57	CR, M, T1, T2, T3	CS, D	57	57	57	57	CR, T2	CS	
Denmark (Convention)	13.58				57	57	NO	58			57			57	57	57	57			
Estonia	4.85	NCV	T1, T2, T3	CS, D, PS	55	55	NO	IE, NO	T1, T2, T3	CS, D, PS	55	T1, T2	CS, D	55	55	55	55	T2	CS	
European Union (KP)	20.06				57	56	56	58			56			56	56	56	56			56
European Union (Convention)	20.09				57	56	56	58			56			56	56	56	56			56
Finland	6.87	NCV	T3	CS, D, PS	55	55	55	NO	CS, M, T2, T3	CS, D, PS	55	CS, M, T1, T2, T3	CS, D	55	55	55	55	T1	CS	55
France (KP)	18.43		T2, T3	CS, PS	56	56	56	NE, NO	T2, T3	CS, PS	56	T1, T2	CS, D	56	56	56	56			
France (Convention)	18.15		T2, T3	CS, PS	56	56	56	NE, NO	T2, T3	CS, PS	56	T1, T2	CS, D	56	56	56	56			
Germany	18.31	NCV	CS	CS	56	56	56	59	CS	CS, D	56	CS, T1, T2, T3	CS, D	56	56	56	56	CS, D, M	CS, D, M	56
Greece	8.25	NCV	T1, T2	D, PS	56	56	IE, NO	60	T1, T2	CS, D, PS	56	T1, T2	CS, D	56	56	56	IE, NO	T1	D	
Hungary	29.00	NCV	T1, T2, T3	CS, D, PS	56	56	56	56	T1, T2, T3	CS, D, PS	56	T1, T2	CS, D	56	56	56	56	T1	D	
Iceland	–	NCV	T1	D	NO	NO	NO	NO	T1	D	NO	T1, T2	D	NO	NO	NO	NO			
Ireland	15.73	NCV	T1, T3	CS, D, PS	55	56	7	56	T1, T2, T3	CS, D, PS	56	T1, T2	CS, D	56	56	56	NO			
Italy	31.73	NCV	T3	CS	58	58	58	58	T2	CS	58	T2	CS	58	58	58	58	T2	CS	
Japan	18.91	GCV	CS, T2	CS	51	51	51	51	CS, T2	CS	51	T2	CS	52	51	52	51			
Kazakhstan	16.51	NCV	T1	D	56	56	56	56	T1	D	56	T1	D	56	56	56	56	T1	D	56
Latvia	22.99	NCV	T2	CS	56	56	NO	56	T1, T2, T3	CS, D, PS	56	T1, T2	CS, D	56	56	56	56	T1	D	
Liechtenstein	26.80	NCV	T2	CS	56	56	NO	NO	T1, T2	CS, D	56	T1, T2	CS, D	112	112	112	NO			
Lithuania	11.39	NCV	T1, T2, T3	CS, D, PS	56	56	56	56	T1, T2	CS, D	56	T2, T3	CS	56	56	56	56	T2	CS	
Luxembourg	16.83	NCV	T2	CS	57	57	NO	NO	T1, T2	CS, D, PS	57	T1, T2	CS, D	57	57	57	57	T1, T2	CS, D	NO
Malta	–	NCV			NO	NO	NO	NO	T1	D	NO	T1	D	NO	NO	NO	NO	T1	D	NO
Monaco	15.15	NCV	T1, T2	CS, D	56	56	NO	NO			IE, NO	T1, T2	CS, D	56	IE	56	NO			
Netherlands	33.76	NCV	CS, T2	CS, D	57	57	56	61	T2	CS, D	57	T1, T2	CS, D	56	56	56	56	T2	CS	
New Zealand	9.33	GCV	T2	CS	54	54	53	53	T2	CS	54	T2	CS	54	54	54	54			
Norway	23.81	NCV	T1, T2, T3	CS, PS	59	58	NO	59	T1, T2, T3	CS, PS	62	T1, T2	CS, PS	56	56	56	56	T1, T2	CS, D	
Poland	6.79	NCV	T1, T2	CS, D	56	56	56	56	T1, T2	CS, D	56	T1, T2	CS, D	55	55	55	55			
Portugal	14.14	NCV	T2	CR, D, PS	56	56	57	NO	T2, T3	CR, D, OTH, PS	56	T1, T2	CR, D	56	56	56	56			
Romania	18.00	NCV	T1, T2	CS, D	55	56	50	56	T1, T2	CS, D	56	T1, T2	CS, D	56	56	56	56	T1, T2	CS, D	NO
Russian Federation	24.65	NCV	T1, T2	CS, D	54	54	54	54	T1, T2	CS, D	54	T1, T2	CS, D	54	54	54	54	T1, T2	CS, D	54
Slovakia	18.64	NCV	T2, T3	CS, PS	56	56	56	56	T2	CS	56	T1, T2	CS, D	56	56	56	56	T1, T2	CS, D	56
Slovenia	9.09	NCV	T1, T2	CS, D, PS	55	55	NO	55	T1, T2, T3	CS, D, PS	55	T1, T2	CS, D	55	55	55	NO	T1	D	
Spain	16.99	NCV	T1, T2	CS, D, OTH, PS	56	56	56	56	T1, T2	CS, D, M, OTH, PS	56	T1, T2, T3	CS, D, M, OTH	56	56	56	56	T1	D, M	IE, NO
Sweden	3.52	NCV	T2	CS	51	57	28	IE, NO	T1, T2	CS	54	T1, T2	CS	57	57	57	57			NO
Switzerland	14.49	NCV	T2, T3	CS	56	56	NO		T2, T3	CS	56	T1, T2, T3	CS, D	56	56	56	56	T2, T3	CS	
Turkey	17.99	NCV	T2, T3	CS, D, PS	56	56	55		T2	CS, D	56	T2	CS	56	56	56	56			
Ukraine	16.87	NCV	T1, T2, T3	CS, D	56	56	56	60	T1, T2	CS, D	56	T1, T2	CS, D	56	56	56	56	T1	D	
United Kingdom of Great Britain and Northern Ireland (KP)	33.47	NCV	T1, T2	CS, D	57	56	56	59	T1, T2, T3	CS, D	57	T1, T2, T3	CS, D	57	57	57	57	T1	CS	IE, NO
United Kingdom of Great Britain and Northern Ireland (Convention)	33.42	NCV	T1, T2	CS, D	57	56	56	59	T1, T2, T3	CS, D	57	T1, T2, T3	CS, D	57	57	57	57	T1	CS	IE, NO
United States of America	22.17	GCV	T2	CS	50	50	50	50	T2	CS	50	T2, T3	CS, D	50	50	50	50	CS, T2	CS	20

Note: This table includes data from categories 1.A.1 Energy industries, 1.A.2 Manufacturing industries and Construction, 1.A.4 Other sectors and 1.A.5 Other.

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Canada, Czech Republic, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] The following Parties reported energy data on a gross calorific value (GCV) basis: Australia, Canada, Japan, New Zealand, United States of America. Hence, reported IEFs are about 5 per cent lower for liquid and solid fuels and biomass, and about 10 per cent lower for gaseous fuels than would have been the case if the data were given on a net calorific value (NCV) basis.

[c] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.1 Energy industries.

[d] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.2 Manufacturing industries and Construction.

[e] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.4 Other sectors.

[f] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.5 Other.

Table 1.5

Stationary combustion: other fossil fuels - CO_2 (2016)

	Share of national total[a]	IEF in CRF based on GCV or NCV[b]	Energy industries						Manufacturing industries and construction			Other sectors						Other		
			Methods and EF used[c]		CO_2 IEF				Methods and EF used[d]		CO_2 IEF	Methods and EF used[e]		CO_2 IEF				Method and EF used[f]		CO_2 IEF
			Methods	EF	Total	Public electricity and heat production	Petroleum refining	Manufacture of solid fuels and other energy industries	Methods	EF	Total	Methods	EF	Total	Commercial / Institutional	Residential	Agriculture / Forestry / Fishing	Methods	EF	Stationary
	%				(t/TJ)						(t/TJ)			(t/TJ)						(t/TJ)
Australia	–	GCV	T2	CS, PS	NO	NO	NO	NO	T2	CS	NO	T2	CS	NA, NO	NO	NO	NA, NO	T1	CS	
Austria	2.95	NCV	T1, T2	CS, D	61	61	NO	NO	T1, T2, T3	CS, D	62	D, T1, T2, T3	CS, D	69	69	NO	NO	T1, T2	CS, D	
Belarus	–	NCV	T1	D	NO	NO	NO	NO	T1	D	IE, NE, NO	T1	D	NO	NO	NO	NO	T1	D	NO
Belgium	2.36	NCV	CS, T1, T3	D, PS	107	107	NO	NO	CS, T1, T3	D, PS	87	CS, T1, T3	D	65	65	NO	NO	T1	D	
Bulgaria	0.17	NCV	T1, T2	CS, D	NO	NO	NO	NO	T1, T2	CS, D	76	T1, T2	CS, D	NO	NO	NO	NO	T1, T2	CS, D	NO
Canada	0.03	GCV	T2	CS	NO	NO	NO	NO	T1, T2	CS	78	T1, T2	CS	NO	NO	NO	NO	T3	CS	
Croatia	0.24	NCV	T1	D	NO	NO	NO	NO	T1	D	143	T1	D	NO	NO	NO	NO			
Cyprus	0.75	NCV	CS, T1	CS, D	NO	NO	NO	NO	CS, T1	CS, D	99	T1	D	NO	NO	NO	NO	T1	D	NO
Czech Republic	0.54	NCV	T1, T2	CS, D	92	92	NO	NO	T1, T2	CS, D	90	T1, T2	CS, D	NO	NO	NO	NO	T1	D	
Denmark (KP)	3.55	NCV	T1, T2, T3	CS, D, PS	97	97	NO	NO	CR, M, T1, T2, T3	CS, D, PS	86	CR, M, T1, T2, T3	CS, D	94	94	NO	NO	CR, T2	CS	
Denmark (Convention)	3.50				97	97	NO	NO			86			94	94	NO	NO			
Estonia	1.39	NCV	T1, T2, T3	CS, D, PS	64	64	NO	NO	T1, T2, T3	CS, D, PS	79	T1, T2	CS, D	NO	NO	NO	NO	T2	CS	
European Union (KP)	1.55				81	81	129	143			61			116	116	IE, NO	73			IE, NO
European Union (Convention)	1.55				81	81	129	143			61			116	116	IE, NO	73			IE, NO
Finland	1.52	NCV	T3	CS, D, PS	74	74	NO	NO	CS, M, T2, T3	CS, D, PS	83	CS, M, T1, T2, T3	CS, D	NO	NO	NO	NO	T1	CS	NO
France (KP)	1.83		T2, T3	CS, PS	109	109	NO	NO	T2, T3	CS, PS	53	T1, T2	CS, D	NO	NO	NO	NO			
France (Convention)	1.80		T2, T3	CS, PS	109	109	NO	NO	T2, T3	CS, PS	53	T1, T2	CS, D	NO	NO	NO	NO			
Germany	2.31	NCV	CS	CS	85	85	NA, NO	NA, NO	CS	CS, D	76	CS, T1, T2, T3	CS, D	NA, NO	NA, NO	NA, NO	NA, NO	CS, D, M	CS, D, M	NA, NO
Greece	0.05	NCV	T1, T2	D, PS	NO	NO	NO	NO	T1, T2	CS, D, PS	90	T1, T2	CS, D	IE, NO	IE, NO	IE, NO	NO	T1	D	
Hungary	0.96	NCV	T1, T2, T3	CS, D, PS	86	86	NO	NO	T1, T2, T3	CS, D, PS	60	T1, T2	CS, D	212	212	NO	NO	T1	D	
Iceland	–	NCV	T1	D	NO	NO	NO	NO	T1	D	NO	T1, T2	D	NO	NO	NO	NO			
Ireland	0.40	NCV	T1, T3	CS, D, PS	84	84	NO	NO	T1, T2, T3	CS, D, PS	93	T1, T2	CS, D	NO	NO	NO	NO			
Italy	1.29	NCV	T3	CS	94	94	NO	NO	T2	CS	79	T2	CS	116	116	NO	NO	T2	CS	
Japan	1.27	GCV	CS, T2	CS	28	28	47	46	CS, T2	CS	44	T2	CS	NO	NO	NO	NO			
Kazakhstan	0.00	NCV	T1	D	IE, NA	IE, NA	IE, NA	IE, NA	T1	D	IE, NA	T1	D	73	73	IE, NA	IE, NA	T1	D	NA
Latvia	0.69	NCV	T2	CS	NO	NO	NO	NO	T1, T2, T3	CS, D, PS	85	T1, T2	CS, D	73	73	NO	73	T1	D	
Liechtenstein	–	NCV	T2	CS	NA, NO		NA, NO	NO	T1, T2	CS, D	NA, NO	T1, T2	CS, D	NO		NO	NO			
Lithuania	1.36	NCV	T1, T2, T3	CS, D, PS	121	121	NO	NO	T1, T2	CS, D	143	T2, T3	CS	NO	NO	NO	NO	T2	CS	
Luxembourg	1.34	NCV	T2	CS	90	90	NO	NO	T1, T2	CS, D, PS	85	T1, T2	CS, D	NO	NO	NO	NO	T1, T2	CS, D	NO
Malta	–	NCV			NO	NO	NO	NO	T1	D	NO	T1	D	NO	NO	NO	NO	T1	D	NO
Monaco	24.52	NCV	T1, T2	CS, D	61	61	NO	NO			NO	T1, T2	CS, D	NO	NO	NO	NO			
Netherlands	1.52	NCV	CS, T2	CS, D	83	83	NO	NO	T2	CS, D	NO	T1, T2	CS, D	NO	NO	NO	NO	T2	CS	
New Zealand	–	GCV	T2	CS	NO	NO	NO	NO	T2	CS	NO	T2	CS	NO	NO	NO	NO			
Norway	0.05	NCV	T1, T2, T3	CS, PS	48	48	NO		T1, T2, T3	CS, PS	59	T1, T2	CS, PS	79	79		NO	T1, T2	CS, D	NO
Poland	0.96	NCV	T1, T2	CS, D	98	98	NO	143	T1, T2	CS, D	127	T1, T2	CS, D	108	108	IE, NO	NO			
Portugal	1.12	NCV	T2	CR, D, PS	117	117	NO	NO	T2, T3	CR, D, OTH, PS	50	T1, T2	CR, D	NO	NO	NO	NO			
Romania	0.50	NCV	T1, T2	CS, D	NO	NO	NO	NO	T1, T2	CS, D	84	T1, T2	CS, D	88	88	NO	NO	T1, T2	CS, D	NO
Russian Federation	1.14	NCV	T1, T2	CS, D	143	143	143	NA, NO	T1, T2	CS, D	143	T1, T2	CS, D	143	143	143	143	T1, T2	CS, D	143
Slovakia	0.83	NCV	T2, T3	CS, PS	58	58	NO	NO	T2	CS	98	T1, T2	CS, D	NO	NO	NO	NO	T1, T2	CS, D	NO
Slovenia	0.64	NCV	T1, T2	CS, D, PS	73	73	NO	NO	T1, T2, T3	CS, D, PS	75	T1, T2	CS, D	NO	NO	NO	NO	T1	D	
Spain	0.75	NCV	T1, T2	CS, D, OTH, PS	53	52	129	NO	T1, T2	CS, D, M, OTH, PS	53	T1, T2, T3	CS, D, M, OTH	NO	NO	NO	NO	T1	D, M	NO
Sweden	5.02	NCV	T2	CS	89	89	NO	NO	T1, T2	CS	60	T1, T2	CS	60	60	NO	NO			NO
Switzerland	5.95	NCV	T2, T3	CS	89	89	NO		T2, T3	CS	70	T1, T2, T3	CS, D	NO			NO	T2, T3	CS	
Turkey	0.30	NCV	T2, T3	CS, D, PS	143	143	NO		T2	CS, D	138	T2	CS	NO	NO		NO			
Ukraine	0.63	NCV	T1, T2, T3	CS, D	76	76	NA, NO	73	T1, T2	CS, D	73	T1, T2	CS, D	73	73	NA, NO	73	T1	D	
United Kingdom of Great Britain and Northern Ireland (KP)	0.86	NCV	T1, T2	CS, D	49	49	NO	NO	T1, T2, T3	CS, D	47	T1, T2, T3	CS, D	NO	NO		NO	T1	CS	IE, NO
United Kingdom of Great Britain and Northern Ireland (Convention)	0.87	NCV	T1, T2	CS, D	49	49	NO	NO	T1, T2, T3	CS, D	47	T1, T2, T3	CS, D	NO	NO		NO	T1	CS	IE, NO
United States of America	0.17	GCV	T2	CS	7.1	7.1	NA, NO	NA, NO	T2	CS	NA, NO	T2, T3	CS, D	NA, NO	NA, NO	NA, NO	NA, NO	CS, T2	CS	44

Note: This table includes data from categories 1.A.1 Energy industries, 1.A.2 Manufacturing industries and Construction, 1.A.4 Other sectors and 1.A.5 Other.

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Canada, Czech Republic, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] The following Parties reported energy data on a gross calorific value (GCV) basis: Australia, Canada, Japan, New Zealand, United States of America. Hence, reported IEFs are about 5 per cent lower for liquid and solid fuels and biomass, and about 10 per cent lower for gaseous fuels than would have been the case if the data were given o n a net calorific value (NCV) basis.

[c] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.1 Energy industries.

[d] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.2 Manufacturing industries and Construction.

[e] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.4 Other sectors.

[f] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.5 Other.

Table 1.6

Road transportation - CO_2, N_2O (2016)

	CO_2 emissions						N_2O emissions					
	Share of national total[a]	Methods and EF used		CO_2 IEF			Share of national total[a]	Methods and EF used		N_2O IEF		
		Methods	EF	IEF in CRF based on GCV or NCV[b]	Gasoline	Diesel oil		Methods	EF	IEF in CRF based on GCV or NCV[b]	Gasoline	Diesel oil
	(%)				(t/TJ)		(%)				(kg/TJ)	
IPCC default EF[c]				**NCV**	**69.3 (67.5 to 73.0)**	**74.1 (72.6 to 74.8)**				**NCV**	**8.0 (0.96 to 24)**	**3.9 (1.3 to 12)**
Australia	14.63	T2	CS, D	GCV	67	70	0.22	T1, T3	CS, D	GCV	4.4	1.7
Austria	28.30	T1, T2	CS, D	NCV	77	74	0.24	T3	CS	NCV	0.59	2.3
Belarus	1.14	T1	D	NCV	69	74	0.02	T1	D	NCV	8.0	3.9
Belgium	21.63	M, T1, T3	OTH	NCV	72	74	0.23	M, T3	CS, OTH	NCV	0.62	2.9
Bulgaria	14.89	T2	CR	NCV	72	75	0.14	T2	CR	NCV	2.0	2.0
Canada	19.84	T1, T3	CS	GCV	69	70	0.35	T1, T3	CS	GCV	3.8	3.9
Croatia	24.19	T1	D	NCV	69	74	0.21	T1, T3	CR, D	NCV	1.7	2.3
Cyprus	22.30	T1	D	NCV	69	74	0.59	T1	D	NCV	8.0	3.9
Czech Republic	13.56	T1	CS, D	NCV	69	74	0.28	T1, T2	CS, D	NCV	4.6	5.2
Denmark (KP)	23.38	CR, M, T2	CS	NCV	73	74	0.26	CR, M, T3	CR	NCV	0.89	3.4
Denmark (Convention)	22.99	NA	NA		73	74	0.26	NA	NA		0.91	3.4
Estonia	11.41	T1, T2	CS, D	NCV	73	73	0.10	T1, T3	CS, D	NCV	1.4	2.6
European Union (KP)	20.34	NA	NA		72	74	0.21	NA	NA		1.1	2.9
European Union (Convention)	20.34	NA	NA		72	74	0.21	NA	NA		1.1	2.9
Finland	20.16	M, T2	CS	NCV	73	73	0.13	M, T2	D	NCV	0.82	1.8
France (KP)	27.15	T3	M		71	75	0.33	T3	M		1.3	3.2
France (Convention)	26.96	T3	M		71	75	0.33	T3	M		1.3	3.2
Germany	17.44	CS, M, T2, T3	CS, D	NCV	75	74	0.17	CS, M, T2, T3	CS, M	NCV	0.59	3.3
Greece	16.14	T1, T2, T3	CS, D	NCV	73	73	0.13	M, T1	D, M	NCV	1.7	2.0
Hungary	19.65	T1, T2	CS, D	NCV	71	74	0.20	T1, T3	D, M	NCV	1.5	2.8
Iceland	18.93	T1	D	NCV	69	74	0.77	T1	D	NCV	15	3.9
Ireland	18.89	T2, T3	CS, M	NCV	70	73	0.19	T3	M	NCV	1.1	2.7
Italy	22.60	T1, T3	CS, D	NCV	73	74	0.20	T3	M	NCV	1.1	2.5
Japan	14.21	T2	CS	GCV	68	69	0.11	T3	CS, D	GCV	1.1	3.0
Kazakhstan	5.81	T1	D	NCV	69	74	0.08	T1	D	NCV	3.2	3.9
Latvia	26.15	T1, T2	CS, D, OTH	NCV	71	75	0.23	T1, T2	CR, OTH	NCV	0.77	2.4
Liechtenstein	31.31	T2	CS	NCV	74	73	0.18	T2	CS, D	NCV	0.42	2.3
Lithuania	25.82	T1, T2	CS, D	NCV	73	73	0.16	T1, T3	CR, D	NCV	2.0	1.3
Luxembourg	54.08	T1, T2	CS, D	NCV	72	74	0.47	T3	M	NCV	0.43	2.4
Malta	28.46	T1	CR	NCV	72	83	0.15	T3	CR	NCV	1.4	1.3
Monaco	27.95	T2	CS	NCV	72	74	0.49	T2	CS, D	NCV	4.0	3.9
Netherlands	14.84	T2	CS	NCV	73	72	0.12	T2	CS	NCV	0.94	2.7
New Zealand	17.11	T3	CS	GCV	67	70	0.15	T3	CS	GCV	2.2	1.6
Norway	18.42	T2	CS	NCV	71	74	0.14	T2	CS	NCV	0.71	2.0
Poland	13.01	T1, T3	D	NCV	69	73	0.12	T1, T3	D	NCV	1.9	2.3
Portugal	23.24	T2	D	NCV	72	74	0.22	T3	CR	NCV	2.0	2.3
Romania	14.23	T1, T3	D, OTH	NCV	72	82	0.15	T1, T3	D, OTH	NCV	1.8	2.8
Russian Federation	6.32	T1, T2	CS, D	NCV	73	74	0.06	T1, T2, T3	CS, D	NCV	2.7	1.5
Slovakia	15.28	M	D	NCV	71	74	0.15	M	D	NCV	1.2	2.8
Slovenia	31.77	M	M	NCV	70	74	0.34	M	M	NCV	0.81	3.2
Spain	24.68	T1	D, M	NCV	74	73	0.26	T3	M	NCV	1.0	3.0
Sweden	29.53	T2	CS		72	72	0.26	M, T1, T2	CS, D		0.47	3.2
Switzerland	30.52	T2	CS	NCV	74	73	0.20	T3	CS	NCV	0.66	2.5
Turkey	14.93	T1, T2	CS, D	NCV	69	73	0.23	T1	D	NCV	8.0	3.9
Ukraine	6.70	T1, T2	CS, D	NCV	72	74	0.12	T1	D	NCV	5.6	3.9
United Kingdom of Great Britain and Northern Ireland (KP)	23.34	T1, T3	CS, OTH	NCV	70	73	0.22	T3	CR, CS	NCV	0.67	3.1
United Kingdom of Great Britain and Northern Ireland (Convention)	23.31	T1, T3	CS, OTH	NCV	70	73	0.22	T3	CR, CS	NCV	0.67	3.1
United States of America	23.02	T1, T2, T3	CS	GCV	68	70	0.20	M, T1, T2	CS, D, M	GCV	2.7	0.22

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Canada, Czech Republic, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] The following Parties reported energy data on a gross calorific value (GCV) basis: Australia, Canada, Japan, New Zealand, United States of America. Hence, reported IEFs are about 5 per cent lower for liquid and solid fuels and biomass, and about 10 per cent lower for gaseous fuels than would have been the case if the data were given on a net calorific value (NCV) basis.

[c] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2 Chapter 3 Mobile Combustion. CO_2 table 3.2.1; N_2O table 3.2.2.

Table 1.7

Domestic aviation and navigation - CO_2 (2016)

	Methods and EF used		Domestic aviation			Domestic navigation		
			Share of national total[a]	CO_2 IEF		Share of national total[a]	CO_2 IEF	
	Methods	EF		Jet kerosene	Aviation gasoline		Residual fuel oil	Gas/diesel oil
			(%)	(t/TJ)		(%)	(t/TJ)	
IPCC default EF[b]				71.5 (69.8 to 74.4)	70 (67.5 to 73.0)		77.4 (75.5 to 78.8)	74.1 (72.6 to 74.8)
Australia	T2	CS	1.63	70	67	0.27	74	70
Austria	T2, T3	CS	0.06	73	75	0.01	NO	74
Belarus	T1	D	0.02	71	NO	0.67	NO	74
Belgium	T1, T3	CS, D	0.01	72	71	0.35	IE	72
Bulgaria	T1, T2	D	0.10	72	69	0.01	NO	74
Canada	T2, T3	CS	0.98	68	71	0.53	74	70
Croatia	T1	D	0.13	72	70	0.54	NO	74
Cyprus	T1	D	0.01	72	NO	0.03	NO	74
Czech Republic	T1	D	0.01	71	70	0.01	NO	74
Denmark (KP)	CR, M, T2	CS	0.26	72	73	1.28	78	74
Denmark (Convention)			0.34	72	73	1.41	78	74
Estonia	T2	CS, D	0.01	NO	72	0.30	NO	73
European Union (KP)			0.37	72	70	0.47	79	74
European Union (Convention)			0.36	72	70	0.46	79	74
Finland	M, T1, T2	CS	0.32	73	71	0.69	78	73
France (KP)	T1, T3	CS, M	1.02	72	71	0.27	78	75
France (Convention)	T1, T3	CS, M	1.02	72	71	0.31	78	75
Germany	CS, T1, T2	CS, D, M	0.26	73	70	0.21	82	74
Greece	T1, T2, T3	CS, D	0.45	71	69	1.97	78	77
Hungary	T1	D	0.01	72	70	0.02	NO	74
Iceland	T1	D	0.48	71	70	0.59	77	74
Ireland	T2, T3	CS	0.02	71	70	0.43	NO	73
Italy	T1, T2	CS	0.50	72	70	0.89	77	74
Japan	T2	CS	0.78	68	68	0.81	IE	69
Kazakhstan	T1	D	0.28	72	69	0.00	NO	74
Latvia	T1, T2	CS, D	0.02	73	70	0.12	NO	75
Liechtenstein	T1	CS	0.02	73	NO	–	NO	NO
Lithuania	T1, T2	CS	0.01	72	71	0.07	NO	73
Luxembourg	T1, T2	CS, D	0.00	NO	70	0.01	NO	74
Malta	T1	D	0.21	71	70	4.20	77	74
Monaco	T1	D	0.58	72	NO	2.08	NO	74
Netherlands	T1, T2	CS, D	0.02	72	72	0.52	NO	72
New Zealand	T2	CS	1.18	69	66	0.38	73	NO
Norway	T1, T2	CS, D, PS	2.23	73	71	2.89	79	74
Poland	T1	D	0.03	72	70	0.01	NO	74
Portugal	T1, T2, T3	D	0.66	72	70	0.39	77	74
Romania	T1, T2	CS, D, OTH	0.07	72	70	0.12	NO	80
Russian Federation	T1, T1b	D	0.42	71	IE	0.05	77	74
Slovakia	T1, T3	D	0.01	73	70	0.01	NO	74
Slovenia	T1	D	0.01	72	70	–	NO	IE
Spain	T1, T3	D, OTH	0.82	73	70	0.61	85	74
Sweden	T1, T2	CS, D	1.03	72	70	0.57	78	74
Switzerland	T3	CS	0.29	73	IE	0.23	NO	73
Turkey	T2	CS, D	0.85	71	NO	0.19	78	73
Ukraine	T1, T2, T3	CS, D, OTH	0.04	72	70	0.02	77	74
United Kingdom of Great Britain and Northern Ireland (KP)	T2, T3	CS	0.35	72	69	1.12	76	75
United Kingdom of Great Britain and Northern Ireland (Convention)	T2, T3	CS	0.37	72	69	1.12	76	75
United States of America	T1, T3	CS	2.37	68	66	0.53	71	69

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Canada, Czech Republic, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2 Chapter 3 Mobile Combustion. Table 3.6.4 for Jet kerosense, Aviation gasoline; table 3.5.2 for Residual oil Gas/diesel oil.

Table 1.8

Domestic and international aviation - activity data (2016)

	Domestic aviation						International aviation						Total jet kerosene and aviation gasoline		
	Jet kerosene			Aviation gasoline			Jet kerosene			Aviation gasoline					
	CRF	IEA[a,b,d]	Difference	CRF	IEA[a,c,d]	Difference	CRF	IEA[a,b,d]	Difference	CRF	IEA[a,c,d]	Difference	CRF	IEA[a,b,c,d]	Difference
	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)
Australia	126 285	129 139	2.26	2 277	2 141	-6.00	178 749	171 414	-4.10	NO	0	–	307 311	302 694	-1.50
Austria	513	1 204	134.63	135	132	-2.13	31 964	31 691	-0.85	NO	0	–	32 612	33 027	1.27
Belarus	228	946	314.68	NO	0	–	5 722	5 117	-10.58	NO	0	–	5 950	6 063	1.89
Belgium	67	0	–	37	88	137.53	61 160	60 200	-1.57	1.1	0	–	61 265	60 288	-1.60
Bulgaria	817	817	0.00	34	0	–	8 901	8 901	0.00	NO	0	–	9 752	9 718	-0.35
Canada	98 735	217 514	120.30	2 137	1 658	-22.43	180 284	26 626	-85.23	60	0	–	281 216	245 798	-12.59
Croatia	418	430	2.96	18	0	–	5 178	5 074	-2.02	4.5	0	–	5 618	5 504	-2.04
Cyprus	7.9	0	–	NO	0	–	12 268	11 309	-7.82	NO	0	–	12 276	11 309	-7.87
Czech Republic	11	1 634	14 252.32	131	132	0.49	13 368	13 158	-1.57	NO	0	–	13 511	14 924	10.46
Denmark (KP)	1 804		–	47		–	39 214		–	0.65		–	41 066		–
Denmark (Convention)	2 414	1 247	-48.35	52	44	-15.37	39 224	39 302	0.20	0.65	0	–	41 691	40 593	-2.63
Estonia	NO	0	–	19	0	–	898	903	0.60	NO	0	–	917	903	-1.53
European Union (KP)	215 292		–	3 087		–	2 049 041		–	70		–	2 267 490		–
European Union (Convention)	212 545	241 660	13.70	3 008	2 420	-19.54	2 035 968	1 973 442	-3.07	81	572	601.87	2 251 603	2 218 094	-1.49
Finland	2 528	2 494	-1.35	22	44	98.21	26 880	26 703	-0.66	NO	0	–	29 430	29 241	-0.64
France (KP)	64 389		–	803		–	238 190		–	NO		–	303 382		–
France (Convention)	65 284	33 110	-49.28	803	748	-6.83	241 873	245 444	1.48	NO	0	–	307 960	279 302	-9.31
Germany	31 783	32 250	1.47	407	440	8.11	357 241	362 447	1.46	IE	0	–	389 431	395 137	1.47
Greece	5 661	7 826	38.25	90	88	-1.78	43 108	36 808	-14.61	NO	0	–	48 859	44 722	-8.47
Hungary	19	0	–	38	0	–	8 376	7 998	-4.52	2.2	0	–	8 435	7 998	-5.18
Iceland	295	301	2.04	21	0	–	12 823	12 513	-2.42	NO	0	–	13 140	12 814	-2.48
Ireland	102	129	26.68	34	44	28.80	36 254	35 346	-2.51	NO	0	–	36 390	35 519	-2.39
Italy	30 041	29 670	-1.23	104	44	-57.75	144 076	137 987	-4.23	NO	0	–	174 221	167 701	-3.74
Japan	149 407	141 910	-5.02	56	45	-20.06	292 387	280 973	-3.90	NO	0	–	441 850	422 928	-4.28
Kazakhstan	9 821	43	-99.56	3 277	1 012	-69.12	5 818	13 115	125.43	NA	0	–	18 916	14 170	-25.09
Latvia	20	0	–	7.0	0	–	5 116	5 117	0.02	NO	0	–	5 143	5 117	-0.51
Liechtenstein	0.56		–	NO		–	13		–	NO		–	13		–
Lithuania	4.0	0	–	16	0	–	3 999	3 999	0.00	NO	0	–	4 019	3 999	-0.50
Luxembourg	NO	0	–	7.2	0	–	21 296	21 457	0.76	0.79	0	–	21 304	21 457	0.72
Malta	56	86	52.27	0.17	0	–	5 241	5 203	-0.73	1.3	0	–	5 299	5 289	-0.19
Monaco	6.4		–	NO		–	36		–	NO		–	43		–
Netherlands	378	258	-31.80	42	44	3.85	163 299	161 379	-1.18	NO	0	–	163 720	161 681	-1.25
New Zealand	13 043	11 392	-12.66	531	401	-24.46	48 559	36 267	-25.31	NO	0	–	62 133	48 061	-22.65
Norway	16 134	16 297	1.01	79	88	10.94	20 398	21 586	5.82	NO	0	–	36 611	37 971	3.71
Poland	1 453	860	-40.81	176	176	0.01	28 002	28 595	2.12	NO	0	–	29 631	29 631	0.00
Portugal	6 237	5 805	-6.92	17	44	157.87	47 052	48 117	2.26	38	0	–	53 344	53 966	1.17
Romania	1 128	989	-12.34	44	44	0.10	12 165	10 664	-12.34	NO	0	–	13 337	11 697	-12.30
Russian Federation	157 145	204 422	30.09	IE	264	–	116 297	204 379	75.74	NO	0	–	273 442	409 065	49.60
Slovakia	47	0	–	1.7	0	–	2 113	2 064	-2.32	3.6	0	–	2 166	2 064	-4.70
Slovenia	7.6	0	–	21	44	110.31	847	903	6.56	NO	0	–	876	947	8.11
Spain	36 570	81 055	121.64	167	176	5.53	215 402	171 312	-20.47	NO	0	–	252 139	252 543	0.16
Sweden	7 556	7 396	-2.12	59	44	-24.94	35 313	34 400	-2.59	NO	0	–	42 928	41 840	-2.54
Switzerland	1 932	2 623	35.79	IE	132	–	70 603	71 079	0.67	IE	0	–	72 534	73 834	1.79
Turkey	59 884	57 749	-3.56	NO	0	–	148 668	143 362	-3.57	NO	0	–	208 551	201 111	-3.57
Ukraine	1 193	0	–	636	0	–	13 827	0	–	NO	0	–	15 656	0	–
United Kingdom of Great Britain and Northern Ireland (KP)	23 379		–	589		–	469 293		–	18		–	493 278		–
United Kingdom of Great Britain and Northern Ireland (Convention)	24 716	34 400	39.18	589	44	-92.53	469 403	456 961	-2.65	18	572	3 131.77	494 726	491 977	-0.56
United States of America	2 243 395	2 294 625	2.28	21 559	20 115	-6.70	1 108 995	1 030 884	-7.04	NA	0	–	3 373 949	3 345 625	-0.84

[a] Data provided by IEA on 7 June 2018.

[b] UNFCCC has included the quantities reported in IEA for 'kerosene type jet fuel' and 'gasoline type jet fuel'.

[c] UNFCCC has included the quantities reported in IEA for 'aviation gasoline' and 'motor gasoline'.

[d] Geographical coverage of IEA data:

IEA data for Denmark do not include Faroe Islands and Greenland.

IEA data for France includes data for Monaco, but excludes data for the following overseas territories: Guadeloupe, Guyana, Martinique, New Caledonia, French Polynesia, Reunion and Saint Pierre Miquelon.

No IEA data for Liechtenstein are available.

IEA data for the Netherlands are only for the European part.

Table 1.9

Domestic and international navigation - activity data (2016)

	Domestic Navigation						International Navigation						Total					
	Residual fuel oil			Gas / diesel oil			Residual fuel oil			Gas / diesel oil			Residual fuel oil			Gas / diesel oil		
	CRF	IEA[a,b]	Difference	CRF	IEA[a,b]	Difference	CRF	IEA[a,b]	Difference	CRF	IEA[a,b]	Difference	CRF	IEA[a,b]	Difference	CRF	IEA[a,b]	Difference
	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)
Australia	2 493	2 471	-0.90	6 468	9 755	50.82	21 025	23 728	12.86	2 113	2 897	37.06	23 518	26 199	11.40	8 582	12 652	47.43
Austria	NO	0	–	48	43	-11.06	NO	0	–	780	767	-1.69	NO	0	–	828	809	-2.23
Belarus	NO	0	–	8 303	43	-99.49	NO	0	–	NO	0	–	NO	0	–	8 303	43	-99.49
Belgium	IE	0	–	5 632	7 711	36.90	220 764	217 720	-1.38	61 398	61 259	-0.23	220 764	217 720	-1.38	67 031	68 969	2.89
Bulgaria	NO	0	–	99	0	–	760	760	0.00	2 478	2 513	1.42	760	760	0.00	2 577	2 513	-2.47
Canada	20 396	28 622	40.34	29 453	28 116	-4.54	11 756	9 849	-16.22	8 011	7 668	-4.29	32 151	38 471	19.66	37 464	35 784	-4.48
Croatia	NO	0	–	1 785	1 789	0.22	60	80	32.72	115	128	10.81	60	80	32.72	1 901	1 917	0.86
Cyprus	NO	0	–	31	0	–	7 797	7 720	-0.99	4 085	4 047	-0.93	7 797	7 720	-0.99	4 116	4 047	-1.67
Czech Republic	NO	0	–	172	170	-0.83	NO	0	–	NO	0	–	NO	0	–	172	170	-0.83
Denmark (KP)	1 574		–	7 019		–	8 934		–	16 936		–	10 508		–	23 955		–
Denmark (Convention)	1 725	0	–	7 904	6 390	-19.16	8 991	10 320	14.78	18 036	17 509	-2.92	10 716	10 320	-3.70	25 940	23 899	-7.87
Estonia	NO	0	–	820	809	-1.29	6 705	6 680	-0.37	4 695	4 729	0.72	6 705	6 680	-0.37	5 515	5 538	0.42
European Union (KP)	57 742		–	183 790		–	1 446 883		–	445 371		–	1 504 625		–	629 161		–
European Union (Convention)	57 477	46 240	-19.55	182 724	130 313	-28.68	1 443 923	1 380 720	-4.38	444 166	458 461	3.22	1 501 400	1 426 960	-4.96	626 890	588 775	-6.08
Finland	410	400	-2.44	3 339	3 408	2.07	10 017	10 120	1.03	1 387	1 747	25.97	10 427	10 520	0.89	4 726	5 155	9.08
France (KP)	548		–	4 814		–	57 284		–	7 284		–	57 832		–	12 098		–
France (Convention)	1 743	1 760	1.00	6 163	4 899	-20.50	58 478	56 080	-4.10	8 124	4 090	-49.66	60 221	57 840	-3.95	14 286	8 989	-37.08
Germany	7.0	0	–	26 102	11 119	-57.40	75 564	74 200	-1.81	27 455	42 557	55.01	75 571	74 200	-1.81	53 557	53 676	0.22
Greece	13 050	12 840	-1.61	10 116	10 437	3.18	58 783	58 480	-0.52	12 706	13 163	3.60	71 834	71 320	-0.72	22 822	23 600	3.41
Hungary	NO	0	–	172	170	-0.93	NE	0	–	NE	0	–	NE, NO	0	–	172	170	-0.93
Iceland	7.1	0	–	367	383	4.59	978	960	-1.84	1 478	1 448	-2.00	985	960	-2.55	1 844	1 832	-0.69
Ireland	NO	0	–	3 597	3 536	-1.71	444	400	-9.83	6 243	5 879	-5.83	444	400	-9.83	9 840	9 415	-4.33
Italy	21 941	19 120	-12.86	24 393	21 044	-13.73	79 519	79 800	0.35	8 064	11 417	41.58	101 461	98 920	-2.50	32 457	32 461	0.01
Japan	IE	92 314	–	6 143	42 813	596.97	IE	176 790	–	1 136	8 009	604.78	IE	269 104	–	7 279	50 822	598.19
Kazakhstan	NO	0	–	183	298	62.88	NO	0	–	85	6 134	7 132.72	NO	0	–	268	6 433	2 301.29
Latvia	NO	0	–	176	170	-3.18	6 226	6 120	-1.70	6 976	6 986	0.15	6 226	6 120	-1.70	7 152	7 157	0.07
Liechtenstein	NO		–	NO		–	NO		–	NO		–	NO		–	NO		–
Lithuania	NO	0	–	181	170	-5.85	3 884	3 960	1.96	2 858	2 854	-0.13	3 884	3 960	1.96	3 039	3 025	-0.47
Luxembourg	NO	0	–	12	0	–	NO	0	–	1.7	0	–	NO	0	–	14	0	–
Malta	150	40	-73.41	909	511	-43.77	62 095	62 080	-0.02	8 799	11 161	26.84	62 246	62 120	-0.20	9 708	11 672	20.23
Monaco	NO		–	19		–	NO		–	218		–	NO		–	237		–
Netherlands	NO	0	–	13 029	12 993	-0.28	432 520	421 920	-2.45	85 845	85 711	-0.16	432 520	421 920	-2.45	98 874	98 704	-0.17
New Zealand	4 110	1 491	-63.72	NO	2 556	–	11 260	10 565	-6.17	1 882	2 045	8.68	15 370	12 056	-21.56	1 882	4 601	144.52
Norway	16	960	5 789.84	17 563	25 262	43.84	NO	0	–	9 110	2 130	-76.62	16	960	5 789.84	26 673	27 392	2.69
Poland	NO	0	–	292	85	-70.79	2 120	2 120	0.00	5 547	5 495	-0.93	2 120	2 120	0.00	5 839	5 581	-4.42
Portugal	2 445	2 600	6.36	983	1 874	90.61	21 968	22 160	0.87	4 544	4 132	-9.06	24 413	24 760	1.42	5 527	6 007	8.67
Romania	NO	0	–	1 626	1 704	4.80	NO	0	–	1 260	1 321	4.80	NO	0	–	2 886	3 025	4.80
Russian Federation	3 084	3 080	-0.12	14 444	14 484	0.27	367 633	67 360	-81.68	65 741	382 420	481.70	370 717	70 440	-81.00	80 186	396 904	394.98
Slovakia	NO	0	–	64	0	–	NO	0	–	253	0	–	NO	0	–	317	0	–
Slovenia	NO	0	–	IE	0	–	5 122	4 960	-3.16	NO	0	–	5 122	4 960	-3.16	IE, NO	0	–
Spain	9 437	9 320	-1.23	15 845	16 699	5.39	248 508	245 440	-1.23	66 446	66 456	0.02	257 945	254 760	-1.23	82 290	83 155	1.05
Sweden	168	160	-5.00	2 680	1 874	-30.05	57 998	53 920	-7.03	29 873	29 138	-2.46	58 167	54 080	-7.03	32 553	31 013	-4.73
Switzerland	NO	0	–	1 023	298	-70.85	NO	0	–	342	213	-37.74	NO	0	–	1 365	511	-62.55
Turkey	1 778	1 760	-0.99	11 180	11 076	-0.93	35 175	32 480	-7.66	3 479	3451	-0.81	36 953	34 240	-7.34	14 659	14 527	-0.90
Ukraine	305	600	96.70	789	1 406	78.19	298	0	–	693	0	–	603	600	-0.57	1 482	1 406	-5.16
United Kingdom of Great Britain and Northern Ireland (KP)	8 003		–	59 487		–	78 832		–	77 866		–	86 835		–	137 353		–
United Kingdom of Great Britain and Northern Ireland (Convention)	8 053	0	–	59 487	22 706	-61.83	78 827	35 680	-54.74	77 866	75 402	-3.16	86 880	35 680	-58.93	137 353	98 108	-28.57
United States of America	181 937	24 361	-86.61	317 391	129 845	-59.09	475 494	569 755	19.82	123 993	132 316	6.71	657 431	594 116	-9.63	441 384	262 160	-40.60

[a] Data provided by IEA on 7 June 2018.

[b] Geographical coverage of IEA data:

IEA data for Denmark does not include Faroe Islands and Greenland.

IEA data for France includes data for Monaco, but excludes data for the following overseas territories: Guadeloupe, Guyana, Martinique, New Caledonia, French Polynesia, Reunion and Saint Pierre Miquelon.

No IEA data for Liechtenstein are available.

IEA data for the Netherlands are only for the European part.

Table 1.10

Fugitive emissions from fuels: coal mining and handling - CH_4 (2016)

	Share of national total[a]	Methods and EF used		Activity data					CH_4 IEF			
				CRF			IEA[b]		Underground mines		Surface mines	
		Methods	EF	Underground mines	Surface mines	Total	Total	Difference	Mining activities	Post-mining activities	Mining activities	Post-mining activities
	(%)			(Mt)				(%)	(kg/t)			
IPCC default EF[c]									12.06 (6.70-16.75)	1.68 (0.60-2.68)	0.8 (0.20-1.34)	0.07 (0-0.13)
Australia	4.58	T2, T3	CS, PS	125	508	634	500	-21.02	5.6	0.36	0.49	IE, NA
Austria	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Belarus	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Belgium	0.04	D	D	NO	NO	NO	0	–	NO	NO	NO	NO
Bulgaria	1.39	OTH, T1	D, OTH	0.27	31	31	31	0.00	12	1.7	0.80	0.067
Canada	0.18	CS	CS	NO	82	82	61	-25.42	NO	IE, NO	0.58	IE, NO
Croatia	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Cyprus	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Czech Republic	2.50	T1, T2	CS, D	6.9	39	45	45	-0.25	8.8	1.7	1.3	0.067
Denmark (KP)	–	NA	NA	NO	NO	NO		–	NO	NO	NO	NO
Denmark (Convention)	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Estonia	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
European Union (KP)	0.61			84	372	456		–	8.0	1.5	0.47	0.027
European Union (Convention)	0.61			84	372	456	459	0.51	8.0	1.5	0.47	0.027
Finland	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
France (KP)	0.00	T2, T3	CS, PS	NO	NO	NO		–	NO	NO	NO	NO
France (Convention)	0.00	T2, T3	CS, PS	NO	NO	NO	0	–	NO	NO	NO	NO
Germany	0.27	T2, T3	CS	3.8	172	175	176	0.13	24	0.58	0.011	IE, NA
Greece	0.78	T1	D	NO	33	33	33	0.00	NO	NO	0.87	IE, NO
Hungary	0.09	T1, T2	CS, D	0.006	9.2	9.2	9.2	0.00	2.6	0.25	IE, NO	IE, NO
Iceland	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Ireland	0.03	T1	D	NO	NO	NO	0	–	NO	NO	NO	NO
Italy	0.00	T2	D	NO	NO	NO	0	–	NO	NO	NO	NO
Japan	0.04	T1, T2, T3	CS, D	0.53	0.75	1.3	1.3	0.49	3.0	1.7	0.80	0.067
Kazakhstan	5.56	T1	CS, D	11	93	103	103	0.07	1.6	1.7	6.9	0.67
Latvia	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Liechtenstein	–	NA	NA	NO	NO	NO		–	NO	NO	NO	NO
Lithuania	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Luxembourg	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Malta	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Monaco	–	NA	NA	NO	NO	NO		–	NO	NO	NO	NO
Netherlands	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
New Zealand	0.22	T1, T2, T3	CS, D, OTH	0.19	2.7	2.9	2.9	-0.01	17	1.6	0.80	0.067
Norway	0.15	T2	CS	0.12	0.84	1.0	0.82	-15.22	7.2	IE, NO	0.54	IE, NO
Poland	4.28	T1, T2	D	66	60	127	131	3.06	7.4	1.7	0.80	0.067
Portugal	0.01	NO	NO	NO	NO	NO	0	–	NO	NO	NO	NO
Romania	0.81	T1	D	NO	23	23	23	0.00	NO	NO	0.80	0.067
Russian Federation	2.32	T1, T2	CS, D	105	281	386	366	-5.00	12	2.0	3.7	0.13
Slovakia	0.76	T2	CS	1.8	NO	1.8	1.8	-0.01	5.9	0.60	NO	NO
Slovenia	1.30	T2, T3	CS, D, PS	3.3	NO	3.3	3.3	0.00	2.0	0.67	NO	NO
Spain	0.03	CS, T2	CS	1.5	0.9	2.4	1.8	-24.60	1.3	0.39	NA	NA
Sweden	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Switzerland	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Turkey	1.13	T1	D	12	61	73	73	0.00	12	1.7	0.80	0.067
Ukraine	4.82	T1, T2, T3	CS, D, M	60	C	C	36	–	11	1.2	C	C
United Kingdom of Great Britain and Northern Ireland (KP)	0.10	T2, T3	CS	0.022	5.2	5.2		–	13	1.2	0.34	IE, NO
United Kingdom of Great Britain and Northern Ireland (Convention)	0.10	T2, T3	CS	0.022	5.2	5.2	4.2	-19.91	13	1.2	0.34	IE, NO
United States of America	0.93	T2, T3	CS	228	431	660	660	0.02	10.0	0.84	0.63	0.14

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Canada, Czech Republic, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] Data provided by IEA on 7 June 2018.

[c] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2 Chapter 4 Fugitive Emissions, pages 4.12 to 4.19. (Tier 1).

Table 1.11a

Fugitive emissions from fuels: oil and natural gas - CH_4, CO_2 (2016)

	CH_4			CO_2		
	Share of national total[a]	Methods and EF used		Share of national total[a]	Methods and EF used	
	(%)	Methods	EF	(%)	Methods	EF
Australia	1.91	T1, T2	CS, D, PS	2.03	T1, T2, T3	CS, D, PS
Austria	0.33	T1, T2	CS, D	0.16	T1, T2	CS, D
Belarus	0.85	CS, D, T1	CS, D	0.00	D, T1	CS, D
Belgium	0.44	CS, D, T1	CS, D	0.07	T1, T3	D, PS
Bulgaria	0.35	T1	D	0.01	T1	D
Canada	5.88	CS	CS	1.87	CS	CS
Croatia	0.84	T1, T2	D	1.19	CS, T1	CS, D
Cyprus	0.00	T1	D	0.00	T1	D
Czech Republic	0.46	T1, T2	CS, D	0.00	T1, T2	CS, D
Denmark (KP)	0.20	T2, T3	CS, D, OTH, PS	0.54	T2, T3	CS, D, PS
Denmark (Convention)	0.19	NA	NA	0.53	NA	NA
Estonia	0.09	T1	D	0.00	T1	D
European Union (KP)	0.77	NA	NA	0.45		
European Union (Convention)	0.77	NA	NA	0.45	NA	NA
Finland	0.06	CS, T1, T2	CS, D, PS	0.18	CS	CS
France (KP)	0.26	T1, T2, T3	CS, D, OTH, PS	0.65	T1, T2, T3	CS, D, PS
France (Convention)	0.26	T1, T2, T3	CS, D, OTH, PS	0.64	T1, T2, T3	CS, D, PS
Germany	0.56	T2, T3	CS	0.19	CS, T2	CS
Greece	0.12	T1	D	0.01	T1	D
Hungary	0.96	T1	CS	0.22	T1, T3	CS
Iceland	0.01	T1	D	0.00	T1	D
Ireland	0.03	CS, T1, T2	CS, D	0.00	CS, T2, T3	CS, PS
Italy	1.09	T1, T2	CS, D	0.50	T1, T2	CS, D
Japan	0.02	CS, T1	CS, D	0.02	CS, T1	CS, D
Kazakhstan	0.23	T1	CS, D	0.01	T1	D
Latvia	1.03	T3	CS	0.00	T3	CS
Liechtenstein	0.62	T3	CS	–	NA	NA
Lithuania	1.52	T1, T2	CS, D	0.02	T1, T2	CS, D
Luxembourg	0.32	T1	D	0.00	T1	D
Malta	–	NA	NA	–	NA	NA
Monaco	0.72	T3	CS	0.00	T3	CS
Netherlands	0.31	T1, T1b, T2, T3	CS, D, PS	0.53	T1, T2, T3	CS, D, PS
New Zealand	0.54	T1, T3	CS, D	0.74	T1, T2, T3	CS, D, PS
Norway	1.46	T2	CS, PS	4.70	T2	CS, PS
Poland	0.64	T1	CS, D	0.02	T1	CS, D
Portugal	0.08	CR, OTH	CR, OTH	1.59	D	D
Romania	7.83	T1	D	0.81	T1, T2	CS, D
Russian Federation	23.55	T1b, T2	CS, D	2.78	T1b, T2	CS, D
Slovakia	3.31	T1	CS	0.00	T1	CS
Slovenia	0.21	T1	D	0.00	T1	D
Spain	0.20	CS, T1, T2	CS, D	1.16	CS, T1, T2	CS, D, PS
Sweden	0.12	T1, T2, T3	CS, D, PS	1.26	T2, T3	CS, PS
Switzerland	0.40	T1, T2	CS, D	0.06	T2	CS
Turkey	0.51	T1	D	0.03	T1	D
Ukraine	8.04	T1, T2	CS, D	0.62	T1, T2	CS, D
United Kingdom of Great Britain and Northern Ireland (KP)	1.00	T2, T3	CS, PS	0.85	T2, T3	CS, PS
United Kingdom of Great Britain and Northern Ireland (Convention)	1.00	T2, T3	CS, PS	0.85	T2, T3	CS, PS
United States of America	3.21	CS	CS	0.74	CS	CS

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Canada, Czech Republic, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

Table 1.11b

Fugitive emissions from fuels: oil and natural gas - oil - CH_4, CO_2 (2016)

	Oil															
	Exploration				Production				Transport				Refining (R) / Storage (S)			
	CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data	
	kg/unit		Unit	Description	kg/unit		Unit	Description	kg/unit		Unit	Description	kg/unit		Unit	Description
IPCC default EF[b]			10^3 m^3	total oil production					(5.4)(PL) (25)(TT)							
Australia	0.33	3 200	t	Quantity of Oil Flared	2 831	NA, NO	PJ	Crude Oil and ORF Produced	643	NA, NO	PJ	Crude oil transport domestic	712	84 493	PJ	Crude Oil refined and stored
Austria	IE	IE, NO	Mt	Mt crude oil	IE	IE, NO	Mt	Mt crude oil	5.4	0.49	Mt	1000 m3 crude oil	31 663	NA, NO	Mt	Mt crude oil Input
Belarus	NO	NO	NE	number of wells drilled	29 891	5 566	NE	PJ of oil produced	111	10	NE	PJ oil loaded in tankers	1 400	NA	NE	PJ oil refined
Belgium	NO	NO	PJ		NO	NO	PJ		150	14	PJ		54	NA, NO	PJ	
Bulgaria	194	9 102	103m3	Indigenous production	2 200	280	103m3	Indigenous production	25	2.3	103m3	Indigenous production	22	NO	103m3	Refinery intake
Canada	IE	IE, NO	NA	NA	1 817	1 422	10^3 m^3	Total Crude Oil Production	0.072	0.11	10^3 m^3	Total crude oil production	29	6.9	10^6 l	Refinery energy consumption
Croatia	194	9 102	1001 m3	total oil production	2 546	41 225	1001 m3	total oil production	5.4	0.49	1001 m3	total oil transported by pipelines	22	NA, NO	1001 m3	oil refined
Cyprus	NO	NO	NO		NO	NO	NO		NO	NO			NO	NO	NO	Crude Oil refined (10^3 m3)
Czech Republic	NE	NE	PJ	(e.g. number of wells drilled)	4 746	7 576	PJ	(e.g. PJ of oil produced)	146	13	PJ	(e.g. PJ oil loaded in tankers)	585	NE, NO	PJ	(e.g. PJ oil refined)
Denmark (KP)	NO	NO	m3	Oil explored	0.59	0.043	10^3m3	Oil produced	0.021	NA, NO	Mg	Oil loaded	0.13	0.001	Mg	Oil refined
Denmark (Convention)																
Estonia	NO	NO	NA	Exploration	NO	NO	NA	Production	NO	NO	NA	Transport	NO	NO	NA	Refining/Storage
European Union (KP)																
European Union (Convention)																
Finland	NO	NO	NO		NO	NO	NO		NO	NO	NO		25	NO	kt	kt oil refined
France (KP)	5 373	252 097	PJ	Oil produced	54 578	7 201	PJ	Oil produced	65	5.9	PJ	Oil loaded	6.3	1 044 449	PJ	Oil refined
France (Convention)	NE	NE	PJ	Oil produced	54 578	7 201	PJ	Oil produced	65	5.9	PJ	Oil loaded	6.3	1 044 449	PJ	Oil refined
Germany	64	0.48	number	number of wells drilled	0.020	0.11	t	oil produced	0.006	NA, NO	t	oil transported	0.086	2.6	t	oil refined
Greece	NE	NE, NO			0.69	0.050	kt		27	NE, NO	kt		26	IE, NO	kt	
Hungary	IE	IE, NO	NA		1 807	130	1000 m3	conventional oil production (thousand m3)	10	51	1000 m3	Oil transported by pipeline (thousand m3)	22	NA, NO	1000 m3	Oil refined (thousand m3)
Iceland	NO	NO			NO	NO			NO	NO			NO	NO		
Ireland	NO	NO	PJ		NO	NO	PJ		NO	NO	PJ		110	NO	PJ	
Italy	NO	NO	NA	Wells drilled	1 872	321	Gg	Oil produced	6.2	0.56	Gg	Oil transported	9.4	21 989	Gg	Oil refined
Japan	IE	IE, NO			1 167 784	84 340	10^6 m^3	Oil produced	76 151	5 249	10^6 m^3	Oil & condensate produced	2 629	NE, NO	10^6 m^3	Oil refined
Kazakhstan	NA	NA	NA		0.004	259	t		0.031	0.80	t		NA	NA	t	
Latvia	NO	NO	kt	Exploration	NO	NO	kt	Production	NO	NO	kt	Transport	NO	NO	kt	Refining/Storage
Liechtenstein	NO	NO	no	number of wells drilled	NO	NO	no	oil produced	NO	NO	no	oil loaded in tankers	NO	NO	no	oil refined
Lithuania	194	9 100	thous.m3	Wells drilled, number	1.5	0.11	thous.m3	Oil produced, thous.m3	5.4	0.49	thous.m3	Oil transported, thous.m3	2.6	NO	thous.m3	Oil refining, PJ
Luxembourg	NO	NO	NA	number of wells drilled	NO	NO	NA	oil produced	NO	NO	NA	oil loaded in tankers	NO	NO	NA	oil refined
Malta	NO	NO	NO	number of wells drilled	NO	NO	NO	oil produced	NO	NO	NO	oil loaded in tankers	NO	NO	NO	oil refined
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	IE	IE, NO	PJ		IE	IE, NO	PJ		5.8	0.53	Gg		116	398 472	PJ	
New Zealand	0.000	0.43	number of wells drilled		0.001	0.000	m3		0.030	0.003	m3		0.022	NA, NO	m3	
Norway	IE	IE, NO	Number of wells	Exploration wells	IE	IE, NO	10^3 m^3	Oil produced	1 234	28 165	PJ	Oil loaded in tankers	7 050	2 076 200	PJ	Oil refined
Poland	NA	NA	NA	NA	75 770	5 472	PJ	Production	6.3	0.57	Gg	oil ltransported by pipeline	1 148	NA	PJ	oil refined
Portugal	NO	NO	NO		NO	NO	NO		5 400	490	Mt		NO	15 537 160 654	Mt	
Romania	48 451	2 289 248	PJ	oil produced	557 958	70 883	PJ	oil produced	150	14	PJ	oil refined	613	IE, NO	PJ	oil refined
Russian Federation	1 702	80 418	10^3 m3	Oil produced	19 600	2 490	10^3 m3	Oil and Condensate produced	5.4	0.49	10^2 m3	Oil transpoted by pipeline	22	NE, NO	10^3 m3	Oil refined
Slovakia	NO	NO	NO		3 600	260	kt	Production	5.4	0.49	kt	Transfer	41	NE	kt	Refining/Storage
Slovenia	NO	NO	1000 m3	NA	NO	NO	1000 m3	Conventional oil produced	NA	430	1000 m3	Consumption of LPG	NO	NA, NO	1000 m3	Oil refined
Spain	NA	NA, NO	Tg	Crude oil produced	724	57	Tg	Crude oil produced	528	48	Tg	Transport of crude oil	1 881	52 059 685	Tg	Oil refined
Sweden	C	C	TJ	Consumption of feedstock	NO	NO		Oil production	745	NE	PJ	Transported amount of oil	C	NA, C	MT	Consumption of crude oil
Switzerland	NO	NO			NO	NO			152	NA, NO	PJ		1 042	NA, NO	PJ	Crude oil used
Turkey	NO	NO	NO		3 600	260	10^3 m^3	oil production	4.4	76	10^3 m^3	oil transported by pipeline	41	NA, NO	10^3 m^3	(petroleum refining)
Ukraine	747	80 400	10^3 m^3	Oil Produced	30 001	2 150	10^3 m^3	oil produced	5.4	0.49	10^3 m^3	Crude oil transported by pipeline	880	NA, NE	PJ	Oil refined
United Kingdom of Great Britain and Northern Ireland (KP)	25	3 200	t	Exploration drilling: fuel use	1 352	60 248	PJ	Oil produced	0.011	NO	t	Oil loading	2.3	NO	PJ	Refinery throughput
United Kingdom of Great Britain and Northern Ireland (Convention)	25	3 200	t	Exploration drilling: fuel use	1 352	60 248	PJ	Oil produced	0.011	NO	t	Oil loading	2.3	NO	PJ	Refinery throughput
United States of America	IE	IE	10^6 Bbl(oil US)	Annual Domestic Production	438 136	5 882 798	10^6 Bbl(oil US)	Annual Domestic Production	1 405	NE,NA	10^6 Bbl(oil US)	Refinery Feed	IE	IE	10^6 Bbl(oil US)	Refinery Feed

[a] The units of the implied emission factors (IEF) vary from Party to Party depending on the unit of the activity data used. The unit of the IEF is kg/unit of activity data.

[b] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2 Chapter 4 Fugitive Emissions. Table 4.2.4. Tier 1 Emission Factors in developed coutries. Values converted from Gg to kg.

Table 1.11c

Fugitive emissions from fuels: oil and natural gas - natural gas - CH_4, CO_2 (2016)

	Natural Gas																			
	Production				Processing				Transmission and Storage				Distribution				Other			
	CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data	
	kg/unit		Unit	Description	kg/unit		Unit	Description	kg/unit		Unit	Description	kg/unit		Unit	Description	kg/unit		Unit	Description
IPCC default EF[b]	(380 to 2300)	(140 to 820)	10^6 m^3	Gas produced	(150 to 1030)	(12 to 320)	10^6 m^3	Gas produced	(66-480)(T) (25)(S)	(0.88)(T) (0.11)(S)	10^6 m^3	marketable gas	1 100	51	10^6 m^3	utility sales				
Australia	45 426	2 214	PJ	Natural gas produced	0.43	0.058	t	NA	1 026	20	km	Length of Pipeline	219 240	12 482	PJ	Utility sales	IE	IE, NO	NA	IE
Austria	3 713	67 039	Mm3	Mm3 natural gas	NA	37 510	Mm3	Mm3 natural gas	544	25	km	km pipeline length	51	2.3	km	km distribution network length	NO	NO	Mm3	Mm3 natural gas stored
Belarus	126 818	4 154	NE	PJ gas produced	IE	IE, NO	NE		25	1.0	10^6 m^3	PJ gas consumed	1 100	51	10^6 m^3	PJ gas consumed	8 994	NO	NE	PJ gas consumed
Belgium	NO	NO	PJ		NO	NO	PJ		10 447	NA, NO	PJ		24 886	800	PJ		NO	NO	PJ	
Bulgaria	1 340	48	106m3	Indigenous production	590	166	106m3	Indigenous production	274	0.17	106m3	Transmission and storage	1 100	51	106m3	Inland consumption	NO	NO	NO	
Canada	483	13	10^6 m^3	Gross new production of Natural Gas	57	40	10^6 m^3	Gross new production of Natural Gas	554	455	km	Transmission - Cubic Metre KM	142	7.3	km	Distribution - Cubic Metre KM	1 342	261	number	Number of Spills + Total Wells
Croatia	1 341	96 603	1000000 m3	gas produced	592	43 166	1000000 m3	gas produced	480	4.1	1000000 m3	marketable gas	1 100	51	1000000 m3	utility sales	NO	NO	NO	
Cyprus	NO	NO	NO		NO	NO	NO		NO	NO	NO		NO	NO	NO		NO	NO	NO	
Czech Republic	38 649	15	PJ	(e.g. PJ gas produced)	NA	NA, NO	PJ		5 443	22	PJ	(e.g. PJ gas consumed)	119 894	477	PJ	(e.g. PJ gas consumed)	IE	IE, NO	PJ	(e.g. PJ gas consumed)
Denmark (KP)	380	14	10^6 m3	Gas produced	NA	NA	10^6 m3	Gas produced	5.5	0.17	10^6 m3	Gas transmission	71	2	10^6 m3	Gas distributed	NO	NO	m3	Incl. In transmission
Denmark (Convention)																				
Estonia	NO	NO	NA	Production	NO	NO	NA	Processing	2 218	30	PJ	Amount of the transmission of Natural Gas	36 960	1 714	PJ	Amount of natural gas distributed	NO	NO	NA	Other
European Union (KP)																				
European Union (Convention)																				
Finland	NO	NO	NO		NA	NO	NA		3 956	NE, NO	PJ	PJ gas consumed	97 407	NE, NO	PJ	PJ gas distributed	NO	NO	NO	
France (KP)	IE	IE, NO	PJ	NO	304	5 361 447	PJ	Gas processed	15 400	163	PJ	Gas consumed	12 850	136	PJ	Gas consumed	NO	NO	PJ	NO
France (Convention)	IE	IE, NO	PJ	NO	304	5 361 447	PJ	Gas processed	15 400	163	PJ	Gas consumed	12 850	136	PJ	Gas consumed	NO	NO	PJ	NO
Germany	0.072	0.088	1000 m³	gas produced	0.052	136	1000 m³	gas produced	2 197	9.3	km	lenght of transmission pipelines	175	1.2	km	lenght of distribution pipelines	21	0.17	TJ	gas consumed
Greece	1 930	214	mil_m3		IE	IE, NO	mil_m3		298	0.99	mil m3		1 100	51	mil m3		IE	IE, NO		
Hungary	1 340	48	million m3	Gas production (million m3)	920	248	million m3	Sweet gas plants-raw gas feed (million m3)	298	0.99	million m3	Marketable gas (million m3)	1 100	51	million m3	Utility sales (million m3)	NO	NO	NO	
Iceland	NO	NO			NO	NO			NO	NO			NO	NO			NO	NO		
Ireland	3 231	NO	PJ		IE	NO	PJ		IE	IE, NO	PJ		6 260	3 614	PJ		NO	NO	PJ	
Italy	906	82	Mm3	Gas produced	406	320	Mm3	Gas produced	428	8.3	Mm3	Gas transported	4 266	82	Mm3	Gas distributed	NO	NO	NA	other
Japan	2 193	78	10^6 m^3	Gas produced	755	235	10^6 m^3	Gas produced	339	NA, NO	10^6 m^3	Gas sold	10	NA, NO	10^6 m^3	City gas sold	IE	NA, NO		
Kazakhstan	12	0.097	bln m3		NA	NA	NA		0.001	0.001	bln m3		18	0.955	bln m3		37 109	NA	t	
Latvia	NO	NO	m3	Production	NO	NO	m3	Processing	0.68	0.002	m3	Transmission and storage	0.68	0.002	m3	Distribution	0.68	0.002	m3	Other
Liechtenstein	NO	NO	no	gas produced	NO	NO	no	gas produced	165	NO	km	gas consumed	46	NO	TJ	gas consumed	NO	NO	TJ	gas produced
Lithuania	NO	NO	NO		NO	NO	NO		937 845	483	kt	Natural gas leakages	937 845	483	kt	Natural gas leakages	937 845	483	kt	Natural gas leakages
Luxembourg	NO	NO	NA	gas produced	NO	NO	NA	NO	13	0.024	TJ	gas consumed	30	1.4	TJ	gas consumed	NO	NO	NA	NO
Malta	NO	NO	NO	gas produced	NO	NO	NO	gas processed	NO	NO	NO	gas consumed	NO	NO	NO	gas consumed	NO	NO	NO	gas consumed
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0.73	0.012	m	CH4	NO	NO	NO	NO
Netherlands	IE	IE, NO	PJ		IE	IE, NO	PJ		2 183	28	PJ		45 369	1 396	10^3 km		NO	NO	PJ	
New Zealand	997	36	Mm3		NE	NE, NO	NA		820 770	52 951	TJ		14 002	2 158	TJ		NO	NA, NO	NA	
Norway	IE	11 939	10^6 m^3	Gas produced	IE	IE, NO	PJ	Gas processed	IE	IE, NO	PJ	Gas export	44 513	IE, NO	PJ	Gas consumption	NE	NE	PJ	Gas processed
Poland	66 880	2 384	PJ	Production	29 951	38 327	PJ		13 958	26	PJ	gas consumed	31 986	1 483	PJ	gas consumed	727	3.2	PJ	NA
Portugal	NO	NO	NO		NO	NO	NO		12	0.086	toe NG Transmitted		1 295	9	toe NG Distributed		NO	NO	NO	
Romania	12 190	97	106m3	gas produced	250	20	106m4	gas produced and processed	550	1.3	106m3	gas produced	1 800	96	106m3	gas supplied	207 394	NO	PJ	gas consumed
Russian Federation	213	3.9	10^6 m3	Natural Gas produced	IE	IE, NO	10^6 m3	Natural Gas produced	6 025	7.49	10^6 m3	Marketable gas	1 100	51	10^6 m3	Gas consumed	NE	NE, NO	NA	
Slovakia	2 300	82	mil m3	Production/Processing	1 030	320	mil m3		480	0.88	mil m3	Transfer	1 100	51	mil m3	Distribution	25	0.11	mil m3	Storage
Slovenia	1.3	0.048	1000 m3	Gas production	NO	NO	1000 m3	NA	0.38	0.001	1000 m3	Marketable gas	1.1	0.051	1000 m3	Utility sale	NO	NO	1000 m3	NA
Spain	2 096	75	Mm3	Mm3 gas produced	150	12	Mm3	Mm3 gas produced	2.8	0.063	PJ	PJ gas (NCV)	23 503	579	PJ	PJ of gaseous fuels (natural gas, LPG, gas work gas or propanized air) distributed by networks	NO	NO	NO	NO
Sweden	NO	NO		Gas produced	NO	NO		Gas produced	NA	NA	KM	Length of transmission pipelines	NA	NA	KM	Length of distribution pipelines	NO	NO		
Switzerland	NO	NO	PJ	gas produced	NO	NO			17 868 000	303 000	PJ	See documentation box	17 868 000	303 000	PJ		NO	NO	PJ	
Turkey	2 300	82	10^6 m^3	Natural gas production	1 030	320	10^6 m^3	Natural gas production	454	0.84	10^6 m^3	Natural gas transmission by pipeline	1 100	51	10^6 m^3	Natural gas distribution	NO	NO	NO	
Ukraine	12 190	97	10^6 m^3	Natural Gas Produced	790	250	10^6 m^3	Natural Gas Processed	933 372	7 826	Mt	gas transmitted	10 894 285	91 347	10^9 m^3	The volume of natural gas distribution	225 361	597	PJ	Residential and Non-residential Gas Consumed
United Kingdom of Great Britain and Northern Ireland (KP)	IE	IE, NO	PJ	Gas produced	1 526	129 180	PJ	Gas produced	4.6	0.20	GWh	Natural gas supply	284	12	GWh	Natural gas supply	NO	NO	NA	
United Kingdom of Great Britain and Northern Ireland (Convention)	IE	IE, NO	PJ	Gas produced	1 526	129 180	PJ	Gas produced	4.6	0.20	GWh	Natural gas supply	284	12	GWh	Natural gas supply	NO	NO	NA	
United States of America	160 228 198	120 482 983	10^9 ft^3	Annual Production	IE	IE	NA	Annual Production	47 686 225	5 210 772	10^9 ft^3	Consumption	IE	IE	10^9 ft^3	Consumption	99	4.3	abandoned wells	Abandoned Wells

[a] The units of the implied emission factors (IEF) vary from Party to Party depending on the unit of the activity data used. The unit of the IEF is kg/unit of activity data.

[b] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2 Chapter 4 Fugitive Emissions. Table 4.2.4. Tier 1 Emission Factors in developed coutries. Values converted from Gg to kg.

Table 1.11d

Fugitive emissions from fuels: oil and natural gas - venting and flaring - CH_4, CO_2 (2016)

	Venting and flaring																			
	Oil								Gas							Combined				
	Venting				Flaring				Venting			Flaring				Venting			Flaring			
	CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data	
	kg/unit		unit	Description	kg/unit		unit	Description	kg/unit	unit	Description	kg/unit		unit	Description	kg/unit		unit	Description	kg/unit		unit	Description
IPCC default EF[b]																							
Australia	IE	IE, NO	NA	NA	35 022	2 950 761	kt	Quantity of Gas Flared	11 766	PJ	Natural gas, crude oil and ORF produced	4 762	2 699 128	kt	Natural gas, crude oil and ORF produced	NO	NO	NA	NA	NO	NO	NA	NA
Austria	IE	IE, NO	NA		IE	IE, NO	NA		IE	NA		IE	IE, NO	NA		IE	IE, NO	NA		IE	IE, NO	NA	
Belarus	NA	NA, NO	NA	PJ oil produced	NA	NA, NO	NA	PJ gas consumption	NA	NA	PJ gas produced	NA	NA, NO	NA	PJ gas consumption	NA	NA, NO	NA	Venting	0.005	0.78	NA	Flaring
Belgium	NO	NO	PJ		NO	NO	PJ		58	PJ		NO	NO	PJ		NO	NO	PJ		IE	NA	PJ	
Bulgaria	8 700	1 800	103m3	Indigenous production	21	34 000	103m3	Indigenous production	182	106m3	Indigenous production	2.8	4 200	106m3	Indigenous production	NO	NO	NO		NO	NO	NO	
Canada	3 638	23 166	10^3 m^3	Total crude oil production	9 497	2 762 039	10^6 m^3	Flared Gas	1 560	10^6 m^3	Gross new production of Natural Gas	12 009	1 996 585	10^6 m^3	Flared Gas	96	2.0	number	Number of wells drilled	168	28 111	number	Number of wells drilled
Croatia	25	2.3	1000 m3		IE	IE, NO	1000 m3		IE	1000000 m3		IE	IE, NO	1000000 m3		NO	NO	NO		NO	NO	NO	
Cyprus	0.002	0.023		Fuel transported (m3)	NO	NO			NO			NO	NO			NO	NO			NO	NO		
Czech Republic	235 390	48 701	PJ	(e.g. PJ oil produced)	568	919 913	PJ	(e.g. PJ gas consumption)	NO	PJ	(e.g. PJ gas produced)	NO	NO	PJ	(e.g. PJ gas consumption)	NO	NO	PJ		NO	NO	PJ	
Denmark (KP)	NO	NO			0.018	58			16			0.086	57			NO	NO			0.24	59		
Denmark (Convention)																							
Estonia	NO	NO	NA	Oil	NO	NO	NA	Oil	NO	NA	Gas	NO	NO	NA	Gas	NO	NO	NA	Combined	NO	NO	NA	Combined
European Union (KP)																							
European Union (Convention)																							
Finland	NO	NO	NO		1.0	54 228	TJ	used fuels, TJ	NO	NO		NO	NO	NO		NO	NO	NO		NO	NO	NO	
France (KP)	19 942	2 631	PJ	Oil produced	2 026	9 028 826	PJ	Gas Flared	IE	Gg	Gas produced	6 340	2 239 200	Gg	Consumption	NO	NO	PJ	Oil and Gas produced	NO	NO	PJ	Consumption
France (Convention)	19 942	2 631	PJ	Oil produced	2 026	9 028 826	PJ	Gas Flared	IE	Gg	Gas produced	6 340	2 239 200	Gg	Consumption	NO	NO	PJ	Oil and Gas produced	NO	NO	PJ	Consumption
Germany	IE	IE, NO			1.2	3 889	kt	oil refined	IE			IE	1.8	m^3	gas flared	IE	IE, NO	m3		IE	IE, NO		
Greece	844	111	kt		29	48 045	kt		182	mil m3		2.8	4 200	mil_m3		NO	NO			NO	NO		
Hungary	720	95	1000 m3	Conventional oil production (thousand m3)	326	65 899	1000 m3	Conventional oil production (thousand m3)	1 691	million m3	Sour gas plants-raw gas feed (million m3)	2.7	4 051	million m3	Gas production (million m3)	IE	IE, NO	NO		IE	IE, NO	NA	
Iceland	NO	NO			NO	NO			NO			NO	NO			NO	NO			NO	NO		
Ireland	NO	NO	PJ		NO	NO	PJ		IE	PJ		NO	55 592 262	PJ	Natural gas flaring	NO	NO	PJ		NO	NO	PJ	
Italy	179	2 061	Gg	Oil produced	276	38 926	Gg	Oil produced	NA	Mm3	Gas produced	36	4 200	Mm3	Gas produced	NO	NO	NA	Combined	NO	NO	NA	Combined
Japan	720 000	95 000	10^6 m^3	Oil produced	25 000	41 000 000	10^6 m^3	Oil produced	IE	10^6 m^3	Gas produced in relevant facilities	2.0	3 000	10^6 m^3	Gas produced	IE	IE, NO			271	5 700	wells	Number of wells tested
Kazakhstan	NA	NA	NA		IE	IE	NA		NA	NA		IE	IE	NA		NA	NA	NA		0.001	2.2	t	
Latvia	NO	NO	kt	Oil	NO	NO	kt	Oil	0.68	m3	Gas	NO	NO	kt	Gas	NO	NO	kt	Combined	NO	NO	kt	Combined
Liechtenstein	NO	NO	no	oil produced	NO	NO	no	gas consumed	NO	no	gas produced	NO	NO	no	gas consumed	NO	NO	no	gas produced	NO	NO	no	Gas/Oil Produced
Lithuania	720	95	thous.m3	Oil produced, thous.m3	25	41 000	thous.m3	Oil produced, thous.m3	NO	NO		NO	NO	NO		NO	NO	NO		NO	NO	NO	
Luxembourg	NO	NO	NA	oil produced	NO	NO	NA	gas consumed	NO	NA	gas produced	NO	NO	NA	gas consumed	NO	NO	NA	combined oil and gas production	NO	NO	NA	combined oil and gas consumption
Malta	NO	NO	NO	oil produced	NO	NO	NO	gas consumed	NO	NO	gas produced	NO	NO	NO	gas consumed	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	IE	IE, NO	10^6 m^5		IE	IE, NO	10^6 m^5		IE	PJ		IE	IE, NO	PJ		IE	IE	PJ		IE	IE	PJ	
New Zealand	IE	IE	NA		IE	IE	NA		NA	NA		IE	IE	NA		14 125	NA, NO	TJ		424	51 722	TJ	
Norway	IE	IE, NO	PJ	(See Venting combined)	9 456	75 650 118	PJ	Oil flared	IE	PJ	(See Venting combined)	78 349	78 647 683	PJ	Gas flared	2 359	9 282	PJ	Oil and gas produced	IE	IE, NO	PJ	(See Flaring of Oil/Gas in i/ii)
Poland	814	163	Gg	oil produced	47 619	29	Gg	oil produced	IE	NA	NA	1 200	14 829	10^6m3	gas production	NO	NA, NO	NA	NA	NO	NA, NO	NA	NA
Portugal	NO	NO	NO		1 399	2 427 002	kt	Fuel Gas consumption	NO	NO		NO	NO	NO		NO	NO	NO		NO	NO	NO	
Romania	294 636	61 205	PJ	oil produced	712	1 152 790	PJ	gas consumed	392	106m3	gas produced	0.88	1 400	106m3	gas consumed	NA	NA, NO		gas and oil produced	NA	NA, NO		gas and oil combined
Russian Federation	10 350	2 150	10^3 m3	Oil and Condensate produced	12 000	2 000 000	10^6 m3	Associated gas flaring	IE	10^6 m3	Marketable Gas	0.11	195	10^6 m3	Natural Gas production	NE	NE, NO	NA		NE	NE, NO	NA	
Slovakia	720	95	kt	Venting oil	25	41 000	kt	Flaring oil	320	mil m3	Venting gas	2.0	3 000	mil m3	Flaring gas	NO	NO	NA		NO	NO	NA	
Slovenia	NA	NA, NO	1000 m3	Conventional oil produced	NO	NO	1000 m3	Conventional oil produced	0.25	1000 m3	Marketable gas	0.001	1.2	1000 m3	Gas production	NO	NO	1000 m3	NA	NO	NO	1000 m3	NA
Spain	815 402	107 584	Tg	Tg gas venting	514	3 409 119	Tg	Tg gas consumption	395 604	PJ	gas produced	288	55 134	Mm3	Mm3 gas consumption	NO	NO	NO	NO	NO	NO	NO	NO
Sweden	IE	IE		Venting of oil products	0.94	66 613	TJ	Venting of oil products	0.64	M3	Venting of gas products	1.0	56 950	TJ	Venting of gas products	IE	IE		Venting of combined products	NA	NA		Venting of combined products
Switzerland	NO	NO			0.002	216		(please specify)	NO			NO	NO	NO		NO	NO			NO	NO		
Turkey	720	95	10^3 m^3	(Oil production	219	50 102	10^3 m^3	Oil production	39 460	10^6 m^3	Natural gas production	2.0	3 000	10^6 m^3	Natural gas production	NO	NO	NO		NO	NO	NO	
Ukraine	855	113	10^3 m^3	oil produced	29	48 500	10^3 m^3	oil produced	IE	NA	gas transmission	2.3	3 550	10^6 m^3	Natural Gas Produced	IE	IE, NA	NA	__	IE	IE, NA	NA	__
United Kingdom of Great Britain and Northern Ireland (KP)	NA	NA			12	2 670			NA			5.7	1 798			IE	IE, NO			IE	IE, NO		
United Kingdom of Great Britain and Northern Ireland (Convention)	NA	NA	NA		12	2 670	t	Amount of gas flared	NA	NA		5.7	1 798	t	Amount of gas flared	IE	IE, NO	NA		IE	IE, NO	NA	
United States of America	IE	IE, NA	NA	Production	IE	IE, NA	NA	Production	IE	NA	Production	IE	IE, NA	NA	Production	IE	IE, NA	NA	Production	IE	IE, NA	10^9 ft^3	Gas Flared

[a] The units of the implied emission factors (IEF) vary from Party to Party depending on the unit of the activity data used. The unit of the IEF is kg/unit of activity data.

[b] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2 Chapter 4 Fugitive Emissions. Table 4.2.4. Tier 1 Emission Factors in developed coutries. Values converted from Gg to kg.

Table 1.12

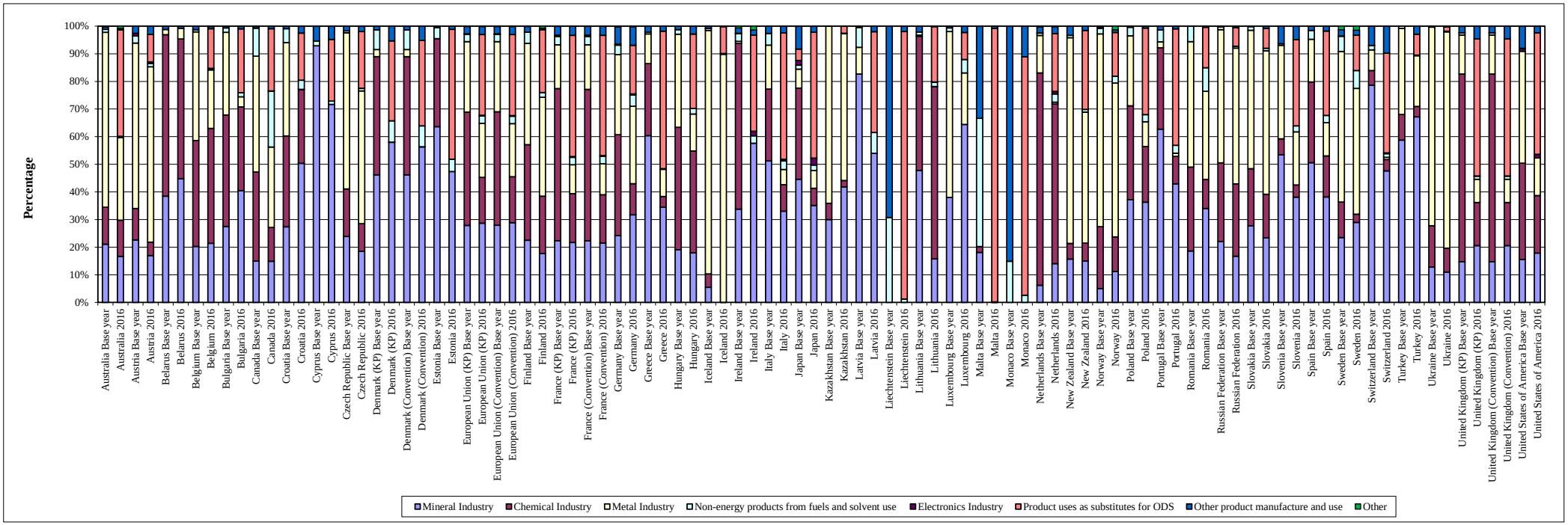
CO_2 transport and storage (2016)

	Transport of CO_2		Injection and storage		Other	
	CO_2 IEF	Activity data	CO_2 IEF	Activity data	CO_2 IEF	Activity data
	kg/kt	(kt)	kg/kt	(kt)	kg/kt	(kt)
IPCC default EF[a]	(0.00014 to 0.014 Gg/year/km)	10^3 m^3	n.a.	10^3 m^3	n.a.	10^3 m^3
Australia	NO	NO	NO	NO	NO	NO
Austria	NO	NO	NO	NO	NO	NO
Belarus	NO	NO	NO	NO	NO	NO
Belgium	NO	NO	NO	NO	NO	NO
Bulgaria	NO	NO	NO	NO	NO	NO
Canada	70	3 847	IE, NE	4 894	NA	NA
Croatia	NO	NO	NO	NO	NO	NO
Cyprus	NO	NO	NO	NO	NO	NO
Czech Republic	NO	NO	NO	NO	NO	NO
Denmark (KP)	NO	NO	NO	NO	NO	NO
Denmark (Convention)	NO	NO	NO	NO	NO	NO
Estonia	NO	NO	NO	NO	NO	NO
European Union (KP)	NO	NO	IE, NO	NE, NO	NO	NO
European Union (Convention)	NO	NO	IE, NO	NE, NO	NO	NO
Finland	NA	NA	NA	NA	NO	NO
France (KP)	NO	NO	IE	NE	NO	NO
France (Convention)	NO	NO	IE	NE	NO	NO
Germany	NO	NO	NO	NO		
Greece	NO	NO	NO	NO	NO	NO
Hungary	NO	NO	NO	NO	NO	NO
Iceland	NO	NO				
Ireland	NO	NO	NO	NO	NO	NO
Italy	NO	NO	NO	NO	NO	NO
Japan	NA, NO	29	NA, NE	58	NO	NO
Kazakhstan						
Latvia	NO	NO	NO	NO	NO	NO
Liechtenstein	NO	NO	NO	NO	NO	NO
Lithuania	NO	NO	NO	NO		
Luxembourg	NO	NO	NO	NO	NO	NO
Malta	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO
Netherlands	NO	NO	NO	NO	NO	NO
New Zealand	NO	NO	NO	NO	NO	NO
Norway	NO	750	476	22 360		
Poland	NO	NO			NO	NO
Portugal	NO	NO	NO	NO	NO	NO
Romania	NO	NO			NO	NO
Russian Federation	NO	NO	NO	NO	NO	NO
Slovakia	NO	NO	NO	NO	NO	NO
Slovenia	NO	NO	NO	NO	NO	NO
Spain	NO	NO	NO	NO	NO	NO
Sweden						
Switzerland	NO	NO	NO	NO	NO	NO
Turkey	NA, NO	NA, NO	NO	NE, NO	NO	NO
Ukraine	NO	NO	NO	NO	NO	NO
United Kingdom of Great Britain and Northern Ireland (KP)	NO	NO	NO	NO	NO	NO
United Kingdom of Great Britain and Northern Ireland (Convention)	NO	NO	NO	NO	NO	NO
United States of America	IE	IE	IE	IE	IE, NA	IE

[a] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2 Chapter 5 Carbon Dioxide Transport, Injection and Geological Storage. Table 5.2. Tier 1 Emission Factors for pipeline transport of CO_2 from a CO_2 capture site to the final storage site.

Figure 2.1

Contribution of subsectors to total GHG emissions in the Industrial Processes and Product Use sector[a, b]



[a] In accordance with the UNFCCC reporting guidelines on annual inventories of Annex I Parties the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2, 11/CP.4, and 7/CP.12 some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Croatia (1990), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

[b] Indirect CO_2 emissions are excluded from the totals in this graph.

Table 2.1

Mineral industry - CO_2 (2016)

	Methods and EF used		Cement production				Lime production		Glass production	
			Share of national total[a]	Activity data		CO_2 IEF	Share of national total[a]	CO_2 IEF	Share of national total[a]	CO_2 IEF
	Methods	EF		Description[b]	Value					
			(%)		(kt)	(t/t)	(%)	(t/t)	(%)	(t/t)
IPCC default EF[c]								0.59-0.86		0.2
Australia	T2	CS	0.53	Clinker Production	5 476	0.54	0.19	0.68	–	IE, NO
Austria	T1, T3	D, PS	2.17	Cement clinker	3 300	0.52	0.73	0.75	0.05	0.080
Belarus	T1, T2	D	2.39	Used clincer production data	4 204	0.52	0.39	0.75	0.10	0.15
Belgium	T3	CS, PS	2.07	Clinker Production	4 458	0.55	1.35	0.79	0.14	0.11
Bulgaria	T1, T2	CS, D, PS	2.03		2 257	0.53	0.37	0.78	0.14	0.13
Canada	T1, T2	CS, D	0.88	clinker production	11 395	0.54	0.19	0.76	0.01	0.42
Croatia	T2, T3	CS, D	4.43	clinker production	2 059	0.52	0.38	0.75	0.13	0.13
Cyprus	CS, T1	CS, D	10.07	Clinker production	1 648	0.54	0.03	0.73	–	NO
Czech Republic	T1, T3	D, PS	1.30	clinker production	3 188	0.53	0.49	0.77	0.11	0.11
Denmark (KP)	CS, T2, T3	CS, D, PS	2.17	Production of Clinker	1 973	0.56	0.11	0.79	0.02	0.044
Denmark (Convention)			2.11	Production of Clinker	1 973	0.56	0.11	0.79	0.02	0.044
Estonia	T1, T2, T3	D, PS	0.94	Clinker production	319	0.58	0.20	0.71	0.05	0.11
European Union (KP)			1.74		NE	NE	0.43	0.74	0.10	0.12
European Union (Convention)			1.74		NE	NE	0.44	0.74	0.10	0.12
Finland	T1, T2, T3	CS, D, PS	0.94	Produced clinker	1 117	0.50	0.66	0.81	0.00	0.40
France (KP)	T1, T2, T3	CS, D, PS	1.45	Clinker consumption	12 528	0.53	0.41	0.65	0.11	0.18
France (Convention)	T1, T2, T3	CS, D, PS	1.43	Clinker consumption	12 528	0.53	0.41	0.65	0.11	0.18
Germany	T1, T2	CS, D	1.39	produced clinker	23 892	0.53	0.54	0.75	0.10	0.12
Greece	CS, T1	CS, D, PS	4.12	clinker production	7 086	0.53	0.19	0.76	0.02	0.16
Hungary	T2, T3	CS, D, PS	1.15	Clinker production (kt)	1 371	0.51	0.21	0.74	0.09	0.14
Iceland	T3	PS	–	clinker production	NO	NO	–	NO	–	NO
Ireland	T3	PS	2.91	clinker production	3 275	0.55	0.28	0.76	–	NO
Italy	T2	CS, PS	1.80	Clinker production	14 762	0.52	0.39	0.72	0.12	0.10
Japan	CS, T2	CS	1.99	Production of clinker	50 436	0.51	0.42	0.43	0.01	0.44
Kazakhstan	D, T1, T2	D	1.03		6 446	0.52	0.22	0.77	0.00	0.10
Latvia	T1, T2, T3	D, PS	3.06	(produced clinker)	678	0.51	–	NA, NO	0.00	C
Liechtenstein			–	Production	NO	NO	–	NO	–	NO
Lithuania	T1, T2	CS, D, PS	2.25	Clinker production	852	0.53	0.18	0.77	0.03	0.15
Luxembourg	CS, T2	CS, PS	3.54	clinker production	750	0.47	–	NO	0.65	0.15
Malta	T1	D	–	(not occuring)	NO	NO	–	NO	–	NO
Monaco			–		NO	NO	–	NO	–	NO
Netherlands	CS, T1	CS, D, PS	0.12	Clinker production	498	0.48	0.09	0.44	0.05	0.067
New Zealand	CS, T1	CS, D	0.62	Clinker produced	C	C	0.22	0.74	–	NA
Norway	T1, T3	CS, D, PS	1.29	Production quantity	1 306	0.52	0.41	0.75	0.01	0.46
Poland	T1, T2	CS, D	1.65	Clinker production	12 075	0.54	0.37	0.73	0.12	0.16
Portugal	T1, T3	OTH	3.39	Clinquer production	4 413	0.52	0.50	0.41	0.23	0.093
Romania	CS, OTH, T2, T3	CS, D, PS	2.83	clinker production	5 933	0.54	0.74	0.78	0.05	0.14
Russian Federation	T1, T2	CS, D	0.77	Clinker production	38 687	0.53	0.33	0.77	0.07	0.15
Slovakia	T2, T3	PS	3.27	Cement clinker	2 599	0.52	1.27	0.79	0.04	0.42
Slovenia	T2, T3	CS, D	1.94	Clinker produced	667	0.52	0.34	0.76	0.06	0.13
Spain	T1, T2, T3	CS, D, PS	2.90	Clinker production	18 009	0.52	0.39	0.70	0.14	0.11
Sweden	T3	CS, D, PS	2.91	Production of clinker	2 847	0.54	0.81	0.75	0.03	NE
Switzerland	CR, T2, T3	CS, D, OTH, PS	3.66	clinker production	3 296	0.54	0.09	C	0.01	0.051
Turkey	T1, T2	CS, D	7.20	Clinker Production	67 856	0.53	0.54	0.70	0.10	0.16
Ukraine	T1, T2, T3	CS, D	1.07	clinker production	6 687	0.54	0.73	0.77	0.07	0.19
United Kingdom of Great Britain and Northern Ireland (KP)	T3	CS	0.94	Clinker production	8 056	0.57	0.21	0.45	0.07	0.17
United Kingdom of Great Britain and Northern Ireland (Convention)	T3	CS	0.94	Clinker production	8 056	0.57	0.21	0.45	0.07	0.17
United States of America	T1, T2, T3	D	0.61	Clinker Production	75 800	0.52	0.20	0.75	0.02	0.42

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Canada, Czech Republic, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] The CRF requests Parties to specify the activity data used (e.g. cement or clinker) for estimating the emissions from cement production. The descriptions included in this column are as reported in the CRF by Parties.

[c] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 3 Chapter 2 Mineral Industry Emissions. Lime production table 2.4; glass production section 2.4.1.2.

Table 2.2

Chemical industry - CO_2 and N_2O (2016)

	CO_2					N_2O						
	Methods and EF used		Ammonia production			Methods and EF used		Nitric acid production			Adipic acid production	
	Methods	EF	Share of national total[a] (%)	Activity data (production) (kt)	CO_2 IEF (t/t)	Methods	EF	Share of national total[a] (%)	Activity data (production) (kt)	N_2O IEF (t/t)	Share of national total[a] (%)	N_2O IEF (t/t)
IPCC default EF[b]					1.666 to 3.273					0.002 to 0.009		0.3
Australia	T2, T3	CS, D	0.43	2 529	1.1	T3	CS	0.26	1 630	0.003	–	NO
Austria	T1, T2, T3	D, PS	0.66	551	0.96	T3	PS	0.04	568	0.000	–	NO
Belarus	T1, T2	CS, D	2.32	1 080	2.0	T1, T2	D	0.35	214	0.005	–	NO
Belgium	T3	D, PS	0.91	911	1.2	T3	PS	0.28	1 965	0.001	–	NO
Bulgaria	T2	CS, PS	1.93	C		T3	PS	0.19	C		–	NO
Canada	T2	CS, OTH	0.40	4 547	1.3	T1, T2, T3	CS, D, PS	0.15	921	0.004	–	NO
Croatia	T1, T3	D, PS	2.25	420	2.0	T1, T2	D, PS	0.45	293	0.001	–	NO
Cyprus			–	NO	NO			–	NO	NO	–	NO
Czech Republic	T1, T3	CS, D, PS	0.53	210	3.3	CS, T3	CS, PS	0.17	563	0.001	–	NO
Denmark (KP)	T2	PS	–	NO	NO			–	NO	NO	–	NO
Denmark (Convention)			–	NO	NO			–	NO	NO	–	NO
Estonia			–	NO	NO			–	NO	NO	–	NO
European Union (KP)			0.56	17 216	1.5			0.09	NE	NE	0.01	NE
European Union (Convention)			0.56	17 216	1.5			0.09	NE	NE	0.01	NE
Finland	CS, T2, T3	CS, PS	–	NO	NO	T3	PS	0.37	596	0.001	–	NO
France (KP)	T1, T2, T3	CS, D, PS	0.26	1 105	1.1	T2, T3	CS, D, PS	0.12	1 986	0.001	0.02	C
France (Convention)	T1, T2, T3	CS, D, PS	0.25	1 105	1.1	T2, T3	CS, D, PS	0.12	1 986	0.001	0.02	C
Germany	T1, T2, T3	CS, D, PS	0.46	2 954	1.8	T3	PS	0.05	2 541	0.001	0.02	C
Greece	T1, T1a	CS	0.17	91	1.7	CS	CS	0.02	116	0.000	–	NO
Hungary	T3	D, PS	1.75	20 135	0.056	T3	PS	0.04	718	0.000	–	NO
Iceland			–	NO	NO			–	NO	NO	–	NO
Ireland			–	NO	NO			–	NO	NO	–	NO
Italy	T2	CR, PS	0.15	564	1.9	T2	D, PS	0.01	426	0.000	0.02	0.003
Japan	CS, T1, T2, T3	CS, D	0.13	879	1.9	CS, T1, T2, T3	CS, PS	0.03	356	0.004	0.01	C
Kazakhstan	T1, T2	CS, D	0.13	210	2.1	T1	D	0.04	187	0.002	–	NO
Latvia			–	NO	NO			–	NO	NO	–	NO
Liechtenstein			–	NO	NO			–	NO	NO	–	NO
Lithuania	T3	CS	9.10	915	2.1	T3	PS	1.04	1 081	0.001	–	NO
Luxembourg			–	NO	NO			–	NO	NO	–	NO
Malta	T1	D	–	NO	NO			–	NO	NO	–	NO
Monaco			–	NO	NO			–	NO	NO	–	NO
Netherlands	CS, T1, T3	CS, D	1.95	C	C	T2	PS	0.14	C	C	–	NO
New Zealand	T1, T2	CS, D	0.02	126	1.4			–	NO	NO	–	NO
Norway	T2	CS, D, PS	0.72	374	1.5	CS, T2, T3	PS	0.45	1 669	0.000	–	NO
Poland	T1, T2	CS, D	0.96	2 626	1.5	T2	CS	0.15	2 340	0.001	–	NA, NO
Portugal	NO	NO	–	C	NO	D	PS	0.04	C	C	–	NO
Romania	D, T1, T3	D, PS	0.83	459	2.0	T2, T3	D, PS	0.30	668	0.002	–	NO
Russian Federation	T1, T3	CS, D	1.11	16 181	2.1	T1	D	0.20	8 688	0.002	–	NO
Slovakia	T2, T3	CS, PS	1.37	404	1.9	T3	D, PS	0.30	569	0.001	–	NO
Slovenia	T2	D	–	NO	NO			–	NO	NO	–	NO
Spain	T1, T3	D, PS	0.10	496	1.2	T1, T3	D, PS	0.05	688	0.001	–	NO
Sweden	T1, T3	PS	–	NO	NO	T2, T3	PS	0.10	248	0.001	–	NO
Switzerland	T2	PS	–	C	C	T3	PS	0.01	C	C	–	NO
Turkey	CS, T1, T2	CS, D	0.20	C	C	T1	D	0.25	C	C	–	
Ukraine	T1, T3	CS, D	0.79	2 044	2.0	T2, T3	CS, D	0.55	1 400	0.005	–	NO
United Kingdom of Great Britain and Northern Ireland (KP)	CS, T1, T3	CS, D	0.30	959	1.5	T1, T3	CS, D	0.01	1 170	0.000	–	NO
United Kingdom of Great Britain and Northern Ireland (Convention)	CS, T1, T3	CS, D	0.30	959	1.5	T1, T3	CS, D	0.01	1 170	0.000	–	NO
United States of America	CS, T1	CS, D, OTH	0.19	12 305	0.99	CS, T1	CS, D	0.16	7 811	0.004	0.11	C

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Canada, Czech Republic, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 3 Chapter 3 Chemical Industry Emissions. Ammonia table 3.1; nitric acid table 3.3; adipic acid table 3.4.

Table 2.3

Metal industry - CO_2 (2016)

	Methods and EF used		Iron and steel[a]					Aluminium production		
				Steel		Pig iron				
	Methods	EF	Share of national total[b]	Activity Data (production)	CO_2 IEF	Activity Data (production)	CO_2 IEF	Share of national total[b]	Activity Data (production)	CO_2 IEF
			(%)	(kt)	t/t	(kt)	t/t	(%)	(kt)	t/t
IPCC default EF[c]					1.46 (BOF) 0.08 (EAF) 1.72 (OHF)		1.35			1.6 (Prebake) 1.7 (Soderberg)
Australia	T2, T3	CS	–	C	NA, NO	NO	NO	0.42	1 652	1.4
Austria	T1, T3	CS, D, PS	13.08	6 766	1.5	5 634	IE, NO	0.01	C	C
Belarus	D, T1	D	0.20	IE	IE, NA	NO	NO	–	NO	NO
Belgium	CS, T3	PS	3.59	7 766	0.53	4 869	IE, NA	–	NO	NO
Bulgaria	T1, T2	CS, D, PS	0.06	549	0.065	NO	NO	–	C	NA
Canada	T2, T3	CS, PS	1.32	12 661	0.065	6 056	1.3	0.74	3 208	1.6
Croatia	T2	CS	0.00	24	0.045	NO	NO	–	NO	NO
Cyprus			–	NO	NO	NO	NO	–	NO	NO
Czech Republic	CS, T1, T2	D, PS	5.59	5 336	IE, NA	4 177	IE, NA	–	NO	NO
Denmark (KP)	T1	D	–	NO	NO	NO	NO	–	NO	NO
Denmark (Convention)			–	NO	NO	NO	NO	–	NO	NO
Estonia			–	NO	NO	NO	NO	–	NO	NO
European Union (KP)			1.46	NE	NE	NE	NE	0.11	NE	NE
European Union (Convention)			1.46	NE	NE	NE	NE	0.08	NE	NE
Finland	CS, T2, T3	CS	3.69	4 048	0.54	NO	IE, NO	–	NO	NO
France (KP)	T1, T2, T3	CS, D, PS	0.54	14 451	0.083	9 653	0.045	0.15	429	1.6
France (Convention)	T1, T2, T3	CS, D, PS	0.53	14 451	0.083	9 653	0.045	0.14	429	1.6
Germany	T1, T2, T3	CS, D	1.76	42 080	0.38	27 873	IE, NO	0.08	547	1.4
Greece	CS, T1	CS, D, PS	0.08	1 158	0.063	NO	NO	0.32	181	1.6
Hungary	T3	PS	1.41	1 274	0.12	863	1.6	–	NO	NO
Iceland	T1, T3	D, PS	0.01	7.6	0.080	NO	NO	27.23	850	1.5
Ireland			–	NO	NO	NO	NO	–	NO	NO
Italy	T2	CR, CS, PS	0.34	23 373	0.041	6 054	0.087	–	NO	NO
Japan	T2	OTH	0.45	39	3.7	12 832	0.44	–	NA	IE, NA
Kazakhstan	T1, T2	CS, D	2.35	4 264	0.13	3 595	1.7	0.13	236	1.9
Latvia			–	NO	NO	NO	NO	–	NO	NO
Liechtenstein			–	NO	NO	NO	NO	–	NO	NO
Lithuania	T2	D	0.01	NO	NO	NO	NO	–	NO	NO
Luxembourg	CS, T1, T2	CS, PS	1.19	2 175	0.055	NO	NO	–	NO	NO
Malta			–	NO	NO	NO	NO	–	NO	NO
Monaco			–	NO	NO	NO	NO	–	NO	NO
Netherlands	T1a, T2	CS, D	0.01	7 046	0.002	NA	IE, NO	0.03	36	1.4
New Zealand	T2, T3	CS	2.17	C	C	NA	NA, NO	0.69	327	1.6
Norway	T2, T3	CS, PS	0.05	608	0.044	NO	NO	3.52	1 243	1.5
Poland	T1, T2, T3	CS, D	0.51	IE	IE	4 674	0.16	–	NO	NA, NO
Portugal	T2	PS	0.09	1 985	0.030	NO	NO	–	NO	NO
Romania	D, T3	CS, D, PS	3.35	3 435	1.1	1 972	IE, NO	0.30	207	1.6
Russian Federation	T1, T2, T3	CS, D, PS	3.56	69 807	0.11	51 873	1.4	0.23	C	C
Slovakia	T1, T2, T3	D, PS	10.56	4 599	0.94	0.59	IE, NO	0.66	174	1.6
Slovenia	T1, T2	CS, D, PS	0.32	643	0.087	NO	NA, NO	0.69	84	1.4
Spain	T1, T2, T3	CS, D, PS	0.72	13 448	0.043	C	C	0.19	C	C
Sweden	D, T2, T3	PS	4.76	1 730	C, NA	3 082	0.67	0.36	124	1.5
Switzerland	CR, T3	CS, PS	0.02	1 238	0.009	NO	NO	–	NO	NO
Turkey	T1, T2, T3	CS, D	2.25	33 392	0.27	4 045	IE, NO	0.02	C	C
Ukraine	T1, T3	CS, D	12.69	24 196	0.13	23 560	1.6	–	NO	NO
United Kingdom of Great Britain and Northern Ireland (KP)	T1, T2	CS	0.50	7 547	0.016	6 142	0.15	0.02	48	1.5
United Kingdom of Great Britain and Northern Ireland (Convention)	T1, T2	CS	0.50	7 638	0.016	6 142	0.15	0.02	48	1.5
United States of America	T1, T2, T3	CS, D, OTH	0.65	52 589	0.13	22 293	0.30	0.02	818	1.6

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Canada, Czech Republic, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] In addition to data reported here, CO_2 emission estimates from direct reduced iron (2.C.1.c) were reported by Russian Federation and United States of America; CO_2 emission estimates from sinter (2.C.1.d) were reported by Belgium, European Union (KP), European Union (Convention), France (KP), France (Convention), Hungary, Kazakhstan, Poland, Russian Federation, Spain, Turkey, United Kingdom (KP), United Kingdom (Convention) and United States of America; CO_2 emission estimates from pellet (2.C.1.e) were reported by European Union (KP), European Union (Convention), Kazakhstan, Russian Federation, Sweden, Turkey and United States of America.

[c] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 3 Chapter 4 Metal Industry Emissions. Iron and steel table 4.1; Aluminium table 4.10.

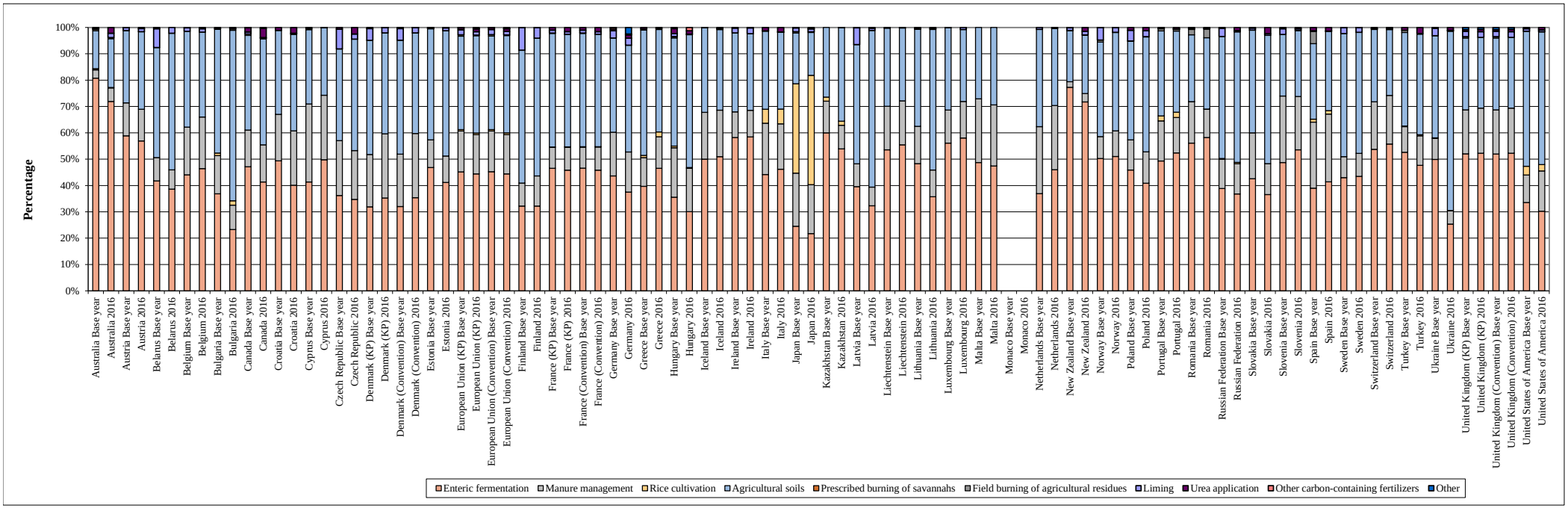
Table 2.4

HFCs, PFCs, SF_6 and NF_3 (2016)

	Metal industry						Electronic industry						Product uses as substitutes for ODS				Other product manufacture and use			
	HFCs		PFCs		SF_6		PFCs		SF_6		NF_3		HFCs		PFCs		HFCs		PFCs	
	Methods	EF	Methods	EF	Methods	EF	Methods	EF	Methods	EF	Methods	EF	Methods	EF	Methods	EF	Methods	EF	Methods	EF
IPCC default EF																				
Australia			T2, T3	CS									M	CS, D						
Austria					T2	D	T3	PS	T3	PS	T3	PS	T2	D						
Belarus									NE	NE	NE	NE								
Belgium							T2, T3	D, PS	T2, T3	D, PS	T2, T3	D, PS	T2	CS, D, PS	T2	CS, D, PS			NO	NO
Bulgaria							NO	NO	NO	NO	NO	NO	T2	D	T2	D	NO	NO	NO	NO
Canada			T3	PS	T3	PS	T2	D	T2	D	T2	CS, D	T2	CS, D	T2	D			T2	D
Croatia													T1a, T2	D						
Cyprus																				
Czech Republic							T2	D	T2	D	T2	D	D, T1, T2	CS, D	D, T2	CS, D				
Denmark (KP)													T2	D	T2	D				
Denmark (Convention)																				
Estonia													T2	CS						
European Union (KP)																				
European Union (Convention)																				
Finland													T2	D	T2	D				
France (KP)			T2, T3	CS, PS			T2	CS	T2	CS	T2	CS	T1, T2	CS, D, PS			T2	OTH	T2	CS, D
France (Convention)			T2, T3	CS, PS			T2	CS	T2	CS	T2	CS	T1, T2	CS, D, PS			T2	OTH	T2	CS, D
Germany					D	D							CS, T2	CS, D	T2	CS, D	CS	CS	CS	CS
Greece			T3	PS									CS, IE, T2, T3	D, IE	IE, T2	D, IE				
Hungary													T1, T2	CS, D	T2	D			NO	NO
Iceland													T1a, T2	D	T2	D				
Ireland							T2	CS	T2	CS	T2		T1, T2, T3	CS						
Italy	T2	PS					T2	CS	T2	CS	T2	CS	T2	CS, D						
Japan	CS	CS			CS, IE	CS	T2	CS	T2	CS	T2	CS	CS, T1a	CS, D, OTH	CS	CS			CS	CS
Kazakhstan																				
Latvia													T1a, T2	CS, D, OTH						
Liechtenstein													CS	CS	CS	CS				
Lithuania									T3	PS	T2	PS	T1a, T1b, T2	CS, D, PS						
Luxembourg													T1, T2	CS, M, PS			T3	PS		
Malta													CS, T1, T2	CS, D					CS	CS
Monaco													C, CS, T2	CS, OTH						
Netherlands			T2	CS			T2	CS					T2	CS						
New Zealand			T2	D															T1	D
Norway									T2	CS			T2	D	T1, T2	CS, D				
Poland					T1	D			NO	NO	NO	NO	T1a, T1b, T2	D	T2	D				
Portugal													IE, NO	IE, NO	IE, NO	IE, NO	NO	NO	NO	NO
Romania			T2	D, PS									T2	D						
Russian Federation			T2	D, PS			T2	D	T2	D	T2	D	T1, T2	CS, D	T1	D				
Slovakia			T2	PS									T1a, T2	CS, D						
Slovenia			T3	CS, D									T1, T2	CS, D	NO	NO				
Spain			T2	D									T1a, T2	CS, D	T1a, T2	CS, D				
Sweden			T2	D	T2	D							T2	CS, D, PS	T2	CS, D				
Switzerland					T2	D	T2	D	T2	D			T1a, T2	CS, D	T2	CS			T2	CS
Turkey																				
Ukraine													T1a, T2	CS, D						
United Kingdom of Great Britain and Northern Ireland (KP)	T2	PS	T2	PS	T2	PS					T2	D	CS, T1a, T2	CS, OTH					T2, T3	CS, D
United Kingdom of Great Britain and Northern Ireland (Convention)	T2	PS	T2	PS	T2	PS					T2	D	CS, T1a, T2	CS, OTH					T2, T3	CS, D
United States of America	M, T3	CS, M	T2	CS	M, T3	CS, M	M, T2	CS, M	M, T2	CS, M	M, T2	CS, M	M, T2, T3	CS, M	M, T2	CS, M				

Figure 3.1

Contribution of subsectors to total GHG emissions in the Agriculture sector[a, b]



[a] In accordance with the UNFCCC reporting guidelines on annual inventories of Annex I Parties the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2, 11/CP.4, and 7/CP.12 some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Croatia (1990), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

[b] Indirect CO_2 emissions are excluded from the totals in this graph.

Table 3.1

Enteric fermentation - CH_4 (2016)

	Share of national total[a]	Methods and EF used		Cattle								Sheep				Swine			
				Activity data (population size)			Option A		Option B			Option C	Activity data (population size)			CH_4 IEF	Activity data (population size)			CH_4 IEF
		Methods	EF	CRF	FAO[b]	Difference	Dairy cattle	Non-dairy cattle	Mature dairy cattle	Other mature cattle	Growing cattle	Other	CRF	FAO[b]	Difference		CRF	FAO[b]	Difference	
	(%)			(thousands of head)		(%)	CH_4 IEF (kg/head/yr)						(thousands of head)		(%)	(kg/head/yr)	(thousands of head)		(%)	(kg/head/yr)
IPCC default EF[c,d]							46-128	27-60								5-8				1.0-1.5
Australia	9.05	CS, T1, T2	CS, D	26 969	24 971	-7.41						56	69 145	67 543	-2.32	6.7	2 320	2 294	-1.12	1.6
Austria	5.20	T1, T2	CS, D	1 954	1 958	0.16	132	59					378	354	-6.52	8.0	2 793	2 845	1.89	1.5
Belarus	9.75	T1, T2	CS, D	4 337	4 302	-0.81	129	56					214	90	-58.04	9.6	3 152	3 152	0.00	1.5
Belgium	3.90	T1, T2	CS, D	2 557	2 501	-2.19	143	50					123	107	-12.45	8.0	6 494	6 177	-4.88	1.5
Bulgaria	2.57	T1, T2	CS, D	554	550	-0.69			108	77	51		1 299	1 332	2.52	7.6	608	600	-1.34	1.5
Canada	3.50	T1, T2	CS, D	12 418	12 035	-3.08	137	71					829	826	-0.27	8.0	13 800	12 770	-7.46	1.5
Croatia	4.84	T1, T2	CS, D	483	463	-4.24			113	63	66		619	619	0.00	8.0	1 193	1 163	-2.54	1.4
Cyprus	2.78	T1, T2	CS, D	64	63	-1.94	123	57					304	301	-1.13	8.0	352	353	0.17	1.5
Czech Republic	2.27	T1, T2	CS, D	1 416	1 416	0.00	146	56					218	218	0.00	8.0	1 610	1 610	0.00	1.5
Denmark (KP)	7.35	T1, T2	CS, D, OTH	1 568		–	156	41					206		–	6.7	12 383		–	1.1
Denmark (Convention)	7.20	T1	OTH	1 570	1 570	0.00	156	41					303	237	-21.82	7.4	12 383	12 383	0.00	1.1
Estonia	2.72	D, T1, T2	CS, D, OTH	248	256	3.22			150	60	39		91	86	-5.89	8.0	266	305	14.52	1.0
European Union (KP)	4.45			90 048		–	129	51					100 026		–	8.1	142 845		–	1.2
European Union (Convention)	4.45			89 968	90 298	0.37	129	51					99 282	99 126	-0.16	8.1	142 803	149 045	4.37	1.2
Finland	3.58	CS, OTH, T1, T2	CS, D, OTH	909	909	0.00	151	53					157	157	0.00	8.4	1 197	1 235	3.19	1.0
France (KP)	7.67	T2, T3	CS	19 359		–	122	53					7 037		–	13	12 734		–	0.75
France (Convention)	7.58	T1, T2, T3	CS, D	19 440	19 558	0.61	122	53					7 040	7 024	-0.23	13	12 804	12 899	0.74	0.75
Germany	2.69	T1, T2, T3	CS, D	12 467	12 467	0.00	136	43					1 851	1 574	-14.95	6.4	22 761	27 376	20.28	1.1
Greece	3.99	T1, T2	CS, D	554	630	13.71	126	63					8 739	8 359	-4.34	9.5	743	835	12.29	1.5
Hungary	3.36	T1, T2	CS, D	839	821	-2.17	135	55					1 189	1 190	0.06	8.0	3 021	3 124	3.42	1.5
Iceland	6.56	T1, T2		80	80	-0.13			106	73	36		744	473	-36.43	8.1	43	29	-32.96	1.5
Ireland	18.27	CS, T1, T2	CS, D	7 173	7 221	0.67	112	46					4 770	5 179	8.57	5.6	1 561	1 594	2.13	1.3
Italy	3.28	T1, T2	CS, D	5 930	5 930	0.00	143	47					7 285	7 285	0.00	7.1	8 478	8 478	0.00	1.5
Japan	0.56	CS, T1	CS, D	3 822	3 824	0.06	101	57					18	14	-19.67	8.0	9 346	9 313	-0.35	1.4
Kazakhstan	5.44	T1, T2	CS, D	7 095	6 184	-12.85	102	51					18 299	15 688	-14.27	6.8	1 043	888	-14.88	1.0
Latvia	7.61	T1, T2	CS, D, OTH	412	412	0.00			137	80	30		107	107	0.00	8.0	336	336	0.00	1.5
Liechtenstein	7.09	T2	CS	6.2	6.2	-0.02			135	87	42		4.1	4.1	0.00	8.5	1.8	1.8	0.00	1.1
Lithuania	7.90	T1, T2	CS, D, OTH	724	723	-0.13	123	56					173	147	-14.93	10	676	688	1.77	1.3
Luxembourg	4.35	T1, T2	CS, D	201	201	0.00						85	8.9	8.9	0.00	9.8	92	92	0.00	1.5
Malta	1.61	T1, T2	CS, D	14	14	0.00						70	12	12	0.00	9.1	41	41	0.00	1.5
Monaco	–			NO		–	NO	NO					NO		–	NO	NO		–	NO
Netherlands	4.51	T1, T2, T3	CS, D	4 251	4 294	1.00			129	79	35		891	1 040	16.69	8.0	12 479	12 479	0.00	1.5
New Zealand	35.29	T1, T2	CS, D	10 152	10 152	0.00	82	59					27 584	27 584	0.00	12	255	255	0.00	1.1
Norway	4.33	T1, T2	CS, D	820	871	6.25			147	86	56		1 487	2 477	66.60	12	847	846	-0.13	1.5
Poland	3.10	T1, T2	CS, D	5 939	5 939	0.00						79	239	239	0.00	8.0	10 865	10 865	0.00	1.5
Portugal	5.24	T1, T2	CS, D	1 593	1 635	2.64	130	64					2 048	2 068	0.96	9.1	2 174	2 151	-1.07	1.2
Romania	9.48	T2	CS	2 062	2 092	1.48	114	63					9 875	9 810	-0.67	18	4 487	4 927	9.81	1.4
Russian Federation	1.87	CS, T1, T2, T3	CS, D	19 402	18 992	-2.11	116	64					24 348	22 713	-6.72	8.0	22 066	21 506	-2.54	1.3
Slovakia	2.38	T1, T2	CS, D	446	458	2.57	122	58					369	382	3.48	9.3	586	633	8.07	1.5
Slovenia	5.37	T1, T2	CS, D	489	484	-0.90						75	88	109	23.80	8.0	266	271	2.12	1.5
Spain	4.38	CS, T1, T2	CS, D	6 384	6 257	-2.00	138	51					15 963	15 963	0.00	7.6	28 387	29 232	2.98	0.84
Sweden	5.65	CS, T1	CS, D	1 489	1 436	-3.55	140	49					578	578	0.00	8.0	1 354	1 471	8.63	1.5
Switzerland	6.88	T2, T3	CS, M	1 555	1 555	0.00			137	107	38		397	339	-14.60	8.7	1 454	1 454	0.00	1.1
Turkey	5.43	T1, T2	CS, D	14 080	13 994	-0.61	81	48					30 984	31 508	1.69	5.1	1.3	1.6	26.40	1.0
Ukraine	3.18	T1, T2, T3	CS, D	3 910	3 750	-4.08			127	72	68		939	744	-20.74	8.7	7 123	7 079	-0.62	1.5
United Kingdom of Great Britain and Northern Ireland (KP)	4.52	T1, T3	CS, D	9 886		–	121	58					34 663		–	4.5	4 866		–	1.5
United Kingdom of Great Britain and Northern Ireland (Convention)	4.51	T1, T3	CS, D	9 886	10 040	1.55	121	58					34 663	34 641	-0.06	4.5	4 866	4 883	0.36	1.5
United States of America	2.61	M, T1, T2	CS, D, M	97 639	91 918	-5.86						67	5 300	5 300	0.00	8.0	70 197	71 500	1.86	1.5

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Canada, Czech Republic, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] Source of international statistics: FAOSTAT data, downloaded on 28 May 2018 from http://www.fao.org/faostat/en/#data/QA.

[c] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 4 Chapter 10: Emissions from Livestock and Manure Management. Dairy and Other cattle table 10.11; Sheep and Swine table 10.10.

[d] For dairy and other cattle, 2006 IPCC default emission factors (in kg CH_4/head/year) are provided by regions as shown below (see footnote c for source reference).

	Western Europe	Eastern Europe	Oceania	Latin America	Asia	Africa and Middle East	Indian Subcontenent
Dairy cattle	117	99	90	72	68	46	58
Other cattle	57	58	60	56	47	31	27

Table 3.2

Manure management - CH_4 (2016)

	Share of national total[a]	Methods and EF used		Cattle						Sheep	Swine
				Option A		Option B			Option C		
				Dairy cattle	Non-dairy cattle	Mature dairy cattle	Other mature cattle	Growing cattle	Other		
	(%)	Methods	EF	CH_4 IEF (kg/head/yr)							
IPCC default EF[b]				1-112	0 to 26					0.10 to 0.37	0 to 45
Australia	0.46	CS, T2, T3	CS, D						1.7	0.002	23
Austria	0.55	T1, T2	CS, D	12	4.9					0.19	1.2
Belarus	0.87	T1, T2	CS, D	5.1	2.4					0.55	5.0
Belgium	1.06	T1, T2	CS, D	29	3.0					0.19	4.5
Bulgaria	0.20	T1, T2	CS, D			2.9	2.0	1.3		0.22	4.5
Canada	0.56	T1, T2	CS, D	37	3.7					0.30	5.1
Croatia	1.82	T2	CS			34	10	10		0.14	6.7
Cyprus	0.61	T1, T2	D	10	4.4					0.28	4.2
Czech Republic	0.57	T1, T2	CS, D	22	9.2					0.19	6.0
Denmark (KP)	3.66	CS, T2	CS, D	26	13					0.20	3.5
Denmark (Convention)	3.56	CS, T2	CS, D	26	13					0.20	3.5
Estonia	0.37	D, T1, T2	CS, D			13	1.9	3.3		0.19	4.3
European Union (KP)	0.97			20	5.5					0.32	5.0
European Union (Convention)	0.97			20	5.5					0.32	5.0
Finland	0.78	T2	CS	28	5.9					0.25	3.3
France (KP)	0.89	T2	CS	13	3.3					0.30	4.1
France (Convention)	0.89	T2	CS	13	3.3					0.30	4.1
Germany	0.68	T2	CS, D	21	6.9					0.21	4.1
Greece	0.71	T1, T2	CS, D	14	3.6					1.0	16
Hungary	1.07	T1, T2	CS, D	30	10					0.29	3.7
Iceland	1.18					30	2.6	8.4		0.63	6.0
Ireland	2.28	T1, T2	CS, D	10	4.4					0.50	6.7
Italy	0.73	T1, T2	CS, D	15	6.7					0.21	6.5
Japan	0.18	CS, T1	CS, D	59	2.2					0.28	0.51
Kazakhstan	0.21	T1, T2	CS, D	4.6	0.96					0.10	4.0
Latvia	0.90	T1, T2	CS, D			16	1.9	1.1		0.19	2.6
Liechtenstein	1.42	T2	D			27	15	6.9		1.3	4.6
Lithuania	1.27	T1, T2	CS, D	9.7	6.2					0.41	4.1
Luxembourg	0.66	T1, T2	CS, D						11	0.21	5.2
Malta	0.23	T1, T2	CS, D						6.5	0.28	0.47
Monaco	–			NO	NO					NO	NO
Netherlands	2.05	T1, T2	CS, D			38	8.0	8.0		0.19	5.6
New Zealand	1.46	T1, T2	CS, D	5.6	0.79					0.13	5.9
Norway	0.49	T1, T2	CS, D			23	7.7	4.3		0.19	2.1
Poland	0.40	T1, T2	CS, D						6.1	0.19	2.0
Portugal	1.08	T1, T2	CS, D	25	2.4					0.33	7.7
Romania	1.19	T1, T2	CS, D	6.2	2.4					0.56	7.9
Russian Federation	0.22	CS, T1, T2	CS, D	5.1	3.7					0.19	5.7
Slovakia	0.37	T1, T2	CS, D	7.7	1.9					0.27	6.9
Slovenia	1.46	T1, T2	CS, D						17	0.24	3.9
Spain	2.14	CS, T1, T2	CS, D	29	6.9					0.27	7.1
Sweden	0.50	T1, T2	CS, D	9.1	3.6					0.19	1.4
Switzerland	1.56	T2, T3	CS, M			28	18	5.3		1.3	4.2
Turkey	0.63	T1	D	19	1.0					0.12	4.0
Ukraine	0.31	CS, T1, T2	CS, D			4.6	2.8	1.8		0.24	2.3
United Kingdom of Great Britain and Northern Ireland (KP)	0.89	T1, T2, T3	CS, D	37	8.6					0.12	5.2
United Kingdom of Great Britain and Northern Ireland (Convention)	0.89	T1, T2, T3	CS, D	37	8.6					0.12	5.2
United States of America	1.04	M, T1, T2	CS, D, M						16	0.55	14

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Canada, Czech Republic, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 4 Chapter 10 Emissions from Livestock and Manure Management. Dairy, Other cattle and Swine table 10.14; Sheep table 10.15. Default emission factors are provided according to climate regions (cool, temperate, warm), as shown below.

Default IPCC emission factors according to climate regions[b]

	Dairy cattle			Other cattle			Swine		
	cool	temperate	warm	cool	temperate	warm	cool	temperate	warm
North America	48-58	63-98	105-112	1	2	2	10-23	13-39	22-45
Western Europe	21-29	34-75	83-92	6-8	10-21	24-26	6-12	9-27	19-33
Eastern Europe	11-15	20-37	42-46	6-8	9-19	21-23	3-5	4-12	10-17
Oceania	23-26	27-30	31	1	2	2	11-22	13-24	13-24
Latin America	1	1	2	1	1	1	1	1	2
Africa	1	1	1	0	1	1	0-1	1	1-2
Middle East	2	2	2-3	1	1	1	1-2	2-5	5-6
Asia	9-12	13-26	28-31	1	1	1	2	3-6	6-7
Indian Subcontinent	5	5	5-6	2	2	2	2-3	3-5	6

	Sheep		
	cool	temperate	warm
Developed countries	0.19	0.28	0.37
Developing countries	0.10	0.15	0.20

Table 3.3
Manure management - N_2O (2016)

	N excretion rates						Share of national total[a]	Methods and EF used		N_2O IEF				
	Option A		Option B			Option C								
	Dairy cattle	Non-dairy cattle	Mature dairy cattle	Other mature cattle	Growing cattle	Other				Dairy cattle	Non-dairy cattle	Sheep	Swine	Other livestock
	(kg N / head / year)						(%)	Methods	EF	(kg N_2O/head/yr)				
IPCC default EF[b]	0.35 to 0.70	0.31 to 0.79												
Australia						46	0.19	CS, T2, T3	D			NA	0.080	0.004
Austria	103	46					0.55	T2	CS	0.71	0.36	0.051	0.045	0.003
Belarus	77	36					0.98	T1, T2	D	0.35	0.21	0.41	0.078	0.007
Belgium	119	53					0.59	T2	D	0.70	0.55	0.018	0.031	0.001
Bulgaria			98	65	53		0.82	T1, T2	D			0.039	0.016	0.017
Canada	123	48					0.63	T1	D	0.93	0.70	0.047	0.029	0.017
Croatia			89	50	50		0.68	T2	CS, D			0.011	0.012	0.004
Cyprus	96	42					0.76	T1	D	0.72	0.31	0.098	0.044	0.016
Czech Republic	136	68					0.64	T2	CS, D	1.3	0.93	0.24	0.12	0.013
Denmark (KP)	147	42					1.44	T2	D	1.0	0.37	0.029	0.064	0.009
Denmark (Convention)	253	90					1.40	T2	D	1.0	0.37	0.046	0.064	0.009
Estonia			122	47	32		0.30	T1, T2	CS, D			0.085	0.015	0.005
European Union (KP)	111	49					0.53			0.54	0.29	0.016	0.052	0.005
European Union (Convention)	111	49					0.53			0.54	0.30	0.015	0.052	0.005
Finland	131	51					0.48	T2	D	0.78	0.41	0.077	0.032	0.008
France (KP)	114	59					0.57	T2	CS, D	0.39	0.18	0.038	0.006	0.002
France (Convention)	114	59					0.57	T2	CS, D	0.39	0.18	0.038	0.006	0.002
Germany	122	42					0.42	T2	CS, D	0.79	0.40	0.076	0.080	0.004
Greece	139	55					0.32	D	D	1.0	0.27	0.012	0.11	0.002
Hungary	120	52					0.77	T1, T2	CS, D	1.2	0.53	0.071	0.061	0.004
Iceland			95	60	29		1.09					0.15	NO	0.030
Ireland	101	55					0.88	T2	CS, D	0.12	0.14	0.010	0.026	0.003
Italy	116	51					0.50	T2	CS, D	0.62	0.28	0.013	0.072	0.006
Japan	85	51					0.30	CS, T1	CS, D	1.8	1.1	IE	0.42	0.004
Kazakhstan	61	42					0.69	T1, T2	CS, D	0.67	0.46	0.043	0.57	0.028
Latvia			112	62	20		0.78	T1, T2	D			0.089	0.057	0.006
Liechtenstein			115	80	36		0.72					0.080	0.005	0.011
Lithuania	106	43					0.97	T1, T2	D	0.50	0.26	0.046	0.013	0.005
Luxembourg						66	0.39	T2	D			0.025	0.055	0.016
Malta						79	0.56	T1, T2	CS, D			0.23	0.033	0.004
Monaco	NO	NO								NO	NO	NO	NO	NO
Netherlands			130	78	39		0.35	CS	CS			IE	IE	
New Zealand	120	76					0.12	T1	CS	NO	NO	NO	0.15	0.001
Norway			130	65	44		0.33	T1, T2	CS, D			0.033	0.057	0.004
Poland						53	0.51	T1, T2	CS, D			0.044	0.081	0.001
Portugal	117	50					0.27	T2	CS, D	0.45	0.034	0.005	0.007	0.004
Romania	54	38					0.57	T2	D	0.21	0.12	0.014	0.047	0.002
Russian Federation	131	70					0.37	T1	CS, D	0.84	0.34	0.080	0.042	0.007
Slovakia	105	42					0.40	T1	CS	0.71	0.25	0.093	0.082	0.002
Slovenia						58	0.57	T1, T2	CS, D			0.19	0.18	0.017
Spain	118	41					0.59	CS, T1, T2	D	0.35	0.14	0.013	0.037	0.002
Sweden	131	42					0.64	T2	CS, D	0.79	0.26	0.027	0.077	0.008
Switzerland			112	85	33		0.72	CS, T3	D			0.088	0.003	0.005
Turkey	81	37					0.65	T1	D	0.33	0.53	NA	0.083	0.002
Ukraine			75	49	38		0.32	CS, T1, T2	CS, D			0.018	0.074	0.002
United Kingdom of Great Britain and Northern Ireland (KP)	108	48					0.59	T2	CS, D	0.50	0.62	0.002	0.18	0.008
United Kingdom of Great Britain and Northern Ireland (Convention)	108	48					0.59	T2	CS, D	0.50	0.62	0.002	0.18	0.008
United States of America						60	0.28	M, T1, T2	CS, D, M			0.20	0.097	0.003

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Canada, Czech Republic, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] Source of default N excretion rates: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 4 Chapter 10 Emissions from Livestock and Manure Management, table 10.19, page 10.59. Default values are provided by regions as shown below. The unit of the IPCC defaults is kg N (1000 kg animal mass)$^{-1}$ day^{-1}.

IPCC defaults:

	North America	Western Europe	Eastern Europe	Oceania	Latin America	Africa	Middle East	Asia
Dairy cattle	0.44	0.48	0.35	0.44	0.48	0.6	0.7	0.47
Non-dairy cattle	0.31	0.33	0.35	0.5	0.36	0.63	0.79	0.34
Sheep	0.42	0.85	0.9	1.13	1.17	1.17	1.17	1.17
Swine	0.5	0.68	0.74	0.73	1.64	1.64	1.64	0.5
Poultry	0.83	0.83	0.82	0.82	0.82	0.82	0.82	0.82

Table 3.4
Agriculture soils - N_2O (2016)

	Methods and EF used		Direct N_2O emissions from managed soils								Indirect N_2O emissions from managed soils				
			Share of national total[a]	Inorganic N fertilizers		Organic N fertilizers	Urine and dung deposited by grazing animals	Crop residue	Loss/gain of soil organic matter	Cultivation of organic soils	Share of national total[a]	Atmospheric deposition		Nitrogen leaching and run-off	
				Activity data	N_2O IEF							Activity data	N_2O IEF	Activity data	N_2O IEF
	Methods	EF		Use of synthetic fertilizers		N_2O IEF									
			(%)	(kg N / year)	(kg N_2O-N / kg N)						(%)	(kg N / year)	(kg N_2O-N / kg N)	(kg N / year)	(kg N_2O-N / kg N)
IPCC default EF					0.01 (0.003-0.03)[b]					8 (2-24)[c], 16 (5-48)[d]			0.01 (0.002-0.05)[e]		0.0075 (0.0005-0.025)[e]
Australia	CS, T1, T2	CS, D	1.83	1 493 759 565	0.003	0.009	0.004	0.010	0.002	8.0	0.51	498 139 172	0.003	609 732 154	0.008
Austria	T1	D	2.25	126 437 500	0.010	0.010	0.015	0.010	0.010	8.2	0.44	33 772 888	0.010	55 585 941	0.008
Belarus	T1	D	11.51	348 500 000	0.010	0.010	0.020	0.010	NO	8.0	1.59	75 230 708	0.010	314 199 792	0.008
Belgium	T1	D	2.12	156 031 130	0.010	0.010	0.020	0.010	0.012	8.0	0.59	40 372 964	0.010	143 194 574	0.007
Bulgaria	T1	D	5.67	356 913 000	0.010	0.010	0.013	0.010	0.010	8.0	1.49	36 070 936	0.010	202 751 355	0.008
Canada	T1, T2	CS, D	2.82	2 556 839 918	0.009	0.012	0.002	0.008	0.014	8.0	0.59	258 064 984	0.010	840 615 566	0.008
Croatia	T1	D	3.35	91 350 221	0.010	0.010	0.012	0.010	0.010	8.0	1.07	17 248 253	0.010	51 100 717	0.008
Cyprus	T1	D	1.23	8 073 000	0.010	0.010	NO	0.010	NO	NO	0.20	3 792 547	0.010	NO	NO
Czech Republic	T1, T2	CS, D	2.12	292 750 000	0.010	0.010	0.018	0.010	0.010	NO	0.65	51 700 205	0.010	567 931 458	0.002
Denmark (KP)	CS, D, T1, T2	D	6.86	242 531 000	0.010	0.010	0.018	0.010	0.010	8.8	1.12	40 997 394	0.010	173 187 000	0.005
Denmark (Convention)			6.68	242 665 253	0.010	0.010	0.018	0.010	0.010	8.8	1.09	41 045 080	0.010	173 232 099	0.005
Estonia	D, T1, T2	D	2.51	35 806 000	0.010	0.010	0.018	0.010	0.010	8.0	0.63	7 712 328	0.010	24 760 365	0.008
European Union (KP)			3.02	11 266 471 857	0.010	0.009	0.014	0.010	0.010	0.32	0.68	1 942 854 410	0.010	6 236 263 428	0.007
European Union (Convention)			3.02	11 255 652 227	0.010	0.009	0.014	0.010	0.010	0.32	0.68	1 939 412 517	0.010	6 232 344 283	0.007
Finland	T1, T2	CS, D	5.16	138 128 000	0.010	0.010	0.017	0.010	NA	9.8	0.65	9 788 735	0.010	95 554 554	0.008
France (KP)	T1, T2	CS, D	5.74	2 238 645 213	0.010	0.010	0.019	0.010	NO	8.0	1.39	308 630 582	0.010	1 404 538 722	0.008
France (Convention)	T1, T2	CS, D	5.67	2 242 914 712	0.010	0.010	0.019	0.010	NO	8.0	1.37	309 566 556	0.010	1 408 138 060	0.007
Germany	T1, T2	CS, D	2.30	1 710 616 000	0.010	0.010	0.019	0.010	NA	4.9	0.61	335 437 700	0.010	1 122 163 274	0.007
Greece	T1	D	2.45	185 019 000	0.010	0.010	0.010	0.010	NO	8.0	0.88	66 796 247	0.010	139 503 019	0.008
Hungary	T1	D	5.22	365 482 000	0.010	0.010	0.015	0.010	0.010	NO	0.43	36 180 774	0.010	26 138 824	0.008
Iceland	T1b, T2	CS, D	3.31	10 819 630	0.010	0.010	0.011	0.010	NE	0.96	0.64	3 441 893	0.010	3 919 145	0.007
Ireland	T1	CS, D	8.23	339 104 000	0.012	0.010	0.009	0.010	0.010	4.3	0.87	49 876 324	0.010	86 098 204	0.008
Italy	CS, T1	CS, D	1.67	567 211 000	0.010	0.010	0.011	0.010	NO	8.0	0.40	133 662 377	0.010	307 778 171	0.008
Japan	CS, T2	CS, D	0.27	394 443 424	0.007	0.006	0.008	0.010	0.004	1.4	0.14	130 279 113	0.010	353 424 526	0.008
Kazakhstan	T1, T2	CS, D	3.18	80 000 000	0.009	0.010	0.014	0.010	0.010	NO	0.41	138 183 981	0.010	2 022 219 906	0.001
Latvia	T1	D	12.45	78 285 000	0.010	0.010	0.019	0.010	NO	11	1.55	12 571 146	0.010	33 217 658	0.008
Liechtenstein	T1b	D	2.54	172 403	0.010	0.010	0.019	0.010	NO	8.0	1.00	102 746	0.026	171 694	0.008
Lithuania	T1	D	9.79	160 237 400	0.010	0.010	0.019	0.010	NO	8.0	2.03	21 499 776	0.010	87 266 450	0.008
Luxembourg	T1	CS, D	1.54	13 731 420	0.010	0.010	0.019	0.010	2.0	NO	0.51	4 379 676	0.010	8 632 038	0.008
Malta	T1, T2	D	0.74	568 151	0.010	0.010	NO	0.010	0.010	NO	0.26	370 396	0.010	907 025	0.008
Monaco			–	NO	NO	NO	NO	NO	NO	NO	–	NO	NO	NO	NO
Netherlands	T1, T1b, T2	CS, D	2.54	270 404 460	0.013	0.009	0.033	0.010	NO	0.020	0.33	58 390 141	0.010	102 640 027	0.007
New Zealand	T1, T2	CS, D	9.12	432 200 000	0.007	0.004	0.008	0.010	0.010	8.0	1.79	194 353 300	0.010	142 831 426	0.008
Norway	T1	CS, D	2.70	102 369 186	0.010	0.010	0.016	0.010	IE	13	0.47	17 757 159	0.010	46 202 605	0.007
Poland	T1, T2	CS, D	2.67	1 043 000 000	0.010	0.010	0.019	0.010	NO	8.0	0.65	170 971 177	0.010	502 963 735	0.008
Portugal	T1, T2	CS, D	2.47	113 617 164	0.010	0.010	0.018	0.010		NO	0.61	21 679 808	0.011	85 214 734	0.008
Romania	T1	D	3.37	309 879 900	0.010	0.010	0.015	0.010	NO	8.0	1.04	77 789 990	0.010	229 093 648	0.008
Russian Federation	CS, T1, T2	CS, D	2.14	1 445 212 000	0.014	0.010	0.019	0.010	0.010	8.0	0.38	574 656 211	0.010	2 083 293 356	0.008
Slovakia	T1	CS, D	2.42	126 235 769	0.010	0.010	0.015	0.010	NO	NE	0.75	18 759 171	0.010	62 323 202	0.008
Slovenia	T1	D	1.90	27 097 000	0.010	0.010	0.017	0.010	10	8.0	0.61	7 921 688	0.010	64 985 448	0.002
Spain	CS, T1, T2	D	2.70	982 155 000	0.010	0.010	0.014	0.010	NA	NO	0.48	234 818 064	0.010	129 394 531	0.008
Sweden	CS, T1, T2	CS, D	5.45	186 000 000	0.010	0.010	0.017	0.010	0.010	13	0.53	20 332 639	0.010	53 004 281	0.008
Switzerland	T1, T3	CS, D	2.24	46 402 736	0.010	0.010	0.019	0.010	0.010	8.0	0.85	23 366 595	0.026	35 090 085	0.008
Turkey	T1	D	3.90	1 896 478 594	0.010	0.010	0.014	0.010	NO	8.0	0.45	433 986 947	0.010	57 272 688	0.008
Ukraine	CS, T1, T2	D	7.35	1 248 043 854	0.010	0.010	0.019	0.010	0.010	8.0	1.18	240 067 698	0.010	818 240 302	0.008
United Kingdom of Great Britain and Northern Ireland (KP)	T1, T1a, T2	CS, D	1.86	1 090 343 901	0.007	0.005	0.005	0.010	0.010	8.0	0.46	117 888 588	0.010	472 415 329	0.008
United Kingdom of Great Britain and Northern Ireland (Convention)	T1, T1a, T2	CS, D	1.86	1 090 343 901	0.007	0.005	0.005	0.010	0.010	8.0	0.45	117 888 588	0.010	472 415 329	0.008
United States of America	OTH, T1	D, OTH	3.65	NE	NE	0.20	NE	NE	NE	NE	0.71	NE	NE	NE	NE

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Canada, Czech Republic, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories, table 11.1, page 11.11. IEFs for N-fixing crops and crop residues are shown in the unit kg N_2O-N/kg N. The unit of the IPCC default emission factor is also kg N_2O-N/kg N.

[c] For cultivation of histosols (drained/managed organic soils), the two default values refer to temperate. The values in parenthesis indicate the range as presented in 2006 IPCC Guidelines for National Greenhouse Gas Inventories, table 11.1, page 11.11.

[d] For cultivation of histosols (drained/managed organic soils), the two default values refer to temperate tropical. The values in parenthesis indicate the range as presented in 2006 IPCC Guidelines for National Greenhouse Gas Inventories, table 11.1, page 11.11.

[e] Source of default emission factor: 2006 IPCC Guidelines for National Greenhouse Gas Inventories, table 11.3, page 11.24.

Table 4.1a

Methods and emission factors used (2016)

	Forest Land						Cropland						Grassland					
	CO_2		CH_4		N_2O		CO_2		CH_4		N_2O		CO_2		CH_4		N_2O	
	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF
Australia	CS, T2, T3	CS, M	CS	CS	CS, T2	CS	T1, T3	CS, D, M	CS	CS	CS, T2	CS	T1, T2, T3	CS, D, M	CS	CS	CS, T2	CS
Austria	T2, T3	CS	T1	D	T1, T2	CS, D	T2, T3	CS			T2	CS, D	T1, T2, T3	CS	T1	D		
Belarus	T1, T2	CS, D	T1	CS, D	T1	CS, D	T1	D										
Belgium	CS, T1, T2	CS			T1	D	CS, T1, T2	CS			T1	D	CS, T1, T2	CS			T1	D
Bulgaria	T1, T2	CS, D	T1	D	T1	D	T1, T2	CS, D			T1	D	T1, T2	CS, D				
Canada	T3	CS	T2	CS	T2	CS	T1, T2, T3	CS, D	T2	CS	T2	CS			T1	D	T1	D
Croatia	T1, T2	CS, D	T1	D	T1	D	T1	CS, D	T1	D	T1	CS, D	T1	CS, D	T1	D	T1	D
Cyprus	T1	OTH	T1	OTH	T1	OTH	T1	OTH					T1	OTH				
Czech Republic	T2	CS, D	T2	CS, D	T2	CS, D	T1, T2	CS, D			T1, T2	CS, D	T1, T2	CS, D				
Denmark (KP)					T1	D					T1	D			T1	D	T1	D
Denmark (Convention)																		
Estonia	T1, T2	CS, D, OTH	T2	D	T1, T2	D	T1, T2	CS, D, OTH			T1	D	T1, T2	CS, D, OTH	T2	D	T2	D
European Union (KP)																		
European Union (Convention)																		
Finland	T2, T3	CS, D	T2	CS, D	T1, T2	CS, D	T2, T3	CS, D			T1	D	T2, T3	CS, D	T2	D	T1, T2	D
France (KP)	T1, T2	CS, D	T1, T2	CR, D	T1, T2	CR, D	T1, T2	CS, D	T1, T2	D	T1, T2	D	T1, T2	CS, D	T1, T2	D	T1, T2	D
France (Convention)	T1, T2	CS, D	T1, T2	CR, D	T1, T2	CR, D	T1, T2	CS, D	T1, T2	D	T1, T2	D	T1, T2	CS, D	T1, T2	D	T1, T2	D
Germany	CS, T2	CS	T2	CS, D	CS, T2	CS, D	T2	CS	T2	CS	T2	CS, D	T2	CS	T2	CS	T2	CS, D
Greece	OTH, T1, T2	CS, D, OTH	T1	D	T1	D	T1, T2	CS, D			T1	D	T1	CS, D	T1	D	T1	D
Hungary	T1, T2	CS, D	T1, T2	CS, D	T1, T2	CS, D	T1, T2	CS, D	T2	D	T1, T2	D	T1, T2	CS, D	T1	D	T1	D
Iceland	T1, T2, T3	CS, D	T1	D	T2	CS, D	D, T1, T2, T3	CS, D	T1	D			T1, T2, T3	CS, D	T1	D	T2	CS
Ireland	CS, T1, T2, T3	CS	D, T1	CS, D	D, T1	CS, D	CS, D	D					D, T1, T2, T3	CS, D	D, T1	D	D, T1, T2	D
Italy	T1, T2, T3	CS, D	T2	CS, D	T2	CS, D	T1, T2	CS, D	T1	D	T1	D	T1, T2, T3	CS, D	T1	CS	T1	CS
Japan	T1, T2, T3	CS, D	T1	D	T1, T2	CS, D	T1, T2, T3	CS, D	T1	CS, D	CS, T1	CS, D	T1, T2, T3	CS,D	T1	CS, D	CS, T1	CS, D
Kazakhstan	T2	CS	T2	D	T2	D	T2	CS					T2	CS	T1	D	T1	D
Latvia	T1, T2	CS, D	T1, T2	D	T1, T2	D	T1, T2	CS, D	T1	D	T1	D	T1, T2	CS, D	D, T1	D	D	D
Liechtenstein	T2	CS					T2	CS			T2	CS	T2	CS			T2	CS
Lithuania	T1, T2	CS, D	T1, T2	D	T1, T2	D	T1, T2	CS, D	T1	D	T1, T2	D	T1, T2	CS, D	T1	D	T1	D
Luxembourg	T1, T2	CS, D					T1	CS, D			T1	D	T1	CS, D			T1	D
Malta							T1	D, OTH					T1	D, OTH				
Monaco																		
Netherlands	T1, T2	CS, D	T1	CS, D	T1	CS, D	CS, T1	CS, D			D, T1	CS	CS, T2	D	CS	D	CS, D, T1	CS, D
New Zealand	T1, T2, T3	CS, D	T1, T2	CS, D	T1, T2	CS, D	T1, T2, T3	CS, D			T1, T2	CS, D	T1, T2, T3	CS, D	T1, T2	CS, D	T1, T2	CS, D
Norway	T1, T2, T3	CS, D	T1	D	T1	D	T1, T2, T3	CS, D	T1	D	T1	D	T1, T2, T3	CS, D	T1	D	T1	D
Poland	T2	CS, D	D, T2	CS, D	D, T2	CS, D	T1, T2	D					D, T1, T2	CS, D	D, T1	CS, D	D, T1	CS, D
Portugal	CS, T2	CS, D	D	D	D	D			D	D	D	D			D	D	D	D
Romania	T1, T2, T3	CS, D	T1	D	T1	D	T1	D			T1	D	T1, T2	CS, D			T1	D
Russian Federation	CS, T2	CS, D	T1, T2	CS, D	T1, T2	CS, D	CS, T1	CS, D	T1	D			CS, T1, T3	CS	T1	D	T1	D
Slovakia	T1, T2	CS, D	T2	CS, D	T2	CS, D	T1, T2	CS, D			T2	CS, D	T1, T2	CS, D			T2	CS, D
Slovenia	CS, D, T1, T2, T3	CS, D	D, T1	D	D, T1	D	D, T1, T2, T3	CS, D					D, T1, T2, T3	CS, D			D, T1	D
Spain	CS, T1, T2	CS, D	CS	D	CS, T1	D	T1, T2	CS, D	T1	D	T1	D	T1, T2	CS, D	CS, T1	D	CS, T1	D
Sweden	T2, T3	C	T1	C, D	T1	C, D	T2, T3	C	T1	C	T1	D	T2, T3	C	T1	C		
Switzerland	T2, T3	CS, M	T1	D	T1	D	T2	CS			T1	D	T2	CS	T1	D	T1	D
Turkey	T1, T2	CS, D	T1	CS, D	T1	CS, D	T1, T2	CS, D			T1	D	D, T1, T2	CS, D			T1	D
Ukraine	CS, T1, T2	CS, D	CS, T1	D	CS, T1	D	CS, T1, T3	CS, D	CS, T1	D	CS, T1	D	CS, T1, T3	CS, D	T1	D	T1	D
United Kingdom of Great Britain and Northern Ireland (KP)	CS, D, T3	CS	D	CS	D, T1	CS, D	CS, D, T1, T3	CS, D	D	CS	D	CS, D	CS, D, T1, T3	CS, D	D	CS	D	CS, D
United Kingdom of Great Britain and Northern Ireland (Convention)	CS, D, T3	CS	D	CS	D, T1	CS, D	CS, D, T1, T3	CS, D	D	CS	D	CS, D	CS, D, T1, T3	CS, D	D	CS	D	CS, D
United States of America	T2, T3	CS, D	T2	D	T1, T2	D	OTH, T2	CS, OTH					OTH, T2	CS, OTH	OTH	OTH	OTH	OTH

Table 4.1b

Methods and emission factors used (2016)

	Wetlands						Settlements						Other Land						Harvested Wood Products	
	CO_2		CH_4		N_2O		CO_2		CH_4		N_2O		CO_2		CH_4		N_2O		CO_2	
	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF
Australia	T2	CS, M					T2, T3	CS, M	CS	CS	CS, T2	CS							T2, T3	D, M
Austria	T2, T3	CS					T2, T3	CS			T2, T3	CS	T2, T3	CS					T2	CS, D
Belarus	T2	CS																		
Belgium	CS, T1	CS			T1	D	CS, T1	CS			T1	D							T2	D
Bulgaria	T1	D			T1	D	T1, T2	CS, D			T1	D	T2	CS			T1	D	T1	D
Canada	T2, T3	CS	T2	CS	T2	CS, D	T2, T3	CS	T2	CS	T2	CS							T3	CS
Croatia	T1	D			T1	D	T1, T2	CS, D			T1	D							T2	D
Cyprus																				
Czech Republic	T1, T2	CS, D					T2	CS											T1, T2	D
Denmark (KP)			T1	D	T1	D					T1	D								
Denmark (Convention)																				
Estonia	T2	CS, D, OTH	T2	CS	T2	CS	T2	CS, D, OTH			T1	D	T2	CS, D, OTH			T1	D	T2, T3	CS, D
European Union (KP)																				
European Union (Convention)																				
Finland	T1, T2, T3	CS, D	T1, T2	CS, D	T2	CS	T2, T3	CS			T1	D							T2	D
France (KP)	T1, T2	CS, D	T1, T2	D	T1, T2	D	T1, T2	CS, D	T1, T2	D	T1, T2	D	T1, T2	CS, D					T3	CS
France (Convention)	T1, T2	CS, D	T1, T2	D	T1, T2	D	T1, T2	CS, D	T1, T2	D	T1, T2	D	T1, T2	CS, D					T3	CS
Germany	T2	CS	T2	CS	T2	CS, D	T2	CS	T2	CS	T2	CS, D							CS, T2	D
Greece	T1	D			T1	D	T1, T2	CS, D			T1	D	T1, T2	CS, D			T1	D	T2	D
Hungary	T1, T2	CS, D			T1	D	T1, T2, T3	CS, D			T1	D	T2	CS, D			T1	D	T2	D
Iceland	RA, T1, T2	CS, D	RA, T1, T2	CS, D			T1, T2, T3	CS			CS	D							D	D
Ireland	D, T1, T2, T3	CS, D	D, T2	CS, D	D, T2	CS, D	D, T1, T2, T3	CS, D, OTH			T2	D	T1, T3	CS			T1	D	T2	D
Italy							T1	D			T1	D							T2	CS
Japan							T2	CS, D					T2	CS, D			T1	CS, D	T2, T3	CS, D
Kazakhstan							T1, T2	CS												
Latvia	T1, T2	CS, D	T1	D	T1	D	T1, T2	CS, D			T1	D							T2	CS
Liechtenstein	T2	CS			T2	CS					T2	CS	T2	CS			T2	CS	T2	CS
Lithuania	T1	D			T1	D	T1, T2	CS, D			T1, T2	CS, D	T2	CS			T1, T2	CS, D	T1, T2	D
Luxembourg	T1	CS, D			T1	D	T1	CS, D			T1	D	T1	CS			T1	D		
Malta							T1	D, OTH					T1	OTH						
Monaco							T1, T2	D			T1	D								
Netherlands	T1, T2	CS, D			D, T1	CS	T1	CS, D			T1	CS	T1	CS, D			T1	CS	T1	D
New Zealand	T1, T2	CS, D			T1, T2	CS, D	T1, T2	CS, D			T1, T2	CS, D	T1, T2	CS, D			T1, T2	CS, D	T2	CS, D
Norway	T1, T2, T3	CS, D	T1	D	T1	D	T1, T2, T3	CS, D			T1, T2	D	T1, T2, T3	CS, D			T1	D	T2	D
Poland							T1, T2	CS, D			T1	D							T2	D
Portugal																			D	D
Romania	T1	D	NO	NO	T1	D	T1	D			T1	D	T1	D			T1	D	T1	D
Russian Federation	T1	CS, D	T1	D	T1	D	CS, T1, T2	CS			T1	D	T1	CS			T1	D	T1	D
Slovakia							T1, T2	CS, D			T2	CS, D	T1, T2	CS, D			T2	CS, D	T2	CS, D
Slovenia	D, T1, T2	CS, D					D, T2	CS, D			D, T1	D	D, T2	CS, D			D, T2	D	D, T1	D
Spain	T1, T2	CS, D	T1	D	T1	D	T1, T2	CS, D			T1	D	T1, T2	CS, D			T1	D	T2	D
Sweden	T2, T3	C	T1	C	T1	C	T2, T3	C			T1	D	T2, T3	C					T3	D
Switzerland	T2	CS	T2	D	T1	D	T2	CS			T1	D	T2	CS			T1	D	T2	D
Turkey							CS	D											T2	CS, D
Ukraine	T1	CS, D	T1	CS, D	T1	D	T1	CS, D			T1	D	T1	CS, D			T1	D	T1	D
United Kingdom of Great Britain and Northern Ireland (KP)	D	D			D	CS	CS, D, T1, T3	CS, D	D	CS	D	CS, D							CS, T3	CS
United Kingdom of Great Britain and Northern Ireland (Convention)	D	D			D	CS	CS, D, T1, T3	CS, D	D	CS	D	CS, D							CS, T3	CS
United States of America	T1, T2	CS, D	T1	D	T1	D	OTH, T2, T3	CS, OTH			OTH, T1	D, OTH							T3	CS

Table 4.2

Forest land - AD, IEFs, carbon stock changes in pools and net CO_2 emissions/removals (2016)[a, b]

	Forest land remaining forest land							Land converted to forest land						
	IEF (t C/ha)													
	CSC[c] in living biomass/area[d]			Net CSC[c] in dead wood/area	Net CSC[c] in litter/area	Net CSC[c] in soils/area[e,f]		CSC[c] in living biomass/area[d]			Net CSC[c] in dead wood/area	Net CSC[c] in litter/area	Net CSC[c] in soils/area[e,f]	
	Gains	Losses	Net Change			Mineral soils	Organic soils	Gains	Losses	Net Change			Mineral soils	Organic soils
IPCC default EF														
Australia	0.063	–0.004	0.058	–0.003	0.003	0.002	IE, NA	0.73	IE, NO	0.73	0.15	0.064	0.006	7.9
Austria	2.4	-2.1	0.31	0.059	IE, NE	-0.18	NO	1.7	-0.52	1.2	0.016	1.2	0.70	NO
Belarus	1.5	-1.1	0.41	0.067	0.074	0.34	IE	NE	NE	NE	NE	NE	NE	NE
Belgium	0.58	NO	0.58	NO	NO	0.53	NO	2.1	–0.002	2.1	0.053	0.21	1.4	NO
Bulgaria	0.40	IE, NO	0.40	0.026	0.040	–0.057	NO	2.2	-0.34	1.8	NE, NO	0.27	-1.2	NO
Canada	2.7	-2.5	0.16	0.12	-0.12	0.034	IE	4.0	-1.6	2.4	0.29	0.35	-0.20	IE, NO
Croatia	1.7	-1.1	0.64	NO	NO	NO	NO	1.2	-0.11	1.1	NO	0.23	-0.25	NO
Cyprus	0.28	-0.51	–0.23	NO	NO	-0.20	NO	73	-0.28	73	0	0.81	55	NO
Czech Republic	3.0	-2.6	0.43	NO	NO	NO	NO	1.9	NO	1.9	0.020	0.54	0.12	NO
Denmark (KP)	0.13	NO	0.13	–0.088	-0.32	NA	-1.3	0.039	-0.62	-0.58	–0.007	0.067	0.11	-1.3
Denmark (Convention)	0.13	NO	0.13	–0.088	-0.32	NA, NO	-1.3	0.039	-0.62	-0.58	–0.007	0.067	0.11	-1.3
Estonia	0.25	IE	0.25	0.007	NO	0.16	-0.19	0.43	IE	0.43	0.003	0.30	0.064	-0.30
European Union (KP)	1.4	-0.77	0.58	0.013	–0.014	0.099	-0.29	2.0	-0.52	1.5	0.024	0.18	0.16	-0.87
European Union (Convention)	1.4	-0.77	0.58	0.013	–0.014	0.10	-0.29	2.0	-0.53	1.5	0.024	0.18	0.16	-0.87
Finland	1.8	-1.4	0.34	IE	IE	0.24	-0.25	1.5	–0.027	1.5	NA	IE, NA	0.05	-1.7
France (KP)	1.7	-1.1	0.64	–0.027	NE	NE	NO	1.4	-0.16	1.3	0.043	0.23	0.14	NO
France (Convention)	1.7	-1.1	0.64	–0.027	NE	NE	NO	1.4	-0.16	1.3	0.043	0.23	0.14	NO
Germany	1.0	IE	1.0	–0.052	–0.013	0.41	-2.2	3.6	-0.38	3.3	0.034	0.47	–0.34	-2.2
Greece	0.17	IE, NO	0.17	NA, NO	NA, NO	NA, NO	NA, NO	0.73	-0.38	0.35	NE, NO	NE, NO	NE, NO	NO
Hungary	0.45	IE, NO	0.45	NO	NO	NO	-2.6	2.0	–0.006	2.0	0.070	0.44	0.36	NO
Iceland	0.11	IE	0.11	IE, NE	NE	NE	-0.37	1.1	–0.019	1.1	IE, NA, NO	0.14	0.41	-0.37
Ireland	5.3	-5.5	-0.20	IE	0.59	NO	-0.45	5.2	-2.5	2.8	IE, NO	0.78	NA, NE, NO	-0.73
Italy	2.4	-1.4	1.0	0.008	0.014	NA, NO	NO	2.8	-1.6	1.2	0.009	0.015	0	NO
Japan	0.65	–0.000	0.65	–0.022	0.003	0.025	NO	3.0	–0.010	3.0	0.65	0.28	0.15	NO
Kazakhstan	0.082	NO	0.082	IE	IE	0.047	NO	1.1	NO	1.1	IE, NO	IE, NO	0.59	NO
Latvia	2.9	-2.7	0.19	0.20	NA	NA	-0.52	0.32	IE, NO	0.32	0.12	0.12	IE, NA, NO	-0.52
Liechtenstein	2.5	-2.3	0.18	0.014	IE	NO	NO	1.2	NO	1.2	NO	NO	NO	NO
Lithuania	1.3	IE	1.3	0.057	NO	NE	IE	1.6	IE	1.6	NO	0.10	0.60	IE
Luxembourg	3.1	-1.7	1.4	NO	NO	NO	NO	3.1	–0.080	3.0	0.28	0.96	1.6	NO
Malta	NA	NA	NA	NA	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	2.2	-1.0	1.1	0.23	NO	NO	NO	3.9	-0.71	3.2	NE	NE	–0.054	-0.20
New Zealand	1.2	-0.98	0.24	0.028	–0.005	0.000	-0.12	8.4	-3.6	4.8	0.85	-0.10	-0.29	-0.68
Norway	1.1	-0.60	0.48	0.030	0.15	0.004	-0.27	0.64	–0.075	0.56	0.017	1.6	-0.35	-0.93
Poland	0.97	IE	0.97	NO	NO	0.11	-0.68	1.0	NO	1.0	NO	NO	0.10	-0.68
Portugal	2.0	-1.4	0.57	IE	–0.002	0.001	NO	2.3	-0.73	1.6	IE	0.084	0.38	NO
Romania	1.6	-0.81	0.82	NO	NO	NO	-0.68	1.2	IE	1.2	0.085	NO	2.0	NO
Russian Federation	0.32	–0.094	0.23	0.020	0.006	0.029	-0.71	0.028	–0.009	0.019	0.004	0.000	0.003	NA, NO
Slovakia	2.5	-1.9	0.60	NO	NO	NO	NO	1.5	NO	1.5	NO	0.42	1.2	NO
Slovenia	1.2	IE	1.2	–0.001	NO	NO	NO	1.1	NA, NO	1.1	NA, NO	NA, NO	-0.54	NA, NO
Spain	0.51	IE	0.51	NA	NA	NA	NO	2.5	IE, NO	2.5	0.054	0.10	0.61	NO
Sweden	0.34	IE	0.34	0.073	-0.14	0.20	-0.32	0.65	IE	0.65	0.023	0.33	-0.089	-0.37
Switzerland	3.0	-2.5	0.49	0.037	–0.033	0.001	-0.078	1.4	-1.3	0.12	0.20	1.3	0.65	-0.078
Turkey	0.93	-0.43	0.50	NO	NO	NO	NE	0.28	–0.001	0.28	NO	0.26	2.5	NE, NO
Ukraine	1.7	-0.30	1.4	0.26	0.021	NA	-0.68	0.50	–0.018	0.48	0.043	0.10	0.79	NO
United Kingdom of Great Britain and Northern Ireland (KP)	5.0	-3.8	1.2	IE	0.45	0.36	0.88	1.2	-0.19	1.0	IE, NO	0.068	-0.85	-1.2
United Kingdom of Great Britain and Northern Ireland (Convention)	5.0	-3.8	1.2	IE	0.45	0.36	0.88	1.2	-0.19	1.0	IE, NO	0.068	-0.85	-1.2
United States of America	0.38	IE	0.38	0.039	0.016	0.14	–0.004	9.8	IE	9.8	4.9	8.3	-0.002	IE

[a] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (–).

[b] Where Parties directly estimate emissions and removals rather than carbon stock changes, they may use notation keys only in the stock change columns.

[c] CSC = carbon stock change.

[d] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses.

[e] When Parties cannot estimate carbon stock changes for organic and mineral soil separately, these should be reported under mineral soils.

[f] Parties who wish to do so may report annual on-site CO_2-C emissions/removals and off-site CO_2-C emissions from drained and rewetted organic soils here.

Table 4.3

Cropland - AD, IEFs, carbon stock changes in pools and net CO_2 emissions/removals (2016)[a, b]

	Cropland remaining cropland						Land converted to cropland					
	IEF (t C/ha)											
	CSC[c] in living biomass/area[d,e]			Net CSC[c] in DOM[f]/area[g]	Net CSC[c] in soils/area[h,i]		CSC[c] in living biomass/area[d,e]			Net CSC[c] in DOM[f]/area[g]	Net CSC[c] in soils/area[h,i]	
	Gains	Losses	Net Change		Mineral soils	Organic soils	Gains	Losses	Net Change		Mineral soils	Organic soils
IPCC default EF												
Australia	0.002	IE	0.002	NA	0.038	IE	IE, NA, NO	-0.50	-0.50	–0.088	-0.21	-5.0
Austria	0.033	-0.041	–0.008	NO	0.045	NO	0.79	-0.75	0.036	–0.031	-0.98	NO
Belarus	0.040	–0.021	0.020	NE	NE	-1.0	NE	NE	NE	NE	NE	NE
Belgium	0.004	NO	0.004	NO	–0.041	-10	NO	-0.22	-0.22	–0.019	-1.3	NO
Bulgaria	0.10	-0.15	–0.044	NE	–0.001	NO	0.30	-0.35	–0.048	NE, NO	–0.069	NO
Canada	0.004	–0.001	0.003	–0.010	0.093	-5.0	NE, NO	-0.88	-0.88	-1.6	1.2	C, IE, NE, NO
Croatia	0.16	-0.19	–0.036	NO	0.000	-10	0.66	-0.18	0.48	-0.005	-0.87	NO
Cyprus	0.90	-0.75	0.15	NO	NO	NO	0.44	-0.003	0.44	0	0.67	NO
Czech Republic	NO	-0.001	–0.001	NO	–0.002	NO	0.003	-0.17	-0.17	–0.002	-0.32	NO
Denmark (KP)	0.058	-0.12	–0.062	NO	0.002	-6.5	0.58	-0.54	0.032	-0.087	–0.008	IE, NO
Denmark (Convention)	0.058	-0.12	–0.062	NO	0.002	-6.5	0.58	-0.54	0.032	-0.087	–0.008	–0.079
Estonia	0.001	IE	0.001	NO	–0.041	-6.1	IE, NO	-0.23	-0.23	–0.070	-0.44	-6.1
European Union (KP)	0.036	–0.026	0.010	–0.000	0.008	-4.7	0.12	-0.28	-0.17	–0.015	-0.77	-5.0
European Union (Convention)	0.036	–0.026	0.010	–0.000	0.008	-4.6	0.12	-0.28	-0.17	–0.015	-0.77	-5.0
Finland	0.000	–0.000	0.000	IE	0.002	-6.6	0.16	-1.4	-1.3	–0.006	-0.75	-6.8
France (KP)	0.085	–0.087	–0.002	NE	0.065	NA	0.021	-0.26	-0.24	–0.018	-1.1	NO
France (Convention)	0.085	–0.087	–0.002	NE	0.065	NA	0.021	-0.26	-0.24	–0.018	-1.1	NO
Germany	0.002	–0.004	–0.002	NA	NA	-8.1	0.30	-0.36	–0.057	–0.009	-0.80	-8.1
Greece	0.039	–0.003	0.036	NO	NO	-10	NO	-0.007	-0.007	NO	-0.71	NO
Hungary	0.008	–0.014	–0.007	NO	0.027	NO	0.30	-0.44	-0.13	-0.14	-0.80	NO
Iceland	NO	NO	NO	NO	0.17	-7.9	0.11	-0.77	-0.66	IE, NA, NO	0.10	-7.9
Ireland	0.030	–0.010	0.020	NO	0.033	NO	NO	NO	NO	NO	NO	NO
Italy	0.000	–0.031	–0.031	NO	NO	-10	NO	-0.77	-0.77	NO	-1.1	NO
Japan	IE	–0.011	–0.011	NA	-0.20	-2.4	IE, NA	-0.40	-0.40	-0.18	IE	IE
Kazakhstan	0.001	NO	0.001	IE	-0.37	NO	NO	NO	NO	NO	NO	NO
Latvia	0.012	–0.000	0.011	–0.000	NA	-7.9	NA, NO	NA, NO	NA, NO	NA, NO	-0.005	9.6
Liechtenstein	NO	NO	NO	NO	NO	-9.5	0.13	-0.23	-0.10	–0.006	-0.26	-9.5
Lithuania	0.008	–0.002	0.006	NO	0.010	IE	IE, NE, NO	-0.30	-0.30	NE, NO	-0.23	IE, NO
Luxembourg	0.015	–0.023	–0.008	NO	0.001	NO	0.24	-0.36	-0.12	–0.020	-1.2	NO
Malta	0.20	NO	0.20	NE	0.020	NO	0.004	NO	0.004	NE, NO	-0.37	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NE	NE	NE	NE	NO	-4.0	0.49	-0.71	-0.22	–0.027	-0.81	-4.1
New Zealand	0.013	–0.009	0.004	0	–0.001	-9.9	0.41	-0.047	0.36	–0.000	-0.50	-10.0
Norway	0.005	0	0.004	NO	0.026	-7.9	0.12	-1.3	-1.2	-2.0	1.1	-7.9
Poland	0.034	IE	0.034	NO	–0.002	-1.2	NO	NO	NO	NO	–0.052	NO
Portugal	0.031	–0.013	0.018	NO	0.008	NO	0.15	-0.36	-0.21	–0.028	-0.70	NO
Romania	0.036	IE	0.036	–0.002	0.075	-2.5	0.22	-0.30	–0.081	–0.026	–0.084	NO
Russian Federation	0.014	0	0.014	NO	-0.11	-5.9	NO	NO	NO	NO	NO	NO
Slovakia	0.22	–0.006	0.22	NO	0.007	NO	NO	-0.011	-0.011	NO	-0.67	NO
Slovenia	0.36	–0.043	0.32	NA, NO	–0.000	-10	0.79	-0.66	0.13	–0.044	-0.72	NO
Spain	0.025	IE	0.025	NA	0.026	NO	0.073	–0.024	0.050	–0.002	-0.66	NO
Sweden	0.017	IE	0.017	0.000	-0.054	-6.2	0.11	-0.32	-0.21	-0.11	-0.29	-1.7
Switzerland	0.15	NO	0.15	NO	NO	-9.5	0.018	-0.10	–0.081	–0.001	-0.31	-8.8
Turkey	0.001	–0.000	0.000	0.003	0.004	-9.5	0.31	-1.3	-0.96	0.16	–0.030	NE, NO
Ukraine	0.044	–0.051	–0.007	NA	-0.35	-5.0	NA, NO	NA, NO	NA, NO	NA, NO	-0.17	NO
United Kingdom of Great Britain and Northern Ireland (KP)	NO	-0.001	–0.001	NO	-0.29	-5.0	IE, NO	–0.032	–0.032	IE, NO	-1.3	-5.0
United Kingdom of Great Britain and Northern Ireland (Convention)	NO	-0.001	–0.001	NO	-0.29	-5.0	IE, NO	–0.032	–0.032	IE, NO	-1.3	-5.0
United States of America	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

[a] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (–).

[b] Where Parties directly estimate emissions and removals rather than carbon stock changes, they may use notation keys only in the stock change columns.

[c] CSC = carbon stock change.

[d] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses.

[e] For category cropland remaining cropland this column only includes changes in perennial woody biomass.

[f] DOM = dead organic matter.

[g] No reporting on DOM pools is required for category cropland remaining cropland.

[h] When Parties cannot estimate carbon stock changes for organic and mineral soil separately, these should be reported under mineral soils.

[i] Parties who wish to do so may report annual on-site CO_2-C emissions/removals and off-site CO_2-C emissions from drained and rewetted organic soils here.

Table 4.4

Grassland - AD, IEFs, carbon stock changes in pools and net CO_2 emissions/removals (2016)[a, b]

	Grassland remaining grassland						Land converted to grassland					
	IEF (t C/ha)											
	CSC[c] in living biomass/area[d]			Net CSC[c] in DOM[e]/area[f]	Net CSC[c] in soils/area[g,h]		CSC[c] in living biomass/area[d]			Net CSC[c] in DOM[e]/area[f]	Net CSC[c] in soils/area[g,h]	
	Gains	Losses	Net Change		Mineral soils	Organic soils	Gains	Losses	Net Change		Mineral soils	Organic soils
IPCC default EF												
Australia	0.018	–0.015	0.003	0.001	0.000	IE	IE, NA, NO	-0.46	-0.46	-0.075	-0.22	-5.0
Austria	NO	NO	NO	NO	0.002	-6.4	0.65	-1.3	-0.69	-0.38	0.91	NO
Belarus	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Belgium	NO	NO	NO	NO	0.21	-2.5	NO	-1.0	-1.0	–0.081	1.4	NO
Bulgaria	NE	NE	NE	NE	NE	NO	0.39	-0.43	–0.049	NE, NO	1.1	NO
Canada	NA, NO	NA, NO	NA, NO	NA, NO	NE, NO	NE, NO	NO	NO	NO	NO	NO	NO
Croatia	NO	NO	NO	NO	NO	-2.5	0.12	-0.30	-0.18	NO	1.1	NO
Cyprus	1.5	-1.2	0.25	NO	NO	NO	1.4	-0.011	1.4	0.035	0.90	NO
Czech Republic	NO	NO	NO	NO	0.15	NO	0.066	–0.075	–0.009	–0.001	0.43	NO
Denmark (KP)	1.2	-2.6	-1.4	NO	IE	-6.7	0.76	-1.1	-0.34	–0.016	0.001	-8.7
Denmark (Convention)	0.22	-0.45	-0.24	NO	IE, NO	-5.3	0.76	-1.1	-0.34	–0.016	0.001	-8.7
Estonia	0.001	IE	0.001	NO	NO	-0.29	0.10	-0.040	0.056	-0.11	0.46	-5.0
European Union (KP)	0.067	–0.052	0.015	0.001	0.028	-3.2	0.13	-0.22	-0.10	–0.021	0.70	-4.7
European Union (Convention)	0.073	–0.057	0.016	0.002	0.030	-4.5	0.13	-0.23	-0.10	–0.022	0.70	-4.4
Finland	0.37	NE	0.37	NE	NA	-3.5	0.11	-0.29	-0.18	NA, NE	0.037	-3.5
France (KP)	0.13	-0.11	0.019	NE	–0.004	NA	0.096	-0.17	–0.078	–0.017	0.95	NO
France (Convention)	0.13	-0.11	0.019	NE	–0.004	NA	0.096	-0.17	–0.078	–0.017	0.95	NO
Germany	0.041	–0.009	0.032	NO	–0.002	-6.2	0.45	-0.45	0.001	–0.073	0.82	-6.4
Greece	NO	–0.000	–0.000	NO	NO	NO	NO	-0.13	-0.13	0.000	0.71	NO
Hungary	NO	NO	NO	NO	–0.003	NO	0.69	-1.2	-0.48	–0.044	0.84	NO
Iceland	0.000	IE, NO	0.000	0.000	0.000	-5.7	0.085	IE, NA, NO	0.085	0.001	0.49	-5.7
Ireland	NO	NO	NO	NO	0.13	-5.2	0.15	-0.69	-0.54	-0.44	NO	-3.9
Italy	0.44	-0.38	0.056	0.004	NA, NO	-2.5	NO	NO	NO	NO	1.1	NO
Japan	NA	NA	NA	NA	0.077	-0.14	0.25	-1.5	-1.2	-0.66	IE, NO	IE, NO
Kazakhstan	NO	-0.001	–0.001	IE	0.015	NO	0.19	IE, NO	0.19	IE, NO	0.17	NO
Latvia	0.043	–0.001	0.042	–0.002	NA	-6.1	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	-4.7
Liechtenstein	0.067	–0.062	0.005	NO	0.009	-8.4	0.40	-1.2	-0.81	-0.33	0.23	-12
Lithuania	NO	NO	NO	NO	NO	IE	0.009	NE, NO	0.009	NE, NO	0.30	IE, NO
Luxembourg	NO	NO	NO	NO	NO	NO	0.48	-0.59	-0.11	–0.045	1.4	NO
Malta	0.000	NE, NO	0.000	NE	0.006	NO	NO	NO	NO	NE, NO	0.27	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	0.039	-0.035	0.004	NE, NO	0.002	-4.6	0.71	-0.75	-0.037	-0.15	0.67	-4.2
New Zealand	0.006	–0.004	0.002	0.000	–0.000	-2.2	0.17	-4.4	-4.3	-0.40	0.55	-2.1
Norway	0.29	-0.17	0.12	NO	–0.039	-3.6	0.62	-1.5	-0.88	-3.1	2.0	-3.6
Poland	NO	NO	NO	NO	–0.010	-0.30	0.66	IE, NO	0.66	IE, NO	0.83	NO
Portugal	NO	NO	NO	NO	0.25	NO	0.050	-0.22	-0.17	–0.012	-0.44	NO
Romania	0.095	NE, NO	0.095	NE	NE	0.25	0.003	-0.38	-0.38	–0.008	0.14	NO
Russian Federation	NA	NA	NA	NA	0.030	-5.8	0.18	NA, NO	0.18	0.15	0.64	-5.8
Slovakia	NO	NO	NO	NO	NO	NO	0.005	–0.011	–0.007	–0.001	0.71	NO
Slovenia	NA	NA	NA	NA	NA	NA	0.11	-0.87	-0.77	-0.13	0.70	NA, NO
Spain	NE	NE	NE	NA	NE	NO	IE, NO	-0.36	-0.36	–0.024	0.69	NO
Sweden	0.12	IE	0.12	0.27	0.084	-1.7	0.12	-0.53	-0.40	-0.22	0.081	-3.1
Switzerland	0.016	–0.009	0.007	NO	0.011	-9.1	0.12	-0.89	-0.77	-0.32	0.57	-9.0
Turkey	NE	NE	NE	NE	NE	-0.94	0.10	-0.48	-0.38	-0.25	-2.5	NE, NO
Ukraine	NA, NO	NA, NO	NA, NO	NA, NO	0.009	-0.25	NA	NA	NA	NA	0.68	NO
United Kingdom of Great Britain and Northern Ireland (KP)	0.002	–0.004	–0.001	NO	0.12	IE, NO	0.033	–0.055	–0.023	–0.002	0.64	-0.25
United Kingdom of Great Britain and Northern Ireland (Convention)	0.002	–0.004	–0.001	NO	0.12	IE, NO	0.033	–0.055	–0.023	–0.002	0.64	-0.25
United States of America	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

[a] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (–).

[b] Where Parties directly estimate emissions and removals rather than carbon stock changes, they may use notation keys only in the stock change columns.

[c] CSC = carbon stock change.

[d] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses.

[e] DOM = dead organic matter.

[f] No reporting on DOM pools is required for category grassland remaining grassland.

[g] When Parties cannot estimate carbon stock changes for organic and mineral soil separately, these should be reported under mineral soils.

[h] Parties who wish to do so may report annual on-site CO_2-C emissions/removals and off-site CO_2-C emissions from drained and rewetted organic soils here.

Table 4.5

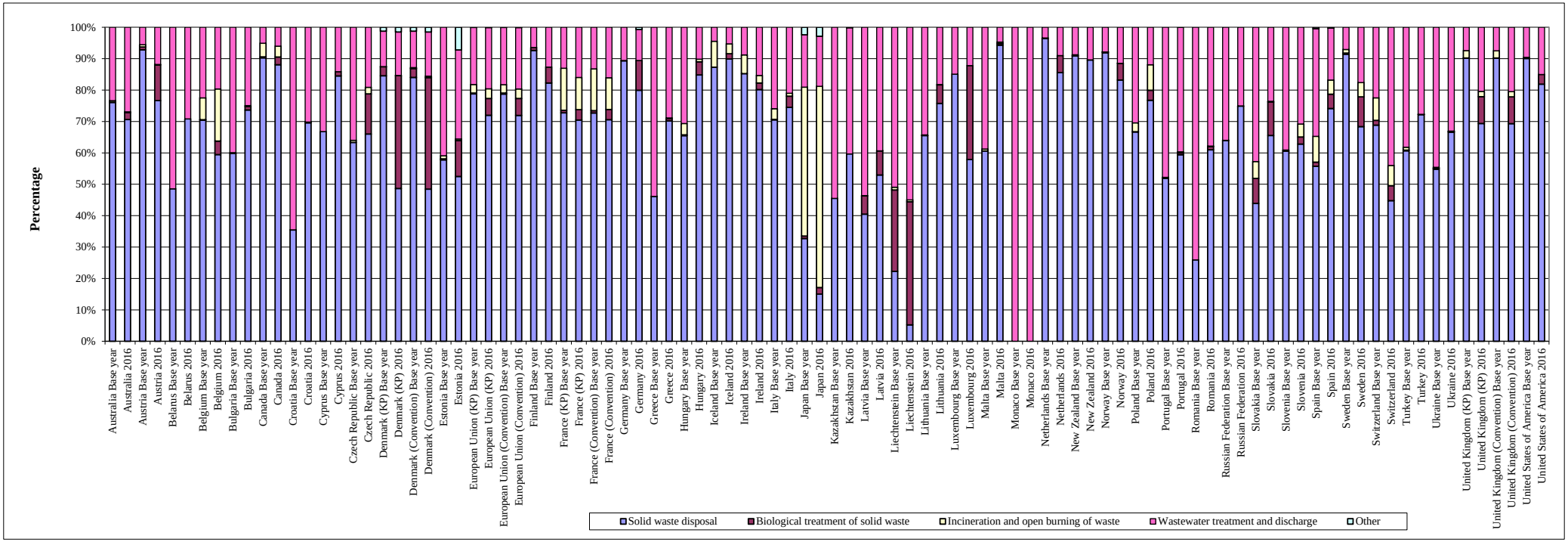
Land Area (2016)

Area (kha)	CRF						Total	FAO[a]	difference	FAO[a]	difference
	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land		Total country area	%	Forest	%
Australia	140 434	35 683	513 563	17 499	1 127	60 694	769 000	768 230	-0.10	124 751	-11.17
Austria	4 035	1 417	1 450	152	560	773	8 387	8 252	-1.61	3 869	-4.11
Belarus	9 493	6 249	3 484	15 618	1 041	823	36 708	20 291	-44.72	8 634	-9.05
Belgium	714	1 012	588	48	691	NO	3 053	3 028	-0.81	683	-4.24
Bulgaria	3 898	4 125	1 753	231	520	572	11 100	10 856	-2.20	3 823	-1.93
Canada	225 809	44 772	6 604	479	958	NE, NO	278 622	909 351	226.37	347 069	53.70
Croatia	2 370	1 531	1 188	75	265	231	5 659	5 596	-1.12	1 922	-18.91
Cyprus	153	247	131	5.0	70	3.6	609	924	51.61	173	12.95
Czech Republic	2 670	3 205	1 003	166	843	IE, NA, NO	7 887	7 722	-2.09	2 667	-0.11
Denmark (KP)	637	2 796	201	119	525	26	4 306		–		–
Denmark (Convention)	638	2 796	443	120	531	216 386	220 914	45 384	-79.46	613	-3.95
Estonia	2 419	1 050	281	23	331	36	4 141	4 239	2.37	2 232	-7.74
European Union (KP)	166 838	127 062	94 012	24 420	29 791	16 696	458 819		–		–
European Union (Convention)	166 695	126 927	87 357	23 796	29 750	12 733	447 257	477 298	6.72	170 446	2.25
Finland	21 882	2 494	241	6 444	1 472	1 311	33 843	30 391	-10.20	22 218	1.54
France (KP)	23 768	17 910	14 362	1 163	5 694	963	63 860		–		–
France (Convention)	23 768	17 910	14 362	1 163	5 694	963	63 860	65 770	2.99	26 337	10.81
Germany	11 168	13 490	6 439	731	3 932	20	35 780	34 886	-2.50	11 419	2.25
Greece	3 464	3 214	5 348	301	599	272	13 198	12 890	-2.34	4 054	17.04
Hungary	2 059	5 150	1 245	263	585	2.4	9 304	9 053	-2.69	2 069	0.50
Iceland	139	124	5 390	625	28	3 963	10 269	10 025	-2.38	49	-64.64
Ireland	767	674	4 338	1 140	124	71	7 113	6 889	-3.16	754	-1.64
Italy	9 360	8 929	8 309	519	2 362	655	30 134	29 414	-2.39	9 297	-0.67
Japan	24 809	4 291	953	1 338	3 833	2 573	37 797	36 456	-3.55	24 958	0.60
Kazakhstan	12 982	29 741	195 124	8 847	2 185	23 611	272 490	269 970	-0.92	3 309	-74.51
Latvia	3 209	1 916	620	463	245	5.2	6 457	6 218	-3.71	3 356	4.60
Liechtenstein	6.2	1.7	5.0	0.37	1.8	1.0	16	16	-0.34	6.9	10.76
Lithuania	2 203	2 070	1 498	365	384	8.4	6 529	6 265	-4.04	2 180	-1.03
Luxembourg	96	61	74	1.2	26	0.054	259	259	0.16	87	-9.84
Malta	0.072	3.9	11	0.025	9.2	0.55	24	32	31.23	0.35	386.11
Monaco	NO	NO	NO	NO	0.20	NO	0.20		–		–
Netherlands	378	964	1 321	830	622	37	4 151	3 369	-18.85	376	-0.52
New Zealand	9 903	478	14 741	683	225	894	26 925	26 331	-2.21	10 152	2.51
Norway	12 140	937	231	3 719	695	14 656	32 378	36 525	12.81	12 112	-0.23
Poland	9 382	13 979	4 203	1 371	2 248	84	31 268	30 619	-2.08	9 435	0.57
Portugal	4 366	2 391	653	196	500	1 133	9 239	9 161	-0.85	3 182	-27.12
Romania	7 007	8 618	4 991	1 112	1 705	406	23 839	23 008	-3.49	6 861	-2.08
Russian Federation	897 014	92 578	122 043	226 825	14 172	359 887	1 712 519	1 637 687	-4.37	814 931	-9.15
Slovakia	2 023	1 529	856	94	236	165	4 904	4 808	-1.94	1 940	-4.08
Slovenia	1 206	256	399	15	119	32	2 027	2 014	-0.66	1 248	3.46
Spain	15 679	20 042	11 935	419	1 415	1 161	50 651	50 023	-1.24	18 418	17.47
Sweden	28 204	2 790	516	7 378	1 886	4 342	45 116	40 731	-9.72	28 073	-0.46
Switzerland	1 255	393	1 380	188	327	586	4 129	3 952	-4.30	1 254	-0.08
Turkey	22 570	28 082	14 858	NE, NO	86 470	10 960	162 940	76 963	-52.77	11 715	-48.10
Ukraine	10 664	34 886	7 834	3 409	2 562	1 012	60 366	57 929	-4.04	9 657	-9.44
United Kingdom of Great Britain and Northern Ireland (KP)	3 584	5 076	14 668	170	1 794	420	25 712		–		–
United Kingdom of Great Britain and Northern Ireland (Convention)	3 584	5 076	14 668	170	1 794	420	25 712	25 497	-0.84	3 161	-11.81
United States of America	273 151	NE	NE	22 533	10 951	NA, NE	306 634	914 742	198.32	310 095	13.53

[a] Source of international statistics: FAOSTAT data, downloaded on 28 May 2018 from http://www.fao.org/faostat/en/#data/RL.

Figure 5.1

Contribution of subsectors to total GHG emissions in the Waste sector[a, b]



[a] In accordance with the UNFCCC reporting guidelines on annual inventories of Annex I Parties the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2, 11/CP.4, and 7/CP.12 some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Croatia (1990), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

[b] Indirect CO_2 emissions are excluded from the totals in this graph.

Table 5.1a

Solid waste disposal on land, biological treatment of solid waste, incineration and open burning of waste and wastewater treatment and discharge (2016)

	Solid waste disposal							Biological treatment of solid waste										
	CH_4							CH_4						N_2O				
	Methods and EF used		Share of national total[a]	Emissions per capita[b]	CH_4 IEF			Methods and EF used		Share of national total[a]	Emissions per capita[b]	IEF		Methods and EF used		Share of national total[a]	Emissions per capita[b]	IEF	
	Methods	EF			Managed	Unmanaged	Uncategorized	Methods	EF			Composting	Anaerobic digestion	Methods	EF			Composting	Anaerobic digestion
			(%)	(kg CO_2 eq.)	(t/t)	(t/t)	(t/t)			(%)	(kg CO_2 eq.)	g/kg	g/kg			(%)	(kg CO_2 eq.)	g/kg	g/kg
IPCC default EF																			
Australia	T2, T3	D	1.58	357	0.019	NO	NO	T1	CS	0.02	4.4	0.75	NO	T1	CS	0.03	6.8	0.096	NO
Austria	T2	CS, D	1.52	139	0.37	NO	NO	T1, T2	CS, D	0.10	9.4	1.8	107	T2	CS	0.12	11	0.25	NA, NO
Belarus	T1	CS, D	4.93	475	NO	0.042	NE			–	–	NO				–	–	NO	
Belgium	T2	D	0.75	79	0.033	NO	NO	T1	CS	0.02	2.2	0.75	NO	T1	CS	0.03	3.4	0.096	NO
Bulgaria	T2, T3	CS, D	5.09	423	0.026	0.29	NO	T1	D	0.04	3.7	4.0	NO	T1	D	0.03	2.6	0.24	NO
Canada	CS	CS	2.33	0.45	0.035	0.37	NO	T1	D	0.04	0.007	4.0	NA, NE	T1	D	0.03	0.005	0.24	NA, NE
Croatia	T2	CS	5.26	306	0.042	0.031	NO	T1	D	0.01	0.66	4.0	IE	T1	D	0.01	0.47	0.24	NA
Cyprus	T2	D	5.33	547	0.020	0.058	NO	T1	D	0.05	5.1	4.0	NO	T1	D	0.04	3.6	0.24	NO
Czech Republic	T1	CS, D	2.82	347	0.053	NO	NO	CS, D, T1	CS, D	0.50	61	4.0	IE, NE	T1	D	0.05	6.0	0.24	IE, NO
Denmark (KP)	CS, T2	CS, D	1.23	108	0.021	NO	NO	CS, T1	CS, OTH	0.71	63	4.1	NE, NO	CS, T1	CS, OTH	0.20	18	0.18	NA, NO
Denmark (Convention)			1.20	108	0.022	0.025	NE, NO			0.69	62	4.1	NE, NO			0.19	17	0.18	NA, NO
Estonia	T2	D	0.82	122	0.16	NO	NO	T1	D	0.10	15	4.0	NE, NO	T1	D	0.07	11	0.24	NE, NO
European Union (KP)			2.33	1.5	0.030	0.34	NO			0.10	0.067	2.8	NE			0.07	0.044	0.23	NE
European Union (Convention)			2.32	1.5	0.030	0.35	NO			0.10	0.067	2.8	NE			0.07	0.044	0.23	NE
Finland	T2	CS, D	2.79	298	0.028	NO	NO	T1	D	0.11	11	5.8	1.0	T1	D	0.07	7.0	0.35	NA
France (KP)	T2	CS, D	2.50	0.17	0.037	NO	NO	T2	CS	0.05	0.003	0.78	2.8	T2	CS	0.07	0.005	0.13	NA
France (Convention)	T2	CS, D	2.50	0.17	0.037	NO	NO	T2	CS	0.05	0.003	0.78	2.8	T2	CS	0.07	0.005	0.13	NA
Germany	T2	CS	0.92	101	0.41	NO	NO	T2	CS	0.08	8.3	1.4	63	T2	CS	0.03	3.7	0.074	0.067
Greece	T2	CS, D	3.48	275	0.014	0.30	NO	D	D	0.02	1.6	4.0	NO	D	D	0.01	1.1	0.24	NO
Hungary	T2	D	4.83	302	0.040	IE, NO	NO	CS, T1	D	0.17	11	10	65	T1	D	0.06	4.0	0.60	NA, NO
Iceland	T2	CS, D	4.57	631	0.047	0.027	NO	T2	CS, D	0.05	6.7	4.0	NO	T1	D	0.03	4.8	0.24	NO
Ireland	T2	CS, D	1.25	161	0.055	IE	NO	T1	D	0.02	2.4	4.0	NO	T1	D	0.01	1.7	0.24	NO
Italy	T2	CS	3.18	225	0.058	NO	NO	D	CS, D	0.03	2.0	1.6	2.0	D	D	0.12	8.8	0.60	NA, NO
Japan	T3	CS	0.25	25	0.30	NO	0.56	T2	CS	0.01	0.80	2.8	NE, NO	T2	CS	0.03	2.7	0.78	NO
Kazakhstan	M	CS, M	0.99	182	0.020	NO	0.03			–	–	NO	NO			–	–	NO	NO
Latvia	T2	CS, D	3.40	195	0.021	NO	NO	D	D	0.29	17	4.0	NO	D	D	0.21	12	0.24	NO
Liechtenstein	T2	CS	0.06	3.0	NO	NO	NO	CS	CS	0.39	19	5.3	NO	CS	CS	0.06	3.2	0.074	NO
Lithuania	T2	D	3.76	263	0.070	0.048	NO	T1	D	0.19	13	10	NE, NO	T1	D	0.11	7.4	0.60	NO
Luxembourg	T1	D	0.50	75	0.13	NO	NO	T1	D	0.20	31	9.7	IE, NE	T1	D	0.05	7.9	0.55	NA
Malta	M, T2	M, PS	7.85	349	0.022	NA	NO	T1	D	0.04	1.9	NO	0.80			–	–	NO	NA, NO
Monaco			–	–	NO	NO	NO			–	–	NO	NO			–	–	NO	NO
Netherlands	T2	CS	1.42	163	0.042	NA, NO	NO	T2	CS	0.04	5.1	0.82	1.1	T2	CS	0.05	5.3	0.079	0.043
New Zealand	T2	CS, D	4.37	724	0.015	0.015	NO			–	–	NE, NO	NO			–	–	NE	NO
Norway	T2	D	1.95	200	4.3	NO	NO	T1	D	0.07	7.3	4.0	0.80	T1	D	0.05	5.5	0.30	NO
Poland	T2	CS, D	2.05	211	0.045	NO	NO	T1	D	0.05	5.2	4.0	NA, NO	T1	D	0.04	3.7	0.24	NA, NO
Portugal	T2	CS, D	5.67	373	0.042	NO	NA, NO	T1	D	0.04	2.4	4.0	0.80	T1	D	0.02	1.3	0.24	NO
Romania	T2	CS, D	3.17	181	0.013	0.24	NA	T1	D	0.03	1.8	4.0	NO	T1	D	0.02	1.3	0.24	NO
Russian Federation	T2	CS, D	3.28	592	0.052	0.037	NO	T1	D	0.00	0.17	8.0	NO	T1	D	0.00	0.12	0.48	NO
Slovakia	T2	CS, D	2.37	179	0.020	0.11	NO	T1	D	0.23	17	4.0	NO	T1	D	0.16	12	0.24	NO
Slovenia	T2	CS, D	2.01	172	0.14	NO	NO	T1	D	0.04	3.6	4.0	NO	T1	D	0.03	2.6	0.24	NO
Spain	T2	CS, D, OTH	3.28	229	0.031	NO	NO	T1	D	0.12	8.5	4.0	66	T1	D	0.08	5.6	0.24	NE, NO
Sweden	T2	CS, D	1.72	91	0.059	NO	NO	T1, T2	CS, D	0.17	9.2	11	123	T1	D	0.06	3.4	0.69	NA, NO
Switzerland	T2	CS, D	0.69	40	NO	NO	NO	T2	CS	0.05	3.1	1.0	0.20	T2	CS	0.02	1.2	0.050	NO
Turkey	T2	CS, D	2.35	147	0.006	0.039	NO	T1	D	0.00	0.11	4.0	NO	T1	D	0.00	0.081	0.24	NO
Ukraine	T3	CS, D	2.43	183	0.023	0.025	NO	T1	D	0.01	0.41	4.0	NA	T1	D	0.00	0.36	0.30	NA
United Kingdom of Great Britain and Northern Ireland (KP)	T2	CS	2.88	213	0.012	NO	NO	T1	D	0.22	16	10	1.1	T1	D	0.14	10	0.60	NO
United Kingdom of Great Britain and Northern Ireland (Convention)	T2	CS	2.88	214	0.012	NO	NO	T1	D	0.22	16	10	1.1			0.14	10	0.60	NO
United States of America	CS	CS	1.65	328	0.021	NO	NO	D	D	0.03	6.5	4.0	NE	D	D	0.03	5.8	0.30	NE

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Canada, Czech Republic, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] Calculated using population data from CRF Table 5.D.

Table 5.1b

Solid waste disposal on land, biological treatment of solid waste, incineration and open burning of waste and wastewater treatment and discharge (2016)

	Activity data		Incineration and open burning of waste						Wastewater treatment and discharge											
			CO_2						CH_4						N_2O					
	Population (million)		Methods and EF used		Share of national total[b]	Emissions per capita[c]	IEF		Methods and EF used		Share of national total[b]	Emissions per capita[c]	CH_4 IEF		Methods and EF used		Share of national total[b]	Emissions per capita[c]	N_2O IEF	
	CRF	World Bank[a]	Methods	EF			Waste incineration	Open burning of waste	Methods	EF			Domestic	Industrial	Methods	EF			Domestic	Industrial
					(%)	(kg CO_2 eq.)	kg/t	kg/t			(%)	(kg CO_2 eq.)	kg/kg	kg/kg			(%)	(kg CO_2 eq.)	kg N_2O-N/kg N	kg N_2O-N/kg N
IPCC default EF[d]																			0.005	
Australia	24	24	T2	CS	0.01	1.3	1 414	NO	T2, T3	CS, D	0.51	115	0.074	0.074	CS	D	0.09	21	0.013	IE
Austria	8.7	8.7	T2	CS	0.00	0.23	2 052	NO	T2	CS, D	0.03	2.7	0.16	IE, NA, NO	CS	CS, D	0.21	19	0.031	IE
Belarus	9.5	9.5			–	–			T1	D	1.78	172	NE	0.10	T1	D	0.25	24	0.010	NE
Belgium	11	11	T1, T3	PS	0.21	22	4 409	NO	CR, T1	CR, D	0.16	17	NA	NA	D	D	0.09	9.1	NA	NA
Bulgaria	7.1	7.1	T1	D	0.02	1.7	1 579	NO	T2	D	1.48	123	0.14	0.043	T1	D	0.24	20	0.005	NA
Canada	36 265	36	T1, T2, T3	CS, D	0.07	0.013	430	NE, NO	CS, T3	CS, D, PS	0.06	0.012	NA	NA	D	D	0.10	0.019	0.010	NE
Croatia	4.2	4.2	T1	D	0.00	0.012	880	NO	T1, T2	D	1.92	112	0.30	0.003	T1	D	0.36	21	0.005	NA
Cyprus	0.85	1.17			–	–	NO	NO	T1	D	0.70	72	0.060	0.080	OTH, T1	D, OTH	0.19	19	0.005	NE
Czech Republic	11	11	T1	D	0.09	11	1 478	NO	CS, T1	CS, D	0.66	82	0.16	0.016	T1	CS, D	0.15	19	0.005	NE
Denmark (KP)	5.7				–	–	NO	NO	CS	CS	0.22	19	0.083	IE, NO	CS	CS	0.13	11	0.036	0.040
Denmark (Convention)	5.8	5.8			0.01	0.55	291	154			0.21	19	0.083	IE, NA, NE, NO			0.14	12	0.030	0.061
Estonia	1.3	1.3	T1, T2	D	0.01	0.80	1 358	344	T1	D	0.29	43	0.068	0.20	T1	D	0.15	23	0.005	NO
European Union (KP)	67 192				0.08	0.049	3450	8 511			0.46	0.29	0.11	NE			0.17	0.11	0.005	0.032
European Union (Convention)	67 191	512			0.08	0.049	3516	8 511			0.46	0.29	0.11	NE			0.17	0.11	0.005	0.032
Finland	5.5	5.5			–	–	IE, NO	NE, NO	CS, T2, T3	CS, D	0.29	31	0.044	0.001	CS, T1	D	0.14	15	0.005	0.005
France (KP)	66 762		T1, T2	CS, D	0.35	0.024	3 941	95	T1	D	0.48	0.033	0.086	0.58	T1	D	0.09	0.006	0.002	NA
France (Convention)	67 338	67	T1, T2	CS, D	0.34	0.024	3 941	95	T1	D	0.48	0.033	0.086	0.58	T1	D	0.09	0.006	0.002	NA
Germany	83	82			–	–	NO	NO	CS, D	CS, D	0.06	6.9	0.19	0.001	CS, D	CS, D	0.05	5.5	0.006	IE
Greece	12	11	D	CS, D	0.01	0.85	399	NO	CS, D	CS, D	1.07	85	0.023	0.20	D	CS	0.36	28	0.005	NE
Hungary	9.8	9.8	T2	CS, D	0.05	3.0	1 798	NO	T1	D	0.46	28	0.12	0.013	CS	D	0.12	7.7	0.006	NE
Iceland	0.34	0.34	T1, T2	D	0.14	20	286	IE, NO	T1	CS, D	0.12	16	0.024	IE, NO	T1	D	0.15	21	0.005	IE
Ireland	4.8	4.7	T1	D	0.04	4.8	2 933	505	T1, T2	CS, D	0.08	11	0.063	IE, NO	T1	D	0.16	20	0.005	IE
Italy	61	61	D	CS	0.02	1.6	776	NO	T1	D	0.58	41	0.15	0.25	T1	CR, D	0.32	22	0.005	1.0
Japan	128	127	CS	CS	0.95	96	536	NO	CS, D	CS, D	0.12	12	NA	NA	CS, D	CS, D	0.14	15	NA	0.005
Kazakhstan	18	18			–	–	NA, NO	NO	T1	D	0.57	104	0.13	0.075	T1	D	0.10	18	0.005	NO
Latvia	2.0	2.0	D	D	0.00	0.088	880	NO	D	CS	2.24	129	0.092	0.066	D	D	0.28	16	0.005	0.005
Liechtenstein	0.038	0.038	CS	CS	0.01	0.27	NO	244	CS	CS	0.29	14	NA	IE, NO	D	D	0.35	17	NA	IE, NO
Lithuania	2.9	2.9	T1, T2	D	0.00	0.33	975	NO	T1	D	0.69	48	0.057	IE, NA	T1	D	0.22	15	0.005	NA
Luxembourg	0.66	0.58			–	–	IE, NO	NO	T1	CS	0.03	4.9	1.0	NO	T1	D, PS	0.07	11	0.003	0.003
Malta	0.43	0.44	T1	D	0.04	1.6	127	NO			0.12	5.3	0.008	IE, NO			0.27	12	0.002	IE
Monaco	0.038	0.038			–	–	IE, NO	NO	T1	D	2.85	60	0.055	IE	T1	D	0.74	16	0.005	IE
Netherlands		17			–	–	IE, NA	NO	T1, T2	CS, D	0.11	13	0.06	0.002	T1, T2	D	0.04	4.2	NA	NE
New Zealand	4.7	4.7	T1	D	0.00	0.25	226	NO	T1, T2	CS, D	0.34	56	0.036	0.017	CS, T1	CS, D	0.17	28	0.005	0.017
Norway	5.2	5.2	D	OTH	–	–	IE, NO	NE, NO	T1	CS, D	0.12	12	NE	NE	CS, T1	CS, D	0.15	15	0.008	NE
Poland	38	38	T1, T2	CS, D	0.20	21	683	NA	T1	CS, D	0.13	13	0.071	0.032	T1	D	0.19	20	0.005	NA
Portugal	10	10	T1, T2	CS, D	0.03	2.3	1 006	NO	T2	CS, D	3.42	225	0.16	0.024	T2	CS, D	0.37	24	0.006	IE
Romania	20	20	D	D	0.01	0.34	227	NO	D	D	1.50	85	0.14	0.015	D	D	0.47	27	0.005	NE
Russian Federation	147	144			–	–	IE, NO	NE, NO	T1, T2	CS, D	0.99	178	0.35	0.077	T2	CS, D	0.11	20	0.005	NO
Slovakia	5.4	5.4	T2	CS, D	0.00	0.34	7.9	NO	CS, D, T2	D	0.73	55	0.28	0.025	CS, T2	CS, D	0.12	9.0	0.005	0.005
Slovenia	2.1	2.1	T1	D	0.13	11	2 511	NO	T1	CS, D	0.77	66	0.10	0.005	T1	D	0.21	18	0.005	NA
Spain	46	46			–	–	IE, NO	NO	T1, T2	CS, D	0.44	30	0.055	0.010	D	D	0.30	21	0.005	NE
Sweden	10.0	9.9	T3	PS	0.10	5.5	0.75	NA, NE	T2	CS	0.05	2.9	0.21	1.6	T1	CS, D	0.39	21	0.020	0.005
Switzerland	8.4	8.4	T1, T2	CS	0.02	1.2	66	NO	T2	CS, D	0.37	22	0.22	IE	CS	D	0.31	18	0.005	IE
Turkey	79	80	T2	CS, D	0.00	0.014	IE, NO	112	T2	CS	0.49	31	0.075	0.013	T1	D	0.42	26	0.005	IE
Ukraine	45	45	T1, T2	CS, D	0.00	0.20	125	NE	T2	CS, D	0.88	66	0.11	0.028	CS, T1	CS, D	0.33	24	0.010	0.004
United Kingdom of Great Britain and Northern Ireland (KP)	66		T1, T2	CS, D	0.06	4.3	694	NE, NO	CS, T1	CS, D	0.70	52	0.020	0.18	T1	D	0.15	11	0.004	NE
United Kingdom of Great Britain and Northern Ireland (Convention)	66	66	T1, T2	CS, D	0.06	4.3	694	NE, NO	CS, T1	CS, D	0.70	52	0.020	0.18	T1	D	0.15	11	0.004	NE
United States of America	328	323			–	–	IE, NA	NA	D	CS, D	0.23	45	0.11	0.029	D	CS, D	0.08	15	0.006	NE

[a] Source of population data: World Bank https://data.worldbank.org/indicator/SP.POP.TOTL, downloaded 30 May 2018.

[b] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Canada, Czech Republic, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[c] Calculated using population data from CRF Table 5.D.

[d] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 5 Chapter 6 Wastewater Treatment and Discharge, page 6.28.

Table 6.1

Selected values (forest parameters), elected activities under Article 3.4, accounting period, forest management cap[a]

	Minimum value for 'tree crown cover' (%)[b]	Minimum 'tree height' (m)[b]	Minimum area for 'Forest land' (ha)[b]	Cropland Management[c]	Grazing Land Management[c]	Revegetation[c]	Wetland drainage and rewetting[c]	Harvest Wood Products[c]	Accounting period[d]	FM CAP[e] ($Mt CO_2$ eq.)	Forest Management Reference Level (FMRL)[f] ($Mt CO_2$ eq./yr)
Australia	20	2	0.2	X	X	X		X	Annually/CP	117.21	4.700
Austria	30	2	0.05					X	CP	22.08	–6.516
Belgium	20	5	0.5					X	CP	41.39	–2.499
Bulgaria	10	5	0.1					X	CP	31.95	–8.168
Croatia	10	2	0.1					X	CP	8.74	–6.289
Cyprus	10	5	0.3					X	CP	1.58	-0.157
Czech Republic	30	2	0.05					X	CP	55.53	-4.686
Denmark (KP)	10	5	0.5	X	X			X	Annually	19.87	0.409
Estonia	30	2	0.5					X	CP	11.20	–1.742
European Union (KP)	10-30	2-5	0.05-1	X	X	X	X	X	Annually/CP	1643.64	–306.706
Finland	10	5	0.5					X	CP	19.98	–20.466
France (KP)	10	5	0.5					X	CP	153.46	–67.410
Germany	10	5	0.1	X	X			X	CP	351.01	–22.418
Greece	25	2	0.3					X	CP	30.12	-1.830
Hungary	30	5	0.5					X	Annually	30.68	–1.000
Iceland	10	2	0.5			X		X	CP	1.02	0.154
Ireland	20	5	0.1	X	X			X	CP	15.80	−0.142
Italy	10	5	0.5	X	X			X	CP	146.14	–21.182
Japan	30	5	0.3	X	X	X		X			
Kazakhstan	10	2	0.05					X	CP		
Latvia	20	5	0.1					X	CP	7.39	–16.302
Liechtenstein	20	3	0.06					X	CP	0.06	0.1
Lithuania	30	5	0.1					X	CP	13.50	–4.552
Luxembourg	10	5	0.5					X	CP	3.60	-0.418
Malta	30	5	1					X	CP	0.55	–0.049
Monaco	10	5	0.5					X	CP	0.03	
Netherlands	20	5	0.5					X	CP	62.50	−1.464
New Zealand	30	5	1					X	CP	18.43	11.150
Norway	10	5	0.5	X	X			X	CP	14.54	–11.400
Poland	10	2	0.1					X	CP	162.41	–27.133
Portugal	10	5	1	X	X			X	CP	17.01	–6.830
Romania	10	5	0.25			X		X	CP	85.38	–15.444
Russian Federation	18	5	1					X			-
Slovakia	20	5	0.3					X	CP	20.80	0.358
Slovenia	30	2	0.25					X	CP	5.69	–3.171
Spain	20	3	1	X				X	CP	79.34	−23.100
Sweden	10	5	0.5					X	CP	20.18	–41.336
Switzerland	20	3	0.06					X	CP	15.04	0.220
Ukraine	30	5	0.1					X	CP	262.63	–48.700
United Kingdom of Great Britain and Northern Ireland (KP)	20	2	0.1	X	X		X	X	CP	224.82	–8.268

[a] As either reported by a Party in its report to facilitate the calculation of the assigned amount for the second commitment period under the Kyoto Protocol, submitted in accordance with decisions 2/CMP.8, annex I, and 6/CMP.9, or subsequently reviewed under Article 8 of the Kyoto Protocol and recorded in the initial review report and the compilation and accounting database.

[b] As reported by Party in accordance with paragraph 8(b) of the annex to decision 13/CMP.1 or paragraph 1(f) of Annex I to decision 2/CMP.8 and paragraph 21 of the annex to decision 2/CMP.7.

[c] An “X” indicates if any activity under Article 3.4 was elected for reporting, in accordance with paragraph 8 of the annex to decision 2/CMP.7 and paragraph 1(g) of Annex I to decision 2/CMP.8.

[d] Parties specified in their report to facilitate the calculation of the assigned amount for the second commitment period under the Kyoto Protocol whether they intend to account for activities under Article 3, paragraph 3 and 4, of the Kyoto Protocol 'annually' or over the second commitment period, in accordance to paragraph 1(h) of Annex I to decision 2/CMP.8.

[e] In accordance with paragraph 13 of the annex to decision 2/CMP.7, for the second commitment period, additions to the assigned amount of a Party resulting from forest management under Article 3, paragraph 4, and from forest management project activities undertaken under Article 6, shall not exceed 3.5 per cent of the base year greenhouse gas emissions excluding land use, land-use change and forestry pursuant to Article 3, paragraphs 7 and 8, or any amendments thereto, times eight. The FM CAP was calculated on the basis of the base year or period emissions reported in the annual greenhouse gas inventory report due by 15 April 2015, as included in the information communicated as part of the report to facilitate the calculation of a Party’s assigned amount for the second commitment period, and takes into account any corrections or adjustments made during the review process of that report under Article 8 of the Kyoto Protocol.

[f] The forest management reference level as inscribed in the appendix to the annex to decision 2/CMP.7, as contained in the intial review report for the second committment period under the Kyoto Protocol, when available, or reported by Party in the latest greenhouse gas inventory submission.

Table 6.2(a)

Activity coverage in the reporting of information relating to activities under Article 3, paragraph 3, forest management under Article 3.4, and elected activities under Article 3.4 [a]

	Afforestation and reforestation															Deforestation												
	Change in carbon pool reported [b]							Greenhouse gas sources reported [c]								Change in carbon pool reported [b]							Greenhouse gas sources reported [c]							
	Above-ground biomass	Below-ground biomass	Litter	Deadwood	Soil		HWP [e]	Fertilization [f]	Drained, rewetted and other soils [g]		Nitrogen mineralization in mineral soils [i]	Indirect N_2O emissions from managed soil [f]	Biomass burning [j]			Above-ground biomass	Below-ground biomass	Litter	Deadwood	Soil		HWP [e]	Fertilization [f]	Drained, rewetted and other soils [g]		Nitrogen mineralization in mineral soils [i]	Indirect N_2O emissions from managed soil [f]	Biomass burning [j]		
					Mineral	Organic [d]														Mineral	Organic [d]									
								N_2O	CH_4 [k]	N_2O	N_2O	N_2O	CO_2 [k]	CH_4	N_2O								N_2O	CH_4 [k]	N_2O	N_2O	N_2O	CO_2 [k]	CH_4	N_2O
Australia	R	R	R	R	R	IE	R	IE	NO	NO	R	IE	R	R	R	R	R	R	R	R	IE	NR	IE	NO	NO	R	IE	R	R	R
Austria	R	R	R	R	R	NO	R	NO	NO	NO	R	NO	NO	NO	NO	R	R	R	R	R	NO	IO	NO	NO	NO	R	NO	NO	NO	NO
Belgium	R	R	R	R	R	NO	R	NO	NO	NO	R	NO	NO	NO	NO	R	R	R	R	R	NO	R	IE	NO	NO	R	NO	NO	NO	NO
Bulgaria	R	IE	R	NO	R	NO	R	NO	NO	NO	NO	NO	R	R	R	R	IE	R	R	R	NO	R	NO	NO	NO	NO	NO	NO	NO	NO
Croatia	R	R	R	NO	R	NO	NO	NO	NO	NO	NO	NO	R	R	R	R	R	R	IE	R	NO	R	NO	NO	NO	R	NO	NO	NO	NO
Cyprus																														
Czech Republic	R	R	R	R	R	R	R	NO	NO	NO	NO	NO	NO	NO	NO	R	R	R	R	R	R	R	NO	NO	NO	R	NO	NO	NO	NO
Denmark (KP)	R	R	R	R	R	R	R	IE	R	R	NO	R	NO	NO	NO	R	R	R	R	R	R	R	IE	R	R	R	IE	NO	NO	NO
Estonia	R	R	R	R	R	R	R	NO	NE	NE	NO	NO	IE	R	R	R	R	R	R	R	R	R	NO	NE	NE	NO	NO	NO	NO	NO
European Union (KP)	NO, NR, R	IE, NO, NR, R	IE, NO, NR, R	IE, NO, NR, R	NO, NR, R	NO, NR, R	IE, NO, NR, R	IE, NO, R	NO, R	NO, R	NO, R	IE, NO, R	IE, NO, R	IE, NO, R	IE, NO, R	NO ,NR, R	IE, NO, NR, R	IE, NO, NR, R	IE, NO, NR, R	NO, NR, R	IE, NO, NR, R	NO, NR, R	IE, NO	NO, R	NO, R	IE, NO, R	IE, NO, R	IE, NO, R	IE, NO, R	IE, NO, R
Finland	R	R	IE	IE	R	R	R	R	R	R	R	R	R	R	R	R	R	IE	IE,R	R	R	IO	IE	R	R	R	IE	R	R	R
France (KP)	R	R	R	R	R	IE		NO	NO	NO	R		R	R	R	R	R	R	R	R	IE		NO	NO	NO	R		R	R	R
Germany	R	R	R	R	R	R	IE	NO	NO, R	NO, R	R	R	IE, NO	IE, NO	IE, NO	R	R	R	R	R	R	NO	NO	NO, R	NO, R	R	R	NO	NO	NO
Greece	R	R	NR	NR	NR	NO	NO	NO	NO	NO	NO	NO	R	R	R	R	R	R	R	R	NO	NO	NO	NO	NO	R	NO	NO	NO	NO
Hungary	R	R	NR	NR	NR	NO	IE	IE	NO	NO	NO	NO	IE	R	R	R	R	R	R	R	NO	IO	IE	NO	NO	R	R	IE	R	R
Iceland	R	R	R	NO	R	R	NO	R	R	R	NO	NO	NO	NO	NO	R	NO	NO	NO	R	R	NO	NO	R	R	NE	NO	NO	NO	NO
Ireland	R	R	R	R	NO	R	R	IE	R	R	NO	IE	R	R	R	R	R	R	R	R	R	IO	IE	R	R	R	IE	NO	NO	NO
Italy	R	R	R	R	R	NO	R	NO	NO	NO	R	R	R	R	R	R	R	R	R	R	NO	R	NO	NO	NO	NO	NO	NO	NO	NO
Japan	R	R	R	R	R	NO	NO	IE	NO	NO	NO	IE	IE	R	R	R	R	R	R	R	NO	IO	IE	NO	NO	R	R	NO	NO	NO
Kazakhstan	R	IE	IE	IE	R	NO	NR	NO	NO	NO	NO	NO	IE	IE	IE	R	IE	IE	IE	R	NO	NR	NO	NO	NO	NO	NO	IE	IE	NO
Latvia	R	R	R	R	NO	R	NO	NO	R	R	NO	NO	NO	NO	NO	R	R	R	R	R	R	R	IE	R	R	IE	IE	NO	NO	NO
Liechtenstein	R	R	NR	NR	R	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	R	R	R	R	R	NO	IO	NO	NO	NO	R	NO	NO	NO	NO
Lithuania	R	R	R	NO	R	R	IE	NO	R	R	NO	NO	R	R	R	R	R	R	R	R	R	IO	NO	NO	NO	R	NO	NO	NO	NO
Luxembourg	R	R	R	R	R	NO	IO	NO	NO	NO	NO	NO	NO	NO	NO	R	R	R	R	R	NO	IO	NO	NO	NO	R	NO	NO	NO	NO
Malta	NR	NR	NR	NR	NR	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	R	R	NR	R	R	R	IE	NO	NE	NE	R	NO	R	R	R	R	R	R	R	R	R	IO	IE	NE	NE	R	IE	R	R	R
New Zealand	R	R	R	R	R	R	R	IE	NE	NE	R	IE	IE	R	R	R	R	R	R	R	R	R	IE	NE	NE	R	IE	IE	R	R
Norway	R	R	R	R	R	R	R	R	NE, R	NE, R	R	R	IE, NO	NO, R	NO, R	R	R	R	R	R	R	R	IE	NE, R	IE, NE	R	R	NO	NO	NO
Poland	R	R	R	R	R	R	NO	NO	NO	NO	NO	NO	R	R	R	R	R	R	R	R	R	R	NO	NO	NO	NO	NO	NO	NO	NO
Portugal	R	R	R	IE	R	NO	R	IE	NO	NO	R	IE	R	R	R	R	R	R	IE	R	NO	R	IE	NO	NO	R	IE	R	R	R
Romania	R	R	R	NO	R	NR	R	IE	NO	NO	R	R	R	R	R	R	R	R	R	NO	R	NR	R	IE	NO	NO	R	R	R	R
Russian Federation	R	R	R	R	R	NO	R	NO	NO	NO	NO	NO	IE	R	R	R	R	R	R	R	R	NO	IE	NO	NO	NO	NO	NO	NO	NO
Slovakia	R	R	R	NO, NR	R	NO, NR	NR	NO	NO	NO	NO	NO	R	R	R	R	R	R	R	R	NO, NR	NR	NO	NO	NO	NO	NO	NO	NO	NO
Slovenia	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	R	R	R	R	R	NO	IO	NO	NO	NO	R	NO	NO	NO	NO
Spain	R	IE	NR, R	NR, R	NR, R	NO	NR	NO	NO	NO	NE, R	IE, NE	IE, NO, R	NO, R	NO, R	NR, R	IE, NR	NR, R	NR, R	NR, R	NO	NR	NO	NO	NO	NE, R	IE, NE	NO, R	IE, NO, R	IE, NO, R
Sweden	R	R	R	R	R	R	R	NO	R	R	R	R	NO	NO	NO	R	R	R	R	R	R	IO	NO	R	R	R	R	NO	NO	NO
Switzerland	R	R	NR	NR	R	R	NO	NO	NO	R	R	NO	IE	IE	IE	R	R	R	R	R	R	IO	NO	NO	NO	R	NO	NO	NO	NO
Ukraine	R	R	R	R	R	NO	IE	NO	NO	NO	R	R	R	R	R	R	R	R	R	R	NO	IO	NO	NO	NO	R	R	NO	NO	NO
United Kingdom of Great Britain and Northern Ireland (KP)	R	IE	R	IE	R	R	R	R	NE	R	R	R	R	R	R	R	IE	R	IE	R	IE	IO	NO	NO	NO	R	R	R	R	R

[a] As reported in Table NIR 1. "Summary Table - Activity coverage and other information relating to activities under Article 3, paragraph 3, forest management under Article 3.4, and elected activities under Article 3.4.

[b] Indicate R (reported), NR (not reported), IE (included elsewhere) or NO (not occurring), for each relevant activity under Article 3.3, forest management or any elected activity under Article 3.4, or instantaneous oxidation (IO) for carbon stock changes in harvest wood products (HWP). With the exception of HWP, if changes in a carbon pool are not reported, verifiable information in the national inventory report (NIR) must be provided that demonstrates that these unaccounted pools were not a net source of anthropogenic greenhouse gas emissions. Indicate NA (not applicable) for each activity that is not elected under Article 3.4. Explanation about the use of notation keys should be provided in the NIR.

[c] Indicate R (reported), NE (not estimated), IE (included elsewhere) or NO (not occurring) for greenhouse gas sources reported, for each relevant activity under Article 3.3, forest management or any elected activity under Article 3.4. Indicate NA (not applicable) for each activity that is not elected under Article 3.4. Explanation about the use of notation keys should be provided in the NIR.

[d] Includes CO_2 emissions/removals from organic soils, including CO_2 emissions from dissolved organic carbon associated with drainage and rewetting. On-site CO_2 emissions/removals from drainage and rewetting from organic soils and off-site CO_2 emissions via water-borne carbon losses from organic soils should be reported here for wetland drainage and rewetting. These emissions could be reported for other activities as appropriate.

[e] HWP from lands reported under deforestation, which originated from the deforestation event at the time of the land-use change shall be accounted for on the basis of instantaneous oxidation (IO).

[f] N_2O emissions from fertilization of each activity (afforestation/reforestation, deforestation, forest management, revegetation and wetland drainage and rewetting) should be reported here when these emissions are not reported under the agriculture sector.

[g] CH_4 and N_2O emissions from drained and rewetted organic soils should be reported here, as appropriate, when emissions are not reported under the agriculture sector. For wetland drainage and rewetting only emissions from organic soils are included.

[h] CH_4 emissions from drained soils and drainage ditches should be reported here, as appropriate.

[i] N_2O emissions from nitrogen mineralization/immobilization associated with loss/gain of soil organic matter resulting from change of land use or management of mineral soils under the appropriate activity (afforestation/reforestation, deforestation, forest management, cropland management, grazing land management and revegetation) should be reported here when these emissions are not reported under the agriculture sector.

[j] Emissions from burning of organic soils should also be included here, as appropriate.

[k] If CO_2 emissions from biomass burning are not already included under changes in carbon stocks, they should be reported under biomass burning. Parties that include CO_2 emissions from biomass burning in their carbon stock change estimates should report IE (included elsewhere).

Table 6.2(b)

Activity coverage in the reporting of information relating to activities under Article 3, paragraph 3, forest management under Article 3.4, and elected activities under Article 3.4[a]

	Forest management															Cropland management										
	Change in carbon pool reported[b]							Greenhouse gas sources reported[c]								Change in carbon pool reported[b]						Greenhouse gas sources reported[c]				
	Above-ground biomass	Below-ground biomass	Litter	Deadwood	Soil		HWP[e]	Fertilization[f]	Drained, rewetted and other soils[g]		Nitrogen mineralization in mineral soils[i]	Indirect N_2O emissions from managed soil[f]	Biomass burning[j]			Above-ground biomass	Below-ground biomass	Litter	Deadwood	Soil		Drained, rewetted and other soils[g]	Nitrogen mineralization in mineral soils[i]	Biomass burning[j]		
					Mineral	Organic[d]														Mineral	Organic[d]						
								N_2O	CH_4[h]	N_2O	N_2O	N_2O	CO_2[k]	CH_4	N_2O							CH_4[h]	N_2O	CO_2[k]	CH_4	N_2O
Australia	R	R	R	R	R	IE	R	IE	NA	NA	R	IE	R	R	R	R	R	R	R	R	IE	NA	R	R	R	R
Austria	R	R	IE	R	R	NO	R	NO	NO	NO	NO	NO	IE	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	R	R	NO	NO	R	NO	R	NO	NO	NO	R	NO	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	R	IE	R	R	R	NO	R	NO	NO	NO	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Croatia	R	R	NO	NO	NO	NO	R	NO	NO	NO	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus																										
Czech Republic	R	R	IE	R	R	R	R	NO	NO	NO	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	R	R	R	R	R	R	R	IE	R	R	NO	IE	NO	NO	NO	R	R	NO	NO	R	R	R	IE	NO	NO	NO
Estonia	R	R	R	R	R	R	R	NO	NA	NA	NO	NO	IE	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	NR, R	IE, NR, R	IE, NO, NR, R	IE, NO, NR, R	NO, NR, R	NO, NR, R	NR, R	IE, NO, R	NO, R	NO, R	NO, R	IE, NO, R	IE, NO, R	NO, R	NO, R	NR, R	IE, NR, R	IE, NO, NR, R	IE, NO, NR, R	NR, R	NO, R	NO, R	IE, NO, R	NO, R	IE, NO, R	IE, NO, R
Finland	R	R	IE	IE	R	R	R	R	R	R	R	R	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	R	R	R	R	R	IE		NO	NO	NO	R		R	R	R	NR	NR	NR	NR	NR	NR					
Germany	R	R	R	R	R	R	R	NO	NO, R	NO, R	R	R	IE, NO	NO, R	NO, R	R	R	IE	IE, NO	R	R	NO, R	R	NO	NO	NO
Greece	R	R	NR	NR	NR	NO	R	NO	NO	NO	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	R	R	NR	NR	NR	R	R	IE	NO	NO	NO	NO	IE	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	R	R	R	NR	R	R	R	NO	R	R	NE	NE	NO	NO	NO											
Ireland	R	R	R	R	NA	R	R	IE	R	R	NO	IE	R	R	R	R	IE	NO	NO	R	NO	NO	IE	NO	R	R
Italy	R	R	R	R	NR	NR	R	NO	NO	NO	NO	NO	R	R	R	R	R	NO	NO	R	R	NO	NO	R	R	R
Japan	R	R	R	R	R	NO	R	R	NO	NO	R	R	IE	R	R	R	R	NR	NR	R	R	R	R	IE	R	R
Kazakhstan	R	IE	IE	IE	R	NO	NR	NO	NO	NO	NO	NO	IE	R	R	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	R	R	R	R	NO	R	R	NO	R	R	R	R	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein	R	R	NR	NR	NR	NO	R	NO	NO	NO	NO	NO	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lithuania	R	R	R	R	NO	R	R	NO	R	R	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	R	R	R	R	R	NO	IO	NO	NO	NO	NO	NO	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	IE	IE	NR	NR	IE	NO	NO	IE	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	R	R	NO	R	NO	NO	R	NO	NE	NE	R	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand	R	R	R	R	R	R	R	NO	NE	NE	R	IE	IE	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Norway	R	R	R	R	R	R	R	R	NE, R	NE, R	R	R	IE	NE, R	NE, R	NO, R	NO, R	NO	NO	R	R	NE, R	R	NO	NO	NO
Poland	R	R	R	R	R	R	R	NO	R	NO	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	R	R	R	IE	R	NO	R	IE	NO	NO	R	IE	R	R	R	R	R	R	NO	R	NO	NO	R	R	R	R
Romania	R	R	R	NO	R	NR	R	IE	NO	NO	R	R	R	R	R	R	R	NR	NR	R	NO	NO	R	R	R	R
Russian Federation	R	R	R	R	R	R	R	NO	R	R	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	R	R	NO, NR	NO, NR	NO, NR	NO, NR	R	NO	NO	NO	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	R	R	NR	R	NR	NO	R	NO	NO	NO	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	R	IE	NR	NR	NR	NO	R	NO	NO	NO	NE	NE	IE, R	R	R	R	IE	NR, R	NR	R	NO	NO	NE, R	NO, R	IE, NO, R	IE, NO, R
Sweden	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland	R	R	R	R	R	R	R	NO	NO	R	NO	NA	IE	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ukraine	R	R	R	R	R	R	R	NO	NO	R	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	R	IE	R	IE	R	R	R	NO	NE	R	R	NO	R	R	R	R	IE	NR	NR	R	R	NE	R	NE	R	R

[a] As reported in Table NIR 1. "Summary Table - Activity coverage and other information relating to activities under Article 3, paragraph 3, forest management under Article 3.4.

[b] Indicate R (reported), NR (not reported), IE (included elsewhere) or NO (not occurring), for each relevant activity under Article 3.3, forest management or any elected activity under Article 3.4, or instantaneous oxidation (IO) for carbon stock changes in harvest wood products (HWP). With the exception of HWP, if changes in a carbon pool are not reported , verifiable information in the national inventory report (NIR) must be provided that demonstrates that these unaccounted pools were not a net source of anthropogenic greenhouse gas emissions. Indicate NA (not applicable) for each activity that is not elected under Article 3.4. Explanation about the use of notation keys should be provided in the NIR.

[c] Indicate R (reported), NE (not estimated), IE (included elsewhere) or NO (not occurring) for greenhouse gas sources reported, for each relevant activity under Article 3.3, forest management or any elected activity under Article 3.4. Indicate NA (not applicable) for each activity that is not elected under Article 3.4. Explanation about the use of notation keys should be provided in the NIR.

[d] Includes CO_2 emissions/removals from organic soils, including CO_2 emissions from dissolved organic carbon associated with drainage and rewetting. On-site CO_2 emissions/removals from drainage and rewetting from organic soils and off-site CO_2 emissions via water-borne carbon losses from organic soils should be reported here for wetland drainage and rewetting. These emissions could be reported for other activities as appropriate.

[e] HWP from lands reported under deforestation, which originated from the deforestation event at the time of the land-use change shall be accounted for on the basis of instantaneous oxidation (IO).

[f] N_2O emissions from fertilization of each activity (afforestation/reforestation, deforestation, forest management, revegetation and wetland drainage and rewetting) should be reported here when these emissions are not reported under the agriculture sector.

[g] CH_4 and N_2O emissions from drained and rewetted organic soils should be reported here, as appropriate, when emissions are not reported under the agriculture sector. For wetland drainage and rewetting only emissions from organic soils are included.

[h] CH_4 emissions from drained soils and drainage ditches should be reported here, as appropriate.

[i] N_2O emissions from nitrogen mineralization/immobilization associated with loss/gain of soil organic matter resulting from change of land use or management of mineral soils under the appropriate activity (afforestation/reforestation, deforestation, forest management, cropland management, grazing land management and revegetation) should be reported here when these emissions are not reported under the agriculture sector.

[j] Emissions from burning of organic soils should also be included here, as appropriate.

[k] If CO_2 emissions from biomass burning are not already included under changes in carbon stocks, they should be reported under biomass burning. Parties that include CO_2 emissions from biomass burning in their carbon stock change estimates should report IE (included elsewhere).

Table 6.2(c)

Activity coverage in the reporting of information relating to activities under Article 3, paragraph 3, forest management under Article 3.4, and elected activities under Article 3.4[a]

	Grazing land management											Revegetation													
	Change in carbon pool reported[b]						Greenhouse gas sources reported[c]					Change in carbon pool reported[b]						Greenhouse gas sources reported[c]							
	Above-ground biomass	Below-ground biomass	Litter	Deadwood	Soil		Drained, rewetted and other soils[e]	Nitrogen mineralization in mineral soils[g]	Biomass burning[h]			Above-ground biomass	Below-ground biomass	Litter	Deadwood	Soil		Fertilization[j]	Drained, rewetted and other soils[e]		Nitrogen mineralization in mineral soils[g]	Indirect N_2O emissions from managed soil[j]	Biomass burning[h]		
					Mineral	Organic[d]										Mineral	Organic[d]								
							CH_4[f]	N_2O	CO_2[i]	CH_4	N_2O							N_2O	CH_4[f]	N_2O	N_2O	N_2O	CO_2[i]	CH_4	N_2O
Australia	R	R	R	R	R	IE	NA	R	R	R	R	R	IE	NA	NA	NA	NA	IE	NA	NA	NA	IE	IE	IE	IE
Austria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus																									
Czech Republic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	R	R	NO	NO	R	R	R	IE	IE	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	NO, NR, R	IE, NO, NR, R	IE, NO, NR, R	IE, NO, NR, R	NR, R	NO, R	NO, R	IE, NO, R	IE, NO, R	NO, R	NO, R	NR, R	IE, NR, R	IE, NR, R	NO, NR, R	NR, R	NO	NO, R	NO	NO	NO, R	NO, R	NO, R	NO, R	NO, R
Finland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	NR	NR	NR	NR	NR	NR						NR	NR	NR	NR	NR	NR								
Germany	R	R	IE	IE, NO	R	R	NO, R	NO	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland												R	IE	IE	NO	R	NO	R	NO	NO	IE	IE	NE	R	R
Ireland	R	IE	NO	NO	R	R	R	IE	NO	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Italy	NO	NO	NO	NO	R	NO	NO	NO	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Japan	R	R	NR	NR	R	R	R	R	NO	NO	NO	R	R	R	IE	R	NO	IE	NO	NO	NA	IE, NA	NO	NO	NO
Kazakhstan	R	IE	IE	IE	R	NO	NO	NO	IE	IE	IE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NR	NR	NR	NR	NR	NR	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Norway	NO, R	NO, R	NO	NO	R	R	NE, R	R	IE, NO	NE, NO	NE, NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	R	R	R	NO	R	NO	NO	R	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Romania	R	R	NR	NR	R	NO	NO	R	R	R	R	R	R	R	R	R	NO	R	NO	NO	R	R	R	R	R
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sweden	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ukraine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	R	IE	NR	NR	R	R	NE	R	NE	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[a] As reported in Table NIR 1. "Summary Table - Activity coverage and other information relating to activities under Article 3, paragraph 3, forest management under Article 3.4, and elected activities under Article 3.4.

[b] Indicate R (reported), NR (not reported), IE (included elsewhere) or NO (not occurring), for each relevant activity under Article 3.3, forest management or any elected activity under Article 3.4, or instantaneous oxidation (IO) for carbon stock changes in harvest wood products (HWP). With the exception of HWP, if changes in a carbon pool are not reported, verifiable information in the national inventory report (NIR) must be provided that demonstrates that these unaccounted pools were not a net source of anthropogenic greenhouse gas emissions. Indicate NA (not applicable) for each activity that is not elected under Article 3.4. Explanation about the use of notation keys should be provided in the NIR.

[c] Indicate R (reported), NE (not estimated), IE (included elsewhere) or NO (not occurring) for greenhouse gas sources reported, for each relevant activity under Article 3.3, forest management or any elected activity under Article 3.4. Indicate NA (not applicable) for each activity that is not elected under Article 3.4. Explanation about the use of notation keys should be provided in the NIR.

[d] Includes CO_2 emissions/removals from organic soils, including CO_2 emissions from dissolved organic carbon associated with drainage and rewetting. On-site CO_2 emissions/removals from drainage and rewetting from organic soils and off-site CO_2 emissions via water-borne carbon losses from organic soils should be reported here for wetland drainage and rewetting. These emissions could be reported for other activities as appropriate.

[e] CH_4 and N_2O emissions from drained and rewetted organic soils should be reported here, as appropriate, when emissions are not reported under the agriculture sector. For wetland drainage and rewetting only emissions from organic soils are included.

[f] CH_4 emissions from drained soils and drainage ditches should be reported here, as appropriate.

[g] N_2O emissions from nitrogen mineralization/immobilization associated with loss/gain of soil organic matter resulting from change of land use or management of mineral soils under the appropriate activity (afforestation/reforestation, deforestation, forest management, cropland management, grazing land management and revegetation) should be reported here when these emissions are not reported under the agriculture sector.

[h] Emissions from burning of organic soils should also be included here, as appropriate.

[i] If CO_2 emissions from biomass burning are not already included under changes in carbon stocks, they should be reported under biomass burning. Parties that include CO_2 emissions from biomass burning in their carbon stock change estimates should report IE (included elsewhere).

[j] N_2O emissions from fertilization of afforestation/reforestation, deforestation, forest management, revegetation and wetland drainage and rewetting should be reported here when these emissions are not reported under the agriculture sector.

Table 6.2(d)

Activity coverage in the reporting of information relating to activities under Article 3, paragraph 3, forest management under Article 3.4, and elected activities under Article 3.4[a]

	Wetland drainage and rewetting												
	Change in carbon pool reported[b]						Greenhouse gas sources reported[c]						
	Above-ground biomass	Below-ground biomass	Litter	Deadwood	Soil		Fertilization[e]	Drained, rewetted and other soils[f]		Indirect N_2O emissions from managed soil[e]	Biomass burning[i]		
					Mineral	Organic[d]							
							N_2O	CH_4[h]	N_2O	N_2O	CO_2[j]	CH_4	N_2O
Australia	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Austria	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Croatia	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Cyprus													
Czech Republic	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Estonia	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	NR, R	NR, R	NR, R	NR, R		NO, NR, R	NO	NO	NO	NO	NO	NO	NO
Finland	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	NR	NR	NR	NR		NR							
Germany	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Greece	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Iceland	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Ireland	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Italy	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Japan	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Kazakhstan	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO
Latvia	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Lithuania	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Malta	NR	NR	NR	NR		NR	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
New Zealand	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Norway	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Poland	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Portugal	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Romania	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Russian Federation	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Spain	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Sweden	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Switzerland	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Ukraine	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	NR	NR	NR	NR		NR	NE	NE	NE	NE	NE	NE	NE

[a] As reported in Table NIR 1. "Summary Table - Activity coverage and other information relating to activities under Article 3, paragraph 3, forest management under Article 3.4, and elected activities under Article 3.4.

[b] Indicate R (reported), NR (not reported), IE (included elsewhere) or NO (not occurring), for each relevant activity under Article 3.3, forest management or any elected activity under Article 3.4, or instantaneous oxidation (IO) for carbon stock changes in harvest wood products (HWP). With the exception of HWP, if changes in a carbon pool are not reported , verifiable information in the national inventory report (NIR) must be provided that demonstrates that these unaccounted pools were not a net source of anthropogenic greenhouse gas emissions. Indicate NA (not applicable) for each activity that is not elected under Article 3.4. Explanation about the use of notation keys should be provided in the NIR.

[c] Indicate R (reported), NE (not estimated), IE (included elsewhere) or NO (not occurring) for greenhouse gas sources reported, for each relevant activity under Article 3.3, forest management or any elected activity under Article 3.4. Indicate NA (not applicable) for each activity that is not elected under Article 3.4. Explanation about the use of notation keys should be provided in the NIR.

[d] Includes CO_2 emissions/removals from organic soils, including CO_2 emissions from dissolved organic carbon associated with drainage and rewetting. On-site CO_2 emissions/removals from drainage and rewetting from organic soils and off-site CO_2 emissions via water-borne carbon losses from organic soils should be reported here for wetland drainage and rewetting. These emissions could be reported for other activities as appropriate.

[e] N_2O emissions from fertilization of each activity (afforestation/reforestation, deforestation, forest management, revegetation and wetland drainage and rewetting) should be reported here when these emissions are not reported under the agriculture sector.

[f] CH_4 and N_2O emissions from drained and rewetted organic soils should be reported here, as appropriate, when emissions are not reported under the agriculture sector. For wetland drainage and rewetting only emissions from organic soils are included.

[g] CH_4 emissions from drained soils and drainage ditches should be reported here, as appropriate.

[h] N_2O emissions from nitrogen mineralization/immobilization associated with loss/gain of soil organic matter resulting from change of land use or management of mineral soils under the appropriate activity (afforestation/reforestation, deforestation, forest management, cropland management, grazing land management and revegetation) should be reported here when these emissions are not reported under the agriculture sector.

[i] Emissions from burning of organic soils should also be included here, as appropriate.

[j] If CO_2 emissions from biomass burning are not already included under changes in carbon stocks, they should be reported under biomass burning. Parties that include CO_2 emissions from biomass burning in their carbon stock change estimates should report IE (included elsewhere).

Table 6.3(a)

Afforestation and reforestation - area and implied carbon stock change factors from the change in carbon stocks for 2016[a]

	Area subject to the activity			Implied carbon stock change factor (t C/ha)										Area subject to natural disturbances		
	Total	Mineral Soils	Organic Soil[b]	CSC in above-ground biomass[c, d]			CSC in below-ground biomass[c, d]			Net CSC in litter[c]	Net CSC in dead wood[c]	Net CSC in soil[c]		Total	Mineral Soils	Organic Soil[b]
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[e, f]	(kha)		
Australia	5 841	5 837	4.0	0.33	IE, NA	0.33	0.14	IE, NA	0.14	0.090	0.22	0.22	7.9	NA	NA	NA
Austria	225	225	NA, NO	1.4	-0.46	0.97	0.36	–0.098	0.26	0.82	0.016	0.47	NA, NO	NA	NA	NA
Belgium	42	42	NA	1.5	–0.001	1.5	0.28	–0.000	0.28	NA, NO	NA, NO	1.1	NA, NO	NA	NA	NA
Bulgaria	276	276	NO	2.5	-0.28	2.2	IE, NO	IE, NO	IE, NO	0.22	NE, NO	-0.96	NO	NO	NO	NO
Croatia	59	59	NA, NO	0.87	-0.049	0.82	0.38	-0.054	0.33	0.22	NA, NO	–0.24	NA, NO	NA	NA	NA
Cyprus	9.2	9.2	NO	0.68	-0.080	0.60	0.19	-0.022	0.17	0.23	0.000	0.011	NO			
Czech Republic	60	60	NO	1.9	NO	1.9	0.38	NO	0.38	0.48	0.018	0.10	NO	NO	NO	NO
Denmark (KP)	105	94	11	0.086	-0.39	-0.31	0.032	IE	0.032	0.25	–0.005	0.078	-1.3			
Estonia	56	45	12	0.86	IE, NA, NO	0.86	0.36	IE, NA, NO	0.36	0.30	0.001	-0.72	-0.30	NO	NO	NO
European Union (KP)	9 365	8 943	422	1.8	-0.51	1.3	0.33	–0.092	0.24	0.15	0.023	0.061	-1.0	NA, NO	NA, NO	NA, NO
Finland	183	112	71	1.1	-0.43	0.68	0.38	-0.16	0.22	IE, NA	IE, NA	0.11	-1.3	NA	NA	NA
France (KP)	1 525	1 525	IE, NO	1.4	-0.21	1.1	0.47	IE, NO	0.47	0.14	0.027	0.10	IE, NO	NO	NO	NO
Germany	548	501	47	3.0	-0.16	2.9	0.61	–0.083	0.53	0.47	0.034	-0.22	-2.2	NA	NA	NA
Greece	34	34	NO	1.9	-1.0	0.94	0.37	-0.20	0.17	NA, NE	NA, NE	NA, NE	NA	NO	NO	NO
Hungary	173	173	NA, NO	1.5	–0.005	1.5	0.37	–0.001	0.37	NA, NE	0.048	NA, NE	NA, NO	NA	NA	NA
Iceland	46	42	3.3	0.72	IE, NA, NO	0.72	0.18	IE, NA, NO	0.18	0.14	NA, NO	0.41	-0.37	NO	NO	NO
Ireland	317	142	175	4.2	-2.3	1.9	1.0	-0.17	0.88	0.60	0.18	NA, NO	-0.73	NA	NA	NA
Italy	1 903	1 903	NO	2.1	-1.2	0.89	0.43	-0.26	0.18	0.014	0.009	0.13	NA, NO	NO	NO	NO
Japan	100	100	NA, NO	2.3	–0.001	2.3	0.59	–0.005	0.59	0.22	0.86	0.081	NA, NO	NA	NA	NA
Kazakhstan	525	525	NO	1.1	NE, NO	1.1	IE, NE	NE, NO	IE, NE, NO	IE, NE	IE, NE	0.59	NO	NE, NO	NE	NO
Latvia	78	76	1.8	0.43	-0.072	0.36	0.11	–0.018	0.088	0.081	0.086	NA	-0.52	NA	NA	NA
Liechtenstein	0.034	0.034	NO	1.5	NO	1.5	0.48	NO	0.48	NO	NO	0.26	NO	NO	NO	NO
Lithuania	46	39	7.2	1.4	-0.023	1.4	0.32	-0.11	0.21	0.095	NA, NO	0.41	4.8	NA	NA	NA
Luxembourg	8.9	8.9	NO	3.3	–0.036	3.3	0.66	IE, NO	0.66	0.43	0.13	0.73	NO	NO	NO	NO
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	63	55	7.7	3.3	–0.313	3.0	0.59	-0.23	0.37	NE, NO	0.14	–0.039	-0.16	NO	NO	NO
New Zealand	655	653	1.9	7.1	-1.7	5.4	1.5	-0.38	1.1	-0.091	0.40	-0.30	-0.68	NA	NA	NA
Norway	60	53	7.2	0.85	–0.095	0.75	0.25	–0.029	0.22	2.0	0.023	-0.44	-0.93	NA	NA	NA
Poland	735	717	18	0.80	NO	0.80	0.21	NO	0.21	NO	NO	0.054	-0.68	NO	NO	NO
Portugal	617	617	NO	2.1	-1.0	1.1	0.40	-0.31	0.093	0.050	IE, NO	0.23	NO	NO	NO	NO
Romania	35	35	IE, NO	1.7	IE, NO	1.7	IE, NO	IE, NO	IE, NO	0.047	IE, NO	1.0	IE, NO	NO	NO	NO
Russian Federation	584	584	NO	1.8	-0.59	1.2	0.46	-0.15	0.30	0.034	0.26	0.30	NO	NO	NO	NO
Slovakia	45	45	NA, NO	1.2	NA, NO	1.2	0.28	NA, NO	0.28	0.41	NA, NO	1.2	NA, NO	NA	NA	NA
Slovenia	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NO	NO	NO
Spain	1 247	1 247	NA, NO	1.8	IE, NA	1.8	IE, NA	IE, NA	IE, NA	0.065	0.035	0.40	NA, NO	NA	NA	NA
Sweden	363	335	29	0.85	IE, NO	0.85	0.28	IE, NO	0.28	0.23	0.023	-0.07	-2.2	NO	NO	NO
Switzerland	2.6	2.6	0.011	2.2	-1.1	1.0	0.74	-0.33	0.41	–0.023	0.019	0.65	-0.078			
Ukraine	309	309	NA, NO	0.54	–0.016	0.52	0.12	IE, NA	0.12	0.24	0.096	0.13	NA, NO	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	566	527	39	2.3	-0.55	1.7	IE, NA	IE, NA	IE, NA	0.20	IE, NA	-0.71	-1.0	NA	NA	NA

[a] As both afforestation and reforestation under Article 3.3 are subject to the same provisions specified in the annex to decision 2/CMP.7, they can be reported together.

[b] A Party should report on-site CO_2 emissions from drained organic soils here. A Party may also choose to include emissions and removals from rewetted and other organic soils, including off-site CO_2 emissions, here. A Party should provide detailed information on methodologies, emissions and removals from these subdivisions in the NIR.

[c] Carbon stock changes (CSC). The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[d] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key included elsewhere (IE) should be filled in, in the other column.

[e] The value reported here is an emission and not a carbon stock change.

[f] CO_2 emissions from dissolved organic carbon from drained and CO_2 emissions/removals from rewetted organic soils may also be included here.

Table 6.3(b)

Deforestation - area and implied carbon stock change factors from the change in carbon stocks for 2016

	Area subject to the activity			Implied carbon stock change factor (t C/ha)										Area subject to natural disturbance		
	Total	Mineral Soils	Organic Soil	CSC in above-ground biomass[a, b]			CSC in below-ground biomass[a, b]			Net CSC in litter[a]	Net CSC in dead wood[a]	Net CSC in soil[a]		Total	Mineral Soils	Organic Soil
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[c, d]	(kha)		
Australia	10 029	10 027	2.0	0.23	-0.52	-0.29	0.11	-0.20	-0.10	–0.030	–0.049	-0.31	-9.7	NO	NO	NO
Austria	76	76	NA, NO	0.21	-0.87	-0.66	0.053	-0.21	-0.16	-0.51	0.001	-0.46	NA, NO	NA	NA	NA
Belgium	36	36	NA, NO	0.027	-5.2	-5.1	0.005	-1.2	-1.2	-0.47	-0.12	-1.8	NA, NO	NA	NA	NA
Bulgaria	4.7	4.7	NO	0.77	-2.6	-1.8	IE, NO	IE, NO	IE, NO	-0.25	-0.13	-2.6	NO	NO	NO	NO
Croatia	4.7	4.7	NA, NO	0.07	-0.27	-0.20	NA, NO	-0.066	-0.066	-4.5	IE, NA	-2.1	NA, NO	NA	NA	NA
Cyprus	0.46	0.46	NO	0.17	-0.44	-0.27	0.049	-0.12	-0.074	-0.15	0.000	-0.35	NO			
Czech Republic	18	18	NO	NA, NO	-2.4	-2.4	NA, NO	-0.48	-0.48	-0.33	–0.070	–0.040	NA, NO	NO	NO	NO
Denmark (KP)	12	11	0.58	0.53	-2.7	-2.2	0.19	-0.54	-0.35	-1.7	-0.15	–0.087	-5.0	NO	NO	NO
Estonia	20	17	3.4	IE, NA	-0.97	-0.97	IE, NA	-0.23	-0.23	-1.1	–0.047	-0.68	-1.6	NA	NA	NA
European Union (KP)	3 582	3 419	163	0.060	-1.7	-1.6	0.023	-0.29	-0.26	-0.25	–0.035	-0.95	-4.1	NA, NO	NA, NO	NA, NO
Finland	407	316	92	0.034	-0.56	-0.53	0.013	-0.17	-0.16	IE, NA	–0.009	-0.38	-5.1	NA	NA	NA
France (KP)	1 165	1 165	IE, NO	NO	-1.4	-1.4	NO	-0.38	-0.38	-0.15	–0.051	-0.61	IE, NO	NO	NO	NO
Germany	294	273	21	0.27	-1.2	-0.96	0.11	-0.22	-0.11	-0.50	–0.053	0.11	-5.9	NA	NA	NA
Greece	5.4	5.4	NO	NA, NO	-0.36	-0.36	NA, NO	-0.15	-0.15	-0.24	–0.041	-1.9	NA, NO	NO	NO	NO
Hungary	15	15	NO	IE, NO	-2.2	-2.2	IE, NO	-0.56	-0.56	-1.3	-0.40	-0.78	NO	NO	NO	NO
Iceland	0.065	0.053	0.012	0.72	-0.057	0.66	0.18	–0.014	0.17	-0.018	IE, NA, NO	-0.62	-7.9	NO	NO	NO
Ireland	18	10	7.2	0.010	-0.30	-0.28	0.048	-0.077	-0.029	-0.031	-0.16	-0.36	-1.1	NA	NA	NA
Italy	55	55	NO	NA, NO	-3.1	-3.1	NA, NO	-0.66	-0.66	-0.20	-0.10	-5.5	NA, NO	NO	NO	NO
Japan	304	303	0.51	0.002	-1.1	-1.1	0.010	-0.29	-0.28	-0.20	-0.50	-0.042	NA, NO	NA	NA	NA
Kazakhstan	87	87	NO	NO	-0.003	-0.003	NO	IE, NE	IE, NE, NO	IE, NE	IE, NE	-0.11	NO	NO, NE	NE	NO
Latvia	54	42	12	NO	-0.10	-0.10	NO	-0.024	-0.024	-0.087	-0.11	-0.14	-1.4	NO	NO	NO
Liechtenstein	0.19	0.19	NO	0.38	-3.5	-3.2	0.13	-1.2	-1.0	-0.76	-0.40	-1.1	NO	NO	NO	NO
Lithuania	2.3	1.9	0.36	IE, NO	-2.1	-2.1	IE, NO	-0.46	-0.46	-0.79	-0.35	-2.1	-2.5	NO	NO	NO
Luxembourg	5.9	5.9	NO	0.072	-0.71	-0.64	IE, NA, NO	-0.15	-0.15	-0.13	–0.038	-0.81	NA, NO	NO	NO	NO
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	66	60	6.5	0.97	-4.1	-3.1	0.34	-0.79	-0.45	-1.5	-0.10	0.018	-2.2	NO	NO	NO
New Zealand	192	191	0.86	0.057	-2.8	-2.8	0.076	-0.62	-0.54	-0.13	-0.16	0.53	-2.3	NA	NA	NA
Norway	156	146	10	0.17	-1.2	-1.0	0.052	-0.31	-0.26	-2.3	-0.19	0.26	-7.9			
Poland	32	32	NO	NO	-24	-24	NO	-4.7	-4.7	–0.002	–0.033	-19	NO	NO	NO	NO
Portugal	367	367	NO	0.071	-0.35	-0.28	0.038	–0.076	–0.039	–0.048	IE	-1.1	NO	NO	NO	NO
Romania	394	394	NA, NO	NA, NO	-3.6	-3.6	IE, NA	IE, NA	IE, NA	-0.30	IE, NA	-1.5	NA, NO	NA	NA	NA
Russian Federation	630	617	13	NO	-0.78	-0.78	NO	-0.20	-0.20	-0.20	-0.16	-0.46	-0.71	NO	NO	NO
Slovakia	8.6	8.6	NA, NO	NA, NO	-0.65	-0.65	NA, NO	-0.15	-0.15	-0.059	–0.035	–0.012	NA, NO	NA	NA	NA
Slovenia	28	28	NO	NA, NO	-2.7	-2.7	NA, NO	-0.27	-0.27	-0.29	-0.13	-0.83	NA	NO	NO	NO
Spain	118	118	NA, NO	IE, NA	-0.89	-0.89	IE, NA	IE, NA	IE, NA	–0.058	–0.030	-0.29	NA, NO	NA	NA	NA
Sweden	311	290	21	0.013	-0.84	-0.83	0.004	-0.28	-0.28	-0.45	0.001	-0.71	-1.4	NA	NA	NA
Switzerland	9.2	9.2	0.035	0.000	-2.1	-2.1	0.000	-0.65	-0.65	-0.75	-0.17	-0.69	-4.8			
Ukraine	50	50	NA, NO	NA	–0.035	–0.035	NA	–0.005	–0.005	–0.000	–0.000	–0.008	NA, NO	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	64	64	IE, NA, NO	0.001	-2.8	-2.8	IE, NA, NO	IE, NA, NO	IE, NA, NO	-0.10	IE, NA, NO	-2.1	IE, NA, NO	NA	NA	NA

[a] Carbon stock change (CSC). The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[b] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key IE should be filled in, in the other column.

[c] The value reported here is an emission and not a carbon stock change.

[d] CO_2 emissions from dissolved organic carbon from drained and CO_2 emissions/removals from rewetted organic soils may also be included here.

Table 6.3(c)

Forest management - area and implied carbon stock change factors from the change in carbon stocks for 2016[a]

	Area subject to the activity			Implied carbon stock change factor (t C/ha)										Area subject to newly established forest(CEF-ne)			Area subject to harvested and converted forest plantations (CEF-hc)			Area subject to natural disturbances		
	Total	Mineral Soils	Organic Soil	CSC in above-ground biomass[b, c]			CSC in below-ground biomass[b, c]			Net CSC in litter[b]	Net CSC in dead wood[b]	Net CSC in soil[b]		Total	Mineral Soils	Organic Soil	Total	Mineral Soils	Organic Soil	Total	Mineral Soils	Organic Soil
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[d, e]	(kha)			(kha)			(kha)		
Australia	10 972	10 972	IE, NA	0.55	IE, NA	0.55	0.14	IE, NA	0.14	–0.014	-0.10	0.021	IE, NA	NA	NA	NA	NA	NA	NA	IE, NA	IE	NA
Austria	3 810	3 810	NA, NO	1.9	-1.7	0.26	0.45	-0.42	0.031	IE, NA, NE, NO	0.059	-0.18	NA, NO	NA	NA	NA	NA	NA	NA	NO	NO	NO
Belgium	672	672	NA, NO	0.50	NA, NO	0.50	0.087	NA, NO	0.087	NA, NO	NA, NO	0.53	NA, NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	3 623	3 623	NO	0.40	IE, NO	0.40	IE, NO	IE, NO	IE, NO	0.040	0.026	–0.057	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Croatia	2 311	2 311	NA, NO	1.4	-0.87	0.54	0.33	-0.21	0.13	NA, NO	NA, NO	NA, NO	NA, NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus	145	145		0.26	-0.21	0.042	0.071	-0.060	0.012	0	0.004	0										
Czech Republic	2 610	2 591	19	2.5	-2.2	0.35	0.51	-0.436	0.071	IE, NO	NO	NE, NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Denmark (KP)	533	507	26	IE, NA, NO	–0.056	-0.056	0.17	-0.001	0.166	-0.38	–0.093	NA, NO	-1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estonia	2 363	1 865	498	0.25	NA	0.25	IE, NA	IE, NA	IE, NA	NA, NE	0.007	0.16	-0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	154 248	142 292	11 956	1.2	-0.65	0.50	0.23	-0.13	0.095	–0.015	0.010	0.11	-0.33	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO
Finland	21 668	15 784	5 884	1.4	-1.1	0.29	0.38	-0.33	0.052	IE, NA	IE, NA	0.24	-0.25	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	21 483	21 483	IE	1.4	-0.93	0.45	0.40	-0.22	0.17	0.001	–0.028	IE, NA	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Germany	10 619	10 519	100	0.90	IE, NA	0.90	0.13	IE, NA	0.13	–0.013	–0.052	0.41	-2.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Greece	1 248	1 248	NA, NO	0.42	–0.089	0.33	0.14	–0.025	0.12	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NO	NA	NA	NA	NA	NA	NA	NO	NO	NO
Hungary	1 773	1 766	6.5	0.37	IE, NA	0.37	0.094	IE, NA	0.094	NA, NE	NA, NE	NA, NE	-2.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	94	93	0.43	0.21	–0.010	0.20	0.052	IE, NA, NE	0.052	0.005	IE, NA, NO	0.013	-0.37	NO	NO	NO	NO	NO	NO	NO	NO	NO
Ireland	449	177	272	4.2	-4.8	-0.57	1.1	-0.70	0.37	0.48	0.11	NA, NO	-0.45	NO	NO	NO	NO	NO	NO	NA	NA	NA
Italy	7 457	7 457	NA, NO	2.1	-1.2	0.90	0.43	-0.25	0.18	0.003	0.002	NA, NE, NO	NA, NO	NA	NA	NA	NA	NA	NA	NO	NO	NO
Japan	15 690	15 647	43	0.74	-0.10	0.64	0.19	–0.025	0.16	0.003	–0.038	0.023	NA, NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kazakhstan	9 425	9 425	NO	0.11	IE, NE, NO	0.11	IE, NO	IE, NE, NO	IE, NE, NO	IE, NE, NO	IE, NE, NO	0.05	NO	IE, NO	IE	NO	NO	NO	NO	NE, NO	NE	NO
Latvia	3 131	2 703	428	2.3	-2.1	0.18	0.57	-0.53	0.045	NA, NO	0.081	NA, NO	-0.52	NO	NO	NO	NO	NO	NO	NA	NA	NA
Liechtenstein	6.2	6.2	NO	1.7	-1.6	0.078	0.56	-0.53	0.026	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	2 157	1 818	339	1.1	IE, NA, NO	1.1	0.24	IE, NA, NO	0.24	0.007	0.015	NA, NO	-1.5	IE	IE	IE	NO	NO	NO	NA	NA	NA
Luxembourg	87	87	NO	2.5	-1.5	1.0	0.54	-0.32	0.22	0	0	0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Malta	0.072	0.072	NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	308	294	14	1.9	-1.1	0.87	0.16	NO	0.16	NO	0.22	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
New Zealand	9 250	9 233	17	1.0	-0.92	0.077	0.22	-0.20	0.026	–0.008	0.064	0.000	-0.12	NA	NA	NA	NA	NA	NA	NA	NA	NA
Norway	12 082	11 362	720	0.87	-0.48	0.39	0.22	-0.12	0.093	0.15	0.030	0.004	-0.26	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poland	8 647	8 405	242	0.77	IE, NA, NO	0.77	0.21	IE, NA, NO	0.21	NA, NO	NA, NO	0.11	-0.68	NO	NO	NO	NO	NO	NO	NA	NA	NA
Portugal	3 750	3 750	NO	1.6	-1.2	0.42	0.32	-0.17	0.16	–0.002	IE, NO	–0.006	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Romania	6 972	6 877	95	1.7	-0.70	1.0	IE, NA, NO	IE, NA, NO	IE, NA, NO	0.004	NA, NO	0.087	-0.68	NA	NA	NA	NA	NA	NA	NO	NO	NO
Russian Federation	661 765	659 814	1 950	0.28	–0.071	0.21	0.081	–0.039	0.042	0.004	0.020	0.007	-0.71	IE	IE	IE	NO	NO	NO	NA	NA	NA
Slovakia	1 977	1 977	NA, NO	2.1	-1.6	0.47	0.41	-0.32	0.093	NA, NO	NA, NO	NA, NO	NA, NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	1 098	1 097	0.77	0.97	IE, NA	0.97	0.25	IE, NA	0.25	NA, NO	–0.001	NA, NO	NA, NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Spain	14 432	14 432	NA, NO	0.51	IE, NA, NO	0.51	IE, NA, NO	IE, NA, NO	IE, NA, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NO	NO	NO	NO	NO	NO	NO	NA	NA	NA
Sweden	27 870	24 031	3 839	0.25	IE, NO	0.25	0.084	IE, NO	0.084	-0.14	0.073	0.20	-0.32	NO	NO	NO	NO	NO	NO	NO	NO	NO
Switzerland	1 253	1 249	4.0	2.3	-1.8	0.43	0.65	-0.60	0.051	–0.032	0.037	0.001	-0.078									
Ukraine	9 384	9 191	193	1.7	-0.33	1.3	0.25	IE, NA	0.25	0.023	0.29	NA	-0.68	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	2 964	2 771	193	5.1	-4.0	1.1	IE, NA, NO	IE, NA, NO	IE, NA, NO	0.46	IE, NA, NO	0.42	1.0	NA	NA	NA	NA	NA	NA	NO	NO	NO

[a] For forest management, information reported here refers to anthropogenic carbon stock change for the inventory year for all geographical locations that encompass land subject to forest management under Article 3.4. Newly established forest will reach at least the equivalent carbon stock that was contained in the harvested forest plantation at the time of harvest, and, if not, a debit would be generated under Article 3.4. Reporting is required by Parties which apply the provision to exclude emissions from natural disturbances in accordance with paragraphs 33 and 34 in the annex to decision 2/CMP.7.

[b] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[c] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key IE should be filled in, in the other column.

[d] The value reported here is an emission or removal and not a carbon stock change.

[e] CO_2 emissions from dissolved organic carbon from drained and CO_2 emissions/removals from rewetted organic soils may also be included here.

Table 6.3(d)

Cropland management - area and implied carbon stock change factors from the change in carbon stocks for 2016[a]

	Area subject to the activity			Implied carbon stock change factor (t C/ha)									
	Total	Mineral Soils	Organic Soil	CSC in above-ground biomass[b, c]			CSC in below-ground biomass[b, c]			Net CSC in litter[b]	Net CSC in dead wood[b]	Net CSC in soil[b]	
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[d]
Australia	34 836	34 824	13	0.005	IE, NA	0.005	0.002	IE, NA	0.002	0.000	0.000	0.032	-5.0
Austria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Czech Republic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	2 823	2 706	117	0.070	-0.11	–0.037	0.016	–0.039	–0.023	NO	NO	0.001	-6.2
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	54 896	54 248	648	0.018	–0.013	0.006	0.003	–0.006	–0.003	–0.000	IE, NA, NE, NO	–0.063	-6.2
Finland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Germany	14 676	14 264	412	0.019	–0.017	0.002	0.006	–0.012	–0.006	IE, NA	IE, NA, NO	–0.054	-7.4
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	675	675	NO	0.030	–0.010	0.020	IE	IE	IE	NO	NO	0.034	NO
Italy	9 020	8 995	25	0.000	–0.006	–0.006	IE, NO	IE, NO	IE, NO	NE	NE	NE	10
Japan	3 905	3 730	175	0.000	–0.008	–0.008	0.000	–0.005	–0.005	NA	NA	-0.21	-2.4
Kazakhstan	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta	NE, NO	NE	NO	NE	NE	NE	NE	NE	NE	NE	NE	NE	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Norway	939	878	61	0.004	–0.003	0.001	0.002	–0.001	0.000	NO	NO	0.024	-7.9
Poland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	2 340	2 340	NO	0.032	–0.018	0.014	0.010	–0.013	–0.003	–0.001	IE	–0.041	NO
Romania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	20 171	20 171	NO	0.021	IE	0.021	IE	IE	IE	–0.000	NO	0.013	NO
Sweden	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland													
Ukraine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	5 191	5 097	93	0.001	–0.008	–0.007	IE, NE	IE, NE	IE, NE	NE	NE	-0.56	-5.0

[a] For those Parties where Cropland management has been elected, this table contains information on anthropogenic carbon stock change for the inventory year for all geographic locations that encompass land subject to cropland management under Article 3.4.

[b] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[c] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key IE should be filled in, in the other column.

[d] The value reported here is an emission or removal and not a carbon stock change.

Table 6.3(e)

Cropland management - area and implied carbon stock change factors from the change in carbon stocks for the base year[a]

	Area subject to the activity			Implied carbon stock change factor (t C/ha)									
	Total	Mineral Soils	Organic Soil	CSC in above-ground biomass[b, c]			CSC in below-ground biomass[b, c]			Net CSC in litter[b]	Net CSC in dead wood[b]	Net CSC in soil[b]	
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[d]
Australia	34 820	34 807	13	0.001	IE, NA	0.001	IE, NA	IE, NA	IE, NA	IE, NA	IE, NA	IE, NA, NO	-5.0
Austria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria													
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Czech Republic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	2 885	2 736	149	0.035	–0.029	0.007	0.008	–0.006	0.002	NO	NO	–0.046	-7.2
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	58 272	57 689	583	0.013	–0.012	0.001	0.002	–0.003	–0.001	–0.000	IE, NA, NE, NO	–0.093	-6.4
Finland													
France (KP)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Germany	14 092	13 777	315	0.014	–0.018	–0.004	0.006	–0.011	–0.006	IE, NA	IE, NA, NO	–0.053	-7.7
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary													
Iceland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	699	699	NO	0.040	–0.036	0.004	IE	IE	IE	NO	NO	0.003	NO
Italy	10 704	10 680	25	0.003	–0.021	–0.018	IE, NO	IE, NO	IE, NO	NE	NE	NE	10
Japan	4 597	4 406	190	0.000	–0.010	–0.010	0.000	–0.007	–0.007	NA	NA	-0.51	-2.4
Kazakhstan	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein													
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta													
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand													
Norway	940	881	59	0.005	–0.004	0.001	0.002	–0.002	0.000	NO	NO	0.002	-7.9
Poland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	2 974	2 974	NO	0.016	–0.004	0.012	0.003	–0.002	0.002	–0.005	IE	-0.29	NO
Romania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	20 999	20 999	NO	0.016	IE	0.016	IE	IE	IE	–0.000	NO	–0.004	NO
Sweden	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland													
Ukraine													
United Kingdom of Great Britain and Northern Ireland (KP)	5 918	5 825	93	0.001	–0.012	–0.012	IE, NE	IE, NE	IE, NE	NE	NE	-0.61	-5.0

[a] For those Parties where Cropland management has been elected, contains information on anthropogenic carbon stock change for the inventory year for all geographic locations that encompass land subject to cropland management under Article 3.4.

[b] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[c] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key IE should be filled in, in the other column.

[d] The value reported here is an emission or removal and not a carbon stock change.

Table 6.3(f)

Grazing land management - area and implied carbon stock change factors from the change in carbon stocks for 2016[a]

	Area subject to the activity			Implied carbon stock change factor (t C/ha)									
	Total	Mineral Soils	Organic Soil	CSC in above-ground biomass[b, c]			CSC in below-ground biomass[b, c]			Net CSC in litter[b]	Net CSC in dead wood[b]	Net CSC in soil[b]	
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[d]
Australia	534 000	533 951	49	0.018	–0.014	0.004	0.001	IE, NA	0.001	–0.000	0.000	–0.002	-5.0
Austria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Czech Republic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	219	192	27	0.22	-0.76	-0.54	0.60	-0.60	-0.005	NO	NO	–0.017	-6.7
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	26 872	24 008	2 863	0.010	–0.014	–0.004	0.008	–0.007	0.001	0.000	IE, NA, NE, NO	0.13	-3.1
Finland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Germany	6 278	5 288	989	0.014	–0.022	–0.008	0.011	–0.007	0.004	IE, NA	IE, NA, NO	0.083	-6.4
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	4 345	3 906	439	NO	–0.000	–0.000	IE, NO	NO	IE, NO	NO	NO	0.13	-5.2
Italy	426	426	NO	NO	NO	NO	NO	NO	NO	NE	NE	0.45	NO
Japan	602	562	40	0.001	IE, NO	0.001	0.004	IE, NO	0.004	NA	NA	0.12	-0.19
Kazakhstan	6 200	6 200	NO	0.19	NO	0.19	IE	NO	NO, IE	IE	NO	0.17	NO
Latvia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein	NO	NO	NO	NO		NO		NO	NO	NO	NO	NO	NO
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Norway	213	210	3.3	0.20	-0.12	0.082	0.077	–0.045	0.032	NO	NO	–0.066	-2.6
Poland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	594	594	NO	0.025	–0.037	–0.012	0.021	–0.030	–0.009	0.000	IE	0.091	NO
Romania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sweden	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland													
Ukraine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	15 009	13 602	1 408	0.007	–0.003	0.004	IE, NE	IE, NE	IE, NE	NE	NE	0.14	–0.037

[a] If grazing land management has been elected, report here information on anthropogenic carbon stock change for the inventory year for all geographic locations that encompass land subject to grazing land management under Article 3.4.

[b] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[c] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key IE should be filled in, in the other column.

[d] The value reported here is an emission or removal and not a carbon stock change.

Table 6.3(g)

Grazing land management - area and implied carbon stock change factors from the change in carbon stocks for the base year[a]

	Area subject to the activity			Implied carbon stock change factor (t C/ha)									
	Total	Mineral Soils	Organic Soil	CSC in above-ground biomass[b, c]			CSC in below-ground biomass[b, c]			Net CSC in litter[b]	Net CSC in dead wood[b]	Net CSC in soil[b]	
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[d]
Australia	539 554	539 506	49	0.024	–0.022	0.002	IE, NA	IE, NA	IE, NA	IE, NA	–0.000	IE, NA, NO	-5.0
Austria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria													
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Czech Republic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	256	223	34	0.011	–0.057	–0.046	0.028	–0.066	–0.038	NO	NO	–0.001	-6.8
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	26 661	23 749	2 912	0.019	–0.015	0.004	0.006	–0.005	0.001	–0.000	IE, NA, NE, NO	0.090	-3.3
Finland													
France (KP)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Germany	6 936	5 841	1 095	0.023	–0.038	–0.015	0.019	–0.014	0.005	IE, NA	IE, NA, NO	0.11	-6.8
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary													
Iceland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	4 448	4 073	375	NO	–0.000	–0.000	IE, NO	IE, NO	IE, NO	NO	NO	–0.010	-5.0
Italy	3.0	3.0	NO	NO	NO	NO	NO	NO	NO	NE	NE	0.47	NO
Japan	647	607	40	0.005	IE	0.005	0.018	IE	0.018	NA	NA	-0.39	-0.19
Kazakhstan	6 200	6 200	NO	0.000	NO	0.000	IE	NO	IE, NO	IE	NO	-0.15	NO
Latvia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein													
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta													
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand													
Norway	229	226	3.6	0.21	-0.12	0.086	0.081	–0.047	0.033	NO	NO	0.032	-3.6
Poland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	529	529	NO	0.025	–0.063	–0.039	0.044	–0.033	0.011	–0.009	IE	-0.65	NO
Romania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sweden	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland													
Ukraine													
United Kingdom of Great Britain and Northern Ireland (KP)	14 488	13 081	1 408	0.024	–0.007	0.017	IE, NE	IE, NE	IE, NE	NE	NE	0.14	–0.034

[a] If grazing land management has been elected, report here information on anthropogenic carbon stock change for the inventory year for all geographic locations that encompass land subject to grazing land management under Article 3.4.

[b] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[c] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key IE should be filled in, in the other column.

[d] The value reported here is an emission or removal and not a carbon stock change.

Table 6.3(h)

Revegetation - area and implied carbon stock change factors from the change in carbon stocks for 2016[a]

	Area subject to the activity			Implied carbon stock change factor (t C/ha)									
	Total	Mineral Soils	Organic Soil	CSC in above-ground biomass[b, c]			CSC in below-ground biomass[b, c]			Net CSC in litter[b]	Net CSC in dead wood[b]	Net CSC in soil[b]	
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[d]
Australia	18 446	18 446	IE	0.023	–0.022	0.002	IE	IE	IE	NA	NA	NA	NA
Austria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Czech Republic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	382	382	NA, NE, NO	0.91	IE, NA, NE, NO	0.91	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	0.003	NA, NE, NO	0.45	NA, NE, NO
Finland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Germany	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	277	277	NO	0.059	IE	0.059	IE	IE	IE	IE	NO	0.53	NA
Ireland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Italy	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Japan	87	84	2.1	2.5	–0.007	2.4	0.64	–0.002	0.64	0.043	IE	0.93	NO
Kazakhstan	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein	NO		NO		NO	NO	NO		NO				
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Norway	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Romania	105	105	NO	3.1	IE	3.1	IE	IE	IE	0.012	NO	0.24	NO
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sweden	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland													
Ukraine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[a] For those Parties where revegetation has been elected, contains information on anthropogenic carbon stock change for the inventory year for all geographic locations that encompass land subject to Revegetation under Article 3.4.

[b] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[c] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key IE should be filled in, in the other column.

[d] The value reported here is an emission or removal and not a carbon stock change.

Table 6.3(i)

Revegetation - area and implied carbon stock change factors from the change in carbon stocks for the base year[a]

	Area subject to the activity			Implied carbon stock change factor (t C/ha)									
	Total	Mineral Soils	Organic Soil	CSC in above-ground biomass[b, c]			CSC in below-ground biomass[b, c]			Net CSC in litter[b]	Net CSC in dead wood[b]	Net CSC in soil[b]	
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[d]
Australia	18 446	18 446	IE	0.032	–0.035	–0.003	IE	IE	IE	NA	NA	NA	NA
Austria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria													
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Czech Republic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	259	259	NA, NO	1.1	IE, NA, NO	1.1	IE, NA, NO	IE, NA, NO	IE, NA, NO	0.026	NA, NO	1.1	NA, NO
Finland													
France (KP)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Germany	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary													
Iceland	167	167	NO	0.057	IE, NA	0.057	IE, NA	IE, NA	IE, NA	IE, NA	NA, NO	0.51	NA
Ireland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Italy	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Japan	5.9	5.8	0.14	2.2	–0.023	2.2	0.58	–0.006	0.57	0.043	IE	0.88	NO
Kazakhstan	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein													
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta													
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand													
Norway	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Romania	88	88	NO	3.0	IE	3.0	IE	IE	IE	0.073	NO	2.2	NO
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sweden	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland													
Ukraine													
United Kingdom of Great Britain and Northern Ireland (KP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[a] For those Parties where revegetation has been elected, contains information on anthropogenic carbon stock change for the inventory year for all geographic locations that encompass land subject to Revegetation under Article 3.4.

[b] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[c] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key IE should be filled in, in the other column.

[d] The value reported here is an emission or removal and not a carbon stock change.

Table 6.3(j)

Wetland drainage and rewetting - area and implied carbon stock change factors from the change in carbon stocks for 2016 [a]

	Area subject to the activity			Implied carbon stock change factor (t C/ha)									
	Total	Mineral Soils	Organic Soil	CSC in above-ground biomass [b, c]			CSC in below-ground biomass [b, c]			Net CSC in litter [b]	Net CSC in dead wood [b]	Net CSC in soil [b]	
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic [d]
Australia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Austria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Czech Republic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO
Finland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NO	NE
Germany	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	NA, NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA, NO
Ireland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA
Italy	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Japan	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kazakhstan	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Norway	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Romania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sweden		NA	NA									NA	NA
Switzerland													
Ukraine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

[a] For those Parties where revegetation has been elected, contains information on anthropogenic carbon stock change for the inventory year for all geographic locations that encompass land subject to Revegetation under Article 3.4.

[b] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[c] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key IE should be filled in, in the other column.

[d] The value reported here is an emission or removal and not a carbon stock change.

Table 6.3(k)

Wetland drainage and rewetting - area and implied carbon stock change factors from the change in carbon stocks for the base year[a]

	Area subject to the activity			Implied carbon stock change factor (t C/ha)									
	Total	Mineral Soils	Organic Soil	CSC in above-ground biomass[b, c]			CSC in below-ground biomass[b, c]			Net CSC in litter[b]	Net CSC in dead wood[b]	Net CSC in soil[b]	
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[d]
Australia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Austria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria													
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Czech Republic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO
Finland													
France (KP)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Germany	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary													
Iceland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA
Italy	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Japan	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kazakhstan	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein													
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta													
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand													
Norway	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Romania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sweden		NA	NA									NA	NA
Switzerland													
Ukraine													
United Kingdom of Great Britain and Northern Ireland (KP)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

[a] For those Parties where revegetation has been elected, contains information on anthropogenic carbon stock change for the inventory year for all geographic locations that encompass land subject to Revegetation under Article 3.4.

[b] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[c] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key IE should be filled in, in the other column.

[d] The value reported here is an emission or removal and not a carbon stock change.

Table 6.4

Direct and indirect N_2O emissions from N fertilization for 2016[a, b]

	Afforestation and Reforestation	Deforestation[c]	Forest management	Revegetation	Wetland drainage and rewetting[d]
	N_2O-N per unit of fertilizer	N_2O-N per unit of fertilizer	N_2O-N per unit of fertilizer	N_2O-N per unit of fertilizer	N_2O-N per unit of fertilizer
	kg N_2O-N/kg N	kg N_2O-N/kg N	kg N_2O-N/kg N	kg N_2O-N/kg N	kg N_2O-N/kg N
Australia	IE	IE	IE	IE	NA
Austria	NO	NO	NO	NA	NA
Belgium	NO	IE	NO	NA	NA
Bulgaria	NO	NO	NO	NA	NA
Croatia	NO	NO	NO	NA	NA
Cyprus				NO	NO
Czech Republic	NO	NO	NO	NA	NA
Denmark (KP)	IE	IE	IE	NA	NA
Estonia	NO	NO	NO	NA	NA
European Union (KP)	0.013	IE, NO	0.000	0.010	IE, NA, NE, NO
Finland	NA	IE	0.010	NA	NA
France (KP)	NO	NO	NE	NE	NE
Germany	NO	NO	NO	NA	NA
Greece	NA	NA	NA	NA	NA
Hungary	IE	IE	IE	NA	NA
Iceland	0.012	NA	NA	0.010	NA
Ireland	IE	IE	IE	NA	NA
Italy	NO	NO	NO	NA	NA
Japan	IE	IE	0.009	IE	NA
Kazakhstan	NO	NO	NO	NO	NO
Latvia	NO	IE	NO	NA	NO
Liechtenstein	NO	NO		NO	NO
Lithuania	NO	NO	NO	NA	NA
Luxembourg	NO	NO	NO	NA	NA
Malta	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO
Netherlands	NO	IE	NO	NA	NA
New Zealand	IE	IE	IE	NA	NA
Norway	0.000	IE	0.000	NA	NA
Poland	NO	NO	NO	NA	NA
Portugal	IE	IE	IE	NA	NA
Romania	IE	IE	IE	IE	IE
Russian Federation	NO	NO	NO	NA	NA
Slovakia	NO	NO	NO	NA	NA
Slovenia	NO	NA	NA	NA	NA
Spain	NO	NO	NO	NA	NA
Sweden	NO	IE	0.000	NA	NA
Switzerland	NO	NA	NO	NA	NA
Ukraine	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	0.013	NO	NO	NA	NE

[a] N_2O emissions from fertilization for cropland management, grazing land management and revegetation as well as from fertilization of areas categorized as cropland or grassland underdeforestation should be reported in the agriculture sector. If a Party is not able to separate fertilizer applied to forest land from agriculture, it may report all N_2O emissions from fertilization in the agriculture sector. In this case, reporting of N_2O emissions from fertilization should not be included under afforestation/reforestation, deforestation or forest management, revegetation or wetland drainage and rewetting, as appropriate, to avoid double counting.

[b] Direct and indirect N_2O emissions from fertilization are estimated following section 11.2 of the 2006 IPCC Guidelines based on the amount of fertilizer applied to land under forest management. The indirect N_2O emissions from afforestation and reforestation and land under forest management are estimated as part of the total indirect emissions in the agriculture sector based on the total amount of fertilizer used in the country. Parties should show that double counting of N_2O emissions from fertilization with agriculture sector estimates has been avoided.

[c] Only for areas that have been subsequently reforested.

[d] Only N_2O emissions which have not been reported under agriculture should be included here.

Table 6.5

CH_4 and N_2O emissions from drained and rewetted organic soils for 2016[a, b, c]

	Afforestation and Reforestation			Deforestation			Forest Management			Cropland Management			Grazing Land Management			Revegetation			Wetland drainage and rewetting		
	Area of organic soils	Implied Emission Factor		Area of organic soils	Implied Emission Factor		Area of organic soils	Implied Emission Factor		Area of organic soils	Implied Emission Factor		Area of organic soils	Implied Emission Factor		Area of organic soils	Implied Emission Factor		Area of organic soils	Implied Emission Factor	
		N_2O-N	CH_4		N_2O-N	CH_4		N_2O-N	CH_4		N_2O-N	CH_4		N_2O-N	CH_4		N_2O-N	CH_4		N_2O-N	CH_4
	kha	kg N_2O-N/ha	kg CH_4/ha	kha	kg N_2O-N/ha	kg CH_4/ha	kha	kg N_2O-N/ha	kg CH_4/ha	kha	kg N_2O-N/ha	kg CH_4/ha	kha	kg N_2O-N/ha	kg CH_4/ha	kha	kg N_2O-N/ha	kg CH_4/ha	kha	kg N_2O-N/ha	kg CH_4/ha
Australia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Austria	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Belgium	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Bulgaria	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Cyprus	NO	NO	NO										NO		NO						
Czech Republic	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	11	1.4	4.0	0.58	1.6	26	26	1.4	44	123		2.7	29		14	NA	NA	NA	NA	NA	NA
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
European Union (KP)	369	1.1	4.9	95	2.2	17	6 424	1.0	8.6	536		19	1 444		20	0.070	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
Finland	65	0.80	1.7	38	1.5	19	4 288	0.54	7.8	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
France (KP)	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE		NE	NE		NE	NE	NE	NE	NE	NE	NE
Germany	47	1.4	4.6	21	1.6	18	100	1.4	4.6	412		24	989		20	NA	NA	NA	NA	NA	NA
Greece	NO	NA	NA	NO	NA	NA	NO	NA	NA	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Hungary	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Iceland	3.3	0.44	7.4	0.012	0.44	7.4	0.43	0.44	7.4	NA		NA	NA		NA	0.070	NA	NA	NA	NA	NA
Ireland	159	1.2	6.3	7.2	2.0	33	242	0.74	7.3	NO		NO	426		22	NA	NA	NA	NA	NA	NA
Italy	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO		NO	NA	NA	NA	NA	NA	NA
Japan	NO	NO	NO	NO	NO	NO	NO	NO	NO	24		58	40		2.2	NO	NO	NO	NA	NA	NA
Kazakhstan	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO		NO	NO	NO	NO	NO	NO	NO
Latvia	1.8	2.8	67	8.1	13	28	444	2.7	19	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Liechtenstein	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO			NO	NO	NO	NO		
Lithuania	3.6	1.8	8.0	NO	NO	NO	170	1.8	7.9	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Luxembourg	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO		NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO		NO	NO	NO	NO	NO	NO	NO
Netherlands	NE	NE	NE	NE	NE	NE	NE	NE	NE	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
New Zealand	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		NE	NE		NE	NE	NE	NE	NE	NE	NE
Norway	7.2	3.2	7.3	10	IE, NE	58	241	2.6	8.4	61		58	2.4		30	NA	NA	NA	NA	NA	NA
Poland	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Portugal	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO		NO	NA	NA	NA	NA	NA	NA
Romania	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO		NO	NO	NO	NO	NA	NA	NA
Russian Federation	NO	NO	NO	13	1.7	9.8	1 950	1.7	9.8	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Slovakia	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Slovenia	NO	NA	NA	NO	NA	NA	NO	NA	NA	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Spain	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NA		NA	NA	NA	NA	NA	NA	NA
Sweden	29	2.2	9.0	19	IE, NO	2.9	970	2.3	9.0	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Switzerland	0.011	0.084	NE, NO	NO	NO	NO	4.0	0.084	NE	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Ukraine	NO	NO	NO	NA	NA	NA	193	0.60	NA	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	49	0.19	NE, NO	NO	NO	NO	183	0.21	NE, NO	NE		NE	NE		NE	NA	NA	NA	NE	NE	NE

[a] Methodologies for CH_4 and N_2O emissions from drained and rewetted soils are given in the "Wetlands Supplement" for all land-use categories.

[b] N_2O emissions from drained cropland and grazing land soils are covered in the agriculture sector under cultivation of histosols.

[c] For activities other than wetland drainage and rewetting, a Party may choose to include CH_4 emissions from drained, rewetted and other organic soils. A Party should provide detailed information on methodologies, emissions and removals from these subdivisions in the NIR, ensuring consistency in reporting among categories.

Table 6.6

N_2O emissions from N mineralization/immobilization due to carbon loss/gain associated with land-use conversions and management change in mineral soils for 2016[a]

	Afforestation and Reforestation			Deforestation[c]			Forest Management			Cropland Management			Grazing land Management			Revegetation		
	Land area[b]	Carbon Stock Change	IEF N_2O-N[d]	Land area[b]	Carbon Stock Change	IEF N_2O-N[d]	Land area[b]	Carbon Stock Change	IEF N_2O-N[d]	Land area[b]	Carbon Stock Change	IEF N_2O-N[d]	Land area[b]	Carbon Stock Change	IEF N_2O-N[d]	Land area[b]	Carbon Stock Change	IEF N_2O-N[d]
	kha	kt C	kg N_2O-N/ha	kha	kt C	kg N_2O-N/ha	kha	kt C	kg N_2O-N/ha	kha	kt C	kg N_2O-N/ha	kha	kt C	kg N_2O-N/ha	kha	kt C	kg N_2O-N/ha
Australia	5 837	1 263	0.009	10 027	-3 099	0.038	10 972	226	0.006	960	-164	0.020	533 951	-1 069	0.005	NA	NA	NA
Austria	118	-63	0.49	32	-57	1.0	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	19	–0.072	0.002	18	-65	3.2	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Croatia	58	43	NO	4.6	-13	2.3	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus										NO	NO	NO	NO	NO	NO			
Czech Republic	NO	NO	NO	3.1	-0.90	0.20	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	NO	NO	NO	4.2	-1.1	2.2	507	NO	NO	2 706	-3.1	0.002	192	-3.3	0.014	NA	NA	NA
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	2 993	-527	0.23	2 592	-369	0.92	46 449	9 093	0.002	6 130	-3 386	0.48	5 845	-626	0.15	NA, NE, NO	NA, NE, NO	NA, NE, NO
Finland	112	2.3	0.014	316	122	0.22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	NO	NO	NO	1 165	NA	0.41	NO	NO	NO	NE	NE	NE	NE	NE	NE	NE	NE	NE
Germany	501	-111	0.38	273	30	0.062	10 519	4 313	NO	935	-767	0.80	5 288	440	NO	NA	NA	NA
Greece	NO	NA	NA	5.4	-10	1.2	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	173	27	0.001	15	-12	0.52	1 766	NE	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	NO	NA	NA	NE	NE	NA	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	142	NO	NO	3.6	-3.8	69	177	NO	NO	IE	IE	IE	IE	IE	IE	NA	NA	NA
Italy	NO	NO	NO	3.7	305	55	NO	NO	NO	NO	86	NO	NO	NO	NO	NA	NA	NA
Japan	NA	NA	NA	8.6	-13	1.6	15 690	-193	0.013	36	NA	0.32	563	NA	0.008	NA	NA	NA
Kazakhstan	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	NO	NO	NO	28	-5.8	0.17	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein	NO	NO	NO	0.19		0.71	NO	NO		NO	NO		NO	NO	NO	NO	NO	NO
Lithuania	39	16	NO	1.9	-4.1	1.4	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NO	NO	NO	5.9	-4.7	0.83	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	55	-2.1	0.19	60	1.1	0.19	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand	654	198	0.20	193	3.2	0.011	9 215	7.7	0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Norway	27	-34	0.85	97	-41	0.28	11 362	41	NO	21	-2.5	0.076	209	-15	0.048	NA	NA	NA
Poland	735	NE	NE	14	IE	0.015	8 661	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	18	-38	1.4	103	-397	2.6	19	-38	1.4	97	-271	1.9	55	-142	1.7	NA	NA	NA
Romania	6.9	0.12	0.92	83	13	8.4	NO	NO	NO	NA	NA	NA	NA	NA	NA	NO	NO	NO
Russian Federation	NO	NO	NO	617	292	0.39	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NO	NA	NA	18	-25	1.1	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	3.3	-2.5	0.53	81	-36	0.31	NE	NE	NE	432	-284	0.46	NA	NA	NA	NA	NA	NA
Sweden	335	-24	0.044	290	-206	0.31	24 031	4 818	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland	1.2	0.12	0.069	7.0	6.9	0.66	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ukraine	309	42	NA	50	-0.40	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	678	-375	0.47	64	IE, NO	1.7	768	IE, NO	0.080	1 960	-2 147	0.90	310	-921	2.4	NA	NA	NA

[a] N_2O emissions from nitrogen mineralization/immobilization associated with loss/gain of soil organic matter resulting from change of land use or management of mineral soils under afforestation/reforestation, deforestation, forest management, cropland management, grazing land management and revegetation should be reported here when these emissions/removals are not reported under the agriculture sector.

[b] Land areas should include lands converted and/or lands where a management change has taken place and resulted in carbon loss. Gains could be reported, under tier 3 approaches, if sufficient scientific justification is provided.

[c] N_2O emissions associated with deforestation followed by the establishment of cropland should be reported under deforestation even if cropland management is not elected under Article 3.4.

[d] In the calculation of the implied emission factor, N_2O emissions are converted to N_2O-N by multiplying by 28/44.

Table 6.7(a)

Emissions from biomass burning 2016[a]

	Afforestation/reforestation				Deforestation				Total article 3.3				Forest management			
	Activity data	Implied Emission Factor			Activity data	Implied Emission Factor			Activity data	Implied Emission Factor			Activity data	Implied Emission Factor		
	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O
		(t/activity data unit)				(t/activity data unit)				(t/activity data unit)				(t/activity data unit)		
Australia		4.0	0.019	0.000		IE	0.11	0.002		0.92	0.090	0.002		0.75	0.11	0.002
Austria		NO	NO	NO		NO	NO	NO		NO	NO	NO		IE, NO	0.093	0.005
Belgium		NO	NO	NO		NO	NO	NO		NO	NO	NO		NO	NO	NO
Bulgaria		0.002	0.000	0.000		NO	NO	NO		0.002	0.000	0.000		0.002	0.000	0.000
Croatia		31	0.093	0.005		NO	NO	NO		31	0.093	0.005		19	0.093	0.005
Cyprus																
Czech Republic		NO	NO	NO		NO	NO	NO		NO	NO	NO		0.000	0.000	0.000
Denmark (KP)		NO	NO	NO		NO	NO	NO		NO	NO	NO		NO	NO	NO
Estonia		IE, NA	0.30	0.003		NO	NO	NO		IE, NA, NO	0.30	0.003		IE, NO	0.002	0.000
European Union (KP)																
Finland		NA	NA	NA		NA	IE, NA	IE, NA		NA	IE, NA	IE, NA		6.2	0.046	0.000
France (KP)		NO	NO	NO		IE, NO	NO	NO		IE, NO	NO	NO		IE, NO	NO	IE, NO
Germany		IE, NO	IE, NO	IE, NO		NO	NO	NO		IE, NO	IE, NO	IE, NO		IE, NO	0.23	0.012
Greece		19	0.24	0.002		NA	NA	NA		19	0.24	0.002		19	0.24	0.002
Hungary		IE	0.000	0.000		IE, NO	0.000	0.000		IE, NO	0.000	0.000		IE	0.000	0.000
Iceland		NA	NA	NA		NA	NA	NA		NA	NA	NA		NA	NA	NA
Ireland		152	0.66	0.004		NO	NO	NO		152	0.66	0.004		261	1.1	0.007
Italy		IE, NO	0.63	0.020		NO	NO	NO		IE, NO	0.63	0.020		IE, NO	0.63	0.020
Japan		IE, NO	0.000	0.000		NO	NO	NO		IE, NO	0.000	0.000		IE, NO	0.000	0.000
Kazakhstan		IE, NO	IE, NO	IE, NO		IE, NO	IE, NO	IE, NO		IE, NO	IE, NO	IE, NO		IE, NO	NO	0.002
Latvia		NO	NO	NO		NO	NO	NO		NO	NO	NO				
Liechtenstein		NO	NO	NO		NO	NO	NO		NO	NO	NO		NO	NO	NO
Lithuania		3.3	0.006	0.001		NO	NO	NO		3.3	0.006	0.001		10	0.041	0.004
Luxembourg		NO	NO	NO		NO	NO	NO		NO	NO	NO		NO	NO	NO
Malta		NO	NO	NO		NO	NO	NO		NO	NO	NO		NO	NO	NO
Monaco		NO	NO	NO		NO	NO	NO		NO	NO	NO		NO	NO	NO
Netherlands		97	0.29	0.016		7.3	0.010	0.001		19	0.048	0.003		97	0.29	0.016
New Zealand		IE	0.000	0.000		IE	0.000	0.000		IE	0.000	0.000		IE	0.000	0.000
Norway		IE, NO	0.023	0.001		NO	NO	NO		IE, NO	0.023	0.001		IE	0.023	0.001
Poland		IE, NO	1.1	0.004		NO	NO	NO		IE, NO	1.1	0.004		IE, NO	1.1	0.004
Portugal		31	0.12	0.002		NO	0.093	0.001		17	0.11	0.001		31	0.11	0.002
Romania		48	0.21	0.006		NO	NO	NO		48	0.21	0.006		48	0.21	0.006
Russian Federation		IE, NO	0.000	0.000		NO	NO	NO		IE, NO	0.000	0.000		27	0.14	0.007
Slovakia		IE, NO	0.12	0.007		NO	NO	NO		IE, NO	0.12	0.007		IE	NA	NA
Slovenia		NA	NA	NA		NA	NA	NA		NA	NA	NA		68	0.20	0.011
Spain		24	0.067	0.005		12	0.024	0.002		24	0.066	0.005		IE	0.066	0.005
Sweden	Area burned	NO	NO	NO	Area burned	NO	NO	NO	Area burned	NO	NO	NO		IE	0.065	0.000
Switzerland		IE	IE	IE						IE	IE	IE				
Ukraine		0.002	0.000	0.000		NA, NO	NA, NO	NA, NO		0.002	0.000	0.000		0.002	0.000	0.000
United Kingdom of Great Britain and Northern Ireland (KP)		0.002	0.000	0.000		0.002	0.000	0.000		0.002	0.000	0.000		0.002	0.000	0.000

[a] Total for controlled burning and wildfires.

[b] For each activity, activity data could area burned or fuel burned. Units will be ha for area burned, and kg dm for fuel burned. The implied emission factor will refer to the selected activity data with an automatic change in the units.

[c] Area burned (ab) and biomass burned (bb).

Table 6.7(b)

Emissions from biomass burning on cropland management land[a]

	Base year				2016			
	Activity data	Implied Emission Factor			Activity data	Implied Emission Factor		
	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O
		(t/activity data unit)				(t/activity data unit)		
Australia		IE	IE	IE		IE	0.016	0.000
Austria		NA	NA	NA		NA	NA	NA
Belgium		NA	NA	NA		NA	NA	NA
Bulgaria						NA	NA	NA
Croatia		NA	NA	NA		NA	NA	NA
Cyprus		NO	NO	NO		NO	NO	NO
Czech Republic		NA	NA	NA		NA	NA	NA
Denmark (KP)		NO	NO	NO		NO	NO	NO
Estonia		NA	NA	NA		NA	NA	NA
European Union (KP)								
Finland						NA	NA	NA
France (KP)		NO	NO	NO		NE	NE	NE
Germany		NO	NO	NO		NO	NO	NO
Greece		NA	NA	NA		NA	NA	NA
Hungary						NA	NA	NA
Iceland		NA	NA	NA		NA	NA	NA
Ireland		NO	0.011	0.000		NO	NO	NO
Italy		4.3	0.024	0.001		4.1	0.022	0.001
Japan		IE, NO	0.000	0.000		IE, NO	0.000	0.000
Kazakhstan		NO	NO	NO		NO	NO	NO
Latvia		NA	NA	NA		NA	NA	NA
Liechtenstein						NO	NO	NO
Lithuania		NA	NA	NA		NA	NA	NA
Luxembourg		NA	NA	NA		NA	NA	NA
Malta						NO	NO	NO
Monaco		NO	NO	NO		NO	NO	NO
Netherlands		NA	NA	NA		NA	NA	NA
New Zealand						NA	NA	NA
Norway		NO	NO	NO		NO	NO	NO
Poland		NA	NA	NA		NA	NA	NA
Portugal		NO	0.034	0.000		NO	0.047	0.001
Romania		NA	NA	NA		NA	NA	NA
Russian Federation		NA	NA	NA		NA	NA	NA
Slovakia		NA	NA	NA		NA	NA	NA
Slovenia		NA	NA	NA		NA	NA	NA
Spain		0.080	0.023	0.002		0.28	0.031	0.002
Sweden		NA	NA	NA		NA	NA	NA
Switzerland								
Ukraine						NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)		NE, NO	0.011	0.000		NE, NO	0.011	0.000

[a] Total for controlled burning and wildfires.

[b] For each activity, activity data should be selected between area burned or fuel burned. Units will be ha for area burned, and kg dm for fuel burned. The implied emission factor will refer to the selected activity data with an automatic change in the units.

[c] Area burned (ab) and biomass burned (bb).

Table 6.7(c)

Emissions from biomass burning on grazing land management land[a]

	Base year				2016			
	Activity data	Implied Emission Factor			Activity data	Implied Emission Factor		
	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O
		(t/activity data unit)				(t/activity data unit)		
Australia		IE	0.006	0.000		IE	0.006	0.000
Austria		NA	NA	NA		NA	NA	NA
Belgium		NA	NA	NA		NA	NA	NA
Bulgaria						NA	NA	NA
Croatia		NA	NA	NA		NA	NA	NA
Cyprus		NO	NO	NO		NO	NO	NO
Czech Republic		NA	NA	NA		NA	NA	NA
Denmark (KP)		IE	1.7	0.15		IE	1.7	0.15
Estonia		NA	NA	NA		NA	NA	NA
European Union (KP)								
Finland						NA	NA	NA
France (KP)		NO	NO	NO		NE	NE	NE
Germany		NO	NO	NO		NO	NO	NO
Greece		NA	NA	NA		NA	NA	NA
Hungary						NA	NA	NA
Iceland		NA, NO	NA	NA		NA, NO	NA	NA
Ireland		41	0.25	0.006		51	0.31	0.008
Italy		NO	NO	NO		NO	NO	NO
Japan		NO	NO	NO		NO	NO	NO
Kazakhstan		IE, NO	IE, NO	IE, NO		IE, NO	IE, NO	IE, NO
Latvia		NA	NA	NA		NA	NA	NA
Liechtenstein						NO	NO	NO
Lithuania		NA	NA	NA		NA	NA	NA
Luxembourg		NA	NA	NA		NA	NA	NA
Malta						NO	NO	NO
Monaco		NO	NO	NO		NO	NO	NO
Netherlands		NA	NA	NA		NA	NA	NA
New Zealand						NA	NA	NA
Norway		IE, NO	NE, NO	NE, NO		IE, NO	NE, NO	NE, NO
Poland		NA	NA	NA		NA	NA	NA
Portugal		NO	0.006	0.000		NO	0.027	0.000
Romania		NA	NA	NA		NA	NA	NA
Russian Federation		NA	NA	NA		NA	NA	NA
Slovakia		NA	NA	NA		NA	NA	NA
Slovenia		NA	NA	NA		NA	NA	NA
Spain		NA	NA	NA		NA	NA	NA
Sweden	Area burned	NA	NA	NA	Area burned	NA	NA	NA
Switzerland								
Ukraine						NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)		NE, NO	0.026	0.002		NE, NO	0.026	0.002

[a] Total for controlled burning and wildfires. Greenhouse gas emissions from prescribed savanna burning are reported in the agriculture sector.

[b] For each activity, activity data should be selected between area burned or fuel burned. Units will be ha for area burned, and kg dm for fuel burned. The implied emission factor will refer to the selected activity data with an automatic change in the units.

[c] Area burned (ab) and biomass burned (bb).

Table 6.7(d)

Emissions from biomass burning on revegetation land[a]

	Base year				2016			
	Activity data	Implied Emission Factor			Activity data	Implied Emission Factor		
	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O
		(t/activity data unit)				(t/activity data unit)		
Australia		IE	IE	IE		IE	IE	IE
Austria		NA	NA	NA		NA	NA	NA
Belgium		NA	NA	NA		NA	NA	NA
Bulgaria						NA	NA	NA
Croatia		NA	NA	NA		NA	NA	NA
Cyprus		NO	NO	NO		NO	NO	NO
Czech Republic		NA	NA	NA		NA	NA	NA
Denmark (KP)		NA	NA	NA		NA	NA	NA
Estonia		NA	NA	NA		NA	NA	NA
European Union (KP)								
Finland						NA	NA	NA
France (KP)		NO	NO	NO		NE	NE	NE
Germany		NA	NA	NA		NA	NA	NA
Greece		NA	NA	NA		NA	NA	NA
Hungary						NA	NA	NA
Iceland		NE	NE	NE		NA	NA	NA
Ireland		NA	NA	NA		NA	NA	NA
Italy		NA	NA	NA		NA	NA	NA
Japan		NO	NO	NO		NO	NO	NO
Kazakhstan		NO	NO	NO		NO	NO	NO
Latvia		NA	NA	NA		NA	NA	NA
Liechtenstein						NO	NO	NO
Lithuania		NA	NA	NA		NA	NA	NA
Luxembourg		NA	NA	NA		NA	NA	NA
Malta						NO	NO	NO
Monaco		NO	NO	NO		NO	NO	NO
Netherlands		NA	NA	NA		NA	NA	NA
New Zealand						NA	NA	NA
Norway		NA	NA	NA		NA	NA	NA
Poland		NA	NA	NA		NA	NA	NA
Portugal		NA	NA	NA		NA	NA	NA
Romania		NO	NO	NO		NO	NO	NO
Russian Federation		NA	NA	NA		NA	NA	NA
Slovakia		NA	NA	NA		NA	NA	NA
Slovenia		NA	NA	NA		NA	NA	NA
Spain		NA	NA	NA		NA	NA	NA
Sweden	Area burned	NA	NA	NA	Area burned	NA	NA	NA
Switzerland								
Ukraine						NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)		NA	NA	NA		NA	NA	NA

[a] Total for controlled burning and wildfires.

[b] For each activity, activity data should be selected between area burned or fuel burned. Units will be ha for area burned, and kg dm for fuel burned. The implied emission factor will refer to the selected activity data with an automatic change in the units.

[c] Area burned (ab) and biomass burned (bb).

Table 6.7(e)

Emissions from biomass burning on wetland drainage and rewetting land[a]

	Base year				2016			
	Activity data	Implied Emission Factor			Activity data	Implied Emission Factor		
	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O
		(t/activity data unit)				(t/activity data unit)		
Australia		NA	NA	NA		NA	NA	NA
Austria		NA	NA	NA		NA	NA	NA
Belgium		NA	NA	NA		NA	NA	NA
Bulgaria						NA	NA	NA
Croatia		NA	NA	NA		NA	NA	NA
Cyprus		NO	NO	NO		NO	NO	NO
Czech Republic		NA	NA	NA		NA	NA	NA
Denmark (KP)		NA	NA	NA		NA	NA	NA
Estonia		NA	NA	NA		NA	NA	NA
European Union (KP)								
Finland						NA	NA	NA
France (KP)		NO	NO	NO		NE	NE	NE
Germany		NA	NA	NA		NA	NA	NA
Greece		NA	NA	NA		NA	NA	NA
Hungary						NA	NA	NA
Iceland		NA	NA	NA		NA	NA	NA
Ireland		NA	NA	NA		NA	NA	NA
Italy		NA	NA	NA		NA	NA	NA
Japan		NA	NA	NA		NA	NA	NA
Kazakhstan		NO	NO	NO		NO	NO	NO
Latvia		NA	NA	NA		NA	NA	NA
Liechtenstein						NO	NO	NO
Lithuania		NA	NA	NA		NA	NA	NA
Luxembourg		NA	NA	NA		NA	NA	NA
Malta						NO	NO	NO
Monaco		NO	NO	NO		NO	NO	NO
Netherlands		NA	NA	NA		NA	NA	NA
New Zealand						NA	NA	NA
Norway		NA	NA	NA		NA	NA	NA
Poland		NA	NA	NA		NA	NA	NA
Portugal		NA	NA	NA		NA	NA	NA
Romania		NO	NO	NO		NO	NO	NO
Russian Federation		NA	NA	NA		NA	NA	NA
Slovakia		NA	NA	NA		NA	NA	NA
Slovenia		NA	NA	NA		NA	NA	NA
Spain		NA	NA	NA		NA	NA	NA
Sweden		NA	NA	NA		NA	NA	NA
Switzerland								
Ukraine						NA	NA	NA
United Kingdom of Great Britain and Northern Ireland		NE	NE	NE		NE	NE	NE

[a] Total for controlled burning and wildfires.

[b] For each activity, activity data should be selected between area burned or fuel burned. Units will be ha for area burned, and kg dm for fuel burned. The implied emission factor will refer to the selected activity data with an automatic change in the units.

[c] Area burned (ab) and biomass burned (bb).