

**SYNTHESIS AND ASSESSMENT REPORT ON THE
GREENHOUSE GAS INVENTORIES SUBMITTED IN
2011****Note by the secretariat**

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I. MANDATE

1. The Conference of the Parties (COP), by its decision 19/CP.8, adopted the revised guidelines for the technical review of greenhouse gas (GHG) inventories from Parties included in Annex I to the Convention¹ (Annex I Parties) to be applied from the year 2003. As part of the inventory review process, the COP requested the secretariat to conduct an annual synthesis and assessment of GHG inventories for all Annex I Parties. The purposes of the synthesis and assessment are to facilitate the consideration of inventory data and other information across Parties, and to identify issues for further consideration during the reviews of individual inventories.

2. As part of the annual inventory review process under the guidelines for review under Article 8 of the Kyoto Protocol², the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP), by its decision 22/CMP.1, requested the secretariat to conduct, under the direction of the expert review team, a standardized set of data comparisons to be performed on the common reporting format (CRF) submissions to be used in the review process.

3. The COP, by its decision 14/CP.11, updated the UNFCCC reporting guidelines on annual inventories³ and decided that Annex I Parties shall use the CRF tables for the purpose of submission of the annual inventory due in and after 2007. Similarly, the CMP, by its decision 6/CMP.3, decided that Parties shall use, for reporting information supplementary to annual GHG inventory information in the first commitment period of the Kyoto Protocol, tables to be included in an annex to the national inventory report (NIR), as well as the tables of the CRF for the purpose of submission of 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, paragraph 3, and, if any, elected activities under Article 3, paragraph 4, of the Kyoto Protocol.⁴

4. The synthesis and assessment is prepared in two parts. Part I provides information to allow comparisons across Annex I Parties, as well as descriptions of common methodological issues. Part II provides a preliminary analysis of individual Annex I Party inventories, in particular identifies outstanding issues requiring clarification during the individual review stage of the process.

5. In accordance with decision 19/CP.8, Part I of this synthesis and assessment report has been sent to Parties for comment prior to publication on the UNFCCC web site. Part II will be sent to the respective Party for comments and, together with the comments from the respective Party, will be provided to the corresponding expert review team as input for the individual review; Part II will not be published on the UNFCCC web site.

II. COMPARISON OF GHG INVENTORY INFORMATION

A. Approach

6. This document contains Part I of the synthesis and assessment report, including the standardized set of data comparisons requested in decision 22/CMP.1, covering the 2011 submissions of the national GHG inventories of Annex I Parties, in accordance with the

¹ The full text of the guidelines is contained in document FCCC/CP/2002/8.

² The full text of the guidelines is contained in document FCCC/KP/CMP/2005/8/Add.3.

³ The full text of the guidelines is contained in document FCCC/SBSTA/2006/9.

⁴ The full text of the guidelines and the tables are contained in document FCCC/KP/CMP/2007/9/Add.2.

UNFCCC reporting guidelines adopted by decision 14/CP.11. Also, it contains the 2011 inventory information on anthropogenic greenhouse gas emissions by sources and removals by sinks from LULUCF activities under Article 3, paragraph 3, and, if any, elected activities under Article 3, paragraph 4, of the Kyoto Protocol, reported under Article 7, paragraph 1, of the Kyoto Protocol, in accordance with decision 15/CMP.1.

7. This document covers only the inventory information submitted in the CRF in the 2011 submission. It does not cover information contained in the NIRs, or information contained in inventory submissions from previous years. Information in this document 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 third stage of the review process (individual review) by the expert review teams.

8. In the 2011 submission, as at 28 May, 43 Parties submitted their national GHG inventory, including all 42 Annex I Parties and 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. Three Parties, Denmark, the European Union and France, provided more than one set of CRF tables, considering different geographical areas used for reporting under the Convention and for reporting under the Kyoto Protocol. For the purposes of the synthesis and assessment of the information submitted under decision 14/CP.11, which are contained in pages 23–194 of this report, the following inventory submissions reported under the Convention are used: (a) Denmark covering the Kingdom of Denmark (Denmark, Greenland and Faroe Islands); (b) France covering metropolitan France, the French Overseas Departments, the French Overseas Collectivities and New Caledonia; and (c) the European Union covering the twenty seven member states.

10. For the purposes of conducting the standardized set of data comparisons of the information submitted under decision 15/CMP.1 and in accordance with decision 6/CMP.3, which are contained in pages 195–248 of this report, only the information submitted by Annex I Parties with quantified emission limitation or reduction commitments listed in Annex B to the Kyoto Protocol has been taken into account. This report uses the information submitted by Denmark covering Denmark and Greenland, the information submitted by France covering metropolitan France and the French Overseas Departments, and the information submitted by the European Union covering the original fifteen member states that agreed to fulfill their commitments under Article 3 of the Kyoto Protocol jointly for information submitted under Article 7, paragraph 1, of the Kyoto Protocol, in accordance with Article 4 thereof.

11. This synthesis and assessment report contains GHG inventory information compiled in tabular format. The tables provide comparisons of implied emission factors and activity data as reported in the CRF, data from international sources, emissions, information on methods used and emission factors as reported by Parties in Summary table 3 of the CRF, and other information relating to GHG inventory estimates. Where possible, this information is provided for all Parties for both the base year or period and for the year 2009. For some categories, however, trend comparisons across all Parties were not possible due to the lack of data or use of notation keys for some or all of the years in the time series.

12. The inventory data were analyzed according to the sectors, subsectors and categories specified in the CRF, which correspond to those of the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* (hereinafter referred to as the Revised 1996 IPCC Guidelines) and the *IPCC Good Practice Guidance for Land Use, Land-use Change and Forestry* (hereinafter referred to as the IPCC good practice guidance for LULUCF).

13. To facilitate the analysis of the inventory data, the secretariat considers, for each individual Party, those categories that are *key* in terms of their absolute level of emissions

and impact on the trend, applying the tier 1 level and trend assessment as described in chapter 5.4 “Methodological choice – Identification of key categories” of the IPCC good practice guidance for LULUCF and chapter 7 “Methodological choice and recalculations” of the *IPCC Good Practice Guidance and Uncertainty Management*. This identification has been performed at the level of detail recommended in that guidance and includes the LULUCF sector.

B. Explanatory notes to the tables

14. Blank cells in a main table indicate that a Party did not report information for a given category and gas in the appropriate table of the CRF. Where a Party’s value is very small compared to that of other Parties, it has been rounded to zero (0.0 or 0.00) for this report. Where a Party reports a zero numerical value in the corresponding CRF tables, a zero value (0) is shown in this report.

15. Blank cells in a trend table indicate that a Party did not provide information for two consecutive years. Very small positive or negative inter-annual changes are shown as zero (0.0) for this report. When no change of numerical values between two consecutive years (or between base year and the latest reported year) is occurring, the inter-annual change between these years is shown as zero value (0). When there has been a change from notation key to a numerical value or vice versa between two consecutive years or two consecutive years both contain notation keys, the symbol “*” is shown in this report.

16. The differences in activity data between the CRF and international data sources were calculated as percentage deviations from the activity data provided in the CRF. A positive number indicates that the data from the international data source are higher than the data reported in the CRF. Similarly, a negative number indicates that data from the international data source are lower than the data reported in the CRF.

17. 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).

18. Key categories identified by the secretariat’s analysis are indicated by “L” for level and “T” for trend assessments in the “key category” columns.

19. The column “Share of national total” in main tables indicates the contribution of that category to the Party’s national total of GHG emissions in terms of CO₂ equivalent, excluding emissions and removals from LULUCF.

20. In tables, where shares or contributions of categories, gases, activity data or other parameters to a total are shown (e.g., contribution of specific fuel type to the total emissions of a combustion category), blank cells indicate that a Party did not report information for a given category, gas, activity data or parameter in the appropriate table of the CRF. Where the value of share or contribution is very small, it has been rounded to zero (0.0) for this report. Where a Party reports a zero numerical value for a given category, gas, activity data or parameter in the corresponding CRF tables, its share or contribution is shown as a zero value (0). Where a Party reports a notation key for a given category, gas, activity data or parameter in the corresponding CRF tables, its share or contribution to the total is shown using the symbol “-”. Where a Party reports notation keys for two parameters (e.g. implied emission factors) in the corresponding CRF tables, their ratio is shown using the symbol “-”.

21. Where Parties used notation keys (NO, NE, NA, IE, C) these have been reproduced verbatim from the CRF tables provided by Parties. The notation keys, as described in the UNFCCC reporting guidelines (FCCC/SBSTA/2006/9), are as follows:

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

22. Where Parties used notation keys (R, NO, NR, IE) these have been reproduced verbatim from the tables provided by Parties. The notations keys, as described in decision 6/CMP.3 (FCCC/KP/CMP/2007/9/Add.2), are as follows:

R	Reported	NR	Not Reported
NO	Not occurring	IE	Included elsewhere

23. Tables on energy indicate whether implied emission factors (IEFs) given in the CRF are based on gross calorific value (GCV) or net calorific value (NCV). The difference between the NCV and the GCV for each fuel is the latent heat of vaporization of the water produced during combustion of the fuel. For coal and oil, NCV is 5 per cent less than GCV, and for most forms of natural and manufactured gas the difference is 9 to 10 per cent. Australia, Canada, Japan, New Zealand and United States reported energy data on a GCV basis. The IEFs included in the energy section of this report for these Parties have been converted into NCV-based values (using 5 per cent of difference for liquid, solid, other fuels and biomass and 10 per cent for gaseous fuels) and are not reflecting the reported IEFs.

24. The following chemical formulae or abbreviations for greenhouse gases are used in the synthesis and assessment report:

C	carbon
CF ₄	perfluoromethane
C ₂ F ₆	perfluoroethane
C ₃ F ₈	perfluoropropane
C ₄ F ₁₀	perfluorobutane
c-C ₄ F ₈	perfluorocyclobutane
C ₅ F ₁₂	perfluoropentane
C ₆ F ₁₄	perfluorohexane
CH ₄	methane
CO ₂	carbon dioxide
HFCs	hydrofluorocarbons
N ₂ O	nitrous oxide
PFCs	perfluorocarbons
SF ₆	sulphur hexafluoride

25. 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 the synthesis and assessment report:

Methods:

Emission factors:

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

26. The following units have been used in the synthesis and assessment report:

kg	kilogram (10 ³ grams)
Mg	megagram (10 ⁶ grams) – same as tonne
Gg	gigagram (10 ⁹ grams)
Gg CO ₂ equ.	Gg of CO ₂ equivalent
t	tonne (10 ⁶ grams)
kt	kilotonne (10 ⁹ grams)
Mt	megatonne (10 ¹² grams)
TJ	terajoule (10 ¹² joules)
PJ	petajoule (10 ¹⁵ joules)
km	kilometer
ha	hectare
kha	thousand hectares
Mha	million hectares
m ³	cubic meter
l	liter
Bbl (oil US)	barrel of oil (United States)
ft ³	cubic feet
Btu	British thermal unit

27. The following other abbreviations have been used in the synthesis and assessment report:

A	actual emissions
AB	area burned
AD	activity data
BB	biomass burned

CAP	maximum level of additions to and subtractions from the assigned amount resulting from forest management under Article 3, paragraph 4, for the first commitment period of the Kyoto Protocol as listed in the annex to decision 6/CMP.1
CL	cropland
CM	cropland management
CP	commitment period
COP/MOP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
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
FM	forest management
Frac _{BURN}	fraction of crop residue burned
Frac _{FUEL}	fraction of livestock nitrogen excretion in excrements burned for fuel
Frac _{GASF}	fraction of synthetic fertilizer nitrogen applied to soils that volatilises as NH ₃ and NO _x
Frac _{GASM}	fraction of livestock nitrogen excretion that volatilises as NH ₃ and NO _x
Frac _{GRAZ}	fraction of livestock nitrogen excreted and deposited onto soil during grazing
Frac _{LEACH}	fraction of nitrogen input to soils that is lost through leaching and run-off
Frac _{NCRBF}	fraction of total above-ground biomass of N-fixing crop that is N
Frac _{NCRO}	fraction of residue dry biomass that is N
Frac _R	fraction of total above-ground crop biomass that is removed from the field as a crop product
GCV	gross calorific value
GHG	greenhouse gas
GM	grazing land management
GWP	global warming potential
IEA	International Energy Agency
IEF	implied emission factor
L	level (key source applying the IPCC good practice guidance tier 1 level assessment)
LPG	liquefied petroleum gas
LTO	landing and take off cycle

LU	land use
LULUCF	land use, land use change and forestry
N	nitrogen
NCV	net calorific value
NGL	natural gas liquids
NH ₃	ammonia
NIR	national inventory report
NMVO	non-methane volatile organic compounds
NO _x	nitrogen oxides
P	potential emissions
RV	revegetation
T	trend (key source applying the IPCC good practice guidance tier 1 trend assessment)
yr	year

C. List of sectoral tables with information submitted under decision 14/CP.11

1. General

<u>Table number</u>	<u>Table name</u>
Figure G.1	Total GHG emissions (including LULUCF): base year and 2009
Figure G.2	Total GHG emissions (excluding LULUCF): base year and 2009
Figure G.3	GHG emissions by gas (including LULUCF): base year and 2009
Figure G.4	GHG emissions by gas (excluding LULUCF): base year and 2009
Figure G.5	GHG emissions by sector: base year and 2009
G.1	Submissions used in the Synthesis and Assessment report: Part I
G.2	Key categories: base year
G.3	Key categories: 2009
G.4	Reported recalculations by year for total GHG emissions excluding LULUCF (%)
G.5a	Reported recalculations by gas: base year and 2008(%)
G.5b	Reported recalculations by gas: base year and 2008(%)

2. Energy

<u>Table number</u>	<u>Table name</u>
Figure 1.1	Contribution of subsectors to total GHG emissions in the Energy sector
1.1	CO ₂ emissions from fuel combustion: reference approach and sectoral approach

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- 1.2 CO₂ emissions from stationary combustion – trend information
CO₂ emissions (Gg)
Relative change (%)
- 1.3 Stationary combustion: liquid fuels – CO₂ (2009)
- 1.4 Stationary combustion: solid fuels – CO₂ (2009)
- 1.5 Stationary combustion: gaseous fuels – CO₂ (2009)
- 1.6 Stationary combustion: other fuels – CO₂ (2009)
- 1.7 Fuel consumption in stationary combustion: all fuels – trend information
Fuel consumption (TJ)
Relative change (%)
- 1.8 Fuel consumption in stationary combustion: liquid fuels – trend information
Fuel consumption (TJ)
Relative change (%)
- 1.9 Fuel consumption in stationary combustion: solid fuels – trend information
Fuel consumption (TJ)
Relative change (%)
- 1.10 Fuel consumption in stationary combustion: gaseous fuels – trend information
Fuel consumption (TJ)
Relative change (%)
- 1.11 Fuel consumption in stationary combustion: biomass – trend information
Fuel consumption (TJ)
Relative change (%)
- 1.12 Fuel consumption in stationary combustion: other fuels – trend information
Fuel consumption (TJ)
Relative change (%)
- 1.13 Contribution of fuels to total energy consumption in stationary combustion (%)
- 1.14 CO₂ emissions from energy industries: all fuels – trend information
CO₂ emissions (Gg)
Relative change (%)
- 1.15 CO₂ emissions from energy industries: liquid fuels – trend information
CO₂ emissions (Gg)

	Relative change (%)
1.16	CO ₂ emissions from energy industries: solid fuels – trend information
	CO ₂ emissions (Gg)
	Relative change (%)
1.17	CO ₂ emissions from energy industries: gaseous fuels – trend information
	CO ₂ emissions (Gg)
	Relative change (%)
1.18	Contribution of fuels to CO ₂ emissions from energy industries (%)
1.19	CO ₂ emissions from manufacturing industries and construction: all fuels – trend information
	CO ₂ emissions (Gg)
	Relative change (%)
1.20	CO ₂ emissions from manufacturing industries and construction: liquid fuels – trend information
	CO ₂ emissions (Gg)
	Relative change (%)
1.21	CO ₂ emissions from manufacturing industries and construction: solid fuels – trend information
	CO ₂ emissions (Gg)
	Relative change (%)
1.22	CO ₂ emissions from manufacturing industries and construction: gaseous fuels – trend information
	CO ₂ emissions (Gg)
	Relative change (%)
1.23	Contribution of fuels to CO ₂ emissions from manufacturing industries and construction (%)
1.24	CO ₂ emissions from other sectors (commercial/institutional, residential, agriculture/forestry/fisheries): all fuels – trend information
	CO ₂ emissions (Gg)
	Relative change (%)
1.25	CO ₂ emissions from other sectors (commercial/institutional, residential, agriculture/forestry/fisheries): liquid fuels – trend information
	CO ₂ emissions (Gg)
	Relative change (%)
1.26	CO ₂ emissions from other sectors (commercial/institutional, residential, agriculture/forestry/fisheries): solid fuels – trend information

	CO ₂ emissions (Gg)
	Relative change (%)
1.27	CO ₂ emissions from other sectors (commercial/institutional, residential, agriculture/forestry/fisheries): gaseous fuels – trend information
	CO ₂ emissions (Gg)
	Relative change (%)
1.28	Contribution of fuels to CO ₂ emissions from other sectors (%)
1.29a	CO ₂ emissions from transport: all fuels – trend information
	CO ₂ emissions (Gg)
	Relative change (%)
1.29b	N ₂ O emissions from transport: all fuels – trend information
	N ₂ O emissions (Gg)
	Relative change (%)
1.30	Road transportation – CO ₂ , N ₂ O (2009)
1.31a	CO ₂ emissions from road transportation – trend information
	CO ₂ emissions (Gg)
	Relative change (%)
1.31b	N ₂ O emissions from road transportation – trend information
	N ₂ O emissions (Gg)
	Relative change (%)
1.31c	N ₂ O implied emission factors for road transportation: gasoline – trend information
	N ₂ O IEF (kg/TJ)
	Relative change (%)
1.31d	N ₂ O implied emission factors for road transportation: diesel oil – trend information
	N ₂ O IEF (kg/TJ)
	Relative change (%)
1.32	Civil aviation, navigation and international bunkers – CO ₂ (2009)
1.33	Domestic and international aviation – activity data (2009)
1.34	Domestic and international navigation – activity data (2009)
1.35	CO ₂ emissions from civil aviation – trend information
	CO ₂ emissions (Gg)
	Relative change (%)
1.36	CO ₂ emissions from aviation bunkers – trend information
	CO ₂ emissions (Gg)

	Relative change (%)
1.37	CO ₂ emissions from navigation – trend information
	CO ₂ emissions (Gg)
	Relative change (%)
1.38	CO ₂ emissions from marine bunkers – trend information
	CO ₂ emissions (Gg)
	Relative change (%)
1.39	Fugitive emissions from fuels: coal mining and handling – CH ₄ (2009)
1.40	Fugitive emissions from fuels: CH ₄ emissions from coal mining and handling – trend information
	CH ₄ emissions (Gg)
	Relative change (%)
1.41a	Fugitive emissions from fuels: oil and natural gas – CH ₄ , CO ₂ (2009)
1.41b	Fugitive emissions from fuels: oil and natural gas – oil – CH ₄ , CO ₂ (2009)
1.41c	Fugitive emissions from fuels: oil and natural gas – natural gas – CH ₄ , CO ₂ (2009)
1.41d	Fugitive emissions from fuels: oil and natural gas – venting and flaring – CH ₄ , CO ₂ (2009)
1.42a	Fugitive emissions from fuels: CO ₂ emissions from oil and natural gas – trend information
	CO ₂ emissions (Gg)
	Relative change (%)
1.42b	Fugitive emissions from fuels: CH ₄ emissions from oil and natural gas – trend information
	CH ₄ emissions (Gg)
	Relative change (%)

3. Industrial Processes

<u>Table number</u>	<u>Table name</u>
Figure 2.1	Contribution of subsectors to total GHG emissions in the Industrial Processes sector
2.1	Mineral products – CO ₂ (2009)
2.2a	CO ₂ emissions from cement production – trend information
	CO ₂ emissions (Gg)
	Relative change (%)
2.2b	CO ₂ implied emission factors for cement production – trend information
	CO ₂ IEF (t/t)

	Relative change (%)
2.3	Chemical industry – CO ₂ and N ₂ O (2009)
2.4a	CO ₂ emissions from ammonia production – trend information
	CO ₂ emissions (Gg)
	Relative change (%)
2.4b	CO ₂ implied emission factors for ammonia production – trend information
	CO ₂ IEF (t/t)
	Relative change (%)
2.5a	N ₂ O emissions from nitric acid production – trend information
	N ₂ O emissions (Gg)
	Relative change (%)
2.5b	N ₂ O implied emission factors for nitric acid production – trend information
	N ₂ O IEF (t/t)
	Relative change (%)
2.6a	N ₂ O emissions from adipic acid production – trend information
	N ₂ O emissions (Gg)
	Relative change (%)
2.6b	N ₂ O implied emission factors for adipic acid production – trend information
	N ₂ O IEF (t/t)
	Relative change (%)
2.7	Metal production – CO ₂ (2009)
2.8a	CO ₂ emissions from iron and steel production – trend information
	CO ₂ emissions (Gg)
	Relative change (%)
2.8b	CO ₂ implied emission factors for iron and steel production (steel) – trend information
	CO ₂ IEF (t/t)
	Relative change (%)
2.9a	CO ₂ emissions from aluminium production – trend information
	CO ₂ emissions (Gg)
	Relative change (%)
2.9b	CO ₂ implied emission factors for aluminium production – trend information
	CO ₂ IEF (t/t)

	Relative change (%)
2.10	Metal production – PFCs and SF ₆ (2009)
2.11	CF ₄ emissions from aluminium production – trend information
	CF ₄ emissions (t)
	Relative change (%)
2.12	Production of halocarbons and SF ₆ – HFCs, PFCs and SF ₆ (2009)
2.13	HFC-23 emissions from production of halocarbons and SF ₆ – trend information
	HFC-23 emissions (t)
	Relative change (%)
2.14a–c	Consumption of halocarbons and SF ₆ – HFCs (2009)
2.15a–b	Consumption of halocarbons and SF ₆ – PFCs (2009)
2.16	Consumption of halocarbons and SF ₆ – SF ₆ (2009)
4.	Solvent and other product use
	<u>Table number</u> <u>Table name</u>
3.1	Solvent and other product use – CO ₂ and N ₂ O (2009)
5.	Agriculture
	<u>Table number</u> <u>Table name</u>
Figure 4.1	Contribution of subsectors to total GHG emissions in the Agriculture sector
4.1	Enteric fermentation – CH ₄ (2009)
4.2	CH ₄ emissions from enteric fermentation – trend information
	CH ₄ emissions (Gg)
	Relative change (%)
4.3a	CH ₄ emissions from enteric fermentation: dairy cattle – trend information
	CH ₄ emissions (Gg)
	Relative change (%)
4.3b	CH ₄ implied emission factors for enteric fermentation: dairy cattle – trend information
	CH ₄ IEF (kg/head/yr)
	Relative change (%)
4.4a	CH ₄ emissions from enteric fermentation: non-dairy cattle – trend information
	CH ₄ emissions (Gg)
	Relative change (%)

4.4b	CH ₄ implied emission factors for enteric fermentation: non-dairy cattle – trend information CH ₄ IEF (kg/head/yr) Relative change (%)
4.5	Manure management – CH ₄ (2009)
4.6	Manure management – N ₂ O (2009)
4.7a	CH ₄ emissions from manure management – trend information CH ₄ emissions (Gg) Relative change (%)
4.7b	N ₂ O emissions from manure management – trend information N ₂ O emissions (Gg) Relative change (%)
4.8	Agricultural soils – N ₂ O (2009)
4.9	N ₂ O emissions from agricultural soils – trend information N ₂ O emissions (Gg) Relative change (%)
4.10	Agricultural soils: parameters (fractions) used to estimate N ₂ O emissions in the agricultural soils category (2009)

6. Land Use, Land-use Change and Forestry

<u>Table number</u>	<u>Table name</u>
Figure 5.1	Net CO ₂ emissions/removals from the LULUCF sector
5.1	Net CO ₂ emissions/removals from LULUCF – trend information CO ₂ emissions/removals (Gg) Relative change (%)
5.2a	Methods and emission factors used (2009)
5.2b	Methods and emission factors used (2009)
5.3a	Forest land remaining forest land – AD, IEFs, carbon stock changes in pools and net CO ₂ emissions/removals (2009)
5.3b	Forest land remaining forest land – AD, IEFs, carbon stock changes in pools and net CO ₂ emissions/removals (2009)
5.4	Net CO ₂ emissions/removals from forest land remaining forest land – trend information CO ₂ emissions/removals (Gg) Relative change (%)
5.5	Area of forest land remaining forest land – trend information Area (kha) Relative change (%)

- 5.6a Land converted to forest land – AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)
- 5.6b Land converted to forest land – AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)
- 5.7 Net CO₂ emissions/removals from land converted to forest land – trend information
 - CO₂ emissions/removals (Gg)
 - Relative change (%)
- 5.8 Area of land converted to forest land – trend information
 - Area (kha)
 - Relative change (%)
- 5.9a Cropland remaining cropland – AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2008)
- 5.9b Cropland remaining cropland – AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2008)
- 5.10 Net CO₂ emissions/removals from cropland remaining cropland – trend information
 - CO₂ emissions/removals (Gg)
 - Relative change (%)
- 5.11 Area of cropland remaining cropland – trend information
 - Area (kha)
 - Relative change (%)
- 5.12a Land converted to cropland – AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)
- 5.12b Land converted to cropland – AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)
- 5.13 Net CO₂ emissions/removals from land converted to cropland – trend information
 - CO₂ emissions/removals (Gg)
 - Relative change (%)
- 5.14 Area of land converted to cropland – trend information
 - Area (kha)
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- 5.15a Forest land converted to cropland – AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)
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- 5.16 Net CO₂ emissions/removals from forest land converted to cropland – trend information
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	Relative change (%)
5.17	Area of forest land converted to cropland – trend information
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	Relative change (%)
5.18a	Grassland remaining grassland – AD, IEFs, carbon stock changes in pools and net CO ₂ emissions/removals (2009)
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5.19	Net CO ₂ emissions/removals from grassland remaining grassland – trend information
	CO ₂ emissions/removals (Gg)
	Relative change (%)
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5.22	Net CO ₂ emissions/removals from land converted to grassland – trend information
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5.31	CO ₂ emissions from agricultural lime application in cropland and grassland (base year and 2009)
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5.34	CH ₄ emissions from biomass burning in forest land – trend information CH ₄ emissions (Gg) Relative change (%)
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5.36	CH ₄ emissions from biomass burning in land converted to cropland – trend information CH ₄ emissions (Gg) Relative change (%)
5.37	N ₂ O emissions from biomass burning in land converted to cropland – trend information N ₂ O emissions (Gg) Relative change (%)
5.38	CH ₄ emissions from biomass burning in grassland – trend information CH ₄ emissions (Gg) Relative change (%)
5.39	N ₂ O emissions from biomass burning in grassland – trend information N ₂ O emissions (Gg) Relative change (%)

5.40 Land area (2009)

7. Waste

<u>Table number</u>	<u>Table name</u>
Figure 6.1	Contribution of subsectors to total GHG emissions in the Waste sector
6.1	Solid waste disposal on land, waste-water handling and waste incineration (2009)
6.2	CH ₄ emissions from solid waste disposal on land – trend information CH ₄ emissions (Gg) Relative change (%)
6.3	Solid waste disposal on land: CH ₄ emissions per capita – trend information CH ₄ emissions per capita (kg/capita) Relative change (%)
6.4	CH ₄ recovered from managed solid waste disposal sites – trend information CH ₄ emissions (Gg) Relative change (%)
6.5	Waste generation rate – trend information Waste generation (kg/person/day) Relative change (%)
6.6a	CH ₄ emissions from waste-water handling – trend information CH ₄ emissions (Gg) Relative change (%)
6.6b	N ₂ O emissions from waste-water handling – trend information N ₂ O emissions (Gg) Relative change (%)
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D. List of tables with information submitted under Article 7, paragraph 1, of the Kyoto Protocol in accordance with decision 15/CMP.1 and decision 6/CMP.3

1. Supplementary Information for Land Use, Land-Use Change and Forestry Activities under the Kyoto Protocol

<u>Table number</u>	<u>Table name</u>
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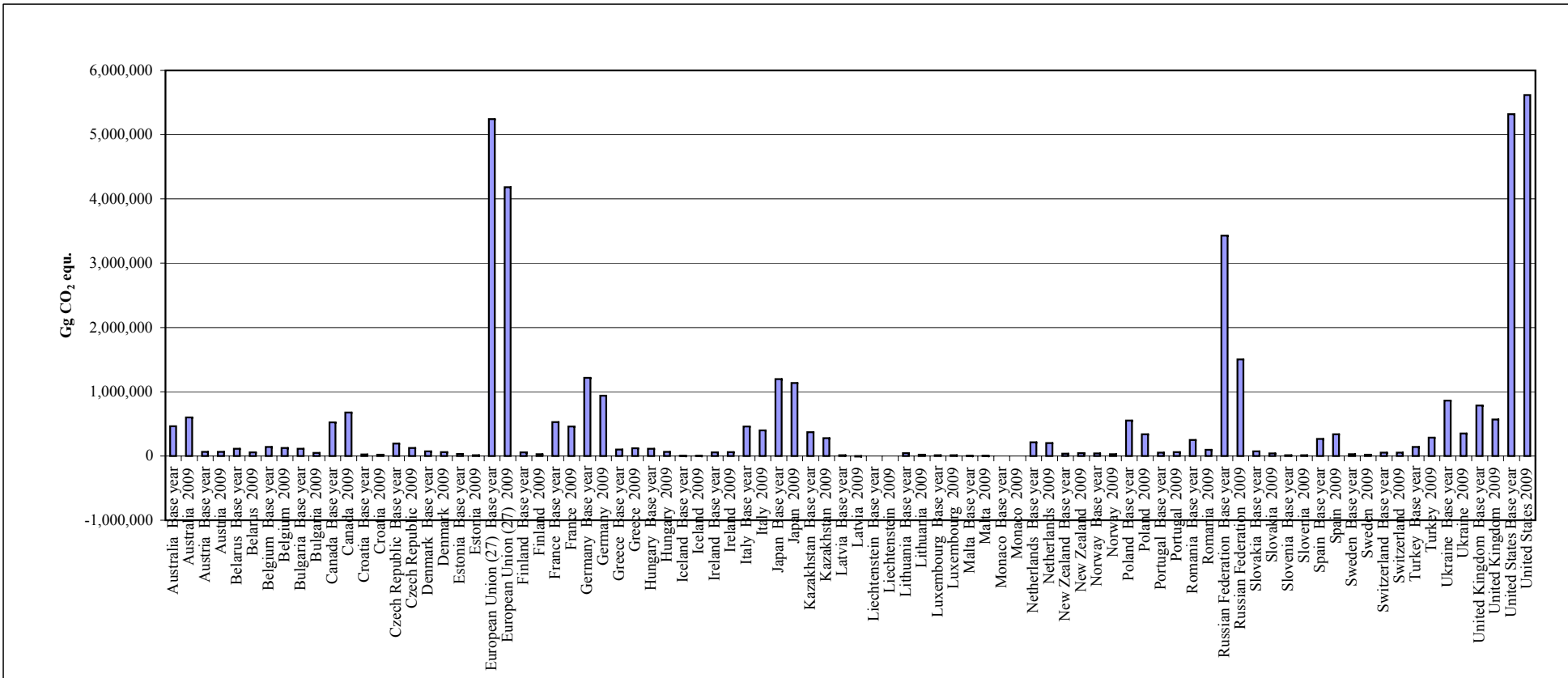
- Figure 7.1 Net emissions/removals from land use, land-use change and forestry activities under Article 3.3 of the Kyoto Protocol for 2009
- Figure 7.2 Net emissions/removals from land use, land-use change and forestry activities, if elected by the Party, under Article 3.4 of the Kyoto Protocol for 2009
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- 7.3(a) Afforestation and reforestation - area, implied carbon stock change factors and emissions and removals from the change in carbon stocks for 2009
- 7.3(b) Afforestation and reforestation (units of land not harvested since the beginning of the commitment period) - area, implied carbon stock change factors and emissions and removals from the change in carbon stocks for 2009
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- 7.3(e) Forest management - area, implied carbon stock change factors and emissions and removals from the change in carbon stocks for 2009
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- 7.3(h) Grazing land management - area, implied carbon stock change factors and emissions and removals from the change in carbon stocks for 2009
- 7.3(i) Grazing land management - area, implied carbon stock change factors and emissions and removals from the change in carbon stocks for the base year

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- 7.3(j) Revegetation - area, implied carbon stock change factors and emissions and removals from the change in carbon stocks for 2009
- 7.3(k) Revegetation - area, implied carbon stock change factors and emissions and removals from the change in carbon stocks for the base year
- 7.4(a) Net CO₂ emissions/removals from changes in carbon stocks from cropland management - trend information
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- 7.5(a) Area of land reported for cropland management - trend information
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- 7.7 Direct N₂O emissions from N fertilization for 2009
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- 7.12(n) Emissions from biomass burning on total Article 3.4 land for the base year
- 7.13(a) CO₂ emissions from biomass burning on cropland management land - trend information
- 7.13(b) CO₂ emissions from biomass burning on grazing land management land - trend information
- 7.13(c) CO₂ emissions from biomass burning on revegetation land - trend information

Figure G.1

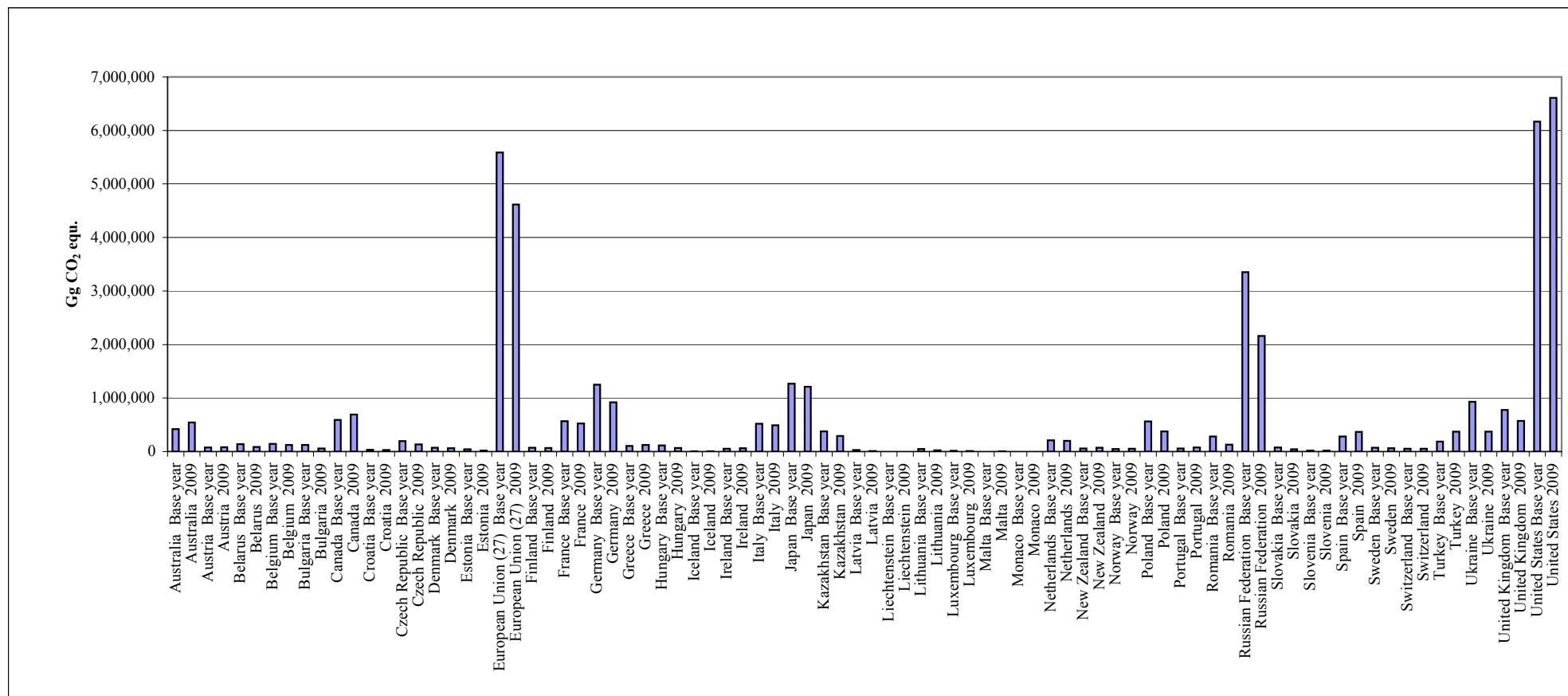
Total GHG emissions (including LULUCF): base year^a and 2009



^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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Figure G.2

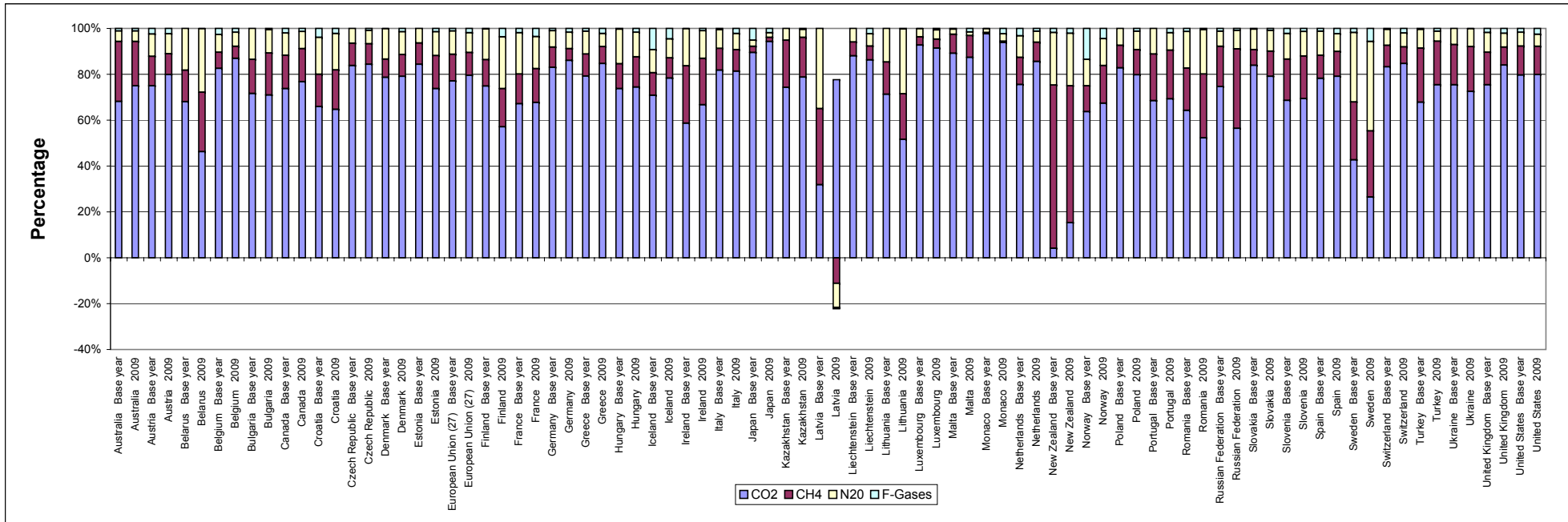
Total GHG emissions (excluding LULUCF): base year^a and 2009



^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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Figure G.3

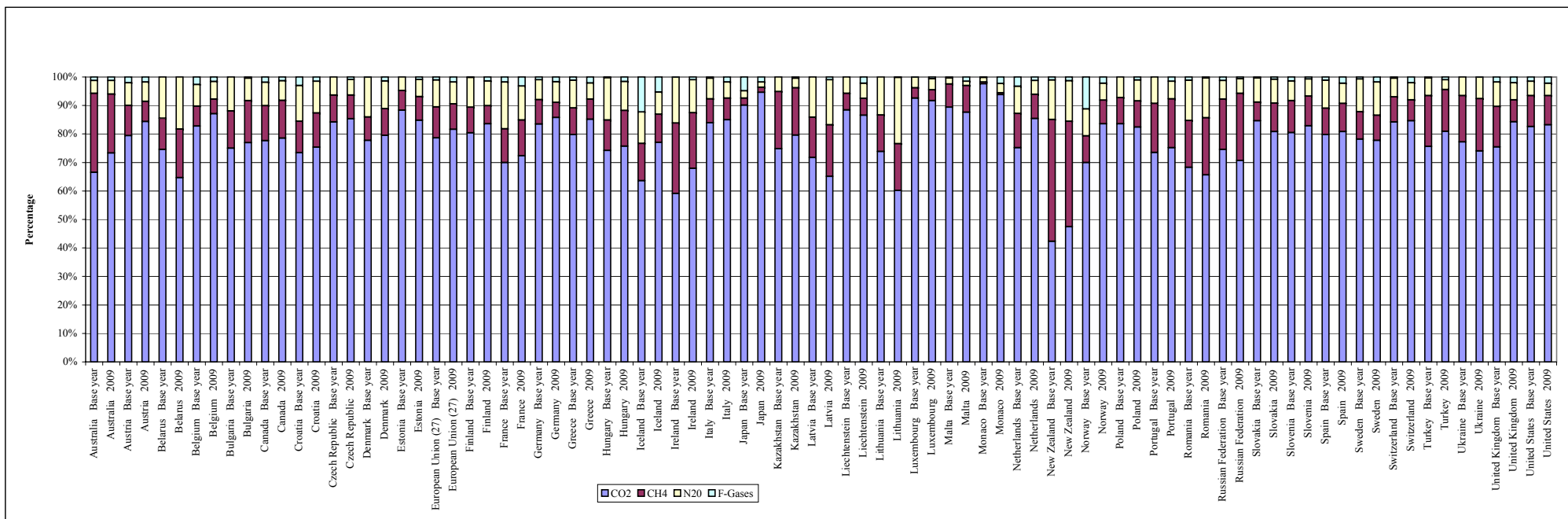
GHG emissions by gas (including LULUCF): base year^a and 2009



^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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Figure G.4

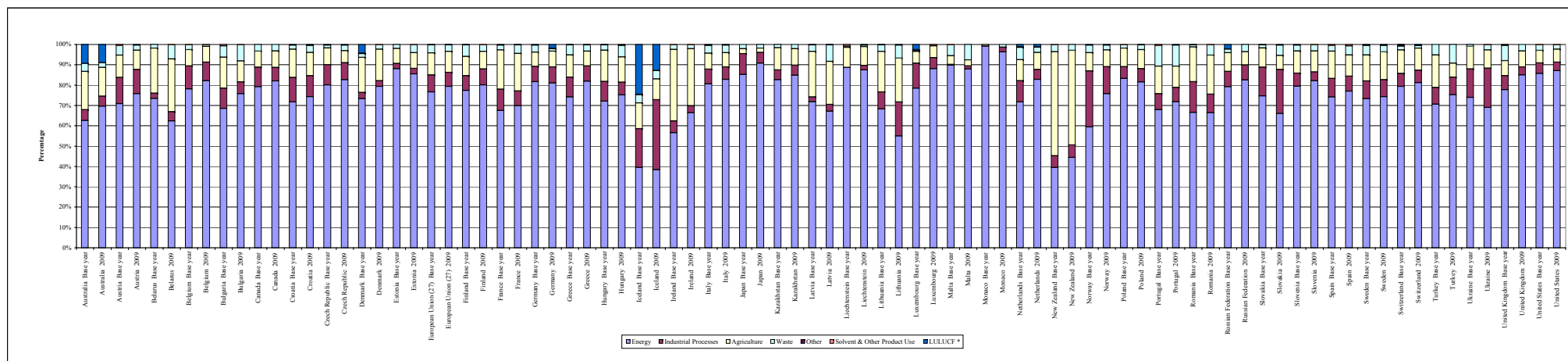
GHG emissions by gas (excluding LULUCF): base year^a and 2009



^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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Figure G.5

GHG emissions by sector: base year^a and 2009 (%)



* In this graph emissions from the LULUCF sector are included only if this sector is a net source of emissions.

^a In accordance with the UNFCCC reporting guidelines on annual inventories of Annex 1 Parties the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table G.1**Submissions used in the Synthesis and Assessment report: Part I**

Party	Initial submission date	CRF for years	NIR	CRF submission date and version used in the S&A report	CRF Reporter version (version used in S&A report)	CRF KP LULUCF ^a submission date and version used in the S&A report	CRF KP LULUCF ^a Reporter version (version used in S&A report)
Australia	15 April 2011	1990-2009	√	15 Apr 2011 (1.2)	CRF Reporter v. 3.5.2	15 Apr 2011 (1.2)	CRF Reporter v. 3.4
Austria	14 April 2011	1990-2009	√	14 Apr 2011 (1.5)	CRF Reporter v. 3.5.2	14 Apr 2011 (1.5)	CRF Reporter v. 3.5.2
Belarus	15 April 2011	1990-2009	√	17 May 2011 (1.2)	CRF Reporter v. 3.4	17 May 2011 (1.2)	CRF Reporter v. 3.4
Belgium	15 April 2011	1990-2009	√	15 Apr 2011 (1.3)	CRF Reporter v. 3.5.2	15 Apr 2011 (1.3)	CRF Reporter v. 3.5.2
Bulgaria	14 April 2011	1988-2009	√	14 Apr 2011 (1.3)	CRF Reporter v. 3.5.2	14 Apr 2011 (1.3)	CRF Reporter v. 3.5.2
Canada	16 May 2011	1990-2009	√	16 May 2011 (1.1)	CRF Reporter v. 3.5.2	16 May 2011 (1.1)	CRF Reporter v. 3.5.2
Croatia	14 April 2011	1990-2009	√	14 Apr 2011 (1.1)	CRF Reporter v. 3.5.2	14 Apr 2011 (1.1)	CRF Reporter v. 3.5.2
Czech Republic	15 April 2011	1990-2009	√	15 Apr 2011 (1.4)	CRF Reporter v. 3.5.2	15 Apr 2011 (1.4)	CRF Reporter v. 3.5.2
Denmark	15 April 2011	1990-2009	√	15 Apr 2011 (1.4)	CRF Reporter v. 3.5.2	16 May 2011 (1.2)	CRF Reporter v. 3.5.2
Estonia	15 April 2011	1990-2009	√	15 Apr 2011 (1.4)	CRF Reporter v. 3.5.2	15 Apr 2011 (1.4)	CRF Reporter v. 3.5.2
European Union (27)	15 April 2011	1990-2009	√	27 May 2011 (1.3)	CRF Reporter v. 3.5.2	27 May 2011 (1.3)	CRF Reporter v. 3.5.2
Finland	15 April 2011	1990-2009	√	15 Apr 2011 (1.6)	CRF Reporter v. 3.5.2	15 Apr 2011 (1.6)	CRF Reporter v. 3.5.2
France	11 April 2011	1990-2009	√	12 May 2011 (2.1)	CRF Reporter v. 3.4	12 May 2011 (2.1)	CRF Reporter v. 3.4
Germany	15 April 2011	1990-2009	√	15 Apr 2011 (1.3)	CRF Reporter v. 3.5.2	15 Apr 2011 (1.3)	CRF Reporter v. 3.5.2
Greece	19 April 2011	1990-2009	√	26 May 2011 (2.1)	CRF Reporter v. 3.4	26 May 2011 (2.1)	CRF Reporter v. 3.4
Hungary	21 April 2011	1985-1987, 1985-2009	√	21 Apr 2011 (1.6)	CRF Reporter v. 3.5.2	21 Apr 2011 (1.6)	CRF Reporter v. 3.5.2
Iceland	16 April 2011	1990-2009	√	16 Apr 2011 (1.1)	CRF Reporter v. 3.5.2	16 Apr 2011 (1.1)	CRF Reporter v. 3.5.2
Ireland	13 April 2011	1990-2009	√	13 Apr 2011 (1.4)	CRF Reporter v. 3.5.2	13 Apr 2011 (1.4)	CRF Reporter v. 3.5.2
Italy	14 April 2011	1990-2009	√	14 Apr 2011 (1.3)	CRF Reporter v. 3.5.2	14 Apr 2011 (1.3)	CRF Reporter v. 3.5.2
Japan	26 April 2011	1990-2009	√	26 Apr 2011 (1.1)	CRF Reporter v. 3.5.2	26 Apr 2011 (1.1)	CRF Reporter v. 3.5.2
Kazakhstan	15 April 2011	1990-2009		15 Apr 2011 (1.1)	CRF Reporter v. 3.4	NA	NA
Latvia	15 April 2011	1990-2009	√	15 Apr 2011 (1.2)	CRF Reporter v. 3.5.2	15 Apr 2011 (1.2)	CRF Reporter v. 3.5.2
Liechtenstein	15 April 2011	1990-2009	√	15 Apr 2011 (1.1)	CRF Reporter v. 3.4	15 Apr 2011 (1.1)	CRF Reporter v. 3.4
Lithuania	15 April 2011	1990-2009	√	27 May 2011 (2.1)	CRF Reporter v. 3.5.2	27 May 2011 (2.1)	CRF Reporter v. 3.5.2
Luxembourg	15 April 2011	1990-2009	√	15 Apr 2011 (1.3)	CRF Reporter v. 3.5.2	15 Apr 2011 (1.3)	CRF Reporter v. 3.5.2
Malta	13 April 2011	1990-2009	√	13 Apr 2011 (1.4)	CRF Reporter v. 3.4	13 Apr 2011 (1.4)	CRF Reporter v. 3.4
Monaco	9 March 2011	1990-2009	√	9 Mar 2011 (1.1)	CRF Reporter v. 3.5.2	9 Mar 2011 (1.1)	CRF Reporter v. 3.5.2
Netherlands (The)	15 April 2011	1990-2009	√	15 Apr 2011 (1.3)	CRF Reporter v. 3.5.2	15 Apr 2011 (1.3)	CRF Reporter v. 3.5.2
New Zealand	15 April 2011	1990-2009	√	15 Apr 2011 (1.1)	CRF Reporter v. 3.5.2	15 Apr 2011 (1.1)	CRF Reporter v. 3.5.2
Norway	15 April 2011	1990-2009	√	15 Apr 2011 (1.1)	CRF Reporter v. 3.5.2	15 Apr 2011 (1.1)	CRF Reporter v. 3.5.2
Poland	15 April 2011	1988-2009	√	25 May 2011 (2.1)	CRF Reporter v. 3.5.2	25 May 2011 (2.1)	CRF Reporter v. 3.5.2
Portugal	15 April 2011	1990-2009	√	25 May 2011 (1.6)	CRF Reporter v. 3.4	25 May 2011 (1.6)	CRF Reporter v. 3.4
Romania	15 April 2011	1989-2009	√	15 Apr 2011 (1.3)	CRF Reporter v. 3.5.2	15 Apr 2011 (1.3)	CRF Reporter v. 3.5.2
Russian Federation	14 April 2011	1990-2009	√	14 Apr 2011 (1.1)	CRF Reporter v. 3.5.2	14 Apr 2011 (1.1)	CRF Reporter v. 3.5.2
Slovakia	15 April 2011	1990-2009	√	15 Apr 2011 (1.3)	CRF Reporter v. 3.5.2	15 Apr 2011 (1.3)	CRF Reporter v. 3.5.2
Slovenia	18 April 2011	1986-2009	√	12 May 2011 (2.2)	CRF Reporter v. 3.5.2	12 May 2011 (2.2)	CRF Reporter v. 3.5.2
Spain	14 April 2011	1990-2009	√	14 Apr 2011 (1.5)	CRF Reporter v. 3.4	14 Apr 2011 (1.5)	CRF Reporter v. 3.4
Sweden	31 March 2011	1990-2009	√	31 Mar 2011 (1.1)	CRF Reporter v. 3.4	31 Mar 2011 (1.1)	CRF Reporter v. 3.4
Switzerland	15 April 2011	1990-2009	√	15 Apr 2011 (1.1)	CRF Reporter v. 3.5.2	15 Apr 2011 (1.1)	CRF Reporter v. 3.5.2
Turkey	13 April 2011	1990-2009	√	13 Apr 2011 (1.2)	CRF Reporter v. 3.5.2	NA	NA
Ukraine	15 April 2011	1990-2009	√	8 Jun 2011 (2.3)	CRF Reporter v. 3.5.2	8 Jun 2011 (2.3)	CRF Reporter v. 3.5.2
United Kingdom	15 April 2011	1990-2009	√	15 Apr 2011 (1.1)	CRF Reporter v. 3.4	15 Apr 2011 (1.1)	CRF Reporter v. 3.4
United States	13 April 2011	1990-2009	√	13 Apr 2011 (1.1)	CRF Reporter v. 3.5.2	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, 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.3.

Table G.4

Reported recalculations by year for total GHG emissions excluding LULUCF (%)

	Base year ^a	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Australia	-0.01	-0.01	-0.02	-0.04	-0.06	-0.06	-0.07	-0.06	-0.06	-0.06	-0.01	-0.01	0.06	0.06	0.06	-0.04	0.00	-0.05	0.14	0.24
Austria	0.00	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.01	-0.02	0.22	-0.22	-0.13	-0.04	0.00	-0.03	0.46	0.48	0.37
Belarus	-0.87	-0.87	-0.57	-0.54	-0.26	0.24	-0.02	0.32	0.08	0.16	0.66	0.43	0.18	-0.05	-0.09	-0.35	-0.40	-0.36	-0.36	-0.56
Belgium	-0.04	-0.04	-0.35	0.19	0.19	0.31	0.34	0.17	0.25	0.20	0.31	0.53	0.34	0.57	0.35	0.98	0.89	1.11	2.07	1.43
Bulgaria	-5.37	-5.14	-5.37	-5.23	-6.14	-8.51	-9.24	-9.02	-10.12	-10.57	-10.94	-10.87	-10.38	-10.61	-10.29	-9.37	-9.82	-9.47	-8.73	-8.20
Canada	-0.25	-0.25	-0.30	0.89	-0.33	-0.21	-0.24	-0.14	-0.16	-0.19	-0.12	-0.15	-0.29	-0.20	-0.34	0.22	0.06	0.13	-0.29	-0.39
Croatia	0.00	0.00	-0.12	-0.16	0.00	0.07	0.11	-0.02	-0.03	0.36	0.45	0.51	0.38	0.54	0.33	0.26	-0.39	-0.55	-0.27	-0.59
Czech Republic	0.17	0.17	-0.04	-0.01	0.00	0.06	0.07	0.05	0.00	-0.06	-0.11	-0.07	-0.03	-0.02	-0.09	-0.47	-0.46	-0.63	-0.29	-0.21
Denmark	-1.53	-1.53	-1.49	-1.49	-1.46	-0.73	-1.19	-1.60	-1.47	-1.12	-1.02	-1.03	-0.65	-0.52	-0.99	-0.61	-0.79	-0.58	-0.38	-0.80
Estonia	-0.53	-0.53	-0.74	-2.25	-2.10	-2.38	-2.90	-2.44	-2.45	-1.40	-0.59	-1.74	-1.08	-1.31	-1.17	-1.19	-0.96	-0.60	-1.46	-0.98
European Union (27)	0.39	0.39	0.36	0.37	0.36	0.34	0.33	0.33	0.41	0.45	0.51	0.46	0.55	0.65	0.56	0.64	0.63	0.57	0.65	0.59
Finland	-0.11	-0.11	-0.11	-0.12	-0.11	-0.11	-0.12	-0.19	-0.17	-0.14	-0.05	-0.03	-0.08	-0.05	-0.06	-0.03	-0.04	-0.03	0.00	0.20
France	-0.02	-0.02	-0.17	-0.22	-0.05	0.06	0.53	0.73	1.08	1.29	1.91	1.76	1.73	2.43	1.97	2.32	2.08	2.18	2.55	2.14
Germany	-0.27	-0.27	-0.28	-0.20	-0.06	-0.20	-0.49	-0.54	-0.36	-0.39	-0.51	-0.80	-0.64	-0.70	-0.91	-0.70	-0.54	-0.79	-0.60	-0.26
Greece	-0.06	-0.06	-0.03	0.06	-0.01	-0.07	-0.04	-0.02	0.01	-0.03	-0.02	-0.19	-0.23	-0.16	-0.07	-0.01	0.04	0.39	0.03	0.02
Hungary	-0.96	-0.99	-0.94	-0.92	-0.89	-0.92	-0.84	-0.79	-0.70	-0.70	-0.74	-0.71	-0.73	-0.75	-0.75	-0.70	-0.70	-0.77	-0.63	-0.54
Iceland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	-0.01	-0.01	0.00	0.00	0.00	0.03	0.02	0.01	0.02	0.00
Ireland	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.09	0.15	0.16	0.18	0.15	0.15	0.16	0.43	0.51	0.54	0.51	0.53	0.52
Italy	0.41	0.41	0.41	0.29	0.20	0.16	0.10	0.19	0.23	0.26	0.28	0.33	0.39	0.47	0.48	0.43	0.39	0.33	0.35	0.05
Japan	-0.17	-0.17	-0.20	-0.17	-0.19	-0.18	-0.18	-0.14	-0.21	-0.19	-0.18	-0.19	-0.12	-0.17	-0.20	-0.24	-0.24	-0.26	-0.31	-0.10
Kazakhstan	11.30	11.30	4.69	1.12	3.23	-2.83	2.44	5.43	9.04	28.74	13.94	16.04	6.34	7.08	12.63	18.56	19.28	26.96	23.50	10.08
Latvia	-1.13	-1.13	-1.15	-0.87	-0.65	-0.82	0.48	0.54	0.42	0.53	0.68	0.82	0.67	0.52	1.05	2.15	0.17	0.32	0.30	-0.19
Liechtenstein	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.04	-0.22	0.06	0.05	0.05	0.06	0.02	0.04	0.04	0.03	0.02	0.05	0.01
Lithuania	-3.52	-3.52	-2.50	-3.86	-4.32	-4.02	-4.31	-3.24	-3.08	-2.60	-2.48	-2.84	-2.71	-2.79	-2.77	-2.85	-2.69	-2.35	-2.63	-2.65
Luxembourg	-2.22	-2.22	-1.74	-1.66	-1.55	-1.38	-2.51	-2.52	-3.46	-4.37	-4.10	-1.37	0.67	-2.08	-1.97	-2.31	-0.93	-1.34	-3.07	-1.87
Malta	0.90	0.90	0.91	0.89	1.01	1.08	1.32	1.30	0.39	0.47	0.50	0.63	0.66	0.68	0.69	0.76	0.88	1.02	1.37	1.92
Monaco	0.11	0.11	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.11	0.11	0.12	0.12	0.08	0.07	0.08
Netherlands	-0.07	-0.07	-0.09	-0.43	-0.48	-0.54	-0.58	-0.59	-0.45	-0.72	-0.77	-0.66	-0.46	-0.58	-0.68	-0.66	-0.59	-0.75	-0.73	-1.12
New Zealand	-3.41	-3.41	-2.48	-2.69	-2.23	-1.92	-1.02	0.20	0.01	0.29	0.65	-2.33	-2.44	-2.48	-2.74	-2.93	-2.79	-2.96	-2.66	-3.03
Norway	0.04	0.04	-0.03	-0.09	-0.26	-0.42	-0.15	0.13	0.11	0.16	0.11	0.07	0.08	0.11	-0.99	-1.01	-0.64	-1.00	-1.08	-1.21
Poland	-0.05	-0.08	-0.08	0.00	-0.05	0.00	0.00	-0.01	-0.01	-0.10	-0.07	-0.20	-0.22	-0.23	-0.28	-0.29	-0.50	-0.17	-0.16	-0.33
Portugal	0.21	0.21	0.40	0.09	0.08	-0.70	-0.68	-0.28	-0.80	-1.13	-0.03	-0.09	-0.52	-0.48	-0.70	-0.69	-0.74	-1.04	-0.96	-0.57
Romania	0.04	0.87	0.94	1.00	1.04	1.07	1.03	0.98	1.07	1.16	1.25	1.23	1.16	1.08	1.00	0.98	0.97	0.80	0.07	0.32
Russian Federation	0.61	0.61	0.82	0.65	0.61	0.62	0.53	0.46	0.33	0.41	0.27	0.32	0.21	0.14	-0.10	-0.20	-0.30	-0.44	-0.39	-0.36
Slovakia	0.30	0.30	0.06	-0.03	-0.06	-0.03	-0.04	-0.01	0.05	0.06	0.00	-0.05	-0.11	-0.31	-0.17	-0.16	-0.12	-0.12	-0.05	-1.66
Slovenia	0	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.10	0.05	-0.02	0.00
Spain	-0.69	-0.69	-0.32	-0.20	-0.16	0.04	-0.04	-0.10	-0.10	-0.29	-0.35	-0.39	-0.26	-0.24	-0.31	-0.33	-0.40	-0.42	-0.48	-0.40
Sweden	0.07	0.07	0.07	0.07	0.08	0.07	0.05	0.06	0.05	0.05	0.06	0.06	0.06	0.04	0.05	-0.10	-0.18	0.02	-0.56	-1.09
Switzerland	-0.10	-0.10	-0.07	-0.10	-0.10	-0.19	-0.04	-0.07	-0.04	0.01	-0.08	-0.24	-0.25	-0.20	-0.26	-0.08	-0.04	0.02	-0.10	0.05
Turkey	0	0	0	0	0	0.00	0	0	0.00	0	0	0.00	0	0.04	0	0.00	0.01	0.00	0.00	0
Ukraine	0.36	0.36	1.19	3.51	-0.48	-3.36	-5.27	-5.14	-4.76	0.21	-0.05	0.12	0.23	0.43	0.09	0.36	0.36	0.23	-0.37	-0.34
United Kingdom	0.61	0.61	0.34	0.15	-0.04	-0.19	-0.22	-0.34	-0.44	-0.39	-0.25	-0.37	-0.22	-0.19	-0.40	-0.44	-0.53	-0.72	-0.86	-1.21
United States	0.90	0.90	0.87	0.85	0.88	0.84	0.96	0.94	0.81	0.81	0.88	0.97	1.08	1.03	1.03	1.12	1.13	1.53	1.34	1.49

Note: The values included in this table are those reported by Parties in CRF table 8(a). An empty cell can either depict that a Party did not recalculate its inventory for a given category-gas combination (i.e. 0% difference), or that it has reported for the first time, or ceased reporting emissions for a category-gas combination (i.e. 100% difference).

^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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table G.5a

Reported recalculations by gas: base year^a and 2008 (%)

	Energy						Industrial Processes						Solvents			
	CO ₂		CH ₄		N ₂ O		CO ₂		CH ₄		N ₂ O		CO ₂		N ₂ O	
	Base year ^a	2008	Base year ^a	2008	Base year ^a	2008	Base year ^a	2008	Base year ^a	2008	Base year ^a	2008	Base year ^a	2008	Base year ^a	2008
Australia	-0.11	0.22	0.10	-0.15	0.11	8.47	3.14	3.57	0	-0.44	0	-5.60				
Austria	0.00	0.44	-0.18	-1.08	0.06	1.42	0	0.43	0	-0.02	0	0	0	-9.16	0	0
Belarus	0	-0.06	0.00	-0.10	0	-0.06	0	0	0	0	0	0	0		0	0
Belgium	-0.49	1.37	0.77	-0.72	0.17	10.03	6.07	4.93	0	0	0.24	0.97			-13.34	-13.16
Bulgaria	-4.56	-3.15	-4.85	47.44	-51.03	-35.68	1.02	1.23	10.15	0	0	0	3,658.98	167.52	-37.31	-43.69
Canada	-0.12	0.01	-4.00	-2.86	-0.05	10.04	10.08	8.76	100.00	100.00	0.07	0.25			2.16	3.29
Croatia	1.92	1.78	-0.61	-0.21	-10.02	-17.80	-16.01	-14.28	-3.96	-12.44	-0.02	-0.03	-24.98	-15.61	0	0
Czech Republic	0.14	0.03	0.01	0.00	10.14	0.87	0	-2.14	0	0.64	0	0	0	0	0	0
Denmark	-0.38	-0.13	0.94	-0.28	-18.14	-10.82	0.00	0.00			0		0.04	0.04	100.00	9.60
Estonia	-0.59	-1.13	-0.87	-0.64	-5.08	-5.59	0.12	0					100.00	100.00		100.00
European Union (27)	0.37	0.70	1.02	0.08	-0.62	1.74	-6.56	-7.68	0.47	1.18	-0.64	3.28	2.14	-6.91	4.11	7.29
Finland	-0.06	0.16	-0.03	0.10	-0.24	-0.07	0	0.47	0	0	0	1.16	0	1.72	0	0
France	-0.70	-0.20	-6.11	-14.05	15.62	25.87	3.93	2.51	0	-8.76	-0.13	0	-0.15	2.11	3.43	4.22
Germany	2.80	3.97	-0.10	-3.34	-0.58	0.26	-29.85	-30.78	0	150.44	0.12	0.19	-22.84	-31.33	-7.62	-67.39
Greece	0	0.04	-1.39	0.00	-0.06	5.89	0	0	0	13.48	0	14.94	0	0	0	0
Hungary	-0.60	-0.52	-5.66	-4.98	-64.08	-35.47	1.89	0	0	91.63	0	0	0	0	0	0
Iceland	0	0	0	0	0	0	0	-0.02	0	0	0	0	0	5.64	0	0
Ireland	0.01	0.35	-1.97	-1.32	-5.22	-8.65	0	0			0		0.75	-13.51		
Italy	-0.01	-0.48	0.01	-0.60	0.31	0.83	0.59	0.18	0	0.48	0	0	0	-0.11	0	0
Japan	0.00	0.05	0.09	0.08	1.85	0.71	-3.62	-9.04	0	0.00	0	0			0	-19.53
Kazakhstan	6.24	5.45	0.04	10.75	-23.32	-3.53	0	0.21	0	0						
Latvia	-1.24	-1.78	-0.89	-3.97	-4.11	-7.09	3.83	13.82	0	0			-8.97	-18.32		0.00
Liechtenstein	0	0.00	0	-1.48	0	-4.04							0.00	-9.31	0.00	1.42
Lithuania	-3.20	-2.45	-0.52	0.36	-3.27	-0.76	0	0	0	0	0	0	0	0		
Luxembourg	-2.73	-1.87	-4.31	-5.84	1.16	-1.88	0	0					0	13.23	0	0
Malta	0	0.11	0	0.06	0	0.10	0	19.30							0	0
Monaco	0	0	0	0	0	0										
Netherlands	-0.03	-0.10	-0.39	-2.42	0.00	0.87	0.00	-3.03	0.00	-2.89	0.00	0.22	0.00	2.19	0	0
New Zealand	0.50	-1.16	5.62	-5.06	0.66	8.80	-0.12	0.01							0	0
Norway	0.00	0.24	1.98	-38.52	2.37	-20.40	0.03	1.51	0	0.41	0	0.06	0	-6.37	0	-0.28
Poland	0.09	-0.08	0	-0.10	0	0.26	0.05	-2.07	0	0.00	0	0	0	0	0	0
Portugal	0.00	-0.42	-3.27	-1.26	-3.56	-7.62	2.25	1.02	0	19.75	0	-15.42	6.17	-0.25	0	50.56
Romania	0	-0.93	0	10.15	0	-0.31	-0.08	-0.05	0	0	0	0	0	0.30		
Russian Federation	-0.01	0.13	0.40	-1.85	0.10	0.00	-0.54	-1.93	0	0	0	0			0	0
Slovakia	0.03	-2.60	0	-0.35	-0.22	-7.29	0.57	0.20	0	0	0	0	12.55	17.80	0	0
Slovenia	0	0.00	0	0.22	0	0.00	0	1.89	0	0	0	0			0	0
Spain	-1.01	-0.83	0.73	-1.31	0.64	1.43	-1.57	0.32	0	0	0	0	0	-0.04	115.14	295.97
Sweden	-0.04	-1.34	-0.81	1.82	0.00	-0.36	1.02	0.94	0	0	0.41	0	0	1.98	0	7.05
Switzerland	-0.07	0.12	1.60	4.29	17.53	-2.93	0.24	-0.02	-6.32	-5.97	-60.79	-64.00	-94.55	-62.44	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0				
Ukraine	0.12	-1.67	0.29	1.40	90.09	159.35	1.92	0.16	0	0.00	0	0.00			0	0
United Kingdom	-0.56	-0.86	0.06	-0.31	-0.63	0.24	0.21	-2.16	0	-2.34	0	0.01				
United States	0.04	0.03	23.26	55.74	0.01	-0.18	-1.60	-1.63	0	0	-3.45	-12.25			0	0

Note: The values included in this table are those reported by Parties in CRF table 8(a). An empty cell can either depict that a Party did not recalculate its inventory for a given category-gas combination (i.e. 0% difference), or that it has reported for the first time, or ceased reporting emissions for a category-gas combination (i.e. 100% difference).

^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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table G.5b

Reported recalculations by gas: base year ^a and 2008 (%)

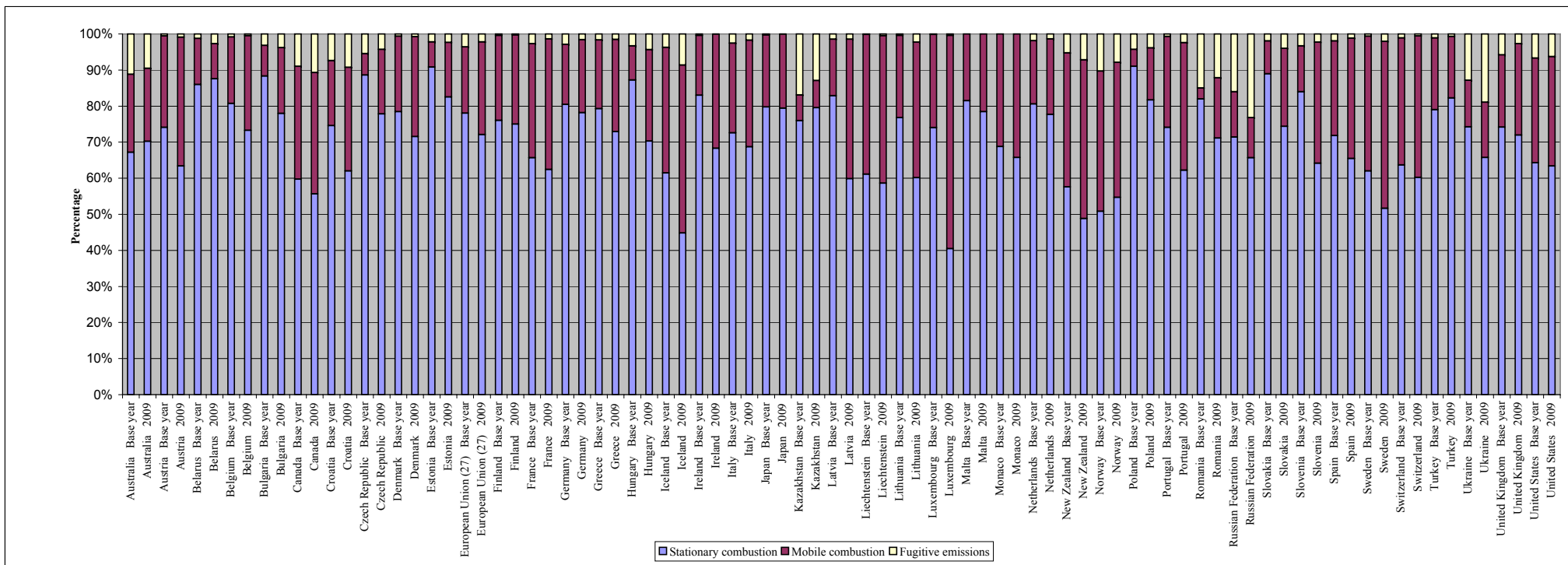
	Agriculture				LULUCF						Waste					
	CH ₄		N ₂ O		CO ₂		CH ₄		N ₂ O		CO ₂		CH ₄		N ₂ O	
	Base year ^a	2008	Base year ^a	2008	Base year ^a	2008	Base year ^a	2008	Base year ^a	2008	Base year ^a	2008	Base year ^a	2008	Base year ^a	2008
Australia	0	0.88	0	-0.33	-7.53	1.39	-0.40	2.26	0.11	0.73	0	1.05	0.61	-2.17	0	2.40
Austria	-0.01	-0.01	0.00	0.00	1.54	-0.11	6,263.64	6,263.64	-89.85	-84.80	0	0	0	0.88	0.80	0.00
Belarus	-1.66	-3.27	-5.00	-1.50	-4.11	-12.52	72.54	3.68	188.39	59.19			0	0	0	0.97
Belgium	0.08	0.22	-0.17	-2.56	-43.33	22.00					0.00	-0.01	0	2.37	0.29	7.04
Bulgaria	13.84	20.23	1.62	-2.70	2.93	4.94	0	0	0	0	7.41	-0.32	-40.52	-53.12	-28.40	-40.19
Canada	-2.73	-8.97	-3.94	-4.85	26.41	22.78	-11.43	4.71	-11.59	4.80	0	-0.07	1.38	-1.32	0	-0.77
Croatia	0.83	7.73	0.18	-0.09	-16.39	-22.60	11.27	0	11.27	0	0	0	4.28	1.06	0	-5.89
Czech Republic	0	0	0	0	0.00	0.00	0	0	0	0	100.00	-23.34	0.00	0.54	0.90	-0.89
Denmark	1.14	-0.63	-10.24	-8.31	11.69	-180.24			0.00	0.01	4.33	-0.08	5.44	8.70	11.81	35.36
Estonia	-0.14	0.20	-1.37	-6.62	66.79	-94.08	-27.95	8,662.19	152.08	9,029.57			0	-0.05	9.51	32.96
European Union (27)	1.62	2.41	4.31	3.75	0.08	-0.18	-6.85	-0.98	-4.79	13.40	-2.94	-10.16	3.46	8.53	3.40	2.57
Finland	0	0	-1.00	0.18	-5.88	-23.57	0	-0.05	0.07	1.74			0	0.18	0	1.80
France	2.47	2.97	0.00	-0.03	12.90	1.52	-6.80	-10.11	-46.14	-4.78	-11.53	-7.52	6.42	118.30	14.78	13.06
Germany	0.46	0.90	-6.39	-6.27	57.56	-50.87	0.00	0.00	639.78	-1.96			0	-0.22	0	-0.21
Greece	6.04	5.25	-0.95	-2.39	0.76	-3.03	0	0	0	0	0	0	-3.86	-4.89	0.97	0.99
Hungary	0.49	1.70	0.08	0.02	-3.07	8.24	26.11	10.35	4.45	-9.18			0	0	0	-0.68
Iceland	0	0	0	0	-49.98	-62.41	-11.74	-40.94	-74.98	-74.18	0	100.00	0	0.00	0	0.02
Ireland	0.16	0.24	0.51	0.40	-349.84	58.61	0	0	0	-0.64			0	20.12	0	0
Italy	0	0.00	0.20	0.41	-4.49	6.33	0	0	43.46	0	0	0.00	12.69	15.26	-1.66	-3.21
Japan	-0.07	-0.42	-0.06	-0.23	9.79	-0.62	0	0.58	-2.67	10.45	0	22.71	0.10	-0.60	-0.10	-1.68
Kazakhstan	39.47	42.07	439.13	338.36	-21.44	1,207.42	-2.14	-0.10	115.30	0.14	100.00	502.58	12.54	-2.84	0	-0.12
Latvia	-0.22	1.25	-0.30	10.84	-18.36	-21.02	0	0	43.44	17.67			0	-0.97	-48.53	-39.73
Liechtenstein	-0.03	0.11	0.63	1.97	-0.04	-4.17				100.00	0	0	0	0	-5.41	-5.16
Lithuania	0	0	-12.25	-12.73	-72.09	-70.97	-78.91	-80.55	-2.31	1.18	0	0	3.76	3.18	0.21	0.07
Luxembourg	0.00	0.00	0.15	0.17	0.00	0.00			0	0			0	2.05	0	1.44
Malta	0	0	19.65	35.19	0	0					0	-59.24	7.12	20.61	0	1.34
Monaco					0	0			100.00	100.00				0	18.00	7.59
Netherlands	0.00	0.00	-0.78	-19.47	3.65	9.04							0	0.36	0	0.16
New Zealand	0.13	-1.36	-17.15	-14.35	-24.45	12.16	4.30	4.19	93.29	57.33	0	0	-25.88	5.83	0	-0.27
Norway	-0.05	0.02	0.08	-4.39	-24.13	20.11	0	-0.02	0	0.00	0	0	-0.06	-0.81	0	0.00
Poland	0	-0.01	-2.18	-2.34	-37.83	-10.37	0	0	0	0	0	0	0	0	0	1.47
Portugal	0	-0.03	-0.05	1.68	-324.40	350.71	-99.65	-92.29	73.13	104.40	0	0	0.72	-2.68	4.23	-2.47
Romania	0	0	0.41	1.18	0	0	0	0	0	0		-78.66	0	-0.43	0	0
Russian Federation	5.13	2.41	-3.41	-2.33	142.61	-9.03	-52.05	-42.79	-51.58	-42.60			-0.31	-0.74	0	0
Slovakia	0	0	2.30	1.44	23.86	52.23	-4.01	0.78	254.55	-56.53	-6.00	-35.01	0	-2.90	38.62	4.95
Slovenia	0	-0.92	0	-0.34	-5.14	-0.54	0	-11.14	100.00	962,806.28			0	0	0	-2.31
Spain	0	-0.30	0	-1.29	-51.33	-44.49	0	0	0	0	0	-0.46	0	0.78	0	0.49
Sweden	0.00	0.17	-4.55	-3.46	43.95	129.70	-0.43	0.00	-0.09	4.64	0	0	10.15	0.30	3.66	8.41
Switzerland	0.40	-0.10	0.23	0.06	-7.93	174.19	0	0	3.59	-4.25	0.17	0.00	-0.67	-6.05	0	0
Turkey	0	0	0	0	0	0.00	0	0	0	0			0	0	0	0
Ukraine	-2.87	5.24	0.09	-0.50	2.03	4.03	0	0	370.10	102.84			0	0	0	0
United Kingdom	0.00	-0.01	5.07	6.74	5.92	135.47	54.70	25.24	9,680.34	16,952.07	0.49	-28.74	11.80	-19.86	20.09	9.29
United States	0.98	1.79	-2.71	-2.03	-5.31	10.63	0.43	0.05	0.31	-0.55			-1.14	-6.69	-0.01	0.45

Note: The values included in this table are those reported by Parties in CRF table 8(a). An empty cell can either depict that a Party did not recalculate its inventory for a given category-gas combination (i.e. 0% difference), or that it has reported for the first time, or ceased reporting emissions for a category-gas combination (i.e. 100% difference).

^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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Figure 1.1

Contribution of subsectors to total GHG emissions in Energy ^a



^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.1**CO₂ emissions from Fuel combustion: reference approach and sectoral approach**

	Reference approach	Sectoral approach	Difference	Explanation of the differences as reported in table 1.A(e) of the CRF
	(Gg CO ₂)		(%)	
Australia Base year	253,483	252,799	0.27	1.AA Fuel Combustion - Sectoral Approach: Estimates are based on Gross Calorific Values (GCV)
Australia 2009	373,040	373,173	-0.04	1.AC Difference - Reference and Sectoral Approach: The main reason for the difference between the sectoral and reference approaches relates to a discrepancy in liquid fuel emissions, which is driven by uncertainty within the reference approach. This arises from the sensitivity of final apparent consumption and emission figures to the average density energy content values used to convert production, exports, imports and stock change from volumetric units into energy units.
Austria Base year	57,295	54,076	5.95	1.AA Fuel Combustion - Sectoral Approach: Usage of "NO" notation keys in table 1.A(a)s1 to s4 : Energy statistics does not inquire all consumers but is limited to statistical samples. In the case that a statistical inquiry results in zero consumption of a specific sector and fuel group it is not always possible to decide if there occurs a consumption of a specific fuel category in a specific sector and year. However, as the energy statistics is based on a top down/bottom up approach it is assured that total national fuel consumption is equivalent to category 1A fuel consumption. Thus "NO" may be sometimes interpreted as "included elsewhere". 1.AC Difference - Reference and Sectoral Approach/1990: Solid fuels: CO ₂ emissions: Reference Approach includes process emissions from blast furnaces which are included in category 2 C 1 and process emissions from carbide production which are included in category 2 B 4. Liquid fuels: CO ₂ emissions: Heat values and carbon contents are sector and fuel specific. The reference approach considers a share of feedstocks used for plastics production and solvent production as non-carbon-stored. In the sectoral approach a share of emissions from waste incineration of plastics and solvents use (including imported products) is included in category 1A1a and category 3. In the sectoral approach a share of municipal solid waste without energy recovery is considered in category 6C for the years 1990 and 1991. Gaseous fuels: CO ₂ emissions: National approach uses sector specific carbon contents and heating values (different from IPCC reference factors). Process emissions from ammonia-production are included in category 2 B 1. Other fuels: The sectoral approach considers waste as an additional fuel type (e.g. municipal solid waste and industrial fuel waste).
Austria 2009	62,690	59,213	5.87	1.AA Fuel Combustion - Sectoral Approach: Usage of "NO" notation keys in table 1.A(a)s1 to s4 : Energy statistics does not inquire all consumers but is limited to statistical samples. In the case that a statistical inquiry results in zero consumption of a specific sector and fuel group it is not always possible to decide if there occurs a consumption of a specific fuel category in a specific sector and year. However, as the energy statistics is based on a top down/bottom up approach it is assured that total national fuel consumption is equivalent to category 1A fuel consumption. Thus "NO" may be sometimes interpreted as "included elsewhere". 1.AC Difference - Reference and Sectoral Approach/2009: Solid fuels CO ₂ emissions: RA includes process emissions (mainly non energy use of coke and coal) from blast furnaces which are included in category 2 C 1 and process emissions from carbide production which are included in category 2 B 4. Liquid fuels CO ₂ emissions: The reference approach considers a share of feedstocks used for plastics production and solvent production as non-carbon-stored. In the sectoral approach a share of emissions from waste incineration of plastics and solvents use (including imported products) is included in category 1A1a and category 3. In the sectoral approach a share of municipal solid waste without energy recovery is considered in category 6C for the years 1990 and 1991. From the year 2005 on the Sectoral Approach considers blended transport diesel and from 2009 the share of bioethanol in motor gasoline. Gaseous fuels CO ₂ emissions: The RA includes process emissions from ammonia-production which are included in category 2 B 1. Other fuels: The sectoral approach considers waste as an additional fuel type (e.g. municipal solid waste and industrial fuel waste).
Belarus Base year	133,508	100,211	33.23	
Belarus 2009	59,316	52,916	12.09	
Belgium Base year	109,034	109,883	-0.77	
Belgium 2009	103,066	100,773	2.28	1.AC Difference - Reference and Sectoral Approach: See more explanation in section 3.2.1 of the NIR 2011. The reference approach is based on the national energy statistics, while the sectoral approach is based on regional energy balances.
Bulgaria Base year^a	86,632	81,905	5.77	
Bulgaria 2009	44,316	42,854	3.41	
Canada Base year	447,015	412,541	8.39	1.AA Fuel Combustion - Sectoral Approach: Refer to section A4-4 in Annex 4 of the NIR for a discussion on fuel categorization 1.AB Fuel Combustion - Reference Approach: Refer to Annex 4 of the NIR for a detail discussion and comparison of RA and SA results. 1.AB Liquid Fuels: See NIR, Annex 4, Table A4-2 for fuel source data. 1.AB Solid Fuels: Coke Oven Gas has been allocated to the Gaseous Fuels category. See NIR, Annex 4, Table A4-2 for fuel source data. 1.AB Gaseous Fuels: See NIR, Annex 4, Table A4-2 for fuel source data.
Canada 2009	526,850	490,057	7.60	1.AC Difference - Reference and Sectoral Approach: Refer to Annex 4 of the NIR for a discussion on the comparison of the reference approach and the sectoral approach.
Croatia Base year	21,024	20,560	2.25	1.AA Fuel Combustion - Sectoral Approach: CO ₂ emissions from Biomass are excluded from Total Fuel Combustion
Croatia 2009	19,835	19,257	3.00	1.AC Gaseous Fuels: Gas works gas is excluded from Reference Approach as recommended (ERT 2010).

Table 1.1 (continued)

CO₂ emissions from Fuel combustion: reference approach and sectoral approach

	Reference approach	Sectoral approach	Difference (%)	Explanation of the differences as reported in table 1.A(c) of the CRF
	(Gg CO ₂)			
Czech Republic Base year	161,238	145,817	10.58	1.AC Difference - Reference and Sectoral Approach:Detailed comparison of the results from Sectoral and Reference Approach (SA and RA), respectively, is given in
Czech Republic 2009	109,121	103,410	5.96	NIR Annex 1 Reference Approach and Comparison with Sectoral Approach
Denmark Base year	51,844	52,331	-0.93	1.AC Difference - Reference and Sectoral Approach:Non-energy use of fuels is not included in the Danish National Approach. Fuel consumption for non-energy is subtracted in Reference Approach to make results comparable.
Denmark 2009	47,013	48,234	-2.53	CO2 emission from plastic part of municipal wastes is included in the Danish National Approach. CO2 emission from the plastic part of municipal wastes is added in Reference Approach to make results comparable. (Other fuels of sources 1A1, 1A2 and 1A4)
Estonia Base year	35,825	35,202	1.77	1.AA Fuel Combustion - Sectoral Approach:to the "fOther" in the Table 1.A(a)s2 are included "Machinery"; " Mining"; "Production of transport equipment"; "Production of non-ferrous mineral products", "Wood industry"; Construction"; "Textile, leather and clothing industry" and Other industry. 1.AA Fuel Combustion - Sectoral Approach/1990:Energy Balance of the Statistics of Estonia 1.AA Gaseous Fuels/1990:Energy Balance, Yearbook of the Statistics of Estonia 1.AA Other Fuels/1990:Energy Balance, Yearbook of the Statistics of Estonia 1.AB Solid Fuels/1990:Energy Balance, Yearbook of the Statistics of Estonia 1.AB Gaseous Fuels/1990:Energy Balance, Yearbook of the Statistics of Estonia 1.AC Solid Fuels/1990:Energy Balance, Yearbook of the Statistics of Estonia 1.AC Gaseous Fuels/1990:Energy Balance, Yearbook of the Statistics of Estonia 1.AC Other Fuels/1990:Energy Balance, Yearbook of the Statistics of Estonia
Estonia 2009	14,197	13,950	2.00	1.AA Fuel Combustion - Sectoral Approach:to the "fOther" in the Table 1.A(a)s2 are included "Machinery"; " Mining"; "Production of transport equipment"; "Production of non-ferrous mineral products", "Wood industry"; Construction"; "Textile, leather and clothing industry" and Other industry.
European Union (27) Base year	4,094,226	4,070,925	0.57	
European Union (27) 2009	3,547,717	3,527,081	0.59	
Finland Base year	54,371	52,941	2.70	1.AC Difference - Reference and Sectoral Approach:The relatively high difference in liquid fuels CO2 emissions is due to statistical differences in national oil balance.Allocation of Peat is different in SA ('Other fuels') compared to RA ('Solid fuels').
Finland 2009	51,759	51,745	0.03	1.AC Liquid Fuels:The relatively high difference in liquid fuels CO2 emissions is due to statistical differences in national oil balance. 1.AC Solid Fuels:Allocation of Peat is different in SA ('Other fuels') compared to RA ('Solid fuels'). 1.AC Other Fuels:Allocation of Peat is different in SA ('Other fuels') compared to RA ('Solid fuels').
France Base year	371,189	363,254	2.18	
France 2009	346,230	353,411	-2.03	
Germany Base year	973,015	977,264	-0.17	1.AB Liquid Fuels:international bunkers of "other oil" are included
Germany 2009	718,483	739,913	-1.07	
Greece Base year	75,850	75,171	0.90	
Greece 2009	98,264	97,963	0.31	
Hungary Base year^a	79,312	78,130	1.51	1.AC Difference - Reference and Sectoral Approach:Analysis of the differences for each fuel type can be found in NIR, chapter 3.2.1. Transformation losses, inputs of different fuel transformation and non-energy use of fuels affect the relationship of the two approaches.
Hungary 2009	47,360	47,144	1.33	1.AC Liquid Fuels:Analysis of the differences for each fuel type can be found in NIR, chapter 3.2.1. Transformation losses, inputs of different fuel transformation and non-energy use of fuels affect the relationship of the two approaches. 1.AC Solid Fuels:The difference is the result of transformation losses in gas coke distillation and briquetting.
Iceland Base year	1,677	1,685	-0.47	1.AA Fuel Combustion - Sectoral Approach:1A2fOther manufacturing industries & construction includes: mineral industry, construction and other industries not included above.
Iceland 2009	1,752	1,793	-2.25	
Ireland Base year	30,454	30,194	0.86	
Ireland 2009	40,581	40,857	-0.60	
Italy Base year	395,699	401,975	-1.56	
Italy 2009	394,764	393,619	0.29	
Japan Base year	1,057,427	1,068,260	-1.01	
Japan 2009	1,079,691	1,089,728	-0.92	
Kazakhstan Base year	257,858	256,321	0.60	
Kazakhstan 2009	200,034	212,660	-5.94	
Latvia Base year	18,526	18,408	0.64	1.AA Fuel Combustion - Sectoral Approach:Emissions from fuel combustion for energy production in stationary and mobile combustion installations are reported in this sector. Emissions are reported by taking into account used or sold amount of fuel reported by fuel consumers to Central Statistical Bureau or taken from household surveys carried out by Central Statistical Bureau once in 5 years. 1.AB Fuel Combustion - Reference Approach:CO2 emissions estimated with Reference Approach methodology is reported.Activity data - production, import export, stock changes and international bunkering data, are taken from Annual Questionnaires 2009 prepared by Central Statistical Bureau for EUROSTAT. IPCC 1996 emission estimation methodology - Tier1 and Tier2, is used to estimate the emissions.Carbon emission factor is estimated from estimated CO2 emission factor that can be default, country specific or plant specific. 1.AB Other Fuels:Used tires consumption is reported in this category.
Latvia 2009	6,570	6,704	-1.88	1.AC Difference - Reference and Sectoral Approach:Difference in fuel consumption data and estimated CO2 emissions are mainly due to statistical difference, interproducts transfer and distribution losses that are reported by Central Statistical Bureau but can't be taken into account in Reference Approach emissions estimation.Paraffin Wax and White Spirit fuel consumption is reported in Reference Approach table but can't be taken out from CO2 emissions estimation because these fuel types aren't included in 1.A(d) and therefore can't be taken be considered as feedstocks in Reference Approach emissions estimation.
Liechtenstein Base year	202	202	0.01	
Liechtenstein 2009	213	213	0.03	
Lithuania Base year	33,716	32,987	2.21	1.AC Difference - Reference and Sectoral Approach:Emissions in case of reference approach include feedstocks which causes excessive difference compared to emissions evaluated in sectoral approach (see Section 3.2.1 of the NIR)
Lithuania 2009	12,355	11,327	9.08	

Table 1.1 (continued)

CO₂ emissions from Fuel combustion: reference approach and sectoral approach

	Reference approach (Gg CO ₂)	Sectoral approach	Difference (%)	Explanation of the differences as reported in table 1.A(c) of the CRF
Luxembourg Base year	10,461	10,248	2.08	1.AB Fuel Combustion - Reference Approach:(1) data for the Reference Approach are coming from Eurostat database on energy, populated via the IEA/Eurostat joint questionnaire. The data have been extracted from Eurostat's web site on 29 January 2009; (2) data precision is limited in the questionnaire (no digit), hence some variables reported as NO (since they correspond to 0 kt.ktep, ...in the database) are perhaps not 'real' 0 but rather values smaller than 0.5; (3) the unit for the conversion factor is Eurostat's default since we use Eurostat's default factors; (4) the unit for the fraction of carbon oxidized is the default one too. 1.AB Liquid Fuels:a) AD: Import, export, stock change are from IEA Questionnaire on OIL as communicated by Stavec. ATTENTION: different sign convention between IPCC and IEA for stock changes. signs were changed accordingly. b) EF: default from IPCC 2006 (Vol2, Ch1, Tab1.4, p.1.23) as applied in sectoral approach. c) Fraction of carbon oxidised: all carbon is supposed to be oxidised as in sectoral approach (2006 IPCC GL) d) conversion factor: NCV: country-specific as applied in SA. 1.AB Solid Fuels:Coke Oven Coke is mainly used in Blast Furnaces and transformed into BFG, but also used in Manufacturing Industry - Iron&Steel. Some is also used as reducing agent and thus is accounted under Industrial Processes in the Sectoral Approach a) AD: Import, export, stock change are from IEA Questionnaire on Coal (sheets Other Bituminous Coal, Anthracite) as communicated by Stavec. ATTENTION: different sign convention between IPCC and IEA for stock changes. signs were changed accordingly. b) EF: default 29.2 from 2006 IPCC Guidelines (Vol2, Ch2, Tab1.4, p1.23) as applied in sectoral approach. c) Fraction of carbon oxidised: all carbon is supposed to be oxidised as in sectoral approach (2006 IPCC GL) d) conversion factor: NCV: country-specific as applied in SA. 1.AB Other Fuels:in order to have accurate comparisons in table 1.A(c), this energy source has to be recorded under one of the three main fuels of the Reference Approach (i.e. Liquid, Solid and Gaseous). If not, the total for the Reference Approach would not include municipal waste incineration on the contrary of the Sectoral Approach, hence leading to incomplete comparisons. The source "Other Solid Fossil Fuels" has been selected for recording municipal waste incineration data. Nevertheless, RA data for waste incineration covers both biogenic and non-biogenic fractions incinerated, whereas the SA only considers the non-biogenic fraction. 1.AB Municipal Solid Waste (Garbage) Incineration:in order to have accurate comparisons in table 1.A(c), this energy source has to be recorded under one of the three main fuels of the Reference Approach (i.e. Liquid, Solid and Gaseous). If not, the total for the Reference Approach would not include municipal waste incineration on the contrary of the Sectoral Approach, hence leading to incomplete comparisons. The source "Other Solid Fossil Fuels" has been selected for recording municipal waste incineration data. Nevertheless, RA data for waste incineration covers both biogenic and non-biogenic fractions incinerated, whereas the SA only considers the non-biogenic fraction. 1.AC Liquid Fuels:Apparent consumption = sectoral approach + Biodiesel & Biogasoline. These are included in the RA, and are declared in the IEA Questionnaires as fossil fuels and are included in Diesel oil and Motor gasoline respectively. 1.AC Solid Fuels:Apparent energy consumption = total sectoral approach + MSW (fossil fraction) as declared under the sectoral approach (other solid fuels - MSW fossil fraction).
Luxembourg 2009	10,394	10,130	2.61	1.AC Other Fuels:RA: municipal solid waste is reported under solid fuels.
Malta Base year	NA,NE	1,846		1.AA Fuel Combustion - Sectoral Approach:Methods details will be available in NIR
Malta 2009	2,582	2,510	2.85	1.AB Fuel Combustion - Reference Approach:Methods details will be available in NIR
Monaco Base year	105	105	-0.31	1.AB Solid Fuels:M
Monaco 2009	60	85	-0.34	
Netherlands Base year	155,641	149,895	3.83	1.AB Fuel Combustion - Reference Approach:NE; NOT INCLUDED IN ENERGY STATISTICSIE:Ethane INCLUDED IN LPGPetroleum Coke INCLUDED IN Other oilRefinery Feedstocks INCLUDED IN the other primary and secondary fuelsAnthracite INCLUDED IN Other Bit. CoalCoking Coal INCLUDED IN Other Bit. CoalLignite INCLUDED IN Other Bit. Coal
Netherlands 2009	163,779	161,982	1.11	1.AC Difference - Reference and Sectoral Approach:In 1A but not in RA-1A1a-other fuels: CO2 from fossil waste incineration (AVIs)Not in NA-1A:CO2 fossil fuel sources in sector 1B-1. b. Solid Fuel Transformation1.B.2.c FlaringCO2 fossil fuel sources in sector 2.2A4 Soda Ash Production2B1. Ammonia production2B5. Other chemicals, excl. activated carbon2C1 Coke and coal inputs in blast furnace (net)2D1. Pulp and Paper2G. Process emissions in other economic sectorsAfter these corrections, the differences are between -1.2% and +0.7%
New Zealand Base year	21,876	21,791	0.39	1.AB Gaseous Fuels:The gas emission factor is based on a weighted average of the emission factors for all gas streams where the weightings are the amount of gas produced at each field (info from the Energy Data file).
New Zealand 2009	29,668	28,669	3.48	
Norway Base year	25,928	25,964	-0.14	1.AC Difference - Reference and Sectoral Approach:As in previous submissions, there are large deviations in the output from the RA and SA. The results for all years in the period 1990-2007 are displayed in section 3.6.1, Table 3.25 in NIR 2009. Generally, the main reason for the deviation between the SA and RA is probably inaccuracies in the oil and gas production or export statistics. Due to the large production and export, small errors can amount to large discrepancies in the national total emissions. According to the Norwegian Petroleum Directorate, the uncertainties for production figures are 1 and 0.3 per cent for natural gas and crude oil, respectively. Norway has also a large non-energy use of coal, coke, natural gas and liquefied petroleum gas (LPG), large oil and gas production and exports (domestic supply is the difference between the two large numbers in each case), and relatively large statistical errors. These factors make the use of the RA inappropriate for Norway.
Norway 2009	38,684	35,086	10.26	
Poland Base year^a	457,986	442,614	3.47	1.AB Fuel Combustion - Reference Approach:Data on Production, Imports, exports, International bunkers and Stock change are available in energy units (TJ) and are provided in NIR. CRF Reporter software format allows only mass unit.
Poland 2009	294,833	290,387	1.53	
Portugal Base year	40,892	39,147	4.46	1.AC Difference - Reference and Sectoral Approach:Differences between Sectoral and Reference approach (CO2 from fuel combustion): the sectoral approach CO2 estimates depends partially on combustion information from point sources, and the reference approach results from national energy balances. Furthermore, feedstock emissions were estimated differently in the two approaches: in the sectoral approach, emissions were estimated from production activity data; in the reference approach, a global percentage of carbon stored (e.g. lubricants, naphtha) was used. In the sectoral approach, emissions from lubricants may not have been totally estimated, because it is uncertain if road traffic emission factors take into account these materials. differences in the Energy Balance and the energy activity data used by the inventory – where data collected directly from emission units (Large Point Sources) play a very representative role – and a different approach to account for emissions from carbon stored in products; Specific LHV values for LPS are not always considered in the Energy Balance; The per cent of feed-stocks which carbon is stored in products are default values and not specific of the national conditions reflected in the inventory;
Portugal 2009	52,981	51,267	3.34	The energy balance as been updated in order to follow the IPCC criteria to distinguish between domestic and international fuel use. This improvement contributes to decrease the difference betw

Table 1.1 (continued)

CO₂ emissions from Fuel combustion: reference approach and sectoral approach

	Reference approach	Sectoral approach	Difference	Explanation of the differences as reported in table 1.A(c) of the CRF
	(Gg CO ₂)		(%)	
Romania Base year ^a	192,424	159,419	20.70	1.AC Difference - Reference and Sectoral Approach:The difference between RA and SA is caused by the fact that the Reference Approach treats the non-energy use of fuels as if it were combustion. A correction is done by the carbon stored from non energy fuel use, but the information related to this area are limited in the national energy balance.
Romania 2009	83,805	74,933	11.84	
Russian Federation Base year	2,487,509	2,264,438	9.85	1.AB Fuel Combustion - Reference Approach:Explanation of lacking data and notation keys to be added in the following inventory submission
Russian Federation 2009	1,386,713	1,360,625	1.91	
Slovakia Base year	56,377	53,493	5.39	
Slovakia 2009	32,438	27,211	19.21	
Slovenia Base year ^a	15,048	15,169	-0.80	
Slovenia 2009	15,200	15,240	-0.26	
Spain Base year	207,694	203,236	2.19	1.AB Other non-specified:No information on other fuels, not specified in the CRF Reporter, is available.
Spain 2009	280,163	275,902	1.54	1.AC Difference - Reference and Sectoral Approach:As stated in Appendix 4 of NIR, the differences between Sectoral Approach (SA) and Reference Approach - Default values may be applied to those primary fuels which are consumed mainly or exclusively for processing and transformation into secondary fuels (as for coking coal and crude oil). Given the high order of magnitude of the crude oil processed, the estimate drawn from the reference approach is extremely sensitive to any variations on the parameters applied - CO2 emissions from non-energy use of fuel accounted in RA, such as coke-made anode consumption for aluminium production or use of coal and coke as reductant agent in electric steel plants and glass production. - Statistical differences in the fuel balance of the inventory
Sweden Base year	49,404	51,136	-2.14	1.AC Difference - Reference and Sectoral Approach:Please note the national method for comparing RA-SA (3.3.6 in the Swedish NIR) includes also other fuels.
Sweden 2009	40,973	41,851	1.51	1.AC Difference - Reference and Sectoral Approach/1990:1.AC Difference- Reference and Sectoral Approach: Please note the national method for comparing RA-SA (3.3.6 in the Swedish NIR) includes also other fuels.
Switzerland Base year	40,375	41,115	2.23	1.AB Fuel Combustion - Reference Approach:1.AB Fuel Combustion - Reference Approach:Documentation Box to table 1.A(b): The fraction for carbon oxidized is consequently set to 1.0 due to the following reason: combustion installations in Switzerland have very good combustion properties; combined emissions of CO and unburnt VOC lie in the range of only 0.1 to 0.3 percent of CO2 emissions for oil and gas combustion. Since most of the coal used in Switzerland goes to the cement industry, also for coal a fraction factor of 1.0 was chosen.The conversion factors are country specific (see Swiss Energy Statistics 2004, on the back cover). The carbon emission factor for crude oil stems from the 1996 IPCC reference manual; the other carbon emission factors are country specific. Internet adress for the Swiss Energy Statistics: http://www.energie-schweiz.ch/ 1.AC Difference - Reference and Sectoral Approach:Differences in energy consumption: allocation problems: Only bitumen production from national refineries is shown in table 1.A(d). It is a refinery product and included in the crude oil amount. In the Swiss inventories bitumen emissions (NMVOC) appear under industrial processes and not under energy use. Gaseous fuels: gas distribution emissions (including emissions from compressor stations) are shown in table 1.B.1 and do not appear in the column "National approach" above. Liquid fuels/Solid fuels: in the national approach, petroleum coke is subsumed under solid fuels (cement industry use; there, petroleum coke is treated as coal).
Switzerland 2009	40,016	41,631	2.08	Other: Waste fuels from waste incineration (energy use) and waste fuels from cement production (energy use). In the reference approach subsumed in "Solid fuels" (Other oil):
Turkey Base year	140,054	126,701	10.54	1.AC Difference - Reference and Sectoral Approach:The reference approach uses data on crude oil as the average "calorific values" and "carbon content". However sectoral approach uses the individual "calorific values" and "Carbon content" in each sectors.
Turkey 2009	295,579	271,109	9.03	
Ukraine Base year	586,969	593,126	-1.04	1.AA Fuel Combustion - Sectoral Approach:In 1991-1997 emissions for each fuel type were estimated according to category 1.A «Fuel Combustion». Disaggregating to IPCC categories is impossible, since there is insufficient disaggregated data on activity. 1.AB Solid Fuels:Included with Other Bituminous Coal. 1.AC Difference - Reference and Sectoral Approach:The main reasons of the differences between two approaches are the absence of energy balances and inconsistencies in fuel supply and use. See NIR Chapter 3.2.1 1.AC Liquid Fuels:See NIR Chapter 3.2.1
Ukraine 2009	202295.6744	205372.3771	-1.50	1.AC Solid Fuels:See NIR Chapter 3.2.1 1.AC Gaseous Fuels:See NIR Chapter 3.2.1 1.AC Other Fuels:See NIR Chapter 3.2.1

Table 1.1 (continued)

CO₂ emissions from Fuel combustion: reference approach and sectoral approach

	Reference approach (Gg CO ₂)	Sectoral approach	Difference (%)	Explanation of the differences as reported in table 1.A(c) of the CRF
United Kingdom of Great Britain	561,310	564,796	-0.62	<p>1.AA Liquid Fuels:The liquid fuel allocation is as follows: gasoline, diesel oil, residual fuel oil, orimulsion, kerosene, LPG, refinery gas, waste oils, petroleum coke, lubricants, naphtha, other oil products. Liquid fuel emission factors for methane in 1A1, 1A2, 1A4 are mainly from CORINAIR.</p> <p>1.AA Solid Fuels:The solid fuel allocation is as follows: coal, coke, anthracite, patent fuel, blast furnace gas, coke oven gas. Solid fuel emission factors for methane are mainly based on Brain et al (1994). Emission of VOC from Coal Fired Appliances, DTI, Coal R&D, Report No COAL R033.</p> <p>Solid fuel emission factors for N2O are from Fynes et al (1994) Emissions of Greenhouse gases from coal fired Plant, British coal, CRE. Contract JOUF 0047-C(SMA).</p> <p>1.AA Gaseous Fuels:The gaseous fuel allocation is as follows: Natural gas, colliery methane Natural gas emission factors for methane are IPCC defaults.</p> <p>1.AA Other Fuels:Other fuel allocation is as follows: municipal solid waste, scrap tyres</p> <p>1.AB Fuel Combustion - Reference Approach:A significant proportion of fuel consumption emissions occur in 1B1b Solid Fuel Transformation, 2C Metal Production, 2B1 Ammonia Production This discrepancy arises from three sources: (1) The statistical difference between 'apparent consumption' used in the reference inventory and actual consumption used in the sectoral inventory This statistical difference results from losses and errors in the estimates. (2) The sectoral inventory includes emissions from the non-energy use of fuel where they can be specifically identified e.g. catalytic crackers, iron & steel, lubricants combustion, ammonia production. The reference approach implicitly treats the non-energy use of fuel as if it were combustion. A correction is then applied by deducting an estimate of carbon stored from non-energy fuel use. The carbon stored is estimated from an approximate procedure which does not identify specific processes. The result is that the reference approach is based on a higher estimate of non-energy use emissions than the sectoral inventory. (3) The reference approach uses data on primary fuels such as crude oil and natural gas liquids which are then corrected for imports, exports and stock changes of secondary fuels. Thus the estimates obtained will be highly dependent on the default carbon contents used for the primary fuels. Sectoral approach based on consumption of secondary fuels.</p> <p>1.AC Difference - Reference and Sectoral Approach:The discrepancy in fuel consumption arises from 3 sources:(1) The statistical difference between 'apparent consumption' used in the reference inventory and actual consumption used in the sectoral inventory. This difference results from losses and errors in the estimates. (2) The sectoral inventory includes emissions from the non-energy use of fuel where they can be specifically identified e.g. catalytic crackers, iron&steel, lubricants combustion, ammonia production. The reference approach implicitly treats the non-energy use of fuel as combustion. A correction is then applied by deducting an estimate of carbon stored from non-energy fuel use. The carbon stored is estimated from an approximate procedure which does not identify specific processes.The result is that the reference approach is based on a higher estimate of non-energy emissions than the sectoral inventory. (3) The reference approach uses data on primary fuels which are then corrected for imports, exports and stock changes of secondary fuels. Thus the estimates obtained are highly dependent on the default carbon contents used for the primary fuels The sectoral approach is based wholly on the consumption of secondary fuels</p> <p>1.AC Difference - Reference and Sectoral Approach/1990:A significant proportion of fuel consumption emissions occur in 1B1b Solid Fuel Transformation, 2C Metal Production, 2B1 Ammonia Production. Including these sources with 1A in the comparison reduces the discrepancy to -0.7%.</p>
United Kingdom of Great Britain	472,155	465,798	1.36	1.AC Solid Fuels:So
United States of America Base year	4,803,888	4,865,041	-1.26	<p>1.AA Fuel Combustion - Sectoral Approach:Estimates of biomass consumption for fuel combustion exclude wood wastes, liquors, municipal solid waste, tires, etc.</p> <p>1.AB Fuel Combustion - Reference Approach:In order to accommodate the differences and limitations between the Reference Approach table of the CRF and that of the U.S. Inventory, the following adaptations were made to section 1.AB: U.S. Territories consumption is included in the Imports column (applies to Natural Gas Liquids, Gasoline, Other Kerosene, Gas/Diesel Oil, Residual Fuel Oil, Lubricants, Other Oil, Other Bit. Coal, and Natural Gas). Adjustments for fuels accounted for in the Industrial Processes sector are included in the stock change column. These adjustments include petroleum coke for aluminum, ferroalloy, titanium dioxide, and ammonia production; coking coal for iron and steel production; natural gas for ammonia production; and other oil and residual fuel for carbon black production.Table 1.A(b) - The United States Reference Approach is also provided a separate Excel spreadsheet, which is more detailed than this table allows information to be reported. Specifically, the fuel types provided in the CRF tables differ from the fuel types as defined in the U.S., and no "other" options were offered in the CRF table. The U.S. suggests revising the table to allow for additional fuel types.</p> <p>1.AB Other Fuels:Other (3) includes waste combustion and geothermal emissions. The inclusion of emissions from waste combustion and geothermal in this table gives higher totals for energy consumption and CO2 emissions in the CRF Reference Approach than in the U.S. Inventory Reference Approach which does not includes these sources.</p>
United States of America 2009	5290341.705	5344637.696	-1.02	1.AC Difference - Reference and Sectoral Approach:Refer to section 3.11 of the NIR.

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties

Table 1.2

CO₂ emissions from stationary combustion - trend information

CO ₂ Emissions (Gg)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	191,613	290,869	1.5	3.7	2.5	3.3	5.7	3.5	1.8	3.1	1.3	4.8	0.6	1.5	1.2	1.7	2.0	0.2	51.8
Austria	40,286	37,777	5.8	6.7	5.6	0.3	-5.1	-1.9	-2.5	7.2	-1.5	9.8	-1.1	2.6	-4.0	-7.5	1.1	-8.4	-6.2
Belarus	87,225	47,599	-6.8	-11.2	1.7	3.1	-3.5	-3.9	-3.5	-1.9	-2.3	0.6	6.0	0.2	2.2	-2.0	2.5	-5.0	-45.4
Belgium	89,623	74,228	3.0	0.6	4.6	-6.4	6.1	-6.4	1.0	0.1	-2.0	3.3	-0.8	-2.8	-3.8	-4.5	1.0	-9.4	-17.2
Bulgaria	74,812	34,746	-20.3	1.5	0.6	-4.5	-6.4	-14.7	-3.5	10.1	-7.1	9.7	-4.8	-0.2	2.4	8.7	-5.3	-14.6	-53.6
Canada	273,204	308,363	-1.9	2.6	2.7	1.8	1.2	4.0	6.9	-0.7	1.4	4.1	-2.3	-3.7	-3.5	8.2	-4.3	-6.9	12.9
Croatia	16,575	13,180	-26.7	5.8	1.9	5.2	5.7	2.6	-4.7	5.5	5.8	7.2	-5.2	1.1	-2.4	5.6	-6.0	-8.0	-20.5
Czech Republic	136,670	84,514	-3.5	2.7	6.0	-7.1	-7.0	-2.0	5.1	1.7	-4.0	-2.9	-0.8	-0.6	-0.5	-0.9	-4.8	-4.7	-38.2
Denmark	41,385	34,727	23.2	-6.3	27.7	-16.4	-7.6	-6.7	-8.6	4.5	-1.1	11.5	-13.2	-8.9	21.3	-12.4	-7.0	-3.1	-16.1
Estonia	32,708	11,787	-8.5	-9.9	5.1	-3.9	-9.5	-6.3	-2.7	0.1	-3.0	14.7	0.1	-5.3	-5.5	19.9	-9.5	-15.5	-64.0
European Union (27)	3,296,429	2,600,098	-1.0	0.8	2.8	-3.4	-0.9	-2.4	0.3	2.6	-1.3	2.3	-0.6	-0.8	-0.5	-2.2	-2.0	-8.5	-21.1
Finland	40,400	38,861	-2.8	-7.0	13.3	-4.6	-7.0	-1.9	-4.5	12.7	5.1	15.1	-8.0	-23.0	28.2	-4.8	-15.6	-3.0	-3.8
France	244,256	223,255	9.1	3.0	5.6	-3.4	7.8	-3.8	-1.6	1.1	-2.3	2.1	1.0	2.2	-4.8	-3.0	0.0	-5.6	-8.6
Germany	809,865	586,964	-4.3	-0.6	3.4	-4.4	-1.5	-4.6	0.5	4.0	-1.8	0.1	-1.7	-1.1	1.5	-3.0	0.4	-7.5	-27.5
Greece	60,685	72,641	-1.6	-0.6	2.6	6.3	4.5	-1.5	8.2	2.0	-0.6	3.7	-0.1	4.0	-2.5	2.3	-3.4	-8.3	19.7
Hungary	70,509	34,884	-1.1	-2.0	3.1	-4.3	-3.6	-0.1	-4.4	3.2	-4.1	5.9	-5.1	-2.2	-3.7	-4.8	-2.8	-11.8	-50.5
Iceland	1,073	887	-5.3	2.6	8.4	2.8	-3.0	0.6	-7.9	-3.2	6.0	-7.3	1.5	-4.2	-9.0	2.5	-11.7	-1.6	-17.3
Ireland	25,155	27,880	2.7	2.4	2.2	2.8	3.1	2.5	4.4	4.9	-4.0	-0.7	0.2	3.0	-3.4	-1.7	1.4	-10.4	10.8
Italy	299,660	274,902	-1.0	7.6	-1.6	0.7	2.6	1.5	0.9	1.2	0.2	4.0	0.1	0.3	-1.8	-3.0	-0.8	-12.5	-8.3
Japan	857,206	866,814	-0.4	0.6	0.7	-0.6	-3.2	3.8	2.3	-1.6	5.1	0.9	0.1	0.9	-1.5	4.1	-7.1	-6.2	1.1
Kazakhstan	234,270	194,345	-11.2	-0.3	-9.9	-8.6	4.2	-18.7	25.5	-10.7	13.3	11.3	15.1	7.7	15.6	-0.3	-16.2	15.5	-17.0
Latvia	15,514	3,976	-8.6	-13.9	1.6	-7.7	-5.5	-9.8	-14.2	-0.1	-1.8	0.9	-2.7	-0.1	2.8	-2.1	-4.4	-8.2	-74.4
Liechtenstein	124	126	-4.7	1.2	0.7	6.7	8.3	-4.6	-7.5	1.6	7.0	6.5	1.2	-0.2	2.9	-22.2	11.9	-7.1	1.5
Lithuania	25,608	6,947	7.8	-13.8	4.3	-7.9	6.2	-18.4	-14.0	5.8	-0.7	-1.0	3.8	5.3	-1.4	-7.1	-3.3	-3.4	-72.9
Luxembourg	7,624	4,125	1.4	-27.0	0.0	-16.3	-22.2	2.2	7.2	9.4	14.2	2.0	9.8	-2.5	2.4	-9.4	-5.5	0.3	-45.9
Malta	1,505	1,971	10.1	-3.0	1.7	-1.2	-0.2	4.7	-0.5	5.1	0.5	9.3	-1.2	2.3	-1.0	3.1	-2.2	-7.4	31.0
Monaco	73	57	-5.2	-2.1	6.2	2.8	-1.1	0.3	-0.2	1.1	-2.4	-6.5	-7.9	0.2	-13.9	3.9	-0.9	-3.4	-22.0
Netherlands	123,320	127,642	3.9	2.8	5.2	-5.0	1.1	-4.9	1.6	4.7	-1.0	2.2	0.7	-3.9	-3.2	0.2	2.4	-2.6	3.5
New Zealand	13,255	15,082	3.0	-4.8	7.7	13.6	-10.2	9.0	-1.1	10.7	-2.2	6.8	-6.8	8.6	-0.4	-7.1	3.5	-12.3	13.8
Norway	14,708	20,834	-1.6	-2.7	14.5	-0.5	-0.8	-1.8	0.0	9.5	0.8	6.5	-2.6	-1.9	1.8	-1.2	-0.4	3.9	41.7
Poland	420,767	246,614	1.2	0.2	2.2	-2.6	-8.4	-3.7	-3.6	0.0	-3.8	3.2	-0.8	-1.9	3.2	-1.8	-3.0	-3.5	-41.4
Portugal	29,135	32,545	3.8	8.2	-9.5	5.6	7.8	18.4	-7.4	0.7	8.2	-10.9	4.9	6.4	-10.9	-5.8	-2.8	-4.6	11.7
Romania	153,634	60,458	-22.2	3.5	3.5	-12.4	-13.5	-11.9	2.5	4.8	4.2	6.6	-3.0	-5.2	3.8	-3.1	-4.8	-18.7	-60.6
Russian Federation	1,923,700	1,164,931	-5.4	-3.6	-1.5	-5.0	-4.0	1.6	2.8	0.7	-1.4	1.4	-1.1	-0.8	3.2	-1.7	3.4	-3.7	-39.4
Slovakia	48,601	21,091	-8.6	-5.2	-3.8	-4.9	-1.4	-2.6	-1.0	2.0	-7.5	5.2	-4.7	-4.4	-0.9	-10.1	1.5	-8.6	-56.6
Slovenia	13,190	9,993	-6.1	4.9	0.9	2.1	3.1	-4.1	-0.5	6.9	1.2	-3.8	1.6	-0.3	-0.6	-4.2	1.0	-7.0	-24.2
Spain	148,953	182,426	3.5	6.3	-10.0	11.8	0.1	12.0	3.9	-0.3	8.3	-0.2	6.2	5.0	-5.5	2.8	-9.0	-12.4	22.5
Sweden	31,557	21,455	3.0	-2.2	12.2	-12.7	1.3	-9.5	-4.2	2.1	1.1	2.1	-4.3	-9.2	-2.3	-5.1	-5.6	-5.8	-32.0
Switzerland	26,543	25,176	5.8	4.0	3.2	-3.7	3.9	-1.4	-4.7	4.1	-2.8	3.8	3.9	1.9	-1.9	-8.6	4.5	-3.7	-5.1
Turkey	100,746	224,402	7.0	7.6	13.0	10.0	0.8	-1.1	13.3	-9.4	4.5	7.5	3.8	7.7	6.9	10.7	-3.5	0.3	122.7
Ukraine	505,988	167,135	-13.3	-11.3	-10.8	-7.6	-7.0	-1.6	-7.1	0.9	0.2	6.2	-2.7	3.4	4.6	-3.6	-3.2	-12.4	-67.0
United Kingdom	444,771	344,272	2.6	-2.3	4.1	-5.4	1.2	-2.2	2.4	3.3	-4.4	2.4	-0.3	-0.9	-0.5	-2.6	-1.6	-10.9	-22.6
United States	3,379,104	3,624,952	0.2	0.6	4.0	1.5	0.4	0.5	3.5	-1.6	0.1	1.5	1.6	0.2	-2.0	2.0	-2.1	-7.7	7.3

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.a Other (stationary combustion).

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.3

Stationary combustion: liquid fuels - CO₂ (2009)

Key category	Share of national total	IEF in CRF based on GCV or NCV	Energy industries						Manufacturing industries and construction			Other sectors					Other (Not specified elsewhere)			
			Methods and EF used ^a		CO ₂ IEF				Method and EF used ^b		CO ₂ IEF	Method and EF used		CO ₂ IEF			Method and EF used ^d		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 / Fisheries	Methods	EF	Stationary
			(t/TJ)						(t/TJ)			(t/TJ)						(t/TJ)		
Australia	L, T	6.3	GCV	T2	CS, PS	69.74	71.95	66.87	72.43	T2	CS	72.43	T2	CS	71.33	71.90	64.95	72.46		73.42
Austria	L, T	14.9	NCV	T2	CS, PS	71.57	78.03	70.03	NO	T2, T3	CS, PS	75.50	T2, T3	CS	74.20	73.07	74.53	73.60		NA
Belarus	L, T	16.4	NCV	T1	CS, D	76.57	76.57	IE	IE	T1	CS, D	73.67	T1	CS, D	70.58	71.20	62.71	72.43		68.89
Belgium	L, T	17.2	NCV	CS, T1, T3	CS, D, PS	66.79	75.24	66.54	NO	CS, T1, T3	D, PS	65.97	T1	D	74.80	87.51	72.95	73.79		NA
Bulgaria	L, T	6.0	NCV	T1	D	74.91	77.72	72.84	62.44	T1	D	82.14	T1	D	72.02	73.85	63.28	72.88		NO
Canada ^e	L, T	3.7	GCV	T2	CS	76.41	77.28	75.33	NA	T2	CS	76.59	T2	CS	74.80	75.27	73.85	74.91		NA
Croatia	L, T	21.4	NCV	T2	PS	75.38	76.55	74.31	NO	T1	D	80.80	T1	D	71.43	72.15	69.64	73.05		NO
Czech Republic	L, T	3.6	NCV	T1	D	68.18	76.56	63.21	73.36	T1	D	73.04	T1	D	70.92	72.99	67.71	70.98		NO
Denmark	L, T	13.3	NCV	CR, T1	CR, CS, D, PS	67.43	77.20	57.75	NO	CR, T1	CS, D	79.14	CR, T1	CR, CS, D	73.70	73.14	73.55	73.95		NA
Estonia	L, T	4.1	NCV	T1, T2	CS, D	75.25	75.25	NO	NO	T1, T2	CS, D	73.23	T1, T2	CS, D	72.62	68.97	70.07	73.31		NO
European Union (27)	L, T	12.0	NCV	CR, CS, D, T1, T1a, T2, T3	CR, CS, D, PS	71.37	75.69	69.15	81.02	CR, CS, D, M, T1, T2, T3	CR, CS, D, PS	76.21	CR, CS, D, M, T1, T2, T3	CR, CS, D	72.79	73.45	72.30	73.41		71.42
Finland	L, T	16.0	NCV	T3	CS, D, PS	68.82	77.86	64.57	NO	CS, M, T3	CS	64.77	M, T1	CS	74.11	75.21	73.77	73.95		70.48
France	L, T	16.7	NCV	CR	CS	68.32	76.73	63.55	NO	CR	CS	77.06	CR	CS	73.66	74.02	73.31	74.07		NO
Germany	L, T	10.7	NCV	CS	CS	69.80	80.49	68.00	76.50	CS	CS	75.56	CS	CS	73.47	73.17	73.56	73.71		73.99
Greece	L, T	20.2	NCV	T2	PS	72.03	76.08	66.92	NO	T2	PS	75.12	T2	D	73.07	71.80	73.12	73.52		NO
Hungary	L, T	4.9	NCV	T1, T2	D, PS	78.02	76.81	76.08	99.83	T1, T2	D	80.73	T1	D	69.72	62.44	62.44	72.92		NO
Iceland	L, T	18.3	NCV	T1	D	73.48	73.48	NO	NO	T1	D	74.00	T1	D	73.87	70.73	69.66	74.05		NO
Ireland	L, T	14.3	NCV	T3	PS	73.60	77.57	66.28	NO	T1	CS, D	76.09	T1	CS	72.33	73.19	71.84	73.30		NO
Italy	L, T	14.7	NCV	T3	CS	76.23	75.52	76.51	75.68	T2	CS	84.74	T2	CS	70.91	68.23	70.10	72.92		NA
Japan ^e	L, T	20.9	GCV	T1	CS	67.73	73.89	56.33	62.20	T1	CS	70.52	T1	CS	70.06	71.03	67.95	72.74		NO
Kazakhstan	L, T	6.7	NCV	T1, T2	CS, D	70.34	73.74	69.89	68.43	T1, T2	CS, D	73.10	T1, T2	CS, D	70.18	71.04	62.79	71.96		71.00
Latvia	L, T	7.7	NCV	T1	CS	76.24	76.60	NO	74.00	T1	CS	74.88	T1	CS	72.06	73.26	64.81	73.87		NO
Liechtenstein	L, T	26.7	NCV	NA	NA	NO	NO	NO	NO	T2	CS	73.70	T1, T2	CS	73.64	73.63	73.70	73.61		NO
Lithuania	L, T	11.8	NCV	T2	CR, CS	72.40	80.71	69.99	72.89	T2	CR, CS	85.17	T2	CS	67.04	73.67	65.93	71.63		IE, NO
Luxembourg	L, T	8.2	NCV	T2	CS	73.47	73.47	NO	NO	T1, T2	CS, D	72.61	T2	CS	73.35	69.89	73.40	73.47		NO
Malta	L, T	66.9	NCV	D	D	76.14	76.14	NO	NO	D, T1	D	73.20	D, T1	D	73.16	IE	70.79	73.33		NA
Monaco	L, T	21.8	NCV	T1	D	78.41	78.41	NO	NO	NA	NA	NA, NO	T1	D	73.33	IE	73.33	NO		NO
Netherlands	L, T	9.4	NCV	T2	CS	75.10	60.11	76.93	73.94	T2	CS	66.76			73.07	68.69	71.93	73.94		NA
New Zealand ^e	L, T	4.3	GCV	D	CS, D	76.11	73.17	76.67	72.02	D	CS	70.80	D	CS	71.37	69.24	64.14	72.60		NA
Norway	L, T	14.4	NCV	T1, T2, T3	CS, PS	63.65	71.69	55.46	73.90	T1, T2, T3	CS	65.22	T2	CS	74.49	73.53	80.20	73.45		73.08
Poland	L, T	4.8	NCV	T2	D	74.05	76.16	73.82	73.06	T2	D	76.57	T2	D	70.86	71.39	66.65	72.97		IE
Portugal	L, T	16.4	NCV	T2	CR, D, PS	70.73	76.73	66.87	NO	T2	CR, D, PS	78.45	T2	CR, D	68.28	71.01	62.95	73.10		NO
Romania	L, T	7.3	NCV	T1a	CS	71.17	71.17	IE	IE	T1	D	70.02	T1	D	67.68	72.11	62.78	71.49		IE
Russian Federation	L, T	6.8	NCV	T1, T2	CS, D	73.13	76.51	68.95	73.24	T1	D	73.07	T1	D	69.77	75.14	62.93	72.65		72.82
Slovakia	L, T	6.1	NCV	T2	CS	66.59	75.88	66.47	72.60	T2	CS	75.15	T2	CS	68.69	69.04	NO	68.24		73.72
Slovenia	L, T	11.9	NCV	T1	D	74.08	74.11	73.30	73.30	T1	D	77.04	T1	D	71.81	71.48	71.92	72.50		NA
Spain	L, T	18.0	NCV	T2	CR, CS, PS	69.91	75.72	63.17	96.74	T2, T3	CR, CS, PS	82.68	T2, T3	CR	71.51	72.15	69.69	72.97		IE
Sweden	L, T	20.2	NCV	T2	CS	60.94	74.78	56.04	74.26	T1, T2, T3	CS, PS	68.88	T1	CS	72.09	69.30	72.45	72.60		NO
Switzerland	L, T	30.8	NCV	CS, T2	CS	65.90	73.50	65.61	NO	CS, T2	CS	74.65	CS, T2	CS	73.50	73.50	73.50	73.63		NA
Turkey	L, T	7.9	NCV	T1	D	72.91	73.28	72.60	IE	T1	D	71.70	T1	D	73.12	IE	70.34	74.11		NO
Ukraine	L, T	1.6	NCV	T1	D	73.20	76.58	66.25	72.48	T1	D	75.58	T1	D	64.99	72.62	62.76	70.09		74.97
United Kingdom	L, T	8.5	NCV	T2	CS	70.07	73.49	69.51	57.00	T2	CS	71.80			71.93	76.39	70.92	73.92		NA
United States ^e	L, T	8.8	GCV	T2	CS	84.30	84.30	IE	IE	T2	CS	74.32	T2	CS	68.95	70.79	67.86	IE		31.91

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.a Other (stationary).

^a 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.

^b 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.

^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.4 Other sectors.

^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.5 Other (not specified elsewhere).

^e Australia, Canada, Japan, New Zealand and United States reported energy data on a gross calorific value (GCV) basis. 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. The IEFs included in this table have been converted into NCV-based values and are not reflecting the reported IEFs.

Table 1.4
Stationary combustion: solid fuels - CO₂ (2009)

Key category	Share in national total	IEF in CRF based on GCV or NCV	Energy industries							Manufacturing industries and construction			Other sectors						Other (Not specified elsewhere)		
			Methods and EF used ^a		CO ₂ IEF				Method and EF used ^b		CO ₂ IEF	Method and EF used ^c		CO ₂ IEF				Method and EF used ^d		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 / Fisheries	Methods	EF	Stationary	
					(t/TJ)						(t/TJ)			(t/TJ)						(t/TJ)	
Australia	L, T	36.2	GCV	T2	CS, PS	95.50	95.56	NA	88.41	T2	CS	84.81	T2	CS	95.71	95.71	NO	NO			NO
Austria	L, T	9.9	NCV	T2	CS, PS	93.04	93.04	NO	NO	T2	CS, PS	101.14	T2	CS	93.64	96.19	93.44	93.80			NA
Belarus	L, T	2.6	NCV	T1	CS, D	97.98	97.98	IE	IE	T1	CS, D	103.00	T1	CS, D	92.90	93.37	92.75	93.32			103.52
Belgium	L, T	10.5	NCV	CS, T3	CS, D, PS	122.79	130.20	NO	40.89	CS, T1, T3	D, PS	60.09	T1	D	92.71	92.70	92.70	92.71			NA
Bulgaria	L, T	45.7	NCV	T2	CS, D	102.80	102.80	NO	95.65	T2	CS, D	104.87	T2	CS, D	97.31	98.19	97.36	95.22			NO
Canada ^e	L, T	13.7	GCV	T2	CS	93.08	93.77	86.67	90.56	T2	CS	88.86	T2	CS	95.39	90.65	96.17	94.82			NA
Croatia	L, T	6.8	NCV	T2	PS	92.71	92.71	NO	NO	T1	D	94.76	T1	D	96.15	94.47	97.30	NO			NO
Czech Republic	L, T	48.4	NCV	T1	CS, D	94.55	95.20	NO	53.18	T1	CS, D	92.79	T1	CS, D	97.55	99.55	97.42	98.08			NO
Denmark	L, T	25.4	NCV	CR	CS, D, PS	93.59	93.59	NO	NO	CR	CS, D	97.24	CR	CS, D	94.60	NO	94.89	94.60			NO
Estonia	L, T	58.6	NCV	T1, T2, T3	CS, D	91.48	99.80	NO	33.73	T1, T2	CS, D	98.05	T1, T2	CS, D	95.46	94.77	95.52	NA			NO
European Union (27)	L, T	22.9	NCV	CR, CS, T1, T1a, T2, T3	CR, CS, D, PS	100.76	100.66	99.30	103.69	CR, CS, T1, T2, T3	CR, CS, D, PS	112.15	CR, CS, T1, T2, T3	CR, CS, D	94.92	95.35	94.83	95.08			0.48
Finland	L, T	19.5	NCV	T3	CS, D, PS	93.56	93.77	NO	82.87	T3	CS, PS	134.91	T1, T3	CS, D	93.42	NO	89.87	93.65			NO
France	L, T	8.4	NCV	CR	CS	105.38	100.21	261.00	166.28	CR	CS	124.02	CR	CS	95.00	95.00	95.00	NO			NO
Germany	L, T	33.5	NCV	CS	CS	105.73	105.78	40.00	106.84	CS	CS	132.04	CS	CS	99.01	99.46	98.91	98.03			98.92
Greece	L, T	33.9	NCV	T2	CS	122.79	122.79	NO	NO	T2	PS	95.15	T2	D	96.98	NO	96.98	NO			NO
Hungary	L, T	15.7	NCV	T2, T3	CS, D, PS	102.65	104.92	NO	46.84	T1, T2	CS, D, PS	90.68	T1	CS, D	95.72	93.22	95.78	94.15			NO
Iceland	T	0.6	NCV	NA	NA	NO	NO	NO	NO	T1	D	93.53	NA	NA	NO	NO	NO	NO			NO
Ireland	L, T	13.7	NCV	T1, T3	CS, PS	97.12	97.26	NO	91.75	T1	CS	94.62	T1	CS	99.00	NO	99.00	NO			NO
Italy	L, T	10.0	NCV	T3	CS	99.43	92.03	NO	169.60	T2	CS	64.29	T2	CS	92.03	NO	92.03	NO			NA
Japan ^e	L, T	33.2	GCV	T1	CS	94.32	94.83	NO	86.61	T1	CS	97.98	T1	CS	97.06	97.06	NO	113.40			NO
Kazakhstan	L, T	42.9	NCV	T1	CS, D	92.93	92.93	92.71	92.75	T1	D	92.83	T1	D	94.06	92.90	94.80	92.72			93.59
Latvia	L, T	3.1	NCV	T1	CS	92.40	92.44	NO	92.20	T1	CS	91.61	T1	CS	92.27	92.35	92.20	92.20			NO
Liechtenstein		0.0	NCV	NA	NA	NO	NO	NO	NO	NA	NA	NO	CS	CS	94.00	NO	94.00	NO			NO
Lithuania	L, T	3.0	NCV	T2	CS	98.70	98.70	NO	NA, NO	T2	CS	95.03	T2	CS	95.54	95.14	96.15	96.75			IE, NO
Luxembourg	L, T	1.8	NCV	NA	NA	NO	NO	NO	NO	T1	D	94.81	T1	D	97.50	NO	97.50	NO			NO
Malta	T	-	NCV	NA	NA	NA, NO	NA	NO	NO	NA	NA	NA, NO	NA	NA	NA	NA	NA	NA			NA
Monaco		-	NCV	NA	NA	NO	NO	NO	NO	NA	NA	NA, NO	NA	NA	NO	NO	NO	NO			NO
Netherlands	L, T	13.9	NCV	T2	CS	104.44	104.44	NO	NO	T2	CS	138.72			97.06	101.22	94.71	94.10			NA
New Zealand ^f	L, T	6.1	GCV	D	CS	94.08	94.08	NO	NO	D	CS	94.30	D	CS	94.78	94.71	95.50	94.10			NA
Norway	L, T	1.1	NCV	T1, T2, T3	CS, PS	91.34	91.34	NO	NO	T1, T2, T3	CS	98.81	T2	CS	109.70	111.93	103.42	NO			NO
Poland	L, T	54.4	NCV	T2	CS, D	98.31	99.24	94.07	59.81	T2	CS, D	107.69	T2	CS, D	94.43	95.00	94.23	95.09			IE
Portugal	L, T	14.3	NCV	T2	CR, D, PS	94.08	94.08	NO	NO	T2	CR, D, PS	96.27	NA	NA	NO	NO	NO	NO			NO
Romania	L, T	22.1	NCV	T1a	CS	96.10	96.10	IE	IE	T1	D	148.23	T1	D	99.18	99.34	99.17	102.10			IE
Russian Federation	L, T	15.3	NCV	T1, T2	CS, D	100.83	101.53	49.78	119.76	T1	D	34.56	T1	D	93.73	92.10	93.83	96.23			93.32
Slovakia	L, T	16.9	NCV	T2	CS	101.50	101.21	110.63	101.33	T2, T3	CS, PS	117.89	T2	CS	101.81	99.67	103.13	58.86			99.22
Slovenia	L, T	30.7	NCV	T2	CS	101.92	101.92	NO	NO	T1	D	100.99	NA	NA	NO	NO	NO	NO			NA
Spain	L, T	10.9	NCV	T2	CS, PS	98.55	98.67	NA	93.52	T2	CR, CS, PS	122.08	T2	CR	87.85	78.98	91.06	NA			NA
Sweden	L, T	9.1	NCV	T2	CS	127.12	133.01	NO	74.88	T2, T3	CS, PS	108.94	NA	NA	NO	NO	NO	NO			NO
Switzerland	L, T	1.0	NCV	NA	NA	NO	NO	NO	NO	CS, T2	CS	96.52	CS, T2	CS	94.00	NO	94.00	NO			NA
Turkey	L, T	34.0	NCV	T1	D	97.53	97.53	NO	IE	T1	D	101.22	T1	D	126.66	IE	126.67	69.1794949			NO
Ukraine	L, T	21.6	NCV	T1, T2	CS, D, PS	87.51	91.65	NO	56.19	T1	CS, D	71.21	T1	CS, D	91.40	91.39	91.43	90.96			90.95
United Kingdom	L, T	19.6	NCV	T2	CS	89.74	89.93	NO	77.77	T2	CS	137.43			89.99	92.26	89.59	NO			NA
United States ^e	L, T	28.0	GCV	T2	CS	95.30	95.30	IE	IE	T2	CS	94.45	T2	CS	94.07	94.07	94.07	IE			74.39

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.a Other (stationary).

^a 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.

^b 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.

^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.4 Other sectors.

^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.5 Other (not specified elsewhere).

^e Australia, Canada, Japan, New Zealand and United States reported energy data on a gross calorific value (GCV) basis. 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. The IEFs included in this table have been converted into NCV-based values and are not reflecting the reported IEFs.

Table 1.5

Stationary combustion: gaseous fuels - CO₂ (2009)

Key category	Share in national total	IEF in CRF based on GCV or NCV	Energy industries							Manufacturing industries and construction			Other sectors						Other (Not specified elsewhere)		
			Methods and EF used ^a		CO ₂ IEF				Method and EF used ^b		CO ₂ IEF	Method and EF used ^c		CO ₂ IEF				Method and EF used ^d		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 / Fisheries	Methods	EF	Stationary	
			(t/TJ)							(t/TJ)			(t/TJ)						(t/TJ)		
Australia	L, T	10.8	GCV	T2	CS, PS	56.56	56.39	56.76	56.84	T2	CS	56.84	T2	CS	56.96	56.88	56.98	56.84			NO
Austria	L, T	20.5	NCV	T2	CS, PS	55.40	55.40	55.40	55.40	T2	CS, PS	55.37	T2	CS	55.40	55.40	55.40	55.40			NA
Belarus	L, T	35.2	NCV	T1	CS, D	55.88	55.88	IE	IE	T1	CS, D	57.78	T1	CS, D	55.82	55.82	55.82	55.82			56.29
Belgium	L, T	26.9	NCV	CS, T1, T3	CS, D, PS	55.94	55.95	55.82	NO	CS, T1, T3	D, PS	55.80	T1	D	55.81	55.81	55.81	55.82			NA
Bulgaria	L, T	6.6	NCV	T2	CS	54.92	54.92	54.92	54.92	T2	CS	54.92	T2	CS	54.92	54.92	54.92	54.92			NO
Canada ^e	L, T	27.3	GCV	T2	CS	59.73	54.85	52.43	64.70	T2	CS	55.60	T2	CS	55.34	55.49	55.14	57.18			NA
Croatia	L, T	17.4	NCV	T1, T2	D, PS	55.82	55.82	55.82	55.82	T1	D	56.11	T1	D	55.77	55.73	55.77	55.82			NO
Czech Republic	L, T	11.3	NCV	T1	D	55.82	55.82	55.82	55.82	T1	D	55.82	T1	D	55.82	55.82	55.82	55.82			NO
Denmark	L, T	15.1	NCV	CR	CS	56.85	56.69	NO	57.25	CR	CS	56.69	CR	CS	56.69	56.69	56.69	56.69			NO
Estonia	L, T	7.0	NCV	T2	CS	54.76	54.76	NO	NO	T2	CS	54.76	T2	CS	54.76	54.76	54.76	54.76			NO
European Union (27)	L, T	20.3	NCV	CR, CS, T1, T1a, T2, T3	CR, CS, D, PS	52.04	56.44	56.67	25.77	CR, CS, D, T1, T2, T3	CR, CS, D, PS	56.44	CR, CS, D, T1, T2	CR, CS, D	56.52	56.52	56.52	56.48			55.33
Finland	L, T	11.1	NCV	T3	CS	54.77	54.77	54.76	NO	T3	CS	54.79	T1	CS	54.76	54.76	54.76	54.76			54.76
France	L, T	16.5	NCV	CR	CS	56.68	56.62	57.01	NO	CR	CS	57.00	CR	CS	57.00	57.00	57.00	57.00			NO
Germany	L, T	17.4	NCV	CS	CS	55.99	55.99	56.00	55.76	CS	CS	56.00	CS	CS	56.00	56.00	56.00	56.00			56.00
Greece	L, T	5.2	NCV	T2	CS, PS	55.07	55.00	55.52	57.07	T2	CS	55.24	T2	CS	55.24	55.24	55.24	NO			NO
Hungary	L, T	31.2	NCV	T1, T3	D, PS	55.82	55.82	55.87	55.82	T1, T2	D	55.82	T1	D	55.82	55.82	55.82	55.82			NO
Iceland	L, T	-	NCV	NA	NA	NO	NO	NO	NO	NA	NA	NO	NA	NA	NO	NO	NO	NO			NO
Ireland	L, T	16.6	NCV	T3	PS	57.18	57.18	NO	NO	T1	CS	57.02	T1	CS	57.02	57.02	57.02	NO			NO
Italy	L, T	30.3	NCV	T3	CS	57.13	57.13	57.13	57.13	T2	CS	57.13	T2	CS	57.13	57.13	57.13	57.13			NA
Japan ^e	L, T	16.4	GCV	T1	CS	54.90	54.90	55.92	55.11	T1	CS	55.16	T1	CS	55.29	55.14	55.54	55.11			NO
Kazakhstan	L, T	17.4	NCV	T1, T2	CS	54.87	54.87	54.87	54.87	T2	CS	54.87	T2	CS, D	54.87	54.87	54.87	54.87			54.87
Latvia	L, T	26.2	NCV	T2	CS	55.20	55.20	NO	55.20	T2	CS	55.20	T2	CS	55.20	55.20	55.20	55.20			NO
Liechtenstein	L, T	24.1	NCV	T2	CS	55.00	55.00	NO	NO	T2	CS	55.00	T2	CS	55.00	55.00	55.00	NO			NO
Lithuania	L, T	17.3	NCV	T2	CS	56.90	56.90	56.90	56.90	T2	CS	56.90	T2	CS	56.90	56.90	56.90	56.90			IE, NO
Luxembourg	L, T	24.4	NCV	T2	CS	57.06	57.06	NO	NO	T2	CS	57.06	T2	CS	57.06	57.06	57.06	57.0613414			NO
Malta	L	1.9	NCV	NA	NA, NO	NA	NO	NO	NO	D, T1	D	62.75	D, T1	D	62.75	IE	62.75	NA			NA
Monaco	L, T	12.5	NCV	T1	D	56.72	56.72	NO	NO	NA	NA	NA, NO	T1	D	56.72	IE	56.72	NO			NO
Netherlands	L, T	39.7	NCV	T2	CS	56.74	56.60	56.60	58.89	T2	CS	56.60	T2	CS	56.60	56.60	56.60	56.60			NA
New Zealand ^e	L, T	10.9	GCV	D	CS	59.99	58.78	66.99	58.67	D	CS	58.95	D	CS	58.79	58.79	58.79	58.79			NA
Norway	L, T	24.2	NCV	T1, T2, T3	CS, PS	57.15	62.08	NO	56.67	T1, T2, T3	CS	72.43	T2	CS	56.06	56.06	56.06	56.06			NO
Poland	L, T	6.3	NCV	T2	D	55.82	55.82	55.82	55.82	T2	D	55.82	T2	D	55.82	55.82	55.82	55.82			IE
Portugal	L, T	12.2	NCV	T2	CR, D, PS	56.40	56.44	55.82	NO	T2	CR, D, PS	55.82	T2	CR, D	55.82	55.82	55.82	55.82			NO
Romania	L, T	16.8	NCV	T1a	CS	55.26	55.26	IE	IE	T1	D	55.82	T1	D	55.82	55.82	55.82	55.82			IE
Russian Federation	L, T	30.8	NCV	T1	D	55.29	55.26	55.82	55.82	T1	D	55.82	T1	D	55.82	55.82	55.82	55.82			55.82
Slovakia	L, T	25.4	NCV	T2	CS	73.24	55.20	52.43	177.32	T2	CS	61.48	T2	CS	55.20	55.20	55.20	55.19			55.20
Slovenia	L, T	8.8	NCV	T1	CS	55.02	55.02	55.02	55.01	T1	CS	55.02	T1	CS	55.02	55.02	55.02	NO			NA
Spain	L, T	20.4	NCV	T2	CS, PS	57.05	56.90	59.82	56.00	T2	CS	56.02	T2	CS	56.00	56.00	56.00	56.00			IE
Sweden	L, T	3.9	NCV	T2	CS	56.80	56.80	56.80	NO	T1, T2	CS	56.80	T1	CS	56.80	56.80	56.80	56.80			56.80
Switzerland	L, T	11.8	NCV	CS, T2	CS	55.00	55.00	NO	NO	CS, T2	CS	55.00	CS, T2	CS	55.00	55.00	55.00	55.00			NA
Turkey	L, T	18.8	NCV	T1	D	55.88	55.89	55.8195	IE	T1	D	55.82	T1	D	55.82	IE	55.82	55.8195			NO
Ukraine	L, T	21.3	NCV	T1	CS	55.13	55.13	55.13	55.13	T1	CS	55.13	T1	CS	55.13	55.13	55.13	55.13			55.13
United Kingdom	L, T	32.1	NCV	T2	CS	40.94	56.53	57.14	18.27	T2	CS	56.91	T2	CS	56.91	56.91	56.91	56.91			NA
United States ^e	L, T	17.8	GCV	T2	CS	55.82	55.82	IE	IE	T2	CS	55.82	T2	CS	55.82	55.82	55.82	IE			26.37

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.a Other (stationary).

^a 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.

^b 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.

^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.4 Other sectors.

^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.5 Other (not specified elsewhere).

^e Australia, Canada, Japan, New Zealand and United States reported energy data on a gross calorific value (GCV) basis. 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. The IEFs included in this table have been converted into NCV-based values and are not reflecting the reported IEFs.

Table 1.6
Stationary combustion: other fuels - CO₂ (2009)

Key category	Share in national total	IEF in CRF based on GCV or NCV	Energy industries							Manufacturing industries and construction				Other sectors						Other (Not elsewhere specified)		
			Methods and EF used ^a		CO ₂ IEF				Method and EF used ^b		CO ₂ IEF	Method and EF used ^c		CO ₂ IEF			Method and EF used ^d		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 / Fisheries	Methods	EF	Stationary		
			(t/TJ)							(t/TJ)			(t/TJ)						(t/TJ)			
Australia		-	GCV	NA	NA	NO	NO	NO	NO	NA	NA	NO	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Austria	L, T	1.9	NCV	T2	CS, PS	53.78	53.78	NO	NO	NO	T2	D, PS	47.96	T2	D	104.17	104.17	NO	NO	NO	NO	NA
Belarus		-	NCV	NA	NA	NO	NO	NO	NO	NO	NA	NA	NA	NA	NA	NO	NO	NO	NO	NO	NO	NO
Belgium	L, T	5.0	NCV	CS, T1, T3	CS, D	100.50	100.50	NO	NO	CS, T1, T3	D, PS	52.80	T1	D	65.58	65.50	66.00	NO	NO	NO	NO	NA
Bulgaria		0.0	NCV	NA	NA	NO	NO	NO	NO	T2	CS	85.81	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Canada ^e		0.1	GCV	NA	NA	NA	NA	NA	NA	CS, T2	OTH	85.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Croatia		-	NCV	NA	NA	NO	NO	NO	NO	NA	NA	NO	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Czech Republic	T	0.3	NCV	NA	NA	NO	NO	NO	NO	T1	CS	73.05	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Denmark	L, T	2.1	NCV	CR, CS	CS	78.88	78.88	NO	NO	PS	CR	93.91	CR	CS	78.88	78.88	NO	NO	NO	NO	NO	NO
Estonia	T	0.3	NCV	NA	NA	NO	NO	NO	NO	T3	PS	77.61	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
European Union (27)	L, T	1.2	NCV	CR, CS, OTH, T1, T1a, T2, T3	CR, CS, D, PS	75.78	76.01	60.46687567	64.52	CR, CS, T1, T2, T3	CR, CS, D, PS	68.80	CR, T1, T2	CS, D	106.47	107.11	87.84	100.98				IE, NA, NO
Finland	L, T	11.9	NCV	T3	CS	98.08	98.08	NO	NO	T3	CS	85.91	T1	CS	100.98	100.98	100.98	100.98				NO
France	L, T	1.1	NCV	CR	CS	95.10	100.32	63.43	56.05	CR	CS	47.32	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Germany	L, T	2.2	NCV	CS	CS	91.43	91.37	NO	95.11	CS	CS	72.23	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Greece		0.0	NCV	NA	NA	NO	NO	NO	NO	T2	PS	32.73	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Hungary	L, T	0.6	NCV	T2	D, PS	64.80	65.38	51.14	NO	T2	D, PS	52.61	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Iceland		0.3	NCV	T1	D	110.81	110.81	NO	NO	NA	NA	NO	T1	D	52.50	52.50	NO	NO	NO	NO	NO	NO
Ireland		0.0	NCV	NA	NA	NO	NO	NO	NO	T3	PS	54.21	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Italy	L, T	0.9	NCV	T3	CS	94.00	94.00	NO	NO	T2	CS	260.40	T2	CS	113.46	113.46	NO	NO	NO	NO	NO	NA
Japan ^e	L, T	1.2	GCV			31.94	31.64	49.44	48.44			42.93	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Kazakhstan	T	-	NCV	NA	NA	NO	NO	NO	NO	NA	NA	NO	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Latvia		0.1	NCV	NA	NA	NO	NO	NO	NO	T2	PS	85.49	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Liechtenstein		-	NCV	NA	NA	NO	NO	NO	NO	NA	NA	NO	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania		-	NCV	NA	NA	NO	NO	NO	NO	NA	NA	NO	NA	NA	NO	NO	NO	NO	NO	NO	NO	IE, NO
Luxembourg	L	0.9	NCV	T2	D	95.34	95.34	NO	NO	T1	PS	82.595872	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Malta		-	NCV	NA	NA	NA, NO	NA	NA	NO	NA	NA	NA, NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Monaco	L, T	27.8	NCV	T1	D	55.57	55.57	NO	NO	NA	NA	NA, NO	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	L, T	1.3	NCV	T2	CS	81.60	81.60	NO	NO	NA	NA	NA, NO	NA	NA	NO	NO	NO	NO	NO	NO	NO	NA
New Zealand ^e		-	GCV	NA	NA	IE, NO	NO	IE	NO	NA	NA	NA, NO	NA	NA	NO	NO	NO	NO	NO	NO	NO	NA
Norway	L, T	0.9	NCV	T1, T2, T3	CS, PS	51.59	51.59	NO	NO	T1, T2, T3	CS	42.19	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Poland		-	NCV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	IE
Portugal	L, T	0.7	NCV	T2	CR, D, PS	115.16	115.16	NO	NO	T2	CR, D, PS	61.65	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Romania		-	NCV	NA	NA	IE, NO	NO	NO	IE	NA	NA	IE, NE	NA	NA	NE, NO	NO	NE	NE	NE	NE	NE	NO
Russian Federation	L, T	1.0	NCV	T1	D	142.29	142.29	142.29	NA	T1	D	142.29	T1	D	142.29	142.29	NO	142.29	NO	142.29	NO	134.74
Slovakia		0.2	NCV	T1a, T2	CS, D	44.33	44.33	NO	NO	NA	NA	NO	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Slovenia		0.2	NCV	T1	D	33.94	33.94	NO	NO	T1	D, PS	73.46	NA	NA	NA, NO	NO	NA	NA	NA	NA	NA	NA
Spain	T	0.4	NCV	T2	CR, CS, PS	48.46	48.46	NA	NA	T2	CR	68.27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sweden	L, T	2.5	NCV	T2	CS	27.98	27.98	NO	NO	T2	CS	60.00	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Switzerland	L, T	4.8	NCV	CS, T2	CS	44.35	44.35	NO	NO	CS, T2	CS	79.08	NA	NA	NO	NO	NO	NO	NO	NO	NO	NA
Turkey		-	NCV	NA	NA	NO	NO	NO	NO	NA	NA	NO	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Ukraine		0.6	NCV	T1	D	87.49	98.58	71.87	95.01	T1	D	88.52	T1	D	96.18	96.04	96.30	96.18				96.30
United Kingdom	T	0.3	NCV	OTH, T1	CS	30.47	30.47	NO	NO	T2	CS	87.36			30.47	30.47	NA	NO				NA
United States ^e		0.2	GCV	T2	CS	40.47	40.47	NA	NA	NA	NA	NA	NA	NA	IE, NA	NA	NA	IE				NA, NE

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.a Other (stationary).

^a 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.

^b 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.

^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.4 Other sectors.

^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.5 Other (not specified elsewhere).

^e Australia, Canada, Japan, New Zealand and United States reported energy data on a gross calorific value (GCV) basis. 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. The IEFs included in this table have been converted into NCV-based values and are not reflecting the reported IEFs.

Table 1.7

Fuel consumption in stationary combustion: all fuels - trend information

Fuel consumption (TJ)	Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	2,665,544	4,067,478	0.6	4.1	2.8	3.0	5.3	3.1	1.4	2.9	0.8	4.5	0.7	2.1	1.2	2.9	2.7	-0.4	52.6
Austria	639,978	752,238	6.3	6.4	6.3	-0.9	-2.9	0.3	-3.6	7.5	-2.7	8.0	-0.1	7.7	-2.8	-3.8	3.2	-5.0	17.5
Belarus	1,266,663	811,422	-7.9	-10.5	2.5	6.8	-2.7	-2.3	-2.3	-1.1	-1.1	1.4	6.4	1.3	2.4	-1.1	2.0	-7.7	-35.9
Belgium	1,226,802	1,222,450	4.5	3.3	5.5	-5.8	7.0	-4.7	0.1	0.5	-1.6	3.9	-0.1	-1.2	-2.3	-3.9	2.1	-6.7	-0.4
Bulgaria	913,867	414,413	-20.4	3.3	0.7	-8.1	-5.8	-13.5	-2.9	6.8	-5.8	9.0	-4.1	0.7	3.1	6.4	-5.1	-14.3	-54.7
Canada	4,802,453	5,707,761	-2.0	1.8	2.6	0.9	1.2	5.1	6.1	-1.7	2.9	3.5	-0.7	-4.0	-4.2	9.1	-4.0	-5.0	18.9
Croatia	260,132	207,499	-25.8	3.6	4.2	4.7	4.0	1.3	-4.0	3.4	5.0	7.5	-4.5	-0.3	-1.9	5.1	-5.6	-6.1	-20.2
Czech Republic	1,563,685	1,102,812	-1.5	4.9	7.5	-6.8	-5.7	-1.1	3.6	2.0	-3.4	-1.3	0.2	-0.4	-0.4	-0.7	-3.8	-4.6	-29.5
Denmark	551,284	573,554	20.0	-3.3	24.1	-13.1	-5.3	-9.2	-6.3	4.9	-0.3	9.7	-9.0	-5.6	14.7	-8.7	-4.4	-2.3	4.0
Estonia	377,820	168,291	-7.9	-5.5	7.1	-3.1	-9.8	-5.4	-1.4	1.7	-2.4	12.5	1.7	-3.7	-6.0	16.6	-5.7	-11.1	-55.5
European Union (27)	42,728,221	39,408,544	0.5	2.2	4.1	-3.0	0.2	-1.4	0.4	3.3	-1.4	2.8	0.4	0.2	-0.7	-1.9	-0.4	-6.9	-7.8
Finland	672,668	769,735	-2.2	-3.8	8.3	0.3	-2.0	0.8	-2.4	6.7	5.4	10.1	-3.6	-15.7	19.7	-4.6	-8.6	-5.6	14.4
France	3,644,200	3,645,881	10.4	2.9	6.3	-4.0	6.5	-3.1	-1.4	2.7	-2.6	2.6	1.4	1.9	-4.5	-2.9	1.9	-3.7	0.0
Germany	9,512,945	8,134,981	-1.9	0.0	5.1	-3.9	-0.8	-4.0	0.2	4.3	-2.2	1.5	-1.0	0.1	2.1	-2.8	2.2	-5.7	-14.5
Greece	644,648	815,550	-0.7	0.8	4.5	5.1	4.8	-0.3	9.7	1.9	-0.2	4.6	-0.8	4.4	-0.4	2.6	-2.5	-10.6	26.5
Hungary	941,454	571,893	-0.5	-0.5	4.0	-4.3	-2.8	-0.1	-4.0	4.5	-3.0	6.9	-3.6	2.7	-4.2	-5.9	-0.5	-11.4	-39.3
Iceland	14,314	11,916	-5.3	2.7	8.6	2.6	-3.0	0.8	-7.9	-3.5	6.4	-7.0	1.1	-4.5	-9.4	2.2	-11.5	-0.6	-16.8
Ireland	306,607	400,727	3.6	2.3	3.1	3.1	-1.1	3.9	4.3	5.0	-2.7	-0.1	1.1	2.6	-0.6	-1.8	2.3	-8.6	30.7
Italy	4,285,668	4,329,743	0.2	7.9	-0.9	0.8	3.0	2.5	1.3	0.7	-0.5	5.1	0.6	1.6	-1.8	-2.0	-1.3	-10.7	1.0
Japan	12,350,462	12,842,388	0.2	0.7	0.8	-0.5	-2.7	3.7	2.0	-1.9	4.7	1.0	-0.2	1.4	-0.7	4.5	-6.6	-6.0	4.0
Kazakhstan	2,792,166	2,534,554	-11.6	0.9	-10.0	-8.4	5.7	-19.1	27.4	-12.9	15.6	11.3	20.3	8.2	17.9	-1.4	-15.2	15.9	-9.2
Latvia	255,144	119,094	-4.9	-4.8	1.4	-3.1	-3.4	-6.4	-10.0	6.4	-0.7	3.2	0.8	0.1	2.3	-2.4	-4.5	0.9	-53.3
Liechtenstein	1,869	2,180	-3.5	1.2	2.1	5.7	8.6	-2.8	-4.8	0.8	6.0	7.2	2.1	0.8	3.2	-17.2	9.6	-7.5	16.6
Lithuania	376,635	139,675	6.8	-9.9	5.1	-6.2	4.4	-13.4	-6.5	5.4	1.0	1.5	3.9	3.7	-1.7	-6.6	-1.3	-1.8	-62.9
Luxembourg	64,774	69,428	5.4	-13.3	4.4	-6.7	-7.5	2.8	8.3	9.7	17.5	2.0	9.7	-1.4	2.6	-7.9	-5.0	-0.3	7.2
Malta	18,483	26,070	11.0	0.5	3.3	-1.4	-0.3	5.0	-0.4	4.8	0.6	9.3	-1.2	2.1	-1.0	3.0	-2.0	-7.4	41.0
Monaco	1,146	947	-3.7	-1.6	6.0	3.9	-1.7	0.6	0.6	1.7	-3.3	-7.8	-7.9	0.3	-14.6	7.2	-0.5	-3.7	-17.3
Netherlands	1,911,430	2,040,005	5.4	2.5	7.2	-4.0	0.7	-4.7	1.3	4.3	-2.6	1.3	1.6	-3.5	-2.1	-0.2	1.8	-0.7	6.7
New Zealand	249,396	294,547	5.9	-2.1	7.1	12.0	-8.1	8.9	0.1	6.6	-0.7	3.2	-8.1	5.0	-0.2	-1.7	1.2	-10.3	18.1
Norway	265,578	382,279	-1.5	-2.2	11.1	1.1	-1.8	-2.1	1.0	7.6	2.1	6.1	-1.6	-2.6	3.9	-0.6	1.1	3.5	43.9
Poland	4,473,329	2,974,425	1.4	0.6	2.8	-2.0	-7.5	-3.4	-3.4	0.9	-3.2	3.3	-0.4	-1.0	3.2	-1.6	-2.4	-2.1	-33.5
Portugal	475,655	583,599	3.2	6.8	-7.3	5.4	7.8	17.9	-6.6	1.4	7.6	-8.6	6.1	5.6	-8.7	-4.1	-0.8	-3.2	22.7
Romania	2,119,111	980,376	-20.2	11.1	5.4	-15.7	-12.1	-10.8	1.2	0.5	4.6	7.7	-2.1	-4.3	2.5	-3.6	-1.7	-14.7	-53.7
Russian Federation	28,254,438	18,261,569	-5.5	-2.8	-0.9	-5.3	-3.5	1.9	4.4	0.9	-0.8	2.4	-0.7	-0.6	1.7	-0.7	2.0	-5.2	-35.4
Slovakia	606,543	311,331	-6.2	-3.7	-2.0	-3.4	-0.9	-1.9	-3.4	3.5	-7.4	2.8	-2.3	-1.7	-5.1	-7.4	10.3	-15.3	-48.7
Slovenia	170,401	141,253	-3.1	2.6	2.5	1.3	3.2	-4.2	-1.4	3.7	0.7	-1.3	1.1	0.4	-0.8	-5.7	3.3	-6.4	-17.1
Spain	1,937,409	2,803,949	3.8	7.2	-7.6	11.1	0.8	10.0	5.0	1.0	7.9	2.4	7.1	6.3	-3.7	2.4	-5.2	-10.8	44.7
Sweden	557,261	599,068	4.0	-0.1	11.1	-10.4	1.1	-5.7	-4.9	7.0	-0.7	2.4	-2.1	-3.1	1.6	-2.3	0.4	1.2	7.5
Switzerland	443,835	474,028	5.7	4.3	4.0	-3.4	4.0	-0.5	-3.3	4.5	-2.2	3.6	1.4	2.1	-0.5	-6.6	4.6	-3.1	6.8
Turkey	1,235,492	3,035,594	6.3	9.2	12.0	0.1	11.3	0.1	13.9	-7.1	4.5	8.9	3.6	14.1	5.7	9.9	-3.0	-2.7	145.7
Ukraine	7,376,619	2,491,801	-13.1	-11.1	-8.0	-7.8	-5.7	-1.5	-6.1	-0.6	-0.6	8.1	-2.2	2.7	2.4	-3.5	-3.8	-13.5	-66.2
United Kingdom	5,911,338	5,728,553	3.3	0.1	5.8	-3.7	3.2	0.0	3.1	5.8	-4.2	1.4	1.0	-1.1	-3.8	-1.3	0.1	-8.6	-3.1
United States	53,870,495	57,513,629	0.2	1.0	3.7	1.2	-0.2	0.8	3.2	-2.3	0.3	0.6	1.8	-0.2	-1.8	2.3	-2.5	-6.7	6.8

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.a Other (stationary).

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.8

Fuel consumption in stationary combustion: liquid fuels – trend information

Fuel consumption (TJ)	Relative change (%)																			
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	398,632	505,448	0.1	3.1	1.7	-5.7	1.8	2.0	1.3	0.9	1.7	5.7	-0.3	7.4	-3.7	2.3	6.5	0.1	26.8	
Austria	196,386	161,590	6.5	-0.6	7.6	0.8	0.8	-8.2	-8.4	6.5	-9.0	7.0	-1.2	2.1	-1.3	-10.1	1.8	-6.8	-17.7	
Belarus	644,377	194,378	-3.4	-10.3	-5.0	-9.0	-2.3	-11.5	-17.3	-6.2	-10.4	-7.7	2.3	-6.6	8.3	-8.5	9.1	38.0	-69.8	
Belgium	404,144	296,284	12.7	-0.5	8.6	-6.6	3.3	-12.3	-6.5	10.1	-6.5	5.8	-1.9	-2.8	-7.7	-9.1	2.4	-8.9	-26.7	
Bulgaria	279,452	46,886	-36.9	-11.5	2.8	-27.4	-1.9	-4.2	-17.0	1.7	-7.0	0.8	-7.2	-1.2	0.4	1.7	-19.9	-8.0	-83.2	
Canada	656,755	351,426	-11.1	-2.9	2.1	1.6	3.8	-6.4	1.4	4.6	-8.2	19.4	-2.3	-11.2	-20.6	6.1	-11.5	-7.8	-46.5	
Croatia	126,152	82,126	-29.7	17.5	-1.0	0.5	10.6	5.9	-18.8	4.8	2.7	11.1	-14.7	3.5	-1.8	-1.8	-11.8	-0.2	-34.9	
Czech Republic	184,964	67,065	-7.9	4.4	14.4	-37.5	7.9	23.7	-13.4	-9.4	-6.4	-14.2	6.2	3.2	-11.9	-6.6	0.1	-10.0	-63.7	
Denmark	172,399	113,127	3.2	5.6	14.9	-9.7	-5.1	-1.7	-5.3	2.7	-4.2	-10.2	-7.3	-3.8	1.0	-7.9	-5.4	-3.1	-34.4	
Estonia	87,861	9,425	-9.0	-30.8	9.7	-10.3	-4.1	-12.5	-36.3	13.3	-2.4	0.4	-4.5	-7.7	-18.0	3.0	-8.6	-6.1	-89.3	
European Union (27)	11,644,390	7,551,538	2.0	0.7	2.5	-3.9	-0.6	-5.3	-4.2	3.9	-4.8	-1.4	-3.1	-1.3	-3.6	-10.0	1.5	-8.5	-35.1	
Finland	203,368	151,727	-3.7	-3.8	2.9	-4.0	4.2	-0.7	-6.7	2.7	1.4	-1.9	-3.2	-3.1	-0.5	-1.7	-5.8	-1.2	-25.4	
France	1,523,911	1,190,495	7.8	3.6	2.7	-2.8	3.7	-4.8	-5.7	3.9	-7.5	1.2	0.0	-0.8	-4.9	-6.4	2.3	-4.4	-21.9	
Germany	1,953,422	1,357,240	15.1	-2.4	7.2	-5.8	-3.8	-11.7	-4.2	9.5	-8.5	-0.6	-6.9	0.5	2.2	-25.7	23.5	-9.7	-30.5	
Greece	292,327	337,514	2.2	6.8	12.8	1.0	-0.3	-3.0	8.1	1.6	2.7	9.2	-7.1	10.2	3.0	-5.6	-3.0	-16.2	15.5	
Hungary	220,659	42,990	-2.0	-16.5	-11.3	-1.0	-10.2	-6.5	-12.3	-3.9	-24.8	-12.8	-14.2	-14.3	8.4	-3.2	-13.5	2.8	-80.5	
Iceland	13,776	11,432	-5.1	3.4	9.1	2.0	-3.6	0.7	-8.2	-4.2	7.7	-7.0	-0.7	-3.2	-10.9	-0.4	-11.4	2.6	-17.0	
Ireland	98,262	121,747	11.7	1.3	-4.5	12.9	10.0	14.1	-5.7	7.1	-8.9	-6.1	4.2	3.9	-6.7	-9.0	0.3	-16.0	23.9	
Italy	2,050,491	940,323	-2.7	6.4	-3.3	-2.0	-2.2	-4.5	-3.3	-1.4	-1.3	-4.5	-10.6	-7.4	-3.7	-11.6	-4.1	-13.3	-54.1	
Japan	6,433,479	3,805,267	-1.8	-2.0	-2.1	-4.9	-4.3	1.9	-2.4	-6.2	4.3	-2.6	-2.8	0.9	-8.8	2.0	-10.9	-12.5	-40.9	
Kazakhstan	532,095	273,501	-16.6	-3.2	-11.4	3.5	26.0	-31.3	48.8	-35.9	31.3	-5.3	51.6	-27.4	115.0	-9.3	-44.1	-15.8	-48.6	
Latvia	98,894	11,290	-13.0	-25.1	13.9	-21.5	-1.6	-10.6	-38.2	-21.1	-5.6	-2.6	-3.8	-11.6	2.7	-6.1	-15.1	-0.2	-88.6	
Liechtenstein	1,303	897	-12.3	-2.8	-6.9	13.4	7.1	-12.0	-12.0	-4.8	12.8	6.0	-2.8	-4.4	4.3	-39.6	26.1	12.0	-31.1	
Lithuania	164,258	35,180	10.5	-23.4	6.3	-8.2	24.8	-28.3	-30.1	14.6	-8.3	-16.9	5.8	3.6	-11.3	-17.0	16.5	1.7	-78.6	
Luxembourg	16,849	13,034	24.7	-8.8	6.8	-2.2	2.7	-0.2	-3.4	8.1	-9.1	7.6	7.3	-6.4	-7.2	-12.7	-6.9	-4.8	-22.6	
Malta	11,212	25,215	17.8	24.5	10.0	-1.5	-0.4	5.2	-0.4	5.1	0.6	9.4	-1.3	2.2	-1.3	3.1	-1.9	-7.5	124.9	
Monaco	507	271	-15.4	-6.2	7.7	-7.6	4.7	-2.3	-8.8	-5.5	9.4	7.0	-7.9	-0.8	-7.8	-20.4	0.7	4.6	-46.6	
Netherlands	361,765	263,097	-2.4	-2.2	0.8	5.4	2.3	-5.6	-2.5	4.7	-16.7	3.2	-0.7	-3.6	-3.6	8.3	-10.2	-8.7	-27.3	
New Zealand	39,560	44,881	-5.4	3.6	-2.0	-0.3	1.1	3.6	3.5	0.2	4.7	8.4	1.6	3.0	-2.5	3.5	-4.4	-12.7	13.5	
Norway	125,475	108,107	-5.6	-6.9	18.9	-6.8	2.2	-0.1	-12.0	5.4	-0.6	6.3	-9.6	-6.0	5.9	-7.7	-3.0	1.8	-13.8	
Poland	252,272	249,235	-6.9	2.4	13.7	12.8	-1.0	-1.3	6.8	0.7	-1.4	7.8	-0.2	-6.5	-6.8	-7.9	-5.0	-1.8	-1.2	
Portugal	260,728	167,558	2.6	7.1	-10.3	7.1	11.6	-0.1	-10.9	5.0	6.2	-16.7	1.7	9.8	-19.6	-7.5	-4.4	-16.9	-35.7	
Romania	446,052	136,013	-27.9	3.6	13.5	-1.3	-19.0	-21.0	-4.1	10.6	1.9	-12.1	7.0	-7.7	-8.8	2.3	-12.9	-21.7	-69.5	
Russian Federation	8,367,261	2,042,017	-5.2	-2.9	-5.0	-2.8	-10.0	0.6	-1.1	-1.6	-6.6	-1.4	-0.1	-2.1	1.3	-6.1	3.7	-11.1	-75.6	
Slovakia	81,347	37,364	-12.2	-8.3	-6.9	-5.5	-4.1	-2.8	-7.5	1.2	1.7	6.8	9.8	-22.7	-2.3	-4.5	20.2	0.2	-54.1	
Slovenia	37,559	31,549	-0.9	5.4	15.0	-2.0	-0.2	3.6	-8.1	0.7	-6.3	-5.1	-1.5	-1.7	-3.8	-23.7	14.7	-6.4	-16.0	
Spain	855,591	886,915	4.3	6.0	-7.4	2.3	2.6	6.3	-1.6	3.2	1.6	-1.0	2.9	-0.5	-5.2	-4.2	-3.2	-6.1	3.7	
Sweden	297,627	180,111	1.1	-2.0	12.3	-12.8	-0.4	-9.2	-4.4	-1.6	-0.6	1.2	-7.6	-10.9	-1.5	-10.1	-5.5	-3.0	-39.5	
Switzerland	268,334	218,788	7.6	2.6	3.5	-4.1	4.2	-3.1	-8.1	4.4	-3.5	3.5	0.1	0.9	-3.3	-12.0	4.9	-3.8	-18.5	
Turkey	493,755	398,868	-1.4	6.9	5.6	5.9	-6.7	-2.4	10.7	-6.5	3.1	-1.2	-0.8	-8.4	-11.4	-6.0	-11.8	-11.6	-19.2	
Ukraine	1,351,836	81,252	-23.6	-26.0	-27.3	-22.1	-3.2	-33.2	-38.7	9.9	0.5	-13.0	-4.7	19.9	-26.0	-9.2	-9.9	69.1	-94.0	
United Kingdom	1,184,911	680,237	2.0	-4.4	-0.2	-12.4	-2.8	-6.8	-3.1	5.1	-8.4	-2.8	2.7	4.1	-5.8	-5.7	-0.3	-6.0	-42.6	
United States	12,474,908	10,956,031	-1.7	-5.1	5.9	1.9	-0.1	2.6	-0.3	2.8	-4.5	4.3	4.1	-0.3	-2.9	-1.9	-9.7	-7.9	-12.2	

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 a Other (stationary).

^a In accordance with the UNFCCC reporting guidelines on annual GHG inventories of Annex 1 Parties, the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.9

Fuel consumption in stationary combustion: solid fuels – trend information

Fuel consumption (TJ)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	1,444,095	2,194,226	3.3	2.9	4.2	4.8	6.5	3.1	1.0	3.0	0.9	4.5	0.5	1.1	1.8	0.0	1.6	-0.2	51.9
Austria	139,820	81,520	4.5	14.1	0.7	5.3	-21.4	2.0	14.2	7.4	-0.9	13.7	-1.9	-1.8	-1.5	-6.9	-6.8	-22.3	-41.7
Belarus	105,401	23,355	-1.7	-15.5	6.7	-20.5	-8.3	-15.3	9.1	-10.3	-15.5	-5.6	-7.7	4.1	-6.2	-8.0	-8.8	1.0	-77.8
Belgium	440,481	149,492	-4.5	-2.0	-5.1	-8.7	5.6	-14.0	6.8	-10.3	1.8	-2.8	1.0	-7.8	-4.4	-10.5	-1.5	-34.9	-66.1
Bulgaria	418,666	264,597	-13.7	-0.2	0.0	5.9	-5.5	-16.0	-0.2	15.2	-7.2	11.5	-3.8	-1.5	1.6	11.3	-3.4	-16.1	-36.8
Canada	1,032,208	1,070,421	2.5	2.5	1.6	6.0	8.1	0.6	8.3	-0.2	-1.9	2.6	-4.3	-2.4	-3.0	4.2	-2.6	-15.6	3.7
Croatia	28,458	21,119	-39.1	11.8	-19.0	64.9	-3.2	-13.6	119.2	5.4	22.1	12.4	7.3	-1.6	-7.6	8.0	2.8	-27.9	-25.8
Czech Republic	1,134,431	680,625	-1.8	-0.5	4.1	-5.0	-9.8	-5.5	9.6	1.7	-4.0	-2.4	-1.5	-0.7	0.9	1.1	-5.7	-4.4	-40.0
Denmark	254,835	168,767	35.7	-16.3	37.4	-25.6	-15.1	-16.0	-16.2	5.7	0.2	36.5	-23.5	-15.6	50.3	-16.2	-12.0	-1.8	-33.8
Estonia	237,870	107,598	-9.5	-7.7	3.7	-2.5	-10.5	-5.6	0.8	-1.7	-2.6	17.5	-0.2	-4.9	-5.6	22.9	-8.1	-13.4	-54.8
European Union (27)	17,508,842	10,403,735	-3.8	-1.7	-0.7	-5.4	-3.5	-5.2	1.9	0.9	-1.1	3.2	-1.4	-2.2	2.3	0.3	-7.4	-10.6	-40.6
Finland	145,080	131,228	-7.9	-20.2	29.8	-10.0	-26.4	1.5	-1.8	15.1	12.8	36.6	-11.4	-45.7	81.0	-13.2	-28.9	12.6	-9.5
France	669,188	397,417	9.3	4.3	6.0	-10.7	22.1	-10.2	-2.3	-15.8	3.5	3.9	-1.4	8.1	-8.3	5.5	-6.7	-11.1	-40.6
Germany	5,208,195	2,845,612	-11.8	-2.8	-0.6	-4.9	-2.0	-4.3	2.2	1.2	-0.4	0.8	-1.3	-3.5	1.5	3.6	-6.9	-8.7	-45.4
Greece	331,195	339,182	-3.5	-4.1	-3.1	8.4	4.6	-3.4	6.4	2.4	-3.9	-0.1	3.4	-1.5	-8.5	5.9	-5.7	-1.3	2.4
Hungary	348,762	104,828	-3.6	-2.9	2.3	-5.2	-6.8	1.7	-2.5	-5.3	-2.0	5.4	-6.9	-11.7	-2.5	0.9	-2.0	-14.8	-69.9
Iceland	538	293	-8.4	-32.3	-23.3	59.7	28.1	0.7	5.6	22.0	-28.4	-9.3	51.4	-44.7	37.2	83.6	-11.4	-52.0	-45.6
Ireland	144,698	87,685	-1.1	0.1	1.7	-6.9	0.8	-14.4	6.9	5.1	-2.1	-4.8	-5.8	11.3	-9.9	-6.7	2.9	-10.3	-39.4
Italy	630,359	533,904	-6.0	6.7	-8.0	-1.2	3.7	0.1	5.8	7.0	3.2	8.4	11.7	-0.8	1.1	0.3	-2.5	-21.7	-15.3
Japan	3,353,693	4,400,528	-0.6	3.6	2.7	2.6	-4.0	4.8	6.9	2.5	6.2	2.7	2.5	1.8	-0.4	3.5	-6.7	-4.8	31.2
Kazakhstan	1,727,782	1,335,952	-8.8	-3.1	-9.3	-12.3	-1.3	-12.8	18.0	-1.5	2.8	11.3	4.6	3.6	5.5	9.7	-13.3	22.6	-22.7
Latvia	30,385	3,641	-12.7	-27.7	-5.7	-11.3	-27.2	-24.2	2.3	-5.6	-19.2	-16.6	-18.5	20.3	6.6	22.1	-0.8	-17.4	-88.0
Liechtenstein	1	0	-5.4	-3.7	-26.9	5.3	5.0	-47.6	118.2	-45.8	-7.7	8.3	-23.1	-10.0	-33.3	-16.7	-20.0	-50.0	-94.6
Lithuania	33,226	6,870	11.8	-20.2	-8.7	-18.7	-12.7	-14.8	-27.5	-9.0	63.2	27.4	-2.2	10.8	36.2	-2.9	-17.5	-24.6	-79.3
Luxembourg	28,075	2,222	-4.7	-42.8	-5.6	-34.8	-62.9	5.9	9.7	-2.4	-32.0	-13.3	14.1	5.3	15.8	-21.4	-8.7	13.1	-92.1
Malta	6,595	NA,NO	-0.6	-74.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NA,NO	NA,NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	300,497	254,686	-8.9	4.4	-4.5	-4.4	3.9	-14.8	7.4	6.7	0.2	2.5	-2.1	-5.7	-2.7	7.1	-5.0	-3.8	-15.2
New Zealand	35,219	48,437	-8.8	-1.9	-1.0	17.1	-14.9	1.6	-8.1	32.7	-2.7	58.5	6.2	15.2	-1.5	-32.9	37.5	-29.6	37.5
Norway	8,233	5,914	-1.9	0.5	-1.7	7.1	-5.6	-18.7	-1.9	-8.5	-3.0	1.5	-4.7	-14.6	7.8	4.4	-8.3	-1.4	-28.2
Poland	3,865,719	2,079,285	3.1	0.2	2.0	-4.3	-9.3	-4.1	-5.6	-0.1	-4.7	2.5	-1.9	-1.1	4.3	-1.5	-3.1	-4.2	-46.2
Portugal	108,813	113,493	6.3	10.2	-7.1	1.2	-10.3	22.4	0.3	-11.1	7.7	-5.8	0.5	-0.1	0.2	-13.0	-13.8	11.3	4.3
Romania	537,493	290,528	-21.1	3.0	2.1	-16.1	-16.8	-8.4	12.0	8.9	4.3	11.6	-5.3	-3.4	13.5	1.4	-1.3	-16.6	-45.9
Russian Federation	6,926,971	3,925,097	-6.8	2.2	0.4	-12.7	-3.5	0.6	22.3	-0.2	-2.5	1.1	-3.6	-2.8	-2.8	-3.7	8.5	-4.8	-43.3
Slovakia	281,486	69,359	-12.4	-10.0	-9.4	-9.2	-1.9	-5.4	-0.4	1.8	-14.0	9.4	-8.3	-0.4	-0.6	-16.0	-1.2	-10.6	-75.4
Slovenia	85,059	58,308	-6.7	2.9	-8.9	7.1	6.7	-10.8	2.3	9.0	7.3	-6.0	2.4	-0.3	1.8	2.4	-3.1	-7.3	-31.4
Spain	737,872	399,379	2.0	2.6	-17.6	12.9	-2.0	13.5	5.4	-8.9	13.1	-6.7	4.3	0.9	-13.1	9.2	-31.8	-26.2	-45.9
Sweden	98,151	75,832	2.2	-2.3	13.8	-13.8	5.3	-10.1	-0.9	8.7	0.2	4.4	6.0	-7.1	-0.6	0.2	-1.8	-14.5	-22.7
Switzerland	14,763	5,635	-24.2	2.5	-37.8	-10.4	-11.3	-1.6	54.0	2.7	-9.5	3.4	-1.2	12.6	9.9	7.4	-17.8	-6.1	-61.8
Turkey	611,512	1,197,467	9.0	4.9	16.1	-1.2	15.9	-7.3	14.2	-17.1	4.0	7.2	4.6	-0.5	12.9	13.2	0.2	4.4	95.8
Ukraine	2,008,966	928,499	-10.2	-8.9	-21.8	-2.5	-12.3	2.6	-6.2	9.0	4.4	3.7	-6.1	3.4	16.2	0.9	-0.8	-9.5	-53.8
United Kingdom	2,530,555	1,160,536	0.6	-5.2	-6.9	-11.9	0.8	-11.9	7.1	6.5	-7.0	7.4	-4.0	1.8	9.2	-7.1	-8.1	-16.2	-54.1
United States	19,124,628	20,505,013	-0.5	0.8	4.6	2.1	1.9	0.4	3.8	-2.5	0.2	2.0	1.7	1.2	-1.4	1.0	-1.4	-11.4	7.2

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.a Other (stationary).

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.10

Fuel consumption in stationary combustion: gaseous fuels – trend information

Fuel consumption (TJ)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	643,973	1,156,375	-5.0	7.2	-0.2	3.2	5.5	5.0	1.9	5.5	2.9	3.1	2.1	2.0	2.4	9.5	3.2	-0.8	79.6
Austria	199,931	295,857	5.8	9.4	6.7	-3.8	2.1	1.2	-5.5	7.2	2.3	7.6	-0.9	9.6	-7.4	-5.5	4.8	-1.5	48.0
Belarus	493,858	551,123	-12.9	-10.6	6.8	18.6	-3.2	2.6	2.4	0.8	2.5	4.0	8.3	2.1	1.0	0.6	1.6	-17.9	11.6
Belgium	328,858	599,642	5.9	11.7	11.6	-6.2	12.4	6.5	-0.1	0.4	0.6	5.9	-0.7	1.7	0.0	0.5	1.1	2.9	82.3
Bulgaria	207,808	71,798	-10.5	26.3	0.0	-20.7	-14.9	-16.9	-3.8	-10.5	-6.6	7.1	-6.1	10.9	9.0	-1.7	-3.1	-16.4	-65.4
Canada	2,597,635	3,682,168	-1.7	3.0	3.6	-0.9	-2.6	8.3	7.3	-2.3	5.5	2.5	-0.7	-3.0	-0.6	11.1	-4.0	-1.0	41.8
Croatia	82,842	90,022	-13.6	-12.0	11.3	5.2	-0.9	-0.7	1.0	6.3	4.3	-1.0	3.9	-2.7	-1.0	15.1	-2.9	-6.4	8.7
Czech Republic	222,830	268,061	5.1	26.8	15.2	2.1	0.7	0.7	-3.0	7.1	-2.6	-2.3	0.4	-1.4	-2.0	-6.8	-1.0	-6.5	20.3
Denmark	76,099	165,194	13.2	15.8	17.7	5.3	8.6	5.2	-1.0	4.1	-0.1	1.2	-0.4	-3.9	2.0	-10.5	0.7	-4.0	117.1
Estonia	43,459	21,402	1.7	17.2	13.2	-3.2	-6.4	-2.1	21.2	7.5	-6.1	5.5	11.3	2.2	1.5	0.1	-5.4	-22.0	-50.8
European Union (27)	11,578,767	17,039,608	4.7	7.1	10.2	-1.0	3.8	3.9	2.3	4.7	0.1	4.0	2.2	1.7	-2.6	-0.7	2.2	-5.6	47.2
Finland	90,756	134,563	4.5	3.8	4.6	-1.6	14.6	0.1	3.0	9.0	-1.6	10.7	-3.6	-8.6	6.8	-7.6	2.2	-10.9	48.3
France	969,048	1,517,275	12.9	1.8	11.4	-1.3	6.3	1.5	3.9	8.6	0.3	2.0	3.6	3.3	-4.3	-3.3	2.9	-2.4	56.6
Germany	2,043,699	2,852,197	7.4	6.8	11.7	-4.4	1.5	0.3	0.1	5.0	-0.6	0.9	-0.6	1.7	-0.3	-1.5	1.0	-3.8	39.6
Greece	1,737	115,813	7.0	-7.9	12.3	244.1	281.9	69.2	43.5	1.8	7.5	10.1	10.6	4.1	17.0	25.5	6.3	-18.8	6567.4
Hungary	356,939	372,225	1.2	8.9	11.6	-5.2	1.7	1.1	-2.8	11.0	1.2	9.8	-3.0	4.9	-5.6	-7.2	-1.3	-13.4	4.3
Iceland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	59,137	181,568	2.1	8.3	18.0	3.1	2.3	10.1	18.9	2.0	5.7	11.3	2.1	-5.5	13.6	8.1	3.7	-3.0	207.0
Italy	1,537,487	2,608,148	6.1	10.1	3.6	3.7	7.9	9.2	3.7	0.4	-0.6	10.6	3.7	7.1	-2.1	0.8	-0.5	-8.4	69.6
Japan	2,106,359	4,011,156	7.2	3.3	5.1	4.2	2.4	6.0	3.5	0.0	3.2	4.1	0.0	-0.1	11.5	9.3	-2.1	-0.2	90.4
Kazakhstan	476,243	920,853	-10.0	25.8	-12.0	-5.8	9.5	-37.1	38.3	-27.6	32.4	9.4	115.7	4.5	30.3	-6.2	2.7	33.5	93.4
Latvia	98,364	50,849	-0.5	23.0	-13.9	22.4	-2.0	-4.3	10.2	16.1	2.4	3.9	-0.6	2.6	3.4	-3.5	-1.9	-8.4	-48.3
Liechtenstein	506	1,083	21.4	9.3	14.4	-3.0	10.2	7.6	-1.6	9.3	1.1	7.1	5.8	4.3	1.6	-4.8	2.8	-22.0	114.2
Lithuania	167,235	65,631	2.6	8.9	4.6	-4.9	-17.5	3.3	17.3	0.2	2.4	10.9	4.0	5.3	-2.1	-3.6	-8.2	-2.7	-60.8
Luxembourg	17,992	50,001	3.6	14.5	9.6	2.6	0.5	4.0	16.2	11.3	37.0	0.6	10.4	-1.6	5.2	-6.7	-5.2	1.3	177.9
Malta	676	849	12.0	-0.9	2.4	-0.7	1.7	1.4	-0.1	-1.9	1.2	5.3	1.3	-0.3	7.8	0.8	-4.0	-5.4	25.6
Monaco	160	200	16.8	4.7	-1.5	-3.9	4.1	5.3	9.5	-2.0	5.0	-0.6	0.9	2.2	6.9	-4.9	4.2	-5.7	25.3
Netherlands	1,207,669	1,392,868	11.6	3.1	11.2	-6.9	-0.6	-2.8	0.9	3.9	-0.1	0.7	2.2	-4.3	-1.9	-3.0	5.2	0.8	15.3
New Zealand	135,920	143,690	10.9	-6.9	13.9	19.4	-11.8	16.1	-2.3	4.3	-3.9	-11.2	-17.6	6.2	2.0	9.8	-8.6	-1.9	5.7
Norway	92,422	214,622	5.3	1.4	7.2	8.0	-3.9	-5.8	15.6	10.2	3.2	6.7	5.0	-1.5	3.6	3.2	3.8	6.5	132.2
Poland	293,960	422,091	-8.1	3.3	4.7	6.6	-1.0	1.2	2.6	5.4	3.8	5.5	7.0	2.7	1.6	0.2	0.7	2.9	43.6
Portugal	NO	162,210	*	*	*	*	764.4	263.3	-17.1	17.1	21.1	0.5	22.2	6.7	-5.1	3.9	14.3	-1.4	*
Romania	1,109,201	396,070	-16.5	3.8	-1.7	-17.8	-5.9	-7.8	-0.8	-2.8	5.1	12.3	-5.9	-4.9	1.5	-10.6	-2.9	-15.3	-64.3
Russian Federation	12,258,856	12,005,654	-5.1	-4.5	0.3	-3.2	-1.6	2.0	0.2	1.9	1.1	4.0	-0.1	0.5	3.2	1.5	-0.2	-4.5	-2.1
Slovakia	234,492	178,660	2.0	0.9	1.9	0.3	0.0	-0.5	-4.8	4.3	-6.3	-0.8	-3.9	-2.2	-7.2	-4.8	3.4	-10.9	-23.8
Slovenia	26,669	31,041	2.1	0.4	7.1	-4.0	3.6	2.4	2.0	2.4	-2.3	9.7	0.9	1.2	-1.4	-0.8	0.4	-5.3	16.4
Spain	190,119	1,329,277	12.0	29.8	12.6	33.0	2.6	15.5	17.7	10.0	12.9	15.9	14.7	18.4	3.0	3.8	8.9	-9.7	599.2
Sweden	24,368	40,831	9.4	1.6	7.6	1.0	-1.2	1.0	-10.1	17.3	1.5	-7.5	-5.0	-15.1	10.5	7.6	-9.4	35.3	67.6
Switzerland	67,706	111,631	12.8	10.2	8.2	-3.5	2.9	3.6	-0.6	4.1	-1.8	6.0	3.1	2.6	-2.8	-2.7	6.4	-4.1	64.9
Turkey	130,225	1,246,704	23.0	28.9	16.9	-9.0	44.2	20.3	17.8	8.2	6.6	21.3	6.2	21.0	11.7	16.9	-2.2	-5.6	857.3
Ukraine	3,915,259	1,433,343	-10.9	-9.6	2.2	-8.6	-3.2	-0.3	-4.2	-4.9	-3.0	11.3	0.0	2.0	-2.6	-5.8	-5.3	-18.6	-63.4
United Kingdom	2,160,850	3,721,433	7.2	5.4	16.0	2.8	5.6	6.4	3.0	5.7	-2.5	-0.1	2.3	-3.3	-8.3	1.8	3.0	-7.0	72.2
United States	19,519,574	23,710,726	2.5	4.5	1.7	0.4	-1.3	0.2	4.7	-3.8	3.3	-2.6	0.3	-1.5	-1.6	6.6	0.5	-1.8	21.5

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.a Other (stationary).

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.11

Fuel consumption in stationary combustion: biomass – trend information

Fuel consumption (TJ)	Relative change (%)		Relative change (%)																	
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	178,845	211,429	-0.4	4.1	5.2	4.2	1.0	-1.7	2.6	-4.1	-11.0	8.0	-1.5	-0.1	0.2	2.0	2.8	-0.7	18.2	
Austria	94,852	183,719	8.9	6.6	6.4	-2.3	-2.2	14.0	-5.7	8.8	-7.2	3.9	1.0	23.9	2.0	9.3	6.7	-0.6	93.7	
Belarus	21,180	42,567	-52.4	13.9	7.0	45.6	15.4	6.5	4.1	5.8	1.7	3.1	2.8	16.0	11.0	1.5	-6.9	-3.5	101.0	
Belgium	18,744	75,598	-22.4	12.7	8.3	-0.1	3.1	5.2	0.9	14.2	4.7	21.5	13.5	11.3	19.2	15.4	16.4	10.4	303.3	
Bulgaria	7,941	30,882	-18.3	25.3	8.8	16.1	61.9	4.3	29.8	-3.2	19.6	9.6	4.3	1.3	6.1	-6.6	1.3	-2.0	288.9	
Canada	514,227	598,502	-1.1	-1.2	-0.5	0.0	4.9	8.4	0.2	-6.4	8.9	-1.0	7.9	-6.7	-12.8	10.0	-2.0	-6.3	16.4	
Croatia	22,680	14,234	-31.0	3.5	19.4	3.4	-6.4	-10.9	12.3	-21.7	1.2	28.8	-0.6	-6.9	3.5	-12.4	-1.2	7.6	-37.2	
Czech Republic	21,460	80,842	2.0	5.9	3.5	9.6	4.6	6.3	3.0	2.1	16.1	60.3	13.4	3.3	7.7	13.9	-0.8	4.7	276.7	
Denmark	42,887	110,356	8.1	3.6	4.6	3.3	0.8	4.9	4.7	10.7	6.6	13.9	8.2	7.8	3.4	9.5	1.2	1.0	157.3	
Estonia	8,630	29,221	-1.8	62.3	19.3	2.1	-14.8	0.7	0.8	5.3	1.5	4.8	3.8	-1.7	-10.3	13.3	6.9	10.0	238.6	
European Union (27)	1,730,623	3,653,628	5.2	7.9	5.8	0.6	1.0	2.3	0.2	3.6	1.2	8.8	7.3	5.6	5.6	4.6	6.2	1.5	111.1	
Finland	178,494	269,308	-1.5	1.6	0.0	13.8	3.5	5.8	0.6	-3.0	8.0	2.3	4.4	-6.4	12.5	-4.2	-1.1	-11.4	50.9	
France	456,052	478,144	15.2	1.2	6.6	-7.9	0.3	-3.5	-3.2	2.1	-3.4	6.0	1.9	-0.7	-0.1	-0.7	6.3	1.1	4.8	
Germany	223,188	824,481	-1.8	-3.5	2.2	32.6	8.4	5.3	3.8	6.0	1.0	20.3	13.7	11.6	13.6	15.0	6.8	3.1	269.4	
Greece	19,388	22,539	0.9	-0.4	2.8	-3.1	-2.8	10.2	14.6	-1.5	-8.2	-12.4	10.2	-0.3	1.4	1.4	5.9	0.9	16.3	
Hungary	13,095	45,047	42.8	13.4	-8.8	1.5	-7.7	0.3	9.7	-9.3	7.8	33.9	33.9	67.5	-10.2	-17.9	35.8	2.7	244.0	
Iceland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	4,510	9,186	-3.9	-1.6	14.5	12.2	16.9	-3.8	6.3	9.0	-3.2	-4.4	16.8	24.8	1.6	-1.7	-1.3	7.3	103.7	
Italy	56,679	213,475	13.8	-0.5	3.1	12.1	-2.0	17.4	4.3	9.9	-3.1	18.0	20.0	-0.5	7.3	14.4	5.5	7.6	276.6	
Japan	198,347	209,380	0.7	3.9	0.4	3.1	-8.1	4.0	3.3	-8.7	4.2	2.1	-0.6	19.6	1.1	4.5	-6.0	-8.6	5.6	
Kazakhstan	10,178	4,248	-17.9	-6.0	-1.7	1.0	-2.6	13.6	-46.8	29.5	1.1	-4.6	-40.3	36.7	-21.8	33.8	8.1	27.7	-58.3	
Latvia	27,501	53,236	17.3	13.4	4.6	0.2	-1.3	-1.8	-7.1	12.2	-0.5	6.4	5.6	0.0	0.7	-2.1	-5.3	14.6	93.6	
Liechtenstein	60	200	-21.6	-21.7	-2.9	14.8	10.8	9.1	53.7	-32.1	2.2	25.0	8.3	7.8	13.1	28.8	1.3	18.2	231.7	
Lithuania	11,916	31,994	0	4.9	9.6	2.3	10.2	3.7	4.7	5.6	5.8	3.4	2.8	-1.5	1.8	-3.2	4.1	3.0	168.5	
Luxembourg	1,522	3,002	1.2	-2.4	-12.5	8.7	-4.9	7.3	-1.6	7.3	-0.9	12.7	10.2	48.9	2.3	10.3	3.6	-7.5	97.2	
Malta	NA,NO	6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	8	21	1.6	1.4	0.3	0.3	0	0.5	-3.9	0.4	17.8	-15.6	2.2	-6.0	-8.4	73.4	39.2	19.4	170.6	
Netherlands	31,986	98,342	-2.8	7.4	8.5	9.5	5.2	2.4	7.9	5.2	10.5	-4.1	17.0	24.5	2.3	-10.1	19.3	11.5	207.5	
New Zealand	38,697	57,539	13.5	7.2	2.1	-3.2	3.0	-4.8	11.7	4.9	7.4	7.0	-5.8	-6.5	-1.7	4.6	1.8	-6.5	48.7	
Norway	35,274	44,207	-5.5	1.2	4.0	5.4	-8.4	5.5	-1.6	8.1	6.9	1.5	-3.7	2.6	-0.1	0.0	-0.1	-3.7	25.3	
Poland	61,378	223,815	-13.9	2.1	-1.5	-0.1	0.5	-4.0	1.4	6.9	1.8	0.6	3.8	2.9	10.4	2.2	2.5	9.3	264.6	
Portugal	104,875	134,525	1.7	1.4	0.6	3.5	-0.5	3.6	3.0	-0.4	0.8	-0.3	6.5	2.1	1.9	2.6	-0.1	3.7	28.3	
Romania	26,366	157,765	-6.3	216.5	30.2	-32.7	-10.5	-5.5	-2.0	-22.8	10.1	21.0	9.8	2.4	-1.1	2.7	17.5	-1.2	498.4	
Russian Federation	571,804	141,216	-2.0	-10.6	-14.3	-13.6	-18.7	28.0	-15.5	-3.0	-4.2	-0.5	-3.3	-0.3	0.3	7.0	-9.2	-6.2	-75.3	
Slovakia	7,911	24,393	34.7	2.9	24.8	-12.8	-1.2	2.4	9.4	14.5	-0.6	6.9	25.9	39.5	-6.6	-1.0	80.8	-51.9	208.3	
Slovenia	20,985	19,670	-2.6	-1.1	2.3	1.6	1.2	-12.5	1.0	-2.1	1.8	6.2	2.3	5.0	-3.2	-4.0	12.1	-6.2	-6.3	
Spain	150,724	162,388	-0.1	0.4	-1.9	5.5	-2.4	0.7	1.1	1.0	1.3	3.2	2.9	0.3	1.1	0.7	-3.3	1.3	7.7	
Sweden	119,953	250,469	7.1	5.4	8.9	-6.4	0.7	1.5	-8.3	19.5	-2.7	3.1	-0.6	7.4	5.3	-0.1	7.0	4.8	108.8	
Switzerland	60,338	85,187	2.2	4.4	6.0	-3.9	3.3	2.2	1.8	6.3	-0.4	3.1	1.9	3.6	5.8	-0.8	4.8	-0.7	41.2	
Turkey	IE,NO	192,554	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	40,591	22,775	-15.5	-14.5	-4.5	10.2	19.0	-6.5	7.8	12.2	10.5	7.1	-8.0	-18.1	2.2	-8.1	0.8	7.3	-43.9	
United Kingdom	28,068	121,129	5.0	6.7	4.4	4.9	0.3	9.8	2.8	10.2	2.3	11.4	13.5	13.1	0.0	6.7	11.1	3.2	331.6	
United States	2,339,571	2,011,774	-0.1	2.0	2.8	-2.7	-7.9	1.4	2.2	-11.2	-0.5	0.4	6.0	0.7	-1.1	-0.5	-2.5	-7.3	-14.0	

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.a Other (stationary).

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.12

Fuel consumption in stationary combustion: other fuels – trend information

Fuel consumption (TJ)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Austria	8,990	29,552	12.1	3.7	28.4	-6.4	-6.4	-5.7	5.9	18.1	15.8	15.7	26.6	-7.4	12.0	-3.0	14.4	4.5	228.7
Belarus	1,847	NA,NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	34,575	101,435	26.9	8.7	8.2	14.0	4.3	5.6	5.9	-1.2	-5.9	0.8	3.4	3.5	1.5	-3.5	7.3	-2.5	193.4
Bulgaria	NO	250	*	*	*	*	*	*	*	*	*	*	*	-19.9	-50.7	457.3	29.3	94.7	*
Canada	1,628	5,243	13.7	-18.5	2.0	-51.3	52.8	-2.2	17.5	-4.9	53.1	-4.7	11.2	-27.5	5.1	30.9	2.1	0	222.0
Croatia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	NO	6,219	*	*	*	*	*	*	*	*	*	*	18.1	-5.8	7.5	-10.1	41.0	11.2	*
Denmark	5,064	16,111	7.9	20.0	14.2	7.3	-0.4	9.6	4.4	7.5	7.4	4.1	1.8	1.4	1.7	3.5	2.9	-5.7	218.1
Estonia	NO	645	*	*	*	*	*	*	*	1571.0	159.5	13.3	96.5	-19.7	12.2	24.1	28.2	-41.9	*
European Union (27)	265,599	760,035	4.6	6.9	8.4	8.3	6.4	2.6	3.9	5.1	1.6	8.9	7.5	0.2	8.5	4.4	8.0	0.4	186.2
Finland	54,971	82,909	4.5	7.7	9.8	0.8	-6.5	-10.3	-13.2	37.4	6.3	10.9	-10.8	-19.9	31.9	10.1	-18.0	-8.6	50.8
France	26,000	62,551	13.6	5.0	0.2	4.6	2.2	18.8	10.0	-0.4	6.8	14.1	-3.2	-0.5	-4.0	5.1	1.8	-7.5	140.6
Germany	84,441	255,452	-12.1	2.5	2.6	10.0	14.1	12.2	6.3	-2.5	-5.0	4.9	24.8	5.4	13.6	4.6	28.8	4.0	202.5
Greece	NO	501	*	*	*	*	*	*	*	*	*	*	*	*	-45.8	9.2	-59.9	113.5	*
Hungary	1,999	6,803	67.1	-2.3	0.2	2.7	5.0	-1.2	-1.2	1.4	-27.0	-25.4	64.2	111.1	17.3	12.2	-3.9	-5.1	240.2
Iceland	NO	191	*	24.4	27.5	0	0	2.0	0	0	0	4.1	141.0	4.7	30.8	13.9	-13.7	-20.2	*
Ireland	NO	540	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Italy	10,653	33,894	-9.8	24.7	16.9	19.7	25.7	-28.0	12.8	10.8	-4.7	9.5	27.0	4.2	-3.4	1.8	9.9	-5.7	218.2
Japan	258,583	416,057	3.8	2.9	1.8	4.6	1.4	2.0	7.2	3.1	5.6	7.8	2.0	4.8	0.4	1.4	-1.2	-5.2	60.9
Kazakhstan	45,869	NO	-75.6	0.4	-3.1	11.5	-2.1	549.5	49.4	5.4	100.6	55.2	-65.8	345.6	-60.5	-38.7	17.3	*	*
Latvia	NO	78	*	*	*	*	*	*	257.0	87.1	35.4	-12.3	7.9	-41.7	-28.4	60.3	73.9	-78.7	*
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	IE,NO	IE,NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	336	1,170	2.2	-4.5	-22.6	18.5	167.4	10.5	8.8	33.4	9.4	-5.9	11.5	-3.6	7.6	-11.9	8.9	-16.5	247.8
Malta	NA,NO	NA,NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	471	456	1.8	-0.3	7.1	12.8	-6.0	1.0	3.5	6.1	-10.7	-17.2	-10.9	0.4	-27.5	36.6	-3.9	-8.0	-3.3
Netherlands	9,513	31,012	-2.4	19.0	39.3	20.7	7.4	6.2	7.3	-4.9	6.8	11.2	5.1	-5.8	1.6	6.4	2.7	-2.8	226.0
New Zealand	IE,NA,NO	IE,NA,NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Norway	4,174	9,430	3.3	4.0	-1.4	3.6	11.0	12.9	7.4	5.2	0.5	20.8	-0.1	5.3	1.4	6.6	5.0	-4.3	125.9
Poland	IE,NA	IE,NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Portugal	1,239	5,814	-5.0	45.2	9.2	16.8	26.9	69.3	53.0	-18.6	-7.7	11.8	11.4	0.0	7.2	-3.1	3.5	10.1	369.1
Romania	IE,NE	IE,NE,NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Russian Federation	129,546	147,586	-1.3	35.8	-29.5	20.4	3.1	24.2	13.8	4.1	6.9	-25.1	42.3	-2.9	12.4	-24.5	8.6	14.1	13.9
Slovakia	1,307	1,554	0	-6.7	-1.9	9.0	11.6	-3.0	19.5	-37.1	19.4	3.8	13.3	-0.7	3.9	-4.4	-12.8	12.6	18.9
Slovenia	129	685	-37.0	28.2	26.4	-6.3	30.2	52.8	-5.9	-23.0	-3.5	36.4	55.5	35.0	52.7	-38.9	24.0	39.5	430.6
Spain	3,103	25,991	0.8	42.7	37.7	46.0	-0.9	11.9	1.0	5.0	19.8	25.3	11.0	5.8	5.4	7.7	-4.9	1.2	737.6
Sweden	17,162	51,826	34.3	-7.2	5.9	-8.3	14.1	-6.1	10.2	-0.6	9.0	16.5	16.5	16.4	-2.4	14.0	5.1	6.7	202.0
Switzerland	32,694	52,786	-4.1	2.5	2.7	5.0	8.7	3.3	7.6	3.5	2.3	-0.4	4.0	4.0	8.6	-0.7	2.2	-1.0	61.5
Turkey	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	59,966	25,933	-13.8	-12.3	-8.2	-7.7	-9.4	-1.5	-11.4	-1.4	-10.0	5.7	-17.2	26.8	17.4	13.5	-5.8	6.9	-56.8
United Kingdom	6,954	45,218	4.6	10.1	-0.8	16.9	29.4	-3.5	2.0	6.1	9.3	3.7	-1.8	0.5	10.2	4.2	5.0	16.3	550.3
United States	411,814	330,085	-14.1	-0.9	1.1	-5.2	-7.1	-3.9	5.0	-0.5	0.3	0.4	0.7	-0.3	-0.5	-3.4	-3.5	0.3	-19.8

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 a Other (stationary).

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.13**Contribution of fuels to total energy consumption in stationary combustion (%)**

	Liquid Fuels		Solid Fuels		Gaseous Fuels		Other Fuels		Biomass	
	Base year ^a	2009	Base year ^a	2009	Base year ^a	2009	Base year ^a	2009	Base year ^a	2009
Australia	15.0	12.4	54.2	53.9	24.2	28.4	-	-	6.7	5.2
Austria	30.7	21.5	21.8	10.8	31.2	39.3	1.4	3.9	14.8	24.4
Belarus	50.9	24.0	8.3	2.9	39.0	67.9	0.1	-	1.7	5.2
Belgium	32.9	24.2	35.9	12.2	26.8	49.1	2.8	8.3	1.5	6.2
Bulgaria	30.6	11.3	45.8	63.8	22.7	17.3	-	0.1	0.9	7.5
Canada	13.7	6.2	21.5	18.8	54.1	64.5	0.0	0.1	10.7	10.5
Croatia	48.5	39.6	10.9	10.2	31.8	43.4	-	-	8.7	6.9
Czech Republic	11.8	6.1	72.5	61.7	14.3	24.3	-	0.6	1.4	7.3
Denmark	31.3	19.7	46.2	29.4	13.8	28.8	0.9	2.8	7.8	19.2
Estonia	23.3	5.6	63.0	63.9	11.5	12.7	-	0.4	2.3	17.4
European Union (27)	27.3	19.2	41.0	26.4	27.1	43.2	0.6	1.9	4.1	9.3
Finland	30.2	19.7	21.6	17.0	13.5	17.5	8.2	10.8	26.5	35.0
France	41.8	32.7	18.4	10.9	26.6	41.6	0.7	1.7	12.5	13.1
Germany	20.5	16.7	54.7	35.0	21.5	35.1	0.9	3.1	2.3	10.1
Greece	45.3	41.4	51.4	41.6	0.3	14.2	-	0.1	3.0	2.8
Hungary	23.4	7.5	37.0	18.3	37.9	65.1	0.2	1.2	1.4	7.9
Iceland	96.2	95.9	3.8	2.5	-	-	-	1.6	-	-
Ireland	32.0	30.4	47.2	21.9	19.3	45.3	-	0.1	1.5	2.3
Italy	47.8	21.7	14.7	12.3	35.9	60.2	0.2	0.8	1.3	4.9
Japan	52.1	29.6	27.2	34.3	17.1	31.2	2.1	3.2	1.6	1.6
Kazakhstan	19.1	10.8	61.9	52.7	17.1	36.3	1.6	-	0.4	0.2
Latvia	38.8	9.5	11.9	3.1	38.6	42.7	-	0.1	10.8	44.7
Liechtenstein	69.7	41.2	0.1	0.0	27.1	49.7	-	-	3.2	9.2
Lithuania	43.6	25.2	8.8	4.9	44.4	47.0	-	-	3.2	22.9
Luxembourg	26.0	18.8	43.3	3.2	27.8	72.0	0.5	1.7	2.3	4.3
Malta	60.7	96.7	35.7	-	3.7	3.3	-	-	-	0.0
Monaco	44.3	28.6	-	-	13.9	21.1	41.1	48.1	0.7	2.2
Netherlands	18.9	12.9	15.7	12.5	63.2	68.3	0.5	1.5	1.7	4.8
New Zealand	15.9	15.2	14.1	16.4	54.5	48.8	-	-	15.5	19.5
Norway	47.2	28.3	3.1	1.5	34.8	56.1	1.6	2.5	13.3	11.6
Poland	5.6	8.4	86.4	69.9	6.6	14.2	-	-	1.4	7.5
Portugal	54.8	28.7	22.9	19.4	-	27.8	0.3	1.0	22.0	23.1
Romania	21.0	13.9	25.4	29.6	52.3	40.4	-	-	1.2	16.1
Russian Federation	29.6	11.2	24.5	21.5	43.4	65.7	0.5	0.8	2.0	0.8
Slovakia	13.4	12.0	46.4	22.3	38.7	57.4	0.2	0.5	1.3	7.8
Slovenia	22.0	22.3	49.9	41.3	15.7	22.0	0.1	0.5	12.3	13.9
Spain	44.2	31.6	38.1	14.2	9.8	47.4	0.2	0.9	7.8	5.8
Sweden	53.4	30.1	17.6	12.7	4.4	6.8	3.1	8.7	21.5	41.8
Switzerland	60.5	46.2	3.3	1.2	15.3	23.5	7.4	11.1	13.6	18.0
Turkey	40.0	13.1	49.5	39.4	10.5	41.1	-	-	-	6.3
Ukraine	18.3	3.3	27.2	37.3	53.1	57.5	0.8	1.0	0.6	0.9
United Kingdom	20.0	11.9	42.8	20.3	36.6	65.0	0.1	0.8	0.5	2.1
United States	23.2	19.0	35.5	35.7	36.2	41.2	0.8	0.6	4.3	3.5

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.a Other (stationary).

^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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.14

CO₂ emissions from energy industries: all fuels - trend information

CO ₂ emissions (Gg)	Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	142,734	226,830	2.3	3.8	3.0	4.1	7.4	4.0	1.5	3.8	0.7	5.1	0.6	0.7	1.7	1.6	1.6	1.2	58.9
Austria	13,792	12,649	6.0	9.8	6.9	0.6	-6.4	-2.7	-3.3	12.9	-1.2	17.9	0.2	-0.1	-5.8	-8.6	-1.5	-7.3	-8.3
Belarus	65,141	30,266	-10.0	-14.7	0.4	5.4	-5.9	-4.0	-4.2	1.4	-1.1	-0.5	6.6	-1.7	1.3	-6.3	3.4	-3.9	-53.5
Belgium	29,826	26,359	-0.3	-1.9	-0.8	-3.8	9.8	-12.0	4.5	-5.9	6.0	4.9	0.2	-1.3	-5.1	-1.0	-7.6	4.0	-11.6
Bulgaria	40,134	29,553	-21.5	1.9	-0.7	7.4	-4.2	-13.0	-0.7	16.1	-9.5	7.4	-1.0	0.7	1.2	12.6	3.7	-7.4	-26.4
Canada	140,580	158,539	-0.8	3.3	0.0	5.0	9.9	4.5	6.8	3.3	2.4	-0.3	2.4	-2.9	-3.7	-4.3	6.6	-4.1	12.8
Croatia	7,127	6,373	-33.1	12.7	-2.9	9.4	12.1	3.1	-9.1	8.5	13.9	9.2	-14.0	0.4	-3.1	16.7	-13.4	-4.9	-10.6
Czech Republic	57,707	58,652	-0.5	5.5	4.7	-0.4	-5.7	-5.7	13.5	-1.4	-2.9	11.2	-0.3	0.9	-0.8	4.3	-6.1	-5.4	1.6
Denmark	26,229	23,953	33.6	-9.8	38.1	-20.5	-10.3	-9.7	-10.5	5.2	0.6	17.2	-18.3	-12.3	34.7	-15.1	-8.1	-0.1	-8.7
Estonia	28,571	10,721	-8.9	-9.6	4.4	-3.1	-9.9	-4.1	-3.7	-1.6	-2.1	15.5	-0.8	-5.8	-5.7	17.7	-9.8	-13.6	-62.5
European Union (27)	1,676,090	1,399,408	-1.9	-0.2	1.9	-3.2	1.2	-2.8	2.2	2.5	1.3	3.4	-0.8	-0.8	0.5	0.7	-4.7	-8.0	-16.5
Finland	19,057	25,120	-1.2	-8.7	23.7	-8.1	-12.0	-2.1	-6.6	24.4	10.0	23.1	-11.4	-33.7	50.2	-6.3	-21.5	5.0	31.8
France	65,211	60,696	18.7	5.4	8.8	-5.9	22.2	-9.3	-2.1	-11.1	9.0	3.3	-1.5	9.0	-4.8	0.4	-3.0	-3.7	-6.9
Germany	423,418	338,535	-3.1	-2.5	2.0	-5.5	0.8	-3.4	4.1	3.4	0.5	3.4	-0.9	-2.2	0.4	2.6	-5.4	-6.5	-20.0
Greece	42,993	54,620	-2.7	-2.7	-1.8	8.0	5.5	0.4	8.7	1.0	-1.0	2.3	2.4	1.5	-3.8	6.2	-2.8	-5.2	27.0
Hungary	27,051	16,212	2.7	-0.8	3.6	-0.7	4.3	-0.8	-7.4	-0.2	-7.6	4.5	-10.2	-8.3	4.8	4.4	-4.4	-16.5	-40.1
Iceland	13	15	11.8	17.4	-19.1	-33.2	32.3	-21.2	-10.9	-2.6	18.3	-6.7	-2.9	27.7	18.9	93.1	-51.0	2.2	9.2
Ireland	11,159	12,926	4.1	5.4	4.7	2.6	4.3	2.0	7.6	5.3	-4.3	-2.3	2.4	-4.8	-3.4	0.6	-10.8	15.8	15.8
Italy	136,503	132,368	-4.3	9.8	-3.4	1.5	8.1	-1.5	4.1	1.7	4.5	0.4	-1.2	0.1	0.9	-0.2	-2.4	-15.8	-3.0
Japan	324,253	386,429	0.8	-3.2	0.1	-0.9	-2.8	5.2	2.2	-2.2	9.0	3.7	-1.1	3.9	-2.9	13.3	-6.0	-8.0	19.2
Kazakhstan	113,513	112,330	-1.6	7.8	-11.6	-11.5	-5.4	-16.3	21.0	-5.7	6.0	11.1	34.6	3.6	8.2	-2.7	-3.1	11.3	-1.0
Latvia	6,268	1,872	-8.3	-8.4	3.9	-6.9	1.3	-12.7	-15.4	-2.3	-4.3	-3.0	-8.4	-0.5	1.3	-6.2	-1.4	-2.3	-70.1
Liechtenstein	0	3	550.0	13.8	25.3	-2.4	15.7	0	-5.7	6.1	-14.3	12.5	4.4	6.4	-9.3	-9.6	13.0	2.2	2266.7
Lithuania	13,960	4,894	8.0	-12.0	10.6	-7.9	12.7	-19.0	-15.0	9.0	-3.5	-2.5	3.2	4.6	-7.8	-9.1	1.0	0.5	-64.9
Luxembourg	33	1,155	2.2	181.7	-11.7	8.8	74.9	11.2	5.5	95.9	201.6	0.3	19.7	-1.6	5.5	-10.6	-14.8	14.7	3369.0
Malta	1,350	1,858	10.5	-3.8	1.8	-0.5	0.9	4.0	-0.9	7.1	0.9	9.7	-2.5	1.9	0.7	2.1	-2.0	-6.0	37.6
Monaco	27	26	-1.8	-0.3	7.4	12.1	-5.9	1.1	3.2	5.9	-10.5	-16.9	-11.1	0.2	-23.0	32.5	-6.2	-7.6	-6.2
Netherlands	52,501	64,234	1.2	5.8	1.6	1.6	3.7	-5.9	2.9	6.4	-0.9	2.2	2.1	-3.8	-7.3	4.4	0.1	-1.5	22.3
New Zealand	5,983	7,214	2.1	-12.4	12.0	28.2	-22.4	23.1	-4.4	21.5	-10.6	19.5	-4.9	25.9	-0.8	-13.4	7.4	-20.5	20.6
Norway	6,894	14,316	5.3	-1.7	12.2	3.8	-3.1	-0.3	9.7	11.7	1.9	5.5	0.9	1.4	0.4	2.5	0.6	5.5	107.7
Poland	262,784	166,693	-1.7	-6.7	3.1	-2.7	-3.5	-3.0	-1.4	1.2	-3.1	5.1	-0.9	-1.0	2.7	-1.4	-4.2	-3.9	-36.6
Portugal	15,948	19,505	4.2	14.9	-20.2	4.4	15.4	32.6	-15.2	2.6	15.5	-17.7	7.1	13.9	-11.8	-9.6	-0.8	-0.7	22.3
Romania	106,012	39,146	-19.7	2.2	4.1	-14.9	-10.8	-12.5	0.5	6.8	1.8	3.4	-6.6	-5.6	5.4	-0.7	-2.1	-17.4	-63.1
Russian Federation	1,172,334	864,939	-6.0	-5.5	-0.2	-5.8	0.5	-1.4	1.5	-0.2	1.0	1.2	-1.7	1.0	3.6	-1.7	2.1	-4.6	-26.2
Slovakia	16,108	9,808	-9.3	-2.3	-0.7	0.2	2.1	1.2	-0.1	6.4	-2.7	4.0	-2.5	-7.9	-5.7	-7.9	4.9	-9.1	-39.1
Slovenia	6,701	6,056	-14.7	7.1	-6.9	7.9	4.2	-11.7	5.8	12.8	4.0	-4.2	2.1	0.2	0.9	3.4	-3.2	-4.7	-9.6
Spain	77,354	89,066	1.0	7.8	-14.9	16.5	-1.1	19.4	4.2	-5.6	13.9	-6.3	9.2	8.4	-7.1	5.1	-14.0	-15.3	15.1
Sweden	9,569	8,977	11.9	-7.8	36.3	-28.8	11.0	-14.5	-15.8	16.8	9.3	11.0	-6.4	-7.9	-2.5	-4.4	-0.7	4.1	3.4
Switzerland	2,493	3,469	11.2	1.0	8.0	-1.5	11.6	-5.2	-3.1	4.5	1.9	-0.7	10.7	4.5	6.8	-7.3	5.9	-2.9	39.2
Turkey	34,015	102,516	7.7	0.3	9.9	12.0	10.1	8.2	10.7	3.8	-7.1	0.2	2.7	16.2	2.3	17.7	-0.6	-3.2	201.4
Ukraine	271,267	96,509	-13.2	-11.2	-13.8	-7.3	-9.2	2.7	-6.7	3.8	0.2	4.9	-6.7	1.3	7.7	-0.5	-0.9	-8.8	-64.4
United Kingdom	235,272	181,191	-0.9	-1.1	1.1	-6.1	2.5	-4.9	5.5	5.3	-1.3	3.7	-0.8	0.2	2.2	-2.0	-2.7	-11.8	-23.0
United States	1,828,807	2,166,325	-0.1	0.9	3.8	3.3	4.2	0.6	4.8	-1.7	0.7	1.4	1.4	2.8	-2.3	2.8	-2.2	-8.7	18.5

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.15

CO₂ emissions from energy industries: liquid fuels - trend information

CO ₂ emissions (Gg)		Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	9,064	9,988	4.5	5.7	-1.6	-8.5	3.5	6.2	-9.9	-1.6	-0.8	6.3	0.5	7.4	-5.9	3.2	4.2	1.5	10.2	
Austria	3,190	3,348	6.9	-11.8	0.2	9.6	7.1	-17.3	-16.3	11.1	-11.8	15.3	7.4	-5.4	-1.0	-6.3	-4.0	8.0	4.9	
Belarus	39,471	6,908	-7.5	-15.9	-12.4	-17.7	-9.1	-17.9	-27.9	1.6	-12.0	-18.2	-8.5	-24.1	14.5	-63.3	42.4	331.8	-82.5	
Belgium	4,949	3,985	4.0	-12.2	16.7	3.3	14.3	-24.1	-3.6	11.4	-3.9	11.5	0.5	-7.4	0.6	-8.6	-9.1	-9.8	-19.5	
Bulgaria	8,156	1,673	-42.9	-8.4	9.7	-37.6	-13.1	-1.1	-26.0	-0.8	6.0	-7.5	-3.6	21.9	-5.9	6.7	22.7	50.8	-79.5	
Canada	15,151	7,326	-12.2	11.6	-12.2	20.6	32.3	-17.3	-1.7	9.2	-14.2	18.9	1.2	-16.7	-34.4	8.7	-7.9	-2.2	-51.6	
Croatia	4,723	3,201	-34.0	34.6	-8.6	1.1	18.6	6.9	-35.0	6.5	4.0	23.1	-25.5	4.6	-3.9	10.2	-22.2	15.8	-32.2	
Czech Republic	1,790	1,156	29.5	1.4	3.3	-8.8	-12.1	-7.0	2.4	-4.9	6.5	-3.8	-13.7	3.6	-9.7	-9.6	5.7	-7.5	-35.4	
Denmark	2,129	2,168	10.2	18.6	39.8	-11.4	-8.5	-4.1	-5.3	1.0	-7.3	-30.7	-16.1	-7.5	7.1	-9.7	-7.6	7.2	1.8	
Estonia	4,825	343	-10.2	-24.4	-0.3	-12.2	2.7	-6.8	-45.8	1.2	-12.0	-6.4	-8.9	-3.4	-21.0	-4.6	-12.8	-3.5	-92.9	
European Union (27)	282,145	172,508	0.9	3.2	0.0	-4.9	1.3	-6.7	-5.0	2.1	-0.6	-6.2	-5.4	-1.0	-5.7	-7.9	-1.6	-6.9	-38.9	
Finland	2,847	2,888	1.6	-6.2	13.7	-14.5	2.1	2.1	-14.8	9.7	9.8	-2.0	-12.5	-5.9	5.6	-0.2	-12.5	15.2	1.4	
France	20,675	19,086	22.7	6.4	2.3	1.1	9.1	-8.0	-0.8	-2.4	-3.5	3.2	-1.1	1.5	-3.8	-3.0	-1.0	-1.7	-7.7	
Germany	24,931	23,137	15.3	-2.7	-1.0	-7.6	1.9	-4.9	3.2	-1.3	1.5	5.2	3.2	5.0	-4.6	-6.2	-0.4	-2.0	-7.2	
Greece	7,683	9,043	6.1	6.0	1.6	-1.6	-1.0	-0.7	11.0	-4.3	0.0	4.6	-5.5	10.8	8.2	1.9	0.8	-17.7	17.7	
Hungary	5,350	1,610	47.3	-6.0	-13.5	11.3	-1.5	-10.6	-15.4	-1.1	-37.3	-17.1	-39.8	6.9	12.4	8.0	-13.7	12.5	-69.9	
Iceland	13	5	11.8	14.6	-34.6	-54.0	76.4	-37.6	-24.5	-6.9	50.6	-14.5	-10.1	77.0	-33.8	283.0	-76.0	20.9	-62.2	
Ireland	1,269	995	55.1	-3.5	-0.1	30.9	32.8	26.0	-20.9	13.0	-23.4	-27.9	23.0	2.3	-12.6	-36.7	-8.2	-34.1	-21.5	
Italy	80,168	32,513	-10.3	7.1	-3.6	-2.0	-1.9	-10.6	-2.0	-2.6	1.5	-10.8	-16.5	-11.6	-2.9	-13.8	-8.1	-13.7	-59.4	
Japan	151,894	49,791	-5.2	-15.2	-6.4	-14.0	-11.2	-1.4	-10.8	-23.9	21.8	2.7	-9.8	14.9	-16.8	48.8	-17.7	-36.2	-67.2	
Kazakhstan	17,705	7,398	-0.2	9.4	-10.6	-11.1	-5.6	23.4	86.8	-61.0	23.3	3.9	37.2	1.8	46.6	-18.5	-24.6	-4.2	-58.2	
Latvia	3,076	93	-17.8	-33.4	33.3	-36.2	17.9	-15.4	-54.8	-33.0	-3.8	-28.9	-12.7	-23.8	-37.2	-8.1	-35.1	34.9	-97.0	
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Lithuania	7,786	2,288	17.5	-22.7	10.3	-8.7	33.6	-30.7	-36.2	20.7	-6.6	-18.3	5.7	3.6	-10.6	-14.7	18.1	2.3	-70.6	
Luxembourg	NO	3	*	*	*	2002.3	62.7	2.6	-34.6	70.0	-15.9	-33.9	5.6	1.0	-25.5	10.8	85.4	35.5	*	
Malta	738	1,858	19.7	26.2	10.5	-0.5	0.9	4.0	-0.9	7.1	0.9	9.7	-2.5	1.9	0.7	2.1	-2.0	-6.0	151.7	
Monaco	1	0	-85.7	4.3	68.3	-72.8	60.0	31.8	-65.5	*	*	*	*	*	*	-47.4	42.3	62.2	-84.9	
Netherlands	10,207	7,834	0.5	14.7	-3.8	1.3	4.3	-6.1	2.8	5.3	-15.1	7.1	-3.2	-2.0	-20.4	0.3	3.0	-13.4	-23.2	
New Zealand	229	155	4.6	69.0	-31.2	-48.1	40.5	39.1	-22.9	7.1	-5.6	31.7	-11.2	-13.4	-9.1	-5.1	42.0	-26.6	-32.6	
Norway	1,407	2,115	2.5	-10.9	29.2	-4.8	4.4	4.3	-9.2	0.5	-6.0	2.1	-10.4	14.0	9.1	0.7	2.0	2.8	50.3	
Poland	7,662	5,351	-5.4	-7.7	11.2	-8.4	-6.8	-7.3	-2.2	10.2	-0.3	-0.2	0.0	-6.3	13.4	-5.5	2.1	-1.5	-30.2	
Portugal	8,263	3,374	2.4	15.4	-36.6	5.8	45.3	1.5	-22.3	18.3	18.5	-37.5	-4.5	40.3	-33.7	-9.1	1.8	-26.4	-59.2	
Romania	17,864	4,645	-25.9	5.4	10.8	0.0	-22.0	-18.0	-20.2	24.7	-9.6	-13.7	-6.0	-3.2	-16.3	-14.0	1.5	-17.0	-74.0	
Russian Federation	237,660	77,433	-5.2	-12.9	-6.3	-10.0	14.7	-13.3	-6.5	-4.0	-2.1	-1.9	-8.8	2.7	2.3	-12.9	-4.6	-5.1	-67.4	
Slovakia	1,540	1,381	-6.7	-0.7	0.1	0.7	1.1	1.2	-21.7	14.7	2.2	6.1	26.6	-36.7	-7.7	3.4	33.5	2.8	-10.3	
Slovenia	309	39	-6.9	-13.4	6.3	-0.2	-14.8	-57.3	59.0	74.3	-39.0	-17.4	-41.8	15.3	25.8	-25.3	-27.7	61.3	-87.3	
Spain	16,924	19,945	3.8	14.2	-8.2	-4.3	10.2	21.0	-2.1	5.8	5.0	-12.9	5.7	2.9	-6.4	-8.1	-4.4	-4.4	17.9	
Sweden	3,055	3,035	20.8	-10.6	65.2	-40.1	12.4	-18.7	-23.0	18.3	9.7	12.2	-19.5	-7.3	1.5	-21.7	2.5	9.2	-0.7	
Switzerland	691	986	52.3	-1.6	13.3	-11.4	28.0	-22.5	-18.2	7.7	3.0	-5.1	35.5	5.9	8.6	-16.3	12.2	-4.5	42.6	
Turkey	7,065	7,553	-17.6	-7.4	15.1	7.6	7.2	-1.7	31.6	1.3	-1.0	-7.0	-6.7	-17.6	-6.2	8.7	-31.4	-3.1	6.9	
Ukraine	52,890	3,861	-23.8	-26.2	-27.5	-22.4	-3.6	-40.3	-50.2	35.9	10.4	-22.9	-12.4	-5.8	-2.5	-19.6	-9.4	184.1	-92.7	
United Kingdom	39,259	18,824	-8.6	0.5	-2.6	-15.9	-6.1	-8.0	-4.6	-2.3	4.9	-3.0	0.0	4.6	-9.8	-5.9	7.1	-6.0	-52.1	
United States	97,538	32,939	-7.0	-27.7	8.0	13.9	40.2	-7.3	-5.8	11.4	-22.0	23.8	2.0	2.3	-45.2	-0.9	-27.2	-16.0	-66.2	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.16

CO₂ emissions from energy industries: solid fuels - trend information

CO ₂ emissions (Gg)	Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	120,261	185,721	4.0	2.9	3.8	5.2	7.5	3.2	2.1	3.2	0.6	5.0	0.2	0.0	2.0	-0.5	0.5	1.6	54.4
Austria	6,247	3,018	9.1	38.1	3.7	6.5	-30.1	8.3	27.3	21.7	-6.2	25.5	-3.5	-12.4	-3.4	-10.2	-12.4	-32.0	-51.7
Belarus	2,283	617	18.0	-14.0	22.1	-32.8	-2.8	-25.3	13.9	1.8	-15.4	-7.1	-7.6	-12.0	-10.4	-6.8	-5.4	7.6	-73.0
Belgium	21,361	7,644	-3.1	-4.0	-7.2	-7.6	-0.2	-23.1	12.2	-12.6	6.7	-4.0	1.0	-3.5	-14.4	-8.2	-14.6	-8.8	-64.2
Bulgaria	25,504	25,707	-17.8	0.2	-2.1	13.7	-2.7	-15.0	2.1	18.8	-10.4	8.3	-0.2	-0.1	1.7	13.8	3.2	-10.3	0.8
Canada	84,216	87,856	4.1	2.8	1.7	6.6	6.1	0.5	8.3	0.3	-1.2	2.1	-5.1	-1.8	-3.7	4.6	-3.4	-15.1	4.3
Croatia	589	1,449	-27.6	148.2	-43.3	314.4	2.4	-10.8	181.5	7.5	26.6	8.2	-6.9	8.3	-7.1	6.6	3.3	-31.0	145.9
Czech Republic	54,051	54,994	-1.4	4.9	4.0	0.1	-5.5	-6.3	14.9	-1.0	-3.2	10.6	-0.5	1.2	-0.2	5.9	-6.1	-6.1	1.7
Denmark	22,225	15,336	37.6	-16.9	40.2	-26.8	-15.7	-16.2	-17.2	7.1	1.4	38.3	-25.0	-16.4	54.4	-17.1	-12.1	0.6	-31.0
Estonia	21,785	9,483	-9.6	-8.9	4.0	-1.9	-11.2	-4.1	-0.6	-2.6	-1.3	18.9	-1.5	-6.7	-5.6	21.2	-10.0	-13.6	-56.5
European Union (27)	1,229,897	871,980	-2.6	-2.3	0.3	-4.4	-4.4	-0.4	4.4	2.6	0.4	4.7	-1.1	-2.7	1.6	0.6	-8.4	-9.3	-29.1
Finland	9,640	10,722	-8.1	-22.2	41.2	-12.7	-31.5	2.5	-2.9	23.2	17.0	43.9	-12.9	-53.3	111.2	-13.4	-34.0	22.4	11.2
France	41,091	28,102	17.1	5.7	11.2	-11.2	34.4	-12.3	-2.2	-19.1	11.2	3.9	-4.3	8.8	-6.6	1.6	-7.0	-8.8	-31.6
Germany	371,331	266,007	-4.5	-2.5	1.4	-5.7	0.3	-4.0	4.4	3.9	0.1	1.7	-0.8	-4.5	0.5	3.0	-7.5	-7.6	-28.4
Greece	35,207	41,185	-4.6	-4.6	-2.7	9.9	5.1	-1.8	6.3	2.3	-1.8	1.2	3.6	-0.1	-8.3	4.5	-4.6	1.4	17.0
Hungary	14,582	7,686	-5.9	3.1	3.7	3.0	-0.8	1.7	-2.8	-5.3	-3.6	9.1	-7.1	-18.8	-3.2	1.6	-4.4	-11.2	-47.3
Iceland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	8,009	5,910	-1.7	5.3	2.5	-3.0	-5.0	-8.4	8.5	7.8	-3.0	-7.6	-8.1	10.5	-11.6	-3.8	-0.9	-12.5	-26.2
Italy	39,620	42,321	-8.7	15.2	-9.2	0.7	13.2	4.6	9.9	10.9	9.7	6.2	11.6	-0.8	2.3	-0.4	-2.7	-19.0	6.8
Japan	89,106	207,234	6.0	7.7	2.9	7.2	-1.3	9.0	9.3	6.7	9.6	4.4	4.1	5.8	-4.0	4.5	-3.6	-2.8	132.6
Kazakhstan	82,252	69,706	-1.7	-1.9	-11.7	-11.6	-5.4	-22.0	11.6	10.0	-1.6	11.6	15.2	-1.5	9.8	-0.2	-6.4	11.9	-15.3
Latvia	503	52	-8.5	16.0	-19.0	-3.7	-30.1	-37.3	58.6	-41.4	-21.3	-31.4	-69.8	-13.0	-44.8	170.0	25.0	20.0	-89.7
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	193	29	-15.0	-19.1	-23.6	-19.2	18.0	22.4	-24.4	19.3	-18.2	9.5	-6.4	-10.3	2.3	67.2	-56.3	-9.6	-84.9
Luxembourg	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Malta	611	NA, NO	-0.6	-74.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	25,776	23,621	-8.1	4.4	-4.7	-3.5	5.0	-13.6	7.0	7.2	0.7	2.7	-2.4	-4.4	-6.4	8.2	-2.7	-6.9	-8.4
New Zealand	465	2,469	-53.4	46.6	9.6	94.9	-36.0	45.5	-19.3	53.1	0.2	118.8	30.9	26.7	-5.5	-48.9	65.3	-35.9	430.8
Norway	205	112	12.8	0.5	-6.3	-7.0	0.6	-34.7	-3.9	6.3	-3.4	-8.7	-0.5	-3.4	-6.2	6.2	-17.4	11.1	-45.4
Poland	253,033	156,392	-1.5	-6.6	2.5	-2.5	-3.6	-3.2	-1.6	1.0	-3.5	5.2	-1.3	-0.9	2.6	-1.2	-4.5	-4.4	-38.2
Portugal	7,685	10,582	6.1	14.6	-7.9	3.1	-8.1	27.5	-3.1	-7.5	10.7	-4.5	2.1	2.2	-0.1	-13.9	-10.3	12.7	37.7
Romania	46,030	26,053	-23.8	3.2	1.3	-17.1	-15.7	-7.4	13.9	11.4	3.7	8.0	-5.5	-5.5	14.2	3.0	-0.4	-16.7	-43.4
Russian Federation	408,091	282,064	-5.8	-3.0	3.2	-9.4	-4.8	-1.5	7.9	-1.9	1.1	-0.2	-5.5	-1.3	4.9	-5.2	10.3	-1.3	-30.9
Slovakia	11,553	4,756	-17.5	-8.4	-4.5	-0.9	2.1	4.0	7.4	11.7	-1.4	6.8	-5.7	-3.7	-5.7	-9.7	-0.7	-11.1	-58.8
Slovenia	6,195	5,673	-13.2	6.6	-7.9	9.9	4.5	-11.3	5.7	12.2	5.1	-6.0	3.4	-0.3	0.9	3.6	-3.5	-6.3	-8.4
Spain	59,625	35,718	-0.5	5.5	-18.5	17.7	-1.2	19.1	5.4	-9.6	13.7	-7.6	5.0	0.8	-13.6	8.4	-33.9	-25.0	-40.1
Sweden	5,476	4,203	4.8	-6.3	21.4	-20.4	10.5	-13.4	-12.0	15.7	9.4	12.8	0.7	-11.6	-6.3	0.4	-0.6	-12.1	-23.2
Switzerland	47	NO	-78.9	-33.3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Turkey	21,514	54,485	14.9	-1.8	9.5	11.2	8.4	2.6	-0.4	0.8	-16.0	-4.0	5.0	26.7	3.9	16.8	4.6	-3.7	153.3
Ukraine	96,018	68,851	-5.3	-5.0	-18.6	1.3	-9.1	0.1	-5.1	13.3	3.9	1.0	-8.3	6.0	19.6	2.1	3.1	-8.4	-28.3
United Kingdom	185,476	86,785	0.3	-5.9	-5.7	-13.8	3.9	-15.4	12.5	10.8	-5.9	9.4	-3.9	1.4	10.7	-8.6	-9.5	-17.7	-53.2
United States	1,547,564	1,747,641	0.0	1.3	5.5	2.5	1.7	0.5	5.0	-3.0	1.1	2.2	0.6	2.1	-1.5	1.7	-1.4	-10.8	12.9

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.17

CO₂ emissions from energy industries: gaseous fuels - trend information

CO ₂ emissions (Gg)	Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	13,409	31,120	-14.3	10.9	-1.3	2.2	8.1	10.7	3.0	10.9	2.2	5.5	3.0	3.5	2.6	16.4	7.1	-0.9	132.1
Austria	4,237	5,521	0.4	9.9	15.0	-11.5	7.4	2.4	-17.2	2.4	11.5	10.9	-1.5	19.8	-13.5	-8.9	11.3	1.6	30.3
Belarus	23,386	22,741	-17.1	-14.0	7.9	23.2	-4.7	2.5	2.3	1.4	1.9	3.0	9.3	1.3	0.4	-0.2	2.0	-22.4	-2.8
Belgium	2,767	12,878	19.9	24.8	6.4	0.6	41.0	22.8	-3.1	-5.8	8.5	17.0	-1.6	5.2	0.8	8.9	-3.4	21.2	365.4
Bulgaria	6,475	2,174	-24.0	25.3	3.3	-6.5	-12.6	0.5	-11.6	-1.8	-5.9	4.6	-9.0	2.0	-2.5	0.5	1.7	2.1	-66.4
Canada	41,212	63,357	-6.7	2.6	-0.5	-1.3	12.2	19.2	6.3	4.9	4.1	0.3	-0.1	-4.1	-0.1	9.4	-4.6	-10.6	53.7
Croatia	1,814	1,723	-32.4	-41.0	34.9	2.9	-3.9	-4.8	19.8	14.3	23.3	-15.8	7.9	-16.3	4.5	43.8	-14.5	-6.3	-5.0
Czech Republic	1,866	2,501	-4.0	29.3	22.5	-3.8	-3.1	6.8	-3.5	-6.8	-1.0	35.4	10.1	-5.0	-7.4	-20.4	-11.1	14.6	34.1
Denmark	1,525	5,237	16.4	22.2	25.4	12.3	14.3	7.7	2.8	4.1	3.6	-0.6	0.2	-5.8	5.8	-14.2	2.4	-3.7	243.4
Estonia	1,961	895	2.6	28.7	20.0	-3.1	-12.5	1.2	28.1	6.7	-2.1	-1.3	11.2	1.2	0.4	-3.4	-6.9	-17.3	-54.3
European Union (27)	150,525	321,734	-2.3	8.2	15.2	5.6	8.8	9.8	1.0	1.1	6.9	6.8	4.5	6.5	-0.2	6.1	4.7	-6.3	113.7
Finland	2,620	5,180	4.8	6.7	9.0	-1.4	25.2	0.1	3.0	10.4	-0.7	14.2	-4.8	-8.3	7.2	-13.4	7.2	-9.0	97.7
France	1,652	8,206	18.5	-5.9	41.6	-3.9	5.1	-14.0	-26.7	3.5	118.3	-13.2	17.9	60.8	0.0	1.3	5.7	13.1	396.8
Germany	22,404	38,809	0.3	-0.4	14.3	-4.6	4.6	1.1	-0.3	1.9	3.6	21.2	-3.1	13.4	0.0	5.1	3.8	-6.5	73.2
Greece	102	4,392	6.3	-4.4	5.4	187.3	248.3	95.0	46.7	-1.1	7.0	10.5	8.8	-2.8	18.5	32.4	4.4	-27.1	4204.7
Hungary	7,021	6,638	0.2	-2.7	19.5	-15.1	19.8	2.2	-10.0	9.4	2.8	5.2	-7.4	3.0	13.0	5.8	-2.3	-26.6	-5.5
Iceland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	1,881	6,020	-5.5	15.5	20.7	8.8	-3.6	11.7	19.7	2.1	8.2	18.9	-4.9	-8.9	12.0	13.8	4.8	-3.4	220.1
Italy	16,562	57,227	-13.5	16.2	7.2	20.3	42.3	22.1	12.0	1.5	5.1	13.8	7.1	13.6	2.9	10.6	1.3	-14.7	245.5
Japan	76,761	121,909	6.5	1.5	4.6	3.7	2.9	6.2	2.4	-0.6	1.4	3.2	-4.0	-5.5	11.2	11.1	-1.7	-0.2	58.8
Kazakhstan	12,941	35,226	-1.7	356.2	-11.5	-10.9	-5.2	-2.8	2.6	-9.4	24.5	3.9	190.2	5.8	10.2	-1.8	7.4	28.2	172.2
Latvia	2,689	1,728	2.6	43.5	-22.0	50.9	-4.7	-5.2	12.5	16.2	-3.0	4.7	-4.9	2.9	5.7	-7.3	0.1	-4.3	-35.7
Liechtenstein	0,1188	3	550.0	13.8	25.3	-2.4	15.7	0	-5.7	6.1	-14.3	12.5	4.4	6.4	-9.3	-9.6	13.0	2.2	2266.7
Lithuania	5,982	2,576	-3.7	16.7	12.2	-6.1	-22.3	13.7	22.6	-1.8	0.2	13.8	1.4	5.6	-5.8	-6.1	-8.9	-0.9	-56.9
Luxembourg	NO	1,081	*	*	-6.2	2.3	67.5	9.6	11.2	145.6	244.3	0.2	20.1	-0.9	5.3	-11.3	-16.1	16.0	*
Malta	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	15,917	30,248	16.7	2.5	12.1	6.9	1.7	1.7	-1.0	6.9	3.8	-0.7	8.0	-4.3	-3.8	2.4	1.6	6.0	90.0
New Zealand	5,289	4,590	6.9	-19.8	15.7	23.2	-20.8	18.8	-0.6	16.8	-13.1	-5.4	-25.1	27.1	4.2	18.3	-16.0	-8.4	-13.2
Norway	5,185	11,660	5.8	0.5	7.3	6.5	-5.2	-0.9	15.2	14.7	3.5	5.8	2.9	-0.4	-1.0	2.5	0.4	6.4	124.9
Poland	2,088	4,950	-12.9	-9.0	53.1	-3.0	14.2	25.4	13.8	-0.2	15.8	8.4	17.9	4.1	-1.7	-0.9	-0.9	11.0	137.1
Portugal	NO	5,186	*	*	*	*	1295.3	359.3	-43.3	12.1	28.1	-15.4	53.2	14.5	-8.4	1.3	18.0	-2.7	*
Romania	42,118	8,448	-12.1	-1.5	3.4	-23.6	9.9	-15.2	-3.6	-12.1	7.7	6.4	-9.4	-7.2	-0.2	-3.1	-8.5	-19.8	-79.9
Russian Federation	518,483	487,116	-6.6	-5.2	0.2	-2.7	-0.2	1.7	-0.5	1.5	1.6	3.5	0.9	1.9	2.8	3.3	-1.2	-6.6	-6.0
Slovakia	2,844	3,602	22.1	5.0	3.2	1.7	0.5	-0.5	-2.6	-0.6	-5.3	0.0	-5.4	-2.8	-5.3	-8.1	5.5	-10.7	26.6
Slovenia	197	338	-53.5	37.1	12.1	-31.2	3.9	-1.3	-3.2	10.7	-5.0	67.7	-15.7	11.0	-2.8	3.4	6.0	20.9	72.1
Spain	695	32,463	56.8	61.8	157.7	285.7	-44.1	13.6	27.6	0.0	78.1	33.4	51.4	60.2	14.2	8.9	29.8	-9.2	4571.9
Sweden	486	1,263	21.2	9.7	-0.9	1.6	-2.6	1.6	-13.0	27.9	1.5	-10.0	-8.7	-16.3	7.4	22.2	-19.3	97.6	160.1
Switzerland	235	321	10.2	12.5	23.8	5.5	-2.2	-1.2	-13.4	8.6	-3.9	12.4	0.4	2.2	-15.8	-9.9	15.1	-4.6	36.4
Turkey	5,436	40,479	12.2	23.1	5.3	20.5	20.0	38.1	24.0	12.1	5.1	11.2	4.9	19.5	3.0	21.6	1.1	-2.6	644.7
Ukraine	121,652	23,096	-15.1	-15.0	-4.5	-15.0	-10.6	14.1	-4.4	-9.7	-5.4	13.7	-3.3	-5.1	-10.7	-5.4	-9.8	-19.2	-81.0
United Kingdom	10,386	74,342	5.4	15.6	25.3	17.6	3.5	14.8	-0.2	-0.4	4.3	-2.7	4.2	-2.8	-7.6	11.6	5.1	-5.9	615.8
United States	175,320	373,056	2.1	8.2	-10.2	6.8	13.2	5.0	8.0	3.0	5.7	-9.1	6.8	7.5	6.0	9.9	-2.5	3.1	112.8

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.18**Contribution of fuels to CO₂ emissions from energy industries (%)**

	Liquid Fuels		Solid Fuels		Gaseous Fuels		Other Fuels	
	Base year ^a	2009	Base year ^a	2009	Base year ^a	2009	Base year ^a	2009
Australia	6.4	4.4	84.3	81.9	9.4	13.7	-	-
Austria	23.1	26.5	45.3	23.9	30.7	43.6	0.9	6.0
Belarus	60.6	22.8	3.5	2.0	35.9	75.1	-	-
Belgium	16.6	15.1	71.6	29.0	9.3	48.9	2.5	7.0
Bulgaria	20.3	5.7	63.5	87.0	16.1	7.4	-	-
Canada	10.8	4.6	59.9	55.4	29.3	40.0	-	-
Croatia	66.3	50.2	8.3	22.7	25.5	27.0	-	-
Czech Republic	3.1	2.0	93.7	93.8	3.2	4.3	-	-
Denmark	8.1	9.0	84.7	64.0	5.8	21.9	1.3	5.1
Estonia	16.9	3.2	76.2	88.4	6.9	8.4	-	-
European Union (27)	16.8	12.3	73.4	62.3	9.0	23.0	0.8	2.4
Finland	14.9	11.5	50.6	42.7	13.7	20.6	20.7	25.2
France	31.7	31.4	63.0	46.3	2.5	13.5	2.7	8.7
Germany	5.9	6.8	87.7	78.6	5.3	11.5	1.1	3.1
Greece	17.9	16.6	81.9	75.4	0.2	8.0	-	-
Hungary	19.8	9.9	53.9	47.4	26.0	40.9	0.4	1.7
Iceland	100.0	34.6	-	-	-	-	-	65.4
Ireland	11.4	7.7	71.8	45.7	16.9	46.6	-	-
Italy	58.7	24.6	29.0	32.0	12.1	43.2	0.1	0.2
Japan	46.8	12.9	27.5	53.6	23.7	31.5	2.0	1.9
Kazakhstan	15.6	6.6	72.5	62.1	11.4	31.4	0.5	-
Latvia	49.1	4.9	8.0	2.8	42.9	92.3	-	-
Liechtenstein	-	-	-	-	100.0	100.0	-	-
Lithuania	55.8	46.8	1.4	0.6	42.8	52.6	-	-
Luxembourg	-	0.3	-	-	-	93.7	100.0	6.1
Malta	54.7	100.0	45.3	-	-	-	-	-
Monaco	4.1	0.7	-	-	-	0.5	95.9	98.9
Netherlands	19.4	12.2	49.1	36.8	30.3	47.1	1.1	3.9
New Zealand	3.8	2.1	7.8	34.2	88.4	63.6	-	-
Norway	20.4	14.8	3.0	0.8	75.2	81.4	1.4	3.0
Poland	2.9	3.2	96.3	93.8	0.8	3.0	-	-
Portugal	51.8	17.3	48.2	54.3	-	26.6	-	1.9
Romania	16.9	11.9	43.4	66.6	39.7	21.6	-	-
Russian Federation	20.3	9.0	34.8	32.6	44.2	56.3	0.7	2.1
Slovakia	9.6	14.1	71.7	48.5	17.7	36.7	1.1	0.7
Slovenia	4.6	0.6	92.5	93.7	2.9	5.6	-	0.1
Spain	21.9	22.4	77.1	40.1	0.9	36.4	0.1	1.1
Sweden	31.9	30.7	57.2	42.5	5.1	12.8	5.8	14.1
Switzerland	27.7	28.4	1.9	-	9.4	9.2	61.0	62.3
Turkey	20.8	7.4	63.2	53.1	16.0	39.5	-	-
Ukraine	19.5	4.0	35.4	71.3	44.8	23.9	0.3	0.7
United Kingdom	16.7	10.4	78.8	47.9	4.4	41.0	0.1	0.7
United States	5.3	1.5	84.6	80.7	9.6	17.2	0.5	0.6

^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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Table 1.19

CO₂ emissions from manufacturing industries and construction: all fuels - trend information

CO ₂ emissions (Gg)	Relative change (%)																			
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	35,406	44,208	-1.2	2.4	0.2	0.3	-0.2	2.0	2.6	-1.4	3.8	4.2	1.3	5.4	-0.1	2.6	4.1	-5.7	24.9	
Austria	12,682	14,270	3.1	1.9	1.6	11.2	-8.1	-5.8	4.1	0.0	2.3	4.5	1.1	9.3	-1.4	-1.1	0.1	-9.8	12.5	
Belarus	7,215	8,219	7.0	-0.2	4.8	0.7	4.0	-1.5	-2.9	-6.8	2.8	8.5	11.1	4.0	3.0	3.8	0.4	-5.6	13.9	
Belgium	32,231	19,239	-0.3	1.4	-2.1	-2.5	7.8	-4.4	3.6	-1.7	-4.9	-2.1	-0.1	-5.8	0.1	-4.1	1.5	-30.0	-40.3	
Bulgaria	20,283	3,606	-15.5	9.4	0.0	-15.7	-12.9	-18.4	-6.2	-0.6	-5.2	16.2	-11.1	-3.0	4.0	2.9	-31.5	-48.1	-82.2	
Canada	63,861	74,094	-5.5	3.1	3.3	1.1	-5.1	1.5	5.4	-5.0	2.4	6.9	0.0	-4.8	2.4	12.9	-8.6	3.3	16.0	
Croatia	5,843	3,379	-25.6	-4.3	-0.9	2.5	4.9	-7.0	3.1	-0.1	-4.9	4.0	11.2	2.6	2.5	0.6	-0.2	-19.5	-42.2	
Czech Republic	46,616	15,614	5.4	0.5	11.8	-20.6	-1.7	4.8	-5.9	4.4	-5.2	-33.3	-0.2	2.1	-6.7	-4.9	-5.1	-2.4	-66.5	
Denmark	5,500	4,000	10.3	2.1	3.1	0.9	0.5	1.5	-3.3	1.4	-4.7	-1.0	1.0	-5.1	2.1	-2.9	-8.8	-20.4	-27.3	
Estonia	2,258	607	-4.6	-20.6	12.6	-9.0	-3.2	-39.8	20.6	21.7	-30.8	15.1	18.8	8.5	0.3	65.0	-10.6	-42.6	-73.1	
European Union (27)	819,591	524,374	-4.6	2.6	-0.7	-0.9	-4.0	-2.3	0.2	-1.6	-3.0	0.0	0.0	-0.9	-0.3	-0.8	-4.1	-15.5	-36.0	
Finland	13,172	8,189	-3.9	-4.5	-1.2	2.2	-2.8	-0.2	0.2	-3.8	-2.7	3.3	0.8	-2.5	2.6	-1.3	-5.8	-23.0	-37.8	
France	83,197	64,416	0.3	1.5	1.3	1.7	1.9	-2.7	0.0	-0.9	-0.9	-0.7	-2.3	-0.4	-2.4	-1.7	-3.4	-11.0	-22.6	
Germany	175,635	101,804	-12.1	2.0	-6.7	2.8	-3.4	-2.4	-3.1	-5.8	-0.8	-4.3	2.7	3.6	4.2	3.1	-2.4	-13.4	-42.0	
Greece	9,566	7,412	-1.0	9.0	6.0	2.1	0.6	-10.5	8.3	1.8	-4.6	-3.3	-7.0	19.8	2.1	-2.7	-8.4	-19.9	-22.5	
Hungary	19,124	5,408	-13.6	-0.3	1.5	-13.3	-7.4	-7.4	1.6	4.3	-6.2	6.0	-8.2	8.4	-16.1	-3.4	-2.4	-17.6	-71.7	
Iceland	361	245	-20.9	4.6	11.0	17.1	-4.6	5.6	-10.0	11.1	0.8	-9.9	8.1	-7.9	-4.4	-1.6	-14.3	-28.6	-32.1	
Ireland	3,943	4,525	2.6	2.4	-3.9	9.1	0.4	4.6	17.4	-1.0	-5.0	3.6	7.1	1.8	-1.9	4.0	-5.7	-20.4	14.8	
Italy	86,480	56,433	-3.1	2.5	-2.2	3.4	-7.3	2.5	1.2	-2.1	-4.6	6.9	1.1	-4.8	-1.8	-4.1	-3.9	-22.5	-34.7	
Japan	371,311	318,571	-1.4	1.3	2.2	0.6	-6.1	2.0	3.2	-2.7	1.8	0.1	1.5	-2.0	0.6	-0.8	-9.2	-5.2	-14.2	
Kazakhstan	33,807	36,186	-4.1	-7.1	-10.8	11.3	-6.8	39.9	12.3	6.1	4.2	4.4	-6.0	5.3	22.3	-0.4	-12.0	-1.3	7.0	
Latvia	3,742	883	-25.1	-1.7	-2.1	-2.5	-12.4	-9.4	-17.4	-8.2	4.8	0.5	1.0	2.1	3.5	1.5	-7.6	-21.9	-76.4	
Liechtenstein	35	24	-3.1	0.4	-0.1	4.5	6.5	-1.5	-8.7	0.6	3.2	7.4	-2.4	-3.2	3.4	-17.5	6.8	-28.0	-32.7	
Lithuania	5,954	993	2.0	-16.5	-8.2	-0.5	-1.2	-23.5	-6.5	-2.4	8.2	1.0	8.7	8.0	15.7	-2.0	-14.1	-19.4	-83.3	
Luxembourg	6,278	1,144	-2.5	-35.7	-4.3	-23.6	-42.3	7.9	5.6	-2.0	-7.5	9.9	13.6	-5.3	1.6	-12.0	-7.7	-19.5	-81.8	
Malta	59	67	5.4	4.4	4.2	-8.3	-28.3	32.2	5.3	-14.1	-5.1	3.0	23.1	107.5	-32.1	27.4	-4.6	-34.5	12.0	
Monaco	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	33,027	24,941	-0.9	-7.2	1.6	-3.6	-0.2	-1.2	-1.7	-1.1	1.3	1.4	-0.7	-0.8	1.1	1.0	-1.6	-9.4	-24.5	
New Zealand	4,308	4,784	10.1	-0.8	11.2	7.2	-1.5	-3.2	-4.1	3.3	6.7	-3.6	-16.1	-8.5	3.0	1.7	2.1	2.0	11.1	
Norway	3,608	3,305	-4.7	-7.0	13.6	-0.9	3.0	-8.5	-6.2	1.9	-5.5	8.0	-5.5	-6.4	8.3	-9.1	-0.2	-4.9	-8.4	
Poland	55,068	30,192	-6.9	29.2	6.4	-3.6	-14.2	-14.1	-0.1	-11.8	-8.1	-1.5	0.5	-16.5	4.1	5.5	-5.5	-8.5	-45.2	
Portugal	9,153	8,279	2.5	2.2	2.9	10.1	-0.8	0.1	3.9	-5.0	-2.9	-3.9	1.2	-2.8	-4.4	0.8	-3.8	-13.9	-9.6	
Romania	37,425	11,848	-32.8	2.8	4.1	-15.8	-26.0	-5.9	8.0	4.3	10.0	5.5	1.8	-4.7	-6.7	-4.2	-6.9	-31.2	-68.3	
Russian Federation	216,339	131,486	-3.1	12.2	0.8	-0.2	-16.8	9.6	18.8	1.3	-2.7	-1.3	3.5	3.2	1.1	-6.1	13.8	1.8	-39.2	
Slovakia	19,712	6,311	-7.0	-8.3	-6.2	-10.3	-9.3	-8.6	-1.2	-5.6	-10.8	15.4	-10.5	-0.7	16.8	-10.5	-8.2	-10.2	-68.0	
Slovenia	4,352	1,888	-1.8	-2.0	-5.3	-10.6	2.9	0.8	-1.4	-2.6	1.6	-3.9	5.3	9.2	4.1	-9.4	-1.8	-16.8	-56.6	
Spain	46,279	57,759	4.7	7.7	-9.6	11.3	0.7	4.3	3.6	7.3	2.5	7.0	3.4	1.3	-2.4	0.0	-5.4	-12.3	24.8	
Sweden	11,698	8,237	0.3	4.6	-0.1	2.4	-5.0	-7.6	3.6	0.0	-0.6	-2.2	-2.1	-5.5	2.1	-4.4	-8.2	-16.8	-29.6	
Switzerland	6,435	5,792	-1.5	-1.9	-2.3	2.5	2.6	1.0	2.6	0.8	-2.0	0.1	0.6	1.9	0.7	-4.0	-0.6	-6.5	-10.0	
Turkey	37,531	55,097	7.8	13.2	23.8	9.6	-2.8	-10.1	20.3	-21.7	23.9	16.0	1.4	-1.3	14.6	4.1	-30.4	-1.6	46.8	
Ukraine	143,311	29,119	-16.2	-14.8	-9.0	-12.0	-7.3	-5.0	-1.1	-3.0	-1.5	11.6	3.8	4.4	0.3	-2.2	-12.8	-30.1	-79.6	
United Kingdom	100,042	67,543	2.2	-3.4	1.2	-1.4	-0.6	0.6	-0.2	-0.1	-9.1	1.4	-1.9	0.1	-1.8	-1.7	-2.9	-13.7	-32.5	
United States	846,475	730,422	-1.7	0.3	4.1	0.0	-4.0	-3.0	1.9	-1.1	-1.0	-0.4	2.4	-3.1	3.1	-0.7	-4.7	-9.0	-13.7	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.20

CO₂ emissions from manufacturing industries and construction: liquid fuels - trend information

CO ₂ emissions (Gg)	Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	11,711	14,153	-3.3	2.2	5.5	-7.7	0.7	-1.8	9.8	-4.6	3.9	4.0	-2.3	11.1	-1.7	2.7	11.1	-4.7	20.9
Austria	3,136	2,549	13.4	-5.5	-3.2	23.6	-5.1	-25.2	1.0	7.0	-18.5	10.9	13.0	8.0	2.1	-0.9	-4.1	-14.6	-18.7
Belarus	3,938	3,134	13.9	-1.0	4.7	-1.2	5.1	-5.9	-10.3	-10.1	-4.1	2.4	15.8	-1.2	6.0	2.9	0.5	-4.0	-20.4
Belgium	7,525	2,377	17.7	-2.2	-12.3	-0.1	1.1	-26.0	-3.2	23.6	-7.2	-7.0	1.2	-6.9	-7.5	-5.3	-12.7	-30.6	-68.4
Bulgaria	7,243	1,264	-33.7	-2.8	4.1	-16.1	-4.4	-10.3	-16.3	-2.4	-3.8	7.5	-7.3	-6.4	-0.5	6.4	-32.1	-40.7	-82.5
Canada	13,407	4,148	-13.3	-9.4	5.9	-3.9	-6.5	-3.0	-0.2	9.6	-17.3	22.9	-3.7	-13.1	-16.8	0.1	-23.4	-22.9	-69.1
Croatia	2,136	1,249	-29.3	-1.7	3.8	-4.2	21.5	-6.6	3.0	8.2	-3.4	-3.4	-0.7	21.7	10.8	-10.8	-1.2	-26.4	-41.5
Czech Republic	9,110	3,532	-9.8	13.4	14.3	-49.7	36.9	38.2	-17.8	-13.8	-8.1	-24.1	25.9	4.4	-14.4	-4.7	-1.6	-9.7	-61.2
Denmark	2,702	1,757	11.6	-1.7	5.4	-4.6	-0.3	1.9	-1.3	3.2	1.2	-1.9	0.3	-6.4	9.4	-4.8	-13.4	-20.4	-35.0
Estonia	776	117	6.0	-64.9	95.2	-2.9	-48.0	-43.9	15.7	9.7	27.2	20.7	11.7	-9.5	-19.9	22.8	-10.4	-19.1	-85.0
European Union (27)	242,372	140,681	-1.8	-1.2	-1.4	-2.2	-1.1	-3.2	-4.2	1.1	-4.4	-0.1	0.3	-1.1	-0.9	-4.1	-6.2	-14.2	-42.0
Finland	4,540	2,719	-5.6	1.1	-3.5	0.4	2.2	1.9	-3.3	-1.9	-0.7	-0.7	3.9	-3.6	-1.6	-3.7	-8.5	-16.4	-40.1
France	31,499	19,568	0.7	2.1	0.6	-1.7	2.9	-7.5	-7.5	0.0	-7.1	-3.8	0.5	-1.1	-0.7	-4.1	-6.9	-9.6	-37.9
Germany	26,024	11,144	7.9	-3.6	-2.6	-7.1	-5.7	-9.3	-8.3	-2.6	-5.1	-7.2	-7.9	-0.5	-0.2	-2.3	-1.6	-10.7	-57.2
Greece	5,638	5,985	-3.9	15.2	13.3	3.6	-4.5	-8.1	6.3	-0.6	3.8	1.1	-10.7	32.4	5.1	-9.0	-6.0	-16.6	6.2
Hungary	3,814	693	-5.8	-21.3	1.3	-19.8	-28.2	5.5	-15.3	-8.3	-23.4	21.4	5.7	-31.1	7.9	-13.3	-15.8	6.2	-81.8
Iceland	310	217	-23.0	8.6	13.3	15.2	-6.7	5.9	-11.3	10.2	4.1	-10.0	4.8	-3.9	-7.0	-9.7	-14.9	-24.0	-29.9
Ireland	2,199	2,240	2.3	-0.2	-12.3	16.7	-0.9	7.9	12.4	-1.7	-6.5	0.0	-0.1	2.7	-11.6	3.3	-5.6	-27.5	1.9
Italy	34,529	19,287	-9.7	-0.2	-3.5	4.6	-5.0	6.5	-1.6	-0.5	-4.5	10.9	-0.6	-7.8	0.9	-6.1	-0.1	-24.0	-44.1
Japan	146,181	98,042	1.2	1.2	1.2	0.9	-5.6	1.7	0.4	-5.4	-1.8	-2.3	0.1	-4.4	-6.3	-8.8	-8.6	-3.9	-32.9
Kazakhstan	5,031	5,737	-0.9	-12.8	-13.6	5.5	-6.1	-9.2	22.7	-7.9	1.4	6.5	3.1	9.2	149.6	-23.2	-19.8	-18.8	14.0
Latvia	2,189	227	-35.2	2.0	-2.3	-2.1	-19.3	-12.0	-32.9	-35.4	-6.3	6.7	-3.1	-15.2	8.1	-6.2	-17.7	-9.4	-89.6
Liechtenstein	19	13	-12.3	-2.8	-7.2	13.8	7.4	-12.2	-12.2	-4.8	13.0	6.0	-2.9	-4.3	4.1	-40.7	27.6	12.4	-31.4
Lithuania	3,667	136	-2.5	-19.0	-10.9	-4.0	-8.4	-21.7	-18.7	-9.9	-35.9	-46.2	24.5	10.8	-8.0	-8.2	-34.5	20.0	-96.3
Luxembourg	287	89	32.5	-24.6	-1.7	-9.4	-5.0	17.7	8.2	-5.0	-9.3	43.2	16.5	-11.1	-11.8	-33.6	-28.8	-45.2	-69.1
Malta	56	57	4.9	5.1	4.0	-8.8	-30.9	36.1	5.1	-15.5	-6.3	2.8	26.3	111.0	-35.3	30.9	-4.7	-38.2	2.3
Monaco	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	8,975	8,456	0.6	-20.4	0.5	-4.4	-0.7	5.9	-8.4	4.9	9.8	8.9	-4.5	-1.9	13.5	7.8	-2.7	-6.5	-5.8
New Zealand	764	849	-4.2	2.6	6.6	1.8	-13.4	-11.6	33.0	-2.2	5.5	2.1	15.8	3.0	1.2	6.6	-5.5	-19.1	11.1
Norway	2,992	2,164	-3.0	-8.2	14.8	-9.9	4.4	-11.0	-6.9	5.4	-5.2	8.6	-10.2	-8.5	8.4	-12.5	-2.7	-5.5	-27.7
Poland	5,848	4,780	-12.6	29.3	29.5	13.9	14.1	-9.5	-6.1	-9.2	-1.0	9.5	-0.8	-9.3	-2.6	-9.4	-6.7	11.0	-18.3
Portugal	6,461	5,191	2.3	7.2	4.8	13.5	-0.6	-4.3	-8.9	-1.8	-0.4	-8.0	5.5	2.2	-6.0	-9.9	-3.1	-17.4	-19.7
Romania	10,195	2,885	-33.8	-10.9	33.8	-21.4	-19.9	-13.8	28.3	3.5	17.0	-18.7	13.7	-8.0	0.0	-0.5	-13.5	-32.5	-71.7
Russian Federation	70,035	25,130	-5.1	9.0	-4.8	32.4	-26.8	15.3	20.9	-6.7	-5.6	-7.4	0.2	-0.3	-0.2	1.6	8.7	-19.5	-64.1
Slovakia	4,163	1,234	-13.9	-12.0	-10.8	-9.3	-7.6	-5.8	-0.4	-11.5	2.4	8.5	-7.4	-3.7	2.6	-7.9	7.7	-4.0	-70.4
Slovenia	1,656	499	-13.5	-1.5	-13.5	-17.5	-3.2	4.3	-5.8	-10.0	-10.5	-10.0	13.4	20.4	9.2	-29.9	1.6	-16.4	-69.9
Spain	24,548	22,284	3.5	6.7	-15.8	13.6	-0.7	-1.1	-5.2	4.2	0.2	4.2	1.2	-2.1	-2.1	-3.9	-5.1	-10.1	-9.2
Sweden	8,472	6,147	-3.0	4.9	-1.0	2.8	-6.2	-7.3	0.2	-1.4	0.7	0.1	-4.5	-8.0	3.6	-6.7	-9.7	-8.9	-27.4
Switzerland	3,877	2,916	2.3	-6.7	1.4	4.0	3.2	0.0	-4.7	0.2	-1.4	-1.8	-0.5	0.1	-1.8	-8.7	-0.5	-5.5	-24.8
Turkey	12,574	3,617	3.6	10.1	11.7	3.5	-13.5	0.5	-0.6	-9.0	14.2	5.0	-0.9	-0.4	-14.5	-24.5	-61.8	-17.3	-71.2
Ukraine	39,844	1,094	-24.0	-27.0	-28.5	-23.8	-6.0	-29.3	-33.8	-12.0	-15.1	-0.7	4.9	52.0	-49.8	-10.2	-19.1	16.2	-97.3
United Kingdom	28,370	16,444	14.0	-10.8	-3.0	-12.7	3.6	-4.8	-0.5	11.2	-16.1	-2.2	5.6	7.4	-4.4	-3.0	-11.5	-9.6	-42.0
United States	282,100	282,009	-6.0	-5.7	10.0	-0.3	-9.0	2.1	2.6	10.0	-2.0	4.1	6.1	2.9	9.5	-3.3	-10.6	-8.8	0.0

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.21

CO₂ emissions from manufacturing industries and construction: solid fuels - trend information

CO ₂ emissions (Gg)	Relative change (%)																			
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	10,615	11,738	-1.9	2.0	-2.2	1.4	-4.9	4.4	-1.4	-4.9	3.4	8.4	4.9	8.4	-2.4	0.2	5.4	-10.0	10.6	
Austria	5,016	4,594	-5.1	5.2	-1.3	14.0	-14.8	1.4	6.9	-5.5	10.5	3.1	-0.4	12.1	0.4	-1.9	-1.4	-15.2	-8.4	
Belarus	942	312	-4.7	-20.6	9.1	-8.2	-5.0	-7.0	5.5	9.0	-4.5	-2.8	5.9	31.2	-28.0	-12.5	2.1	-4.8	-66.9	
Belgium	14,905	4,832	-4.3	-3.8	-6.1	-10.3	12.8	-3.0	7.1	-6.0	-5.7	-0.8	0.2	-15.7	6.0	-5.5	12.6	-54.2	-67.6	
Bulgaria	13,039	880	0.8	7.8	-1.2	-4.2	-16.6	-17.3	-2.6	12.1	-5.0	25.4	-15.9	-9.1	0.3	5.1	-43.1	-65.8	-93.3	
Canada	6,271	6,233	-15.6	-2.2	-1.6	1.7	-1.6	3.5	5.6	-3.4	0.6	7.6	5.6	-3.7	11.1	1.5	1.6	-23.8	-0.6	
Croatia	1,677	503	-41.0	-12.2	-9.0	-8.0	-18.3	-19.5	25.8	2.5	-1.5	34.5	82.7	-26.7	-8.8	17.2	0.9	-17.4	-70.0	
Czech Republic	31,522	7,100	8.9	-10.3	8.1	-15.3	-10.5	-2.8	-0.3	8.6	-4.6	-44.7	-11.2	4.6	-8.4	-10.1	-8.5	16.3	-77.5	
Denmark	1,439	346	9.0	-1.5	-1.1	1.6	-3.7	-13.0	-4.7	-12.3	-15.9	2.0	11.3	-6.6	2.5	-1.3	-16.5	-53.0	-76.0	
Estonia	1,203	352	-8.9	10.1	-10.9	-14.9	24.3	-49.0	37.7	24.9	-43.6	-20.4	12.8	37.7	5.1	145.9	-15.1	-41.5	-70.7	
European Union (27)	344,114	136,560	-7.8	0.9	-3.7	-1.7	-9.9	-7.5	-2.9	-6.2	-5.4	-3.3	-0.7	-2.8	1.9	5.0	-5.7	-22.9	-60.3	
Finland	4,843	2,224	-4.9	-11.9	-2.3	8.2	-1.3	0.3	3.9	-11.4	-2.1	3.7	-0.8	2.2	-2.5	-8.4	-3.0	-34.3	-54.1	
France	28,035	15,397	-4.6	-5.4	-2.4	4.6	-2.1	-2.5	2.5	-8.4	-3.5	1.6	4.4	2.2	-4.3	2.0	-6.4	-21.2	-45.1	
Germany	101,196	36,429	-22.7	0.9	-13.2	9.8	-7.8	-5.2	-8.7	-12.6	3.6	-9.9	-0.4	7.8	6.9	11.2	-3.2	-19.1	-64.0	
Greece	3,928	345	3.1	-0.4	-7.3	-3.5	1.1	-18.6	8.6	4.1	-27.0	-20.2	-0.8	-31.4	-13.9	53.8	-29.7	-66.0	-91.2	
Hungary	7,346	2,159	-13.8	-7.5	-2.8	-23.7	14.8	0.6	9.4	-16.5	-0.7	-6.4	9.3	8.0	-4.9	3.2	-1.9	-17.3	-70.6	
Iceland	50	27	-8.2	-32.0	-23.1	58.8	28.2	2.2	5.9	20.2	-29.1	-9.3	51.4	-44.7	37.2	84.5	-11.4	-51.9	-45.7	
Ireland	871	445	0.4	36.2	65.0	-23.9	-12.7	-18.5	73.0	13.9	-5.5	42.8	10.2	10.4	-16.1	1.9	-11.2	-31.9	-48.9	
Italy	18,808	6,948	-0.5	-6.2	-6.8	0.9	-11.1	-11.6	-11.1	2.9	-19.1	23.5	9.7	-4.6	-4.0	4.6	-8.8	-36.9	-63.1	
Japan	214,770	192,220	-3.6	1.1	2.7	0.2	-6.2	2.0	5.1	-1.2	3.8	0.8	1.6	-2.3	3.6	2.4	-10.1	-6.3	-10.5	
Kazakhstan	25,126	27,846	-4.2	-3.2	-9.2	14.3	-6.5	45.1	6.9	7.6	2.5	5.0	1.3	-1.9	12.4	5.8	-8.0	3.6	10.8	
Latvia	136	137	-36.8	-49.7	-6.8	-2.8	-7.4	2.1	-26.2	0	-5.1	-16.0	2.6	176.3	36.1	39.0	2.6	-29.8	0.6	
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	176	258	50.8	-46.0	-8.8	-18.0	7.4	-14.4	-23.6	-17.6	453.6	58.4	0.6	9.0	43.8	3.6	-13.9	-45.7	46.0	
Luxembourg	5,291	209	-4.6	-45.3	-8.5	-39.2	-78.1	6.3	10.6	-2.2	-32.1	-13.0	14.4	5.2	16.2	-21.4	-8.7	13.1	-96.1	
Malta	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	5,033	3,911	-12.8	5.2	-1.9	-3.1	0.2	-7.4	-2.4	6.7	-0.9	4.6	7.9	-4.8	3.5	2.2	2.9	-16.5	-22.3	
New Zealand	1,895	1,601	2.2	-17.3	2.7	2.8	0.0	-14.9	-0.5	20.7	-4.1	31.9	-36.1	7.5	4.6	5.6	5.7	-5.9	-15.5	
Norway	616	457	-12.7	-6.7	6.9	8.7	-11.1	-15.8	4.5	-16.8	-7.3	9.4	4.2	-17.7	14.5	2.4	-4.2	-13.9	-25.7	
Poland	41,384	18,604	-3.1	32.4	3.9	-6.3	-18.5	-15.5	-0.4	-13.9	-10.6	-5.3	-1.8	-22.1	4.7	9.5	-6.6	-14.1	-55.0	
Portugal	2,615	98	3.5	-11.6	-3.2	-6.2	-22.7	-11.2	34.1	-34.6	-38.6	-26.8	-34.1	-78.7	40.5	501.7	-60.6	-64.8	-96.2	
Romania	10,639	2,797	-30.0	4.8	5.2	2.6	-14.8	-22.8	-1.2	-2.6	13.4	41.7	-1.9	4.1	1.8	-5.7	-19.7	-38.9	-73.7	
Russian Federation	39,429	33,248	-6.6	-10.1	-4.9	-37.5	1.0	19.6	49.7	16.1	-11.2	1.0	0.4	2.9	-11.5	21.0	31.2	21.3	-15.7	
Slovakia	9,826	2,272	-6.8	-10.4	-5.8	-15.5	-14.1	-13.2	-7.5	-6.7	-27.9	38.5	-15.2	11.7	23.4	-18.2	-10.4	-3.3	-76.9	
Slovenia	1,446	267	-11.9	18.8	-10.9	-14.0	27.4	3.0	-11.8	17.6	33.1	-14.3	1.1	2.2	0.9	5.3	-2.3	-29.3	-81.5	
Spain	13,237	3,750	8.3	-14.4	-13.2	-5.0	-19.6	-5.5	-10.9	12.0	-1.3	-8.7	-5.8	-5.0	-8.3	31.1	-6.7	-34.4	-71.7	
Sweden	2,453	1,279	5.0	8.9	-1.0	4.2	-1.3	-11.0	18.2	0.9	-3.8	-8.2	4.8	7.6	-2.8	1.9	-7.7	-44.3	-47.9	
Switzerland	1,286	508	-23.9	3.2	-36.9	-10.2	-10.0	-1.7	56.1	2.6	-9.7	3.5	-5.8	14.7	12.4	7.6	-18.6	-6.7	-60.5	
Turkey	23,228	38,611	7.6	10.3	38.4	10.8	6.7	-16.0	37.5	-32.6	30.7	14.6	2.1	-8.0	24.8	9.6	-27.7	6.1	66.2	
Ukraine	25,149	6,631	-16.0	-16.8	-29.2	-12.7	-22.6	32.4	-5.0	9.0	14.9	5.4	9.9	19.6	-5.9	-21.2	-16.4	-73.6	-73.6	
United Kingdom	43,602	21,184	-1.3	-6.0	-3.7	-0.7	-8.9	-3.0	-9.1	-2.7	-9.8	4.4	-2.1	-2.8	4.1	1.9	-2.2	-16.0	-51.4	
United States	155,251	83,378	-2.1	-4.2	-4.9	0.2	1.1	-6.6	-2.0	0.4	-8.8	0.3	1.1	-2.5	-2.4	-5.0	-4.1	-18.7	-46.3	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.22

CO₂ emissions from manufacturing industries and construction: gaseous fuels - trend information

CO ₂ emissions (Gg)	Relative change (%)																			
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	13,080	18,317	1.2	3.0	-2.0	6.2	2.4	3.1	0.5	3.1	4.0	1.9	1.5	-0.3	2.6	4.2	-1.5	-3.5	40.0	
Austria	4,265	6,410	2.3	3.2	5.4	4.2	-3.5	-0.4	3.3	-0.5	4.6	1.2	-2.9	10.7	-4.5	0.1	2.2	-3.6	50.3	
Belarus	2,216	4,773	5.4	4.5	4.3	4.1	4.0	3.8	3.7	-5.6	9.4	14.1	8.6	5.2	4.5	5.5	0.3	-6.7	115.4	
Belgium	7,781	7,746	-10.3	10.1	6.9	-1.9	7.6	2.8	1.4	-4.1	0.5	-5.6	-0.7	2.5	-0.6	-1.2	-3.3	-16.5	-0.5	
Bulgaria	NO	1,441	9.2	26.3	-2.4	-28.5	-16.8	-31.0	4.7	-19.8	-8.2	8.9	-4.4	18.4	17.2	-4.9	-9.4	-35.4	*	
Canada	44,053	63,290	-1.7	7.1	3.4	2.4	-5.5	2.1	6.4	-7.7	6.3	4.3	-0.1	-3.3	4.3	16.1	-8.3	9.6	43.7	
Croatia	2,031	1,626	-9.2	-3.9	-2.1	9.5	-0.9	-5.4	0.3	-6.8	-6.9	5.0	3.7	0.0	-2.1	8.2	0.4	-14.0	-19.9	
Czech Republic	5,984	4,527	10.0	29.5	19.8	-5.9	-1.4	-3.6	-5.5	11.6	-4.4	-18.8	-1.6	-2.6	1.8	2.4	-5.6	-18.6	-24.4	
Denmark	1,333	1,830	6.6	10.5	3.2	7.5	4.0	9.6	-5.2	4.7	-7.1	-0.4	-2.8	-3.2	-4.5	-2.0	-1.4	-8.6	37.3	
Estonia	279	88	-15.5	20.1	5.2	-5.3	14.1	-14.7	-1.2	16.9	-46.7	86.5	18.4	4.4	6.4	1.1	-8.6	-61.1	-68.4	
European Union (27)	224,823	227,063	-2.6	7.8	3.1	0.5	-0.9	3.2	6.0	0.3	-0.1	1.8	-0.8	0.1	-1.7	-2.4	-3.2	-12.2	1.0	
Finland	2,191	1,772	2.2	-2.5	-5.2	-3.3	-3.4	0.8	3.7	4.6	-3.6	-1.9	3.3	-9.0	6.3	8.6	-6.2	-19.4	-19.1	
France	23,392	29,129	5.4	7.2	5.5	3.1	4.1	3.0	5.2	3.8	5.5	0.3	-7.9	-1.6	-2.2	-2.6	1.6	-5.4	24.5	
Germany	45,540	44,140	0.0	4.8	-1.6	-0.3	0.9	2.9	3.8	-0.7	-1.5	0.5	3.1	1.1	2.3	-2.4	-7.5	-10.6	-3.1	
Greece	NO	1,065	*	-33.3	79.7	413.2	390.2	9.5	32.2	17.1	7.0	3.2	11.1	14.7	-0.7	-4.6	9.4	1.7	*	
Hungary	7,965	2,424	-17.1	22.7	4.4	-3.7	-9.5	-16.4	2.8	24.9	-4.8	9.7	-20.6	19.7	-27.3	-6.4	0.2	-24.3	-69.6	
Iceland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	873	1,810	5.3	3.0	2.1	4.5	9.7	2.1	19.1	-4.2	-0.4	-1.9	25.7	-4.7	30.5	5.9	-4.0	-6.8	107.3	
Italy	32,087	28,890	3.6	8.0	0.8	2.9	-7.7	4.3	7.1	-4.4	-1.2	1.4	-0.3	-2.7	-2.8	-5.0	-6.1	-16.9	-10.0	
Japan	7,738	21,414	12.4	7.5	8.6	1.8	-11.5	5.8	5.2	-2.2	5.8	8.0	9.6	18.5	13.1	7.9	-5.4	0.3	176.7	
Kazakhstan	3,435	2,603	-2.3	-19.0	-16.0	0.4	-10.6	-50.9	116.9	-4.7	43.3	-1.2	-7.7	22.7	14.6	25.7	-23.0	-2.9	-24.2	
Latvia	1,417	512	-8.3	2.2	-1.1	-3.5	2.6	-6.8	8.1	17.5	10.9	-1.0	2.9	3.4	-2.1	-2.9	-8.1	-21.6	-63.8	
Liechtenstein	16	11	7.4	3.2	6.0	-2.4	5.8	7.9	-6.3	4.3	-2.8	8.4	-2.1	-2.4	3.0	-1.6	-1.7	-49.5	-34.2	
Lithuania	2,111	600	5.7	-1.4	-3.2	8.2	8.6	-26.8	12.5	6.3	11.8	2.3	9.4	6.7	7.7	-4.5	-9.2	-6.9	-71.6	
Luxembourg	700	811	-0.7	9.3	5.9	7.2	-7.6	5.9	2.5	-4.0	-0.1	7.0	12.6	-5.6	3.3	-2.1	-3.9	-20.5	15.9	
Malta	4	10	11.8	-4.1	6.7	-1.8	3.2	1.1	7.0	1.6	5.0	4.4	-2.0	72.1	7.8	0.8	-4.0	1.2	153.5	
Monaco	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	19,020	12,575	1.6	-3.8	2.8	-3.5	-0.1	-2.5	1.2	-5.0	-1.6	-2.9	-1.0	0.9	-5.6	-3.4	-2.3	-9.0	-33.9	
New Zealand	1,649	2,334	25.8	11.3	17.5	10.9	0.6	4.0	-11.9	-2.9	13.0	-21.5	-10.7	-22.1	2.7	-4.0	3.6	20.4	41.6	
Norway	NO	637	*	580.8	38.2	429.9	18.5	25.6	-12.9	5.2	-4.7	1.4	18.2	14.6	3.0	-3.7	13.4	4.7	*	
Poland	7,836	6,807	-25.2	-0.7	15.0	8.0	-5.0	-8.7	10.5	-0.6	-0.6	7.4	12.3	0.0	8.1	4.2	-0.9	-3.5	-13.1	
Portugal	NO	2,826	*	*	*	*	415.2	108.7	63.6	16.7	11.5	17.0	-3.7	-5.4	-2.0	8.1	9.4	-3.0	*	
Romania	16,591	6,166	-33.3	7.3	-5.6	-19.9	-34.0	8.5	3.3	7.5	5.1	4.8	-1.5	-7.7	-15.2	-5.3	6.5	-26.4	-62.8	
Russian Federation	97,745	71,694	-0.5	21.3	6.6	-4.1	-13.7	4.7	11.4	2.3	1.2	2.7	3.8	5.6	4.9	-15.0	11.8	2.2	-26.7	
Slovakia	5,724	2,805	-2.2	-4.2	-4.6	-5.0	-5.4	-5.6	3.7	-2.7	-3.3	5.9	-8.4	-7.4	17.1	-5.3	-11.6	-17.4	-51.0	
Slovenia	1,238	1,083	12.7	-6.9	4.2	-4.1	2.2	-2.6	4.7	-2.0	0.5	2.6	2.1	5.0	1.3	0.3	-3.8	-14.0	-12.5	
Spain	8,494	31,274	2.4	35.5	5.8	17.4	12.7	15.2	18.4	9.3	5.2	12.2	6.6	4.7	-1.8	-1.2	-5.4	-10.6	268.2	
Sweden	688	696	-2.6	-9.2	15.4	3.8	-1.9	0.6	-9.0	13.2	0.9	-4.4	-4.7	-19.6	13.5	-1.5	-2.4	-2.8	1.2	
Switzerland	1,133	2,050	10.6	5.5	2.9	3.3	2.6	4.5	6.3	1.4	-2.5	2.8	3.9	1.5	1.4	0.1	3.2	-9.4	80.9	
Turkey	1,729	12,869	41.5	42.3	3.9	24.9	-17.8	-5.8	-7.8	24.6	17.9	50.5	2.8	22.6	25.3	15.2	-18.1	-15.3	644.3	
Ukraine	74,454	20,164	-11.9	-10.7	0.9	-9.8	-4.5	-7.1	2.8	-3.2	-2.9	11.3	3.3	0.6	-1.4	-1.5	-10.3	-36.4	-72.9	
United Kingdom	28,069	29,625	-4.2	7.2	10.5	6.4	4.9	6.9	6.5	-4.1	-4.7	1.1	-5.5	-2.1	-4.3	-3.6	1.6	-14.2	5.5	
United States	409,124	365,035	1.4	5.4	3.6	0.0	-2.6	-4.7	2.6	-8.0	2.1	-3.7	0.1	-8.0	-0.8	3.0	0.5	-6.6	-10.8	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.23**Contribution of fuels to CO₂ emissions from manufacturing industries and construction (%)**

	Liquid Fuels		Solid Fuels		Gaseous Fuels		Other Fuels	
	Base year ^a	2009	Base year ^a	2009	Base year ^a	2009	Base year ^a	2009
Australia	33.1	32.0	30.0	26.6	36.9	41.4	-	-
Austria	24.7	17.9	39.6	32.2	33.6	44.9	2.1	5.0
Belarus	54.6	38.1	13.1	3.8	30.7	58.1	1.6	-
Belgium	23.3	12.4	46.2	25.1	24.1	40.3	6.3	22.3
Bulgaria	35.7	35.1	64.3	24.4	-	40.0	-	0.6
Canada	21.0	5.6	9.8	8.4	69.0	85.4	0.2	0.6
Croatia	36.5	37.0	28.7	14.9	34.8	48.1	-	-
Czech Republic	19.5	22.6	67.6	45.5	12.8	29.0	-	2.9
Denmark	49.1	43.9	26.2	8.6	24.2	45.8	0.5	1.7
Estonia	34.4	19.2	53.3	58.0	12.4	14.5	-	8.2
European Union (27)	29.6	26.8	42.0	26.0	27.4	43.3	1.0	3.8
Finland	34.5	33.2	36.8	27.2	16.6	21.6	12.1	18.0
France	37.9	30.4	33.7	23.9	28.1	45.2	0.3	0.5
Germany	14.8	10.9	57.6	35.8	25.9	43.4	1.6	9.9
Greece	58.9	80.7	41.1	4.7	-	14.4	-	0.2
Hungary	19.9	12.8	38.4	39.9	41.6	44.8	-	2.4
Iceland	86.0	88.8	14.0	11.2	-	-	-	-
Ireland	55.8	49.5	22.1	9.8	22.1	40.0	-	0.6
Italy	39.9	34.2	21.7	12.3	37.1	51.2	1.2	2.3
Japan	39.4	30.8	57.8	60.3	2.1	6.7	0.7	2.2
Kazakhstan	14.9	15.9	74.3	77.0	10.2	7.2	0.6	-
Latvia	58.5	25.7	3.6	15.5	37.9	58.0	-	0.8
Liechtenstein	53.2	54.3	-	-	46.8	45.7	-	-
Lithuania	61.6	13.7	3.0	25.9	35.4	60.4	-	-
Luxembourg	4.6	7.7	84.3	18.2	11.1	70.9	-	3.132859738
Malta	93.6	85.4	-	-	6.4	14.6	-	-
Monaco	-	-	-	-	-	-	-	-
Netherlands	27.2	33.9	15.2	15.7	57.6	50.4	-	-
New Zealand	17.7	17.7	44.0	33.5	38.3	48.8	-	-
Norway	82.9	65.5	17.1	13.8	-	19.3	-	1.4
Poland	10.6	15.8	75.1	61.6	14.2	22.5	-	-
Portugal	70.6	62.7	28.6	1.2	-	34.1	0.9	2.0
Romania	27.2	24.3	28.4	23.6	44.3	52.0	-	-
Russian Federation	32.4	19.1	18.2	25.3	45.2	54.5	4.2	1.1
Slovakia	21.1	19.6	49.8	36.0	29.0	44.5	-	-
Slovenia	38.1	26.4	33.2	14.2	28.4	57.4	0.3	2.1
Spain	53.0	38.6	28.6	6.5	18.4	54.1	-	0.8
Sweden	72.4	74.6	21.0	15.5	5.9	8.5	0.7	1.4
Switzerland	60.3	50.3	20.0	8.8	17.6	35.4	2.1	5.5
Turkey	33.5	6.6	61.9	70.1	4.6	23.4	-	-
Ukraine	27.8	3.7	17.5	22.7	52.0	69.1	2.7	4.5
United Kingdom	28.4	24.3	43.6	31.4	28.1	43.9	0.0	0.4
United States	33.3	38.6	18.3	11.4	48.3	50.0	-	-

^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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Table 1.24

CO₂ emissions from other sectors (commercial/institutional, residential, agriculture/forestry/fisheries): all fuels - trend information

CO ₂ emissions (Gg)	Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	12,912	19,357	0.7	5.1	2.9	2.0	1.7	1.5	3.4	5.2	2.3	3.5	-0.1	2.5	-0.8	1.0	1.5	2.9	49.9
Austria	13,811	10,858	8.0	8.7	8.2	-9.8	-0.3	2.9	-7.9	9.5	-5.4	7.0	-4.8	-1.4	-4.9	-14.0	5.8	-7.7	-21.4
Belarus	14,290	8,530	0.6	-5.3	2.5	-1.5	-0.7	-5.5	-3.5	-9.3	-7.9	-1.7	-1.0	4.6	4.4	9.0	3.1	-8.8	-40.3
Belgium	27,565	28,630	10.4	2.1	16.9	-11.8	1.1	-3.1	-4.6	7.7	-5.7	7.3	-2.4	-1.4	-6.1	-8.2	9.3	-1.7	3.9
Bulgaria	6,213	1,586	-28.2	-25.6	11.9	-32.3	5.8	-16.1	-17.1	-7.5	18.3	7.5	-17.4	0.5	11.0	-12.3	-11.4	-12.9	-74.5
Canada	68,763	75,730	-0.7	0.7	7.4	-3.6	-10.6	5.0	8.7	-4.4	4.9	5.7	-2.7	-2.8	-6.8	7.7	-0.4	-2.4	10.1
Croatia	3,606	3,428	-15.8	8.0	14.3	1.6	-4.2	13.0	-4.5	6.4	2.4	6.2	-2.2	0.9	-6.1	-9.0	3.9	-0.1	-4.9
Czech Republic	32,347	10,249	-21.8	-1.9	-0.3	-1.8	-20.5	-1.0	-3.4	9.5	-6.5	0.1	-3.4	-11.4	11.2	-20.5	4.3	-4.3	-68.3
Denmark	9,656	6,773	2.3	2.3	6.8	-8.4	-2.7	-1.7	-6.2	4.3	-3.8	1.5	-3.7	-0.4	-3.9	-8.4	-1.7	-1.1	-29.9
Estonia	1,879	459	-6.6	0.3	12.7	-15.5	-8.7	-12.0	1.0	21.4	15.9	-3.2	3.8	-8.0	-10.1	5.0	3.0	-5.0	-75.6
European Union (27)	791,376	674,033	5.0	1.2	8.1	-5.9	-2.1	-1.8	-3.3	7.1	-5.0	2.2	-0.6	-0.6	-2.5	-9.9	6.7	-3.2	-14.8
Finland	7,040	4,836	-2.2	-7.5	2.0	0.2	1.6	-1.5	-6.3	4.1	-0.8	-1.5	-2.3	-3.5	-3.7	-2.2	-3.8	1.8	-31.3
France	95,848	98,143	10.1	3.0	7.4	-5.7	4.2	-0.9	-2.7	10.4	-9.0	3.5	5.0	0.2	-6.6	-6.0	4.8	-3.0	2.4
Germany	204,483	146,052	0.6	1.4	13.1	-6.7	-4.2	-8.3	-3.8	12.3	-7.0	-4.3	-6.2	-1.6	2.0	-20.2	20.5	-5.2	-28.6
Greece	8,126	10,610	3.6	0.9	23.6	2.7	3.4	-1.6	5.8	7.7	4.6	15.3	-5.6	4.8	-0.7	-9.8	-2.2	-14.3	30.6
Hungary	24,334	13,264	3.0	-4.8	3.3	-4.0	-13.6	5.7	-2.5	8.2	2.3	7.7	3.3	0.3	-6.8	-16.5	-2.3	-2.3	-45.5
Iceland	699	628	2.5	1.4	7.9	-3.2	-2.6	-1.8	-6.6	-11.3	9.6	-5.6	-2.5	-2.1	-12.5	3.1	-7.9	15.2	-10.1
Ireland	10,053	10,428	1.3	-1.6	0.5	-2.9	5.2	-1.2	1.8	3.9	-1.2	3.0	0.4	4.7	-2.1	-2.4	6.6	-4.5	3.7
Italy	76,677	86,101	7.3	9.8	2.4	-3.4	4.1	5.9	-5.3	3.5	-3.2	8.7	1.7	5.5	-6.4	-7.1	5.3	2.3	12.3
Japan	161,641	161,813	-0.8	7.1	-1.1	-2.4	2.3	4.7	0.7	1.8	4.2	-2.9	-0.3	0.8	-2.8	-5.3	-5.4	-3.9	0.1
Kazakhstan	51,748	12,934	-7.1	-15.0	-3.9	-18.0	-27.0	-59.8	15.2	8.5	16.8	13.5	-0.6	-13.0	35.6	29.8	-20.1	-14.3	-75.0
Latvia	5,504	1,220	2.4	-33.0	1.1	-15.7	-13.3	-1.7	-7.3	14.4	-2.8	9.1	4.0	-1.5	4.7	1.0	-5.8	-5.0	-77.8
Liechtenstein	88	99	-6.1	1.3	0.5	7.8	8.8	-5.8	-7.1	1.9	9.1	6.0	2.4	0.7	3.1	-24.0	13.6	-0.5	12.1
Lithuania	5,693	1,060	13.4	-17.8	-7.7	-14.3	-16.5	-8.7	-15.7	-3.3	7.6	5.4	1.8	5.8	12.7	-4.6	-7.8	-2.8	-81.4
Luxembourg	1,310	1,826	20.2	0.9	10.9	-2.8	4.7	-4.0	9.1	10.5	-2.5	-2.9	0.5	-0.3	0.9	-5.9	3.2	8.3	39.4
Malta	96	47	7.8	6.3	0.0	-7.9	-2.0	5.2	2.8	-15.7	-4.1	4.3	14.4	-52.8	7.7	0.5	-4.0	-6.3	-51.4
Monaco	45	31	-7.3	-3.7	5.0	-6.2	4.4	-0.6	-3.7	-4.4	7.8	4.5	-5.3	0.2	-6.8	-14.6	4.6	0.4	-31.6
Netherlands	37,791	38,466	11.8	6.1	13.0	-14.7	-2.2	-5.7	2.0	5.9	-2.6	2.8	-0.6	-6.3	0.9	-7.4	9.9	0.4	1.8
New Zealand	2,963	3,084	-5.5	2.1	-3.9	-0.6	0.3	7.2	10.5	3.0	1.7	0.0	2.9	-5.0	-3.4	-1.0	-4.1	-10.3	4.1
Norway	4,144	3,178	-10.3	-0.2	20.9	-10.3	1.7	2.4	-17.4	10.9	4.6	7.6	-10.5	-8.8	0.0	-6.2	-4.9	7.1	-23.3
Poland	102,915	49,729	20.5	0.3	-4.2	-1.0	-17.6	4.8	-14.2	7.6	-2.8	0.1	-1.8	6.3	4.3	-8.1	3.0	1.3	-51.7
Portugal	4,025	4,762	5.5	-2.9	7.7	-0.1	3.6	7.8	3.9	5.6	3.4	3.1	3.9	-3.5	-17.7	-2.8	-8.2	-1.8	18.3
Romania	10,197	9,464	-13.9	17.6	-3.3	19.3	-0.8	-18.7	3.3	-5.6	5.7	29.4	4.8	-4.9	17.0	-10.6	-12.6	-2.9	-7.2
Russian Federation	256,627	141,137	-4.6	-7.1	-10.2	-3.5	-5.4	9.3	5.8	4.0	-13.7	1.5	-2.9	-15.5	1.5	-0.3	3.2	-0.1	-45.0
Slovakia	10,908	3,987	-11.5	-4.9	-5.3	-5.1	5.8	-0.9	-3.6	6.4	-11.3	-2.3	-10.2	-0.4	-8.5	-19.2	8.2	1.2	-63.5
Slovenia	2,137	2,049	19.1	8.0	27.4	2.5	1.0	7.2	-10.1	3.0	-4.9	-2.9	-2.3	-9.4	-9.3	-20.2	20.5	-3.3	-4.1
Spain	25,320	35,601	8.9	-0.1	3.9	0.7	2.5	4.9	3.6	2.9	2.6	6.4	3.2	1.6	-6.2	0.9	1.0	-4.3	40.6
Sweden	10,290	3,311	-2.2	-4.3	1.0	-8.3	-0.8	-5.3	-1.1	-10.6	-7.7	-4.4	-4.3	-19.2	-12.2	-8.5	-10.7	-1.5	-67.8
Switzerland	17,615	15,915	7.6	6.5	4.3	-6.0	3.1	-1.5	-7.5	5.3	-3.9	5.9	-0.6	1.5	-4.5	-10.6	6.3	-2.9	-9.7
Turkey	29,201	66,788	5.1	12.3	3.9	7.6	-8.1	-3.9	8.0	-17.5	5.2	9.3	11.0	6.8	4.3	7.9	38.0	7.9	128.7
Ukraine	91,409	40,534	-10.2	-8.5	-6.3	-4.4	-2.7	-7.9	-12.8	-1.4	5.9	4.5	0.6	7.0	2.3	-11.8	2.6	-3.3	-55.7
United Kingdom	109,457	95,538	10.5	-3.5	11.9	-7.3	0.5	0.0	-0.5	2.5	-6.2	1.0	1.6	-3.6	-4.7	-4.7	1.9	-7.0	-12.7
United States	557,311	563,197	2.6	-0.1	6.8	-3.1	-8.6	4.0	5.7	-2.4	-0.1	4.7	-1.9	-3.5	-8.8	6.0	1.9	-1.6	1.1

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.25

CO₂ emissions from other sectors (commercial/institutional, residential, agriculture/forestry/fisheries): liquid fuels - trend information

CO ₂ emissions (Gg)	Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	5,922	9,635	0.8	1.9	0.4	3.0	1.6	2.9	3.6	12.8	2.5	6.9	0.8	2.7	-2.4	1.4	2.6	2.6	62.7
Austria	8,234	6,014	4.5	8.5	14.3	-9.5	0.4	4.7	-9.5	5.1	-1.8	5.2	-8.6	0.4	-5.2	-17.0	9.4	-11.9	-27.0
Belarus	5,209	4,300	13.4	1.5	8.4	5.3	5.2	-5.4	-8.0	-12.0	-12.4	-1.8	3.8	4.5	6.2	21.2	7.7	-18.8	-17.4
Belgium	17,723	15,003	7.1	-0.2	16.6	-11.5	0.5	-4.1	-7.8	6.7	-6.2	7.6	-4.4	-1.1	-10.6	-10.9	9.9	-4.8	-15.3
Bulgaria	2,810	660	-39.1	-31.6	-5.4	-49.6	23.4	11.1	-8.1	14.0	-14.2	-10.3	-10.5	3.4	7.9	-16.2	-27.2	7.5	-76.5
Canada	19,201	13,749	-8.8	-7.1	9.0	-4.6	-11.8	2.3	6.6	-1.4	2.3	18.5	-4.3	-6.0	-13.7	7.7	-8.3	-5.1	-28.4
Croatia	2,430	1,729	-21.4	1.7	13.7	2.0	-9.0	15.3	1.3	1.6	5.1	2.0	-2.9	-5.0	-6.9	-12.1	-0.9	-2.0	-28.9
Czech Republic	2,618	124	-23.0	-30.8	27.9	-17.8	-50.7	-18.0	7.3	15.2	-35.3	53.9	-58.1	-21.1	18.4	-17.9	-12.1	-29.3	-95.3
Denmark	7,837	4,332	-1.3	0.3	3.7	-9.1	-4.2	-1.0	-7.1	4.0	-4.1	-2.3	-5.2	-0.9	-5.4	-8.6	-0.8	0.0	-44.7
Estonia	1,046	238	-14.7	-25.7	28.2	-6.1	11.7	-30.4	22.1	68.3	11.7	4.5	-4.3	-14.5	-11.0	4.1	-0.5	-2.0	-77.3
European Union (27)	331,696	238,671	5.6	-0.3	7.1	-4.3	-1.8	-4.7	-4.0	7.5	-7.0	1.8	-3.6	-1.7	-4.1	-16.5	10.3	-6.9	-28.0
Finland	6,768	4,509	-1.8	-7.3	1.8	0.1	1.7	-1.7	-6.3	3.9	-1.2	-1.7	-2.2	-3.6	-4.1	-2.1	-3.7	1.7	-33.4
France	60,659	48,413	6.8	3.7	4.0	-4.9	2.0	-2.3	-6.8	9.0	-9.3	3.0	0.5	-1.2	-7.6	-9.0	7.8	-3.7	-20.2
Germany	91,604	64,346	17.3	-2.2	11.3	-5.0	-4.6	-13.5	-5.7	15.1	-11.4	-1.4	-9.5	-0.6	4.8	-36.3	41.6	-12.3	-29.8
Greece	8,006	9,668	3.2	1.0	23.9	2.6	3.5	-1.3	5.8	7.8	5.0	15.1	-6.2	3.6	-2.1	-10.9	-3.5	-16.5	20.8
Hungary	7,114	960	-18.4	-27.4	-17.9	-7.5	-14.2	-5.0	-4.1	-2.8	-2.9	-22.1	-9.8	-16.4	5.2	-7.9	-7.5	-16.6	-86.5
Iceland	699	622	2.5	1.4	7.9	-3.2	-2.6	-1.8	-6.6	-11.3	9.6	-5.7	-3.9	-2.2	-12.8	2.8	-7.8	16.7	-10.9
Ireland	3,814	5,699	3.6	4.8	-2.5	4.5	2.6	11.3	-1.0	6.3	-0.1	2.7	-0.5	5.5	-3.1	-3.3	5.1	-7.3	49.4
Italy	38,770	20,296	-2.1	9.1	-1.1	-5.1	0.4	6.6	-7.6	2.7	-4.4	-0.6	-4.7	-0.4	-8.2	-12.0	-0.2	-3.1	-47.7
Japan	137,095	104,360	-1.8	7.4	-2.3	-4.2	1.4	4.7	-0.6	1.8	3.5	-5.0	-2.2	-0.8	-7.8	-9.8	-7.6	-5.4	-23.9
Kazakhstan	10,613	3,255	-22.0	-17.2	-4.9	-0.2	-10.0	-61.8	20.3	7.0	-10.6	12.5	-9.2	25.0	41.9	117.2	-66.7	-1.2	-69.3
Latvia	2,156	508	16.2	-37.5	-0.5	-12.4	-11.7	6.7	-7.8	7.5	-7.1	13.3	0.8	-2.6	8.2	-6.1	-10.0	-0.6	-76.5
Liechtenstein	77	53	-12.3	-2.8	-6.9	13.3	7.1	-11.9	-12.0	-4.8	12.7	6.0	-2.8	-4.5	4.3	-39.4	25.9	12.0	-31.0
Lithuania	1,478	133	7.2	-39.1	8.1	-11.5	-6.9	-1.1	-10.1	-7.7	-2.9	2.3	-12.2	-0.7	-13.8	-23.4	0.5	-1.9	-91.0
Luxembourg	944	863	23.2	-3.1	9.4	-0.6	4.0	-4.9	-6.8	11.1	-7.9	-0.7	4.1	-4.3	-5.1	-4.8	-1.1	2.9	-8.6
Malta	57	3	5.0	11.8	-1.5	-13.2	-5.1	8.6	5.8	-26.2	-9.2	3.1	29.4	-94.1	5.5	-4.3	-3.2	1.1	-94.6
Monaco	36	20	-13.3	-6.3	7.3	-7.0	4.5	-2.5	-8.5	-5.3	9.4	7.0	-7.9	-0.8	-8.3	-20.3	0.5	4.3	-45.5
Netherlands	3,943	2,346	-11.9	-0.8	-4.0	-4.9	0.3	-1.6	-0.5	4.1	-5.7	-4.7	-1.1	-4.4	-0.7	-8.0	-11.4	6.7	-40.5
New Zealand	1,714	2,043	-7.2	-0.9	-0.7	3.7	4.8	6.3	-2.5	-0.1	5.5	9.6	-3.3	4.6	-4.1	2.8	-6.4	-8.6	19.2
Norway	4,105	3,071	-10.3	-0.1	21.1	-10.5	1.7	2.5	-17.5	10.7	4.5	7.8	-11.0	-9.6	-0.2	-6.7	-5.3	7.0	-25.2
Poland	5,236	8,116	-4.7	-2.0	5.7	27.9	-7.0	7.7	18.5	1.8	-2.0	11.1	-0.6	-6.0	-16.0	-9.8	-8.2	-4.5	55.0
Portugal	4,025	3,666	5.5	-2.9	7.7	-0.2	2.7	5.8	1.5	2.8	1.6	1.1	4.1	-4.5	-20.7	-5.0	-12.1	-5.1	-8.9
Romania	4,772	2,000	-24.4	25.9	-3.6	36.9	-7.5	-39.7	13.1	-22.6	17.9	10.8	37.6	-19.8	-5.4	40.6	-34.4	-15.8	-58.1
Russian Federation	77,913	31,384	-4.9	3.8	-31.3	1.7	-20.7	30.3	40.2	1.0	-23.7	-3.7	19.4	-19.8	-6.6	5.2	11.4	-12.0	-59.7
Slovakia	387	9	-17.0	-21.0	-22.0	-22.7	-23.0	-22.3	-28.6	1.1	-7.9	-18.8	12.2	24.5	9.1	-81.4	-2.1	26.7	-97.6
Slovenia	812	1,762	14.4	10.9	32.3	3.4	1.0	5.3	-9.7	2.1	-4.0	-3.8	-3.6	-7.6	-8.6	-21.4	20.8	-5.0	117.1
Spain	21,719	23,746	5.4	1.6	2.4	-0.9	0.5	3.6	3.4	0.4	-0.1	4.3	1.6	-1.4	-7.3	-2.3	-0.3	-4.0	9.3
Sweden	9,928	2,960	-2.1	-4.7	0.9	-8.6	-1.1	-5.7	-0.8	-11.3	-8.4	-4.1	-4.6	-20.2	-13.8	-9.3	-11.4	-1.8	-70.2
Switzerland	15,203	12,111	6.6	5.3	3.3	-8.6	3.0	-2.6	-8.4	5.3	-4.5	5.6	-1.6	1.0	-4.7	-12.4	5.9	-3.5	-20.3
Turkey	14,949	17,902	2.2	11.4	-0.3	0.3	-3.0	-1.2	6.5	-12.9	-0.8	-1.9	6.4	-3.9	-10.6	1.8	17.5	-2.1	19.8
Ukraine	8,028	783	-22.6	-24.2	-25.3	-19.5	0.6	-21.3	-18.8	0.5	3.3	-6.7	-4.3	11.2	-9.3	11.7	4.5	-11.3	-90.3
United Kingdom	19,303	13,133	6.1	-4.3	7.6	-7.8	-5.5	-8.7	-5.4	6.5	-13.5	-3.7	1.4	-0.1	-1.3	-9.1	3.5	-1.6	-32.0
United States	162,264	131,652	0.5	-5.1	7.8	-6.1	-8.9	7.0	8.7	3.2	-8.6	11.6	0.9	-7.2	-9.7	0.9	-2.1	0.9	-18.9

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.26

CO₂ emissions from other sectors (commercial/institutional, residential, agriculture/forestry/fisheries): solid fuels - trend information

CO ₂ emissions (Gg)	Relative change (%)																			
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	567	136	-7.9	-4.6	-7.5	-8.2	-24.5	-12.1	41.5	36.1	-4.7	2.4	-32.3	14.7	-21.4	-13.8	-20.2	-13.5	-75.9	
Austria	2,654	342	10.6	-5.9	-5.1	-21.9	-12.9	-5.8	-9.7	-3.7	-20.9	-10.3	-7.5	-20.5	-6.6	-23.9	0.6	-0.6	-87.1	
Belarus	6,715	1,069	-9.1	-15.9	-3.5	-12.9	-12.1	-11.5	2.6	-21.9	-12.3	-4.1	-12.3	5.7	3.0	-10.6	-10.0	-7.3	-84.1	
Belgium	1,976	634	14.4	-3.7	13.7	-14.7	-16.5	-9.4	-15.1	5.8	-16.5	-6.3	6.7	-4.8	2.8	7.8	-5.2	0.6	-67.9	
Bulgaria	3,403	598	-9.9	-20.1	27.7	-19.2	-2.4	-32.4	-26.9	-35.6	88.6	23.1	-25.3	-7.4	7.5	-14.9	-5.5	-29.8	-82.4	
Canada	192	277	-0.5	37.3	-2.0	-9.3	-12.6	-4.1	-0.9	-2.6	-37.8	-0.5	11.6	30.3	-2.2	-0.1	66.5	31.8	44.1	
Croatia	514	177	-47.8	-10.9	1.9	-7.3	45.6	-12.1	-10.6	-45.0	44.3	31.5	-44.0	22.2	-15.8	-47.7	8.8	-8.8	-96.6	
Czech Republic	25,140	2,190	-26.1	-9.0	-8.5	-10.7	-37.5	-5.1	-9.0	12.1	-11.8	-7.1	1.6	-36.2	54.0	-45.9	1.2	-3.6	-91.3	
Denmark	319	126	26.5	-25.1	-29.5	-13.0	-24.0	-24.1	34.2	14.0	-30.3	38.3	19.1	22.1	11.7	2.6	-9.0	-28.8	-60.3	
Estonia	693	33	-0.4	68.2	19.7	-26.0	-36.0	8.3	-18.4	-24.6	16.4	-27.7	41.8	-7.5	-25.7	-35.5	-1.7	-31.2	-95.3	
European Union (27)	199,993	47,504	-9.3	-8.4	-3.6	-12.8	-23.1	-2.3	-19.4	3.8	-10.0	-9.3	-7.3	1.4	15.2	-10.0	5.2	-1.2	-76.2	
Finland	46	12	-25.4	-64.8	-11.5	-18.2	10.3	-10.1	0.9	-22.4	18.6	-3.5	0.0	-31.8	-4.8	1.8	-8.5	16.5	-73.4	
France	5,037	627	0.0	47.5	-1.6	-37.8	-4.7	-11.0	-37.7	4.5	-49.5	-37.2	-53.3	28.5	50.0	185.6	-62.1	61.6	-87.5	
Germany	67,075	5,319	-34.6	-13.2	-7.1	-21.0	-35.8	-6.0	0.3	3.2	-11.1	-25.6	-16.6	5.3	27.5	4.9	9.8	-10.4	-92.1	
Greece	119	15	30.2	-3.4	7.1	-4.7	-17.1	-25.5	11.0	-6.3	-74.5	-39.6	65.5	23.9	15.9	-79.6	244.5	-37.8	-87.7	
Hungary	12,281	588	6.0	-16.5	3.1	-17.6	-56.6	7.0	-25.6	41.5	7.6	1.1	-28.7	1.6	1.4	-42.7	22.0	-14.9	-95.2	
Iceland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	5,745	2,190	-2.7	-10.1	-0.1	-13.1	5.1	-25.7	-0.7	-5.4	-1.8	-1.9	-2.3	4.2	-3.0	-4.3	5.3	-1.1	-61.9	
Italy	920	17	6.3	3.2	-3.6	-41.2	-44.5	-2.9	-3.1	10.8	-78.0	0.0	-52.2	-9.9	0.2	-16.8	-23.5	-15.3	-98.2	
Japan	4,744	2,088	-8.3	-11.9	5.5	-2.6	-2.7	-3.4	5.1	-3.2	-2.3	-4.1	-5.6	-5.8	-3.2	0.0	-1.7	-0.7	-56.0	
Kazakhstan	36,483	7,101	-3.7	-5.5	-1.6	-27.2	-42.1	-53.4	9.2	16.4	33.8	14.7	4.0	-27.4	-4.4	5.3	21.8	-3.0	-80.5	
Latvia	2,012	146	-11.7	-43.5	8.5	-17.2	-28.0	-20.4	-23.6	36.0	-20.5	0.5	-2.9	-3.8	-2.7	-0.2	-9.5	-12.8	-92.7	
Liechtenstein	0	0	-5.4	-3.7	-26.9	5.3	5.0	-47.6	118.2	-45.8	-7.7	8.3	-23.1	-10.0	-33.3	-16.7	-20.0	-50.0	-94.6	
Lithuania	2,792	369	11.2	-15.7	-7.5	-18.6	-17.0	-18.3	-28.8	-12.2	22.6	9.3	-4.1	15.7	32.3	-15.7	-15.8	1.8	-86.8	
Luxembourg	26	2	16.7	24.2	-40.0	-7.5	-27.4	-6.9	-23.8	-19.3	-20.8	-27.4	-7.2	9.8	-14.3	-16.5	-7.7	9.3	-91.9	
Malta	NA, NE	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	189	31	-21.2	-15.3	-1.0	-3.6	5.8	2.4	0.0	12.3	-8.4	2.2	9.9	-62.3	-21.1	116.5	-35.3	-44.3	-83.6	
New Zealand	778	264	-7.4	12.9	-14.5	-15.3	-15.5	-8.8	-4.6	28.7	-4.1	-10.1	44.3	-31.4	18.5	-8.5	11.5	-55.5	-66.1	
Norway	36	7	-6.2	-16.2	-22.1	9.8	-3.7	-16.6	-7.0	-22.2	47.7	-29.3	-13.4	-47.1	-24.9	136.7	-5.1	0	-81.1	
Poland	91,195	29,810	25.5	-0.6	-5.2	-7.7	-23.9	5.0	-26.8	9.2	-5.3	-6.6	-3.7	14.5	16.0	-9.8	7.0	2.1	-67.3	
Portugal	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Romania	2,219	56	-30.4	-10.7	97.8	-12.5	-84.4	149.3	-9.3	-69.2	239.3	-51.5	75.2	-63.6	1.8	-11.4	277.4	-70.3	-97.5	
Russian Federation	120,680	9,005	-6.6	-4.7	-7.2	-4.5	-6.1	18.8	2.9	5.1	-37.7	-3.2	-6.5	-39.5	9.9	-24.1	-2.4	-4.7	-92.5	
Slovakia	7,680	323	-15.9	-14.5	-23.8	-23.5	3.9	-15.7	13.6	-14.3	-42.0	-8.3	-22.0	-9.6	8.8	-48.4	18.1	-17.5	-95.8	
Slovenia	1,291	NO	27.3	-20.3	-16.9	-41.6	-18.3	4.7	-40.3	-23.0	-16.3	-1.6	-39.9	-64.1	*	*	*	*	*	
Spain	2,282	546	20.4	-28.3	-4.8	-1.5	-6.8	-28.0	-39.8	-29.7	14.8	21.7	1.6	1.3	-1.2	1.5	0.6	-1.9	-76.1	
Sweden	157	NO	-33.3	-50.0	-59.0	214.2	-50.0	-36.3	0	*	*	*	*	*	*	*	*	*	*	
Switzerland	57	35	15.4	-4.2	-43.5	-15.4	-36.4	0	-7.1	0	0	0	207.7	0	0	0	0	0	-38.5	
Turkey	14,148	32,597	6.2	12.1	-4.7	12.0	-22.8	-16.0	0.7	-33.4	28.1	19.5	16.7	2.1	0.9	12.9	134.2	22.2	130.4	
Ukraine	60,906	4,281	-16.6	-17.8	-30.2	-14.2	-24.2	-2.1	-21.9	-6.0	13.4	-6.5	1.6	-14.1	-9.8	-17.4	-11.2	-8.6	-93.0	
United Kingdom	19,563	3,543	6.6	-25.2	4.8	-8.8	-9.9	-0.3	-18.2	-4.3	-21.9	-17.2	-13.3	-24.2	-8.9	0.8	9.3	0.2	-81.9	
United States	14,943	6,442	-9.2	-3.3	2.6	4.6	-27.3	10.6	-11.3	5.4	-6.3	-7.5	20.8	-7.1	-32.0	7.8	-2.2	-11.0	-56.9	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.27

CO₂ emissions from other sectors (commercial/institutional, residential, agriculture/forestry/fisheries): gaseous fuels - trend information

CO ₂ emissions (Gg)	Relative change (%)																	Base year ¹ to 2009		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008		2008 to 2009	
Australia	6,423	9,586	1.4	8.5	5.4	1.5	2.7	0.7	2.4	-2.1	2.4	0.2	0.4	2.0	1.7	1.1	0.8	3.5	49.2	
Austria	2,574	4,456	20.3	18.3	-0.7	-5.3	4.8	2.2	-3.9	23.9	-8.5	13.2	2.2	-1.7	-4.0	-9.2	1.6	-2.1	73.1	
Belarus	2,351	3,161	0.3	0.3	0.3	0.3	0.3	0.3	0.3	7.9	2.2	-0.1	-0.9	4.3	2.7	1.5	1.1	8.8	34.5	
Belgium	7,815	12,871	17.0	7.4	18.1	-12.3	4.1	-0.9	1.8	9.4	-4.3	7.8	0.1	-1.7	-0.2	-5.5	9.4	1.9	64.7	
Bulgaria	NO	328	-72.7	173.4	75.2	-41.5	4.5	1.4	16.0	29.0	10.7	31.9	22.6	43.8	43.7	11.9	14.4	-7.8	*	
Canada	49,370	61,703	2.4	3.0	7.0	-3.3	-10.3	5.7	9.3	-5.2	5.7	2.4	-2.3	-2.0	-4.9	7.7	1.5	-1.9	25.0	
Croatia	662	1,682	29.5	22.6	16.0	1.3	1.9	11.0	-13.5	17.7	-2.8	12.6	0.4	9.4	-4.9	-4.2	9.6	2.1	154.2	
Czech Republic	4,589	7,935	2.5	23.3	7.8	13.8	2.6	2.9	-0.7	7.7	-1.4	1.3	-1.9	1.0	-2.3	-8.1	5.6	-3.9	72.9	
Denmark	1,477	2,313	15.7	12.1	19.4	-6.5	2.6	-3.6	-3.7	4.8	-1.8	6.6	-0.3	-1.2	-1.8	-8.6	-2.4	-1.1	56.6	
Estonia	140	188	23.2	-30.0	-22.9	-0.1	18.7	-4.6	1.4	0.1	27.1	-1.3	1.2	7.7	3.4	28.5	9.2	-2.4	34.9	
European Union (27)	258,512	384,622	15.5	6.5	12.9	-5.5	3.2	1.0	0.4	7.2	-2.5	4.0	2.2	0.0	-3.3	-5.4	4.7	-1.0	48.8	
Finland	104	192	15.3	0.1	9.1	3.3	-2.3	6.2	-4.7	9.8	4.5	-0.7	-5.6	1.4	1.5	-5.5	-5.5	-1.7	84.4	
France	30,152	49,103	18.4	-1.4	14.0	-4.1	8.0	1.6	4.7	12.3	-7.6	4.6	10.8	1.6	-5.9	-4.3	3.3	-2.8	62.8	
Germany	45,804	76,388	18.4	11.5	20.1	-6.7	1.0	-1.5	-2.0	10.0	-1.4	-5.7	-1.9	-2.9	-2.2	-4.2	5.8	2.3	66.8	
Greece	NO	927	*	*	*	*	134.1	-14.9	19.0	30.0	53.5	73.6	68.6	86.1	55.0	24.8	19.5	19.3	*	
Hungary	4,939	11,716	21.5	11.0	10.2	0.7	-3.6	7.7	0.1	7.4	2.5	12.6	5.7	1.9	-8.3	-15.5	-0.9	-0.2	137.2	
Iceland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	493	2,540	29.6	4.1	16.9	-0.3	16.0	12.5	16.2	9.3	-3.9	9.8	6.2	2.8	1.7	1.8	11.6	-1.0	415.1	
Italy	36,418	62,882	17.3	10.4	4.9	-1.7	6.9	5.5	-4.5	3.5	-2.0	13.4	3.7	8.1	-6.0	-5.5	7.5	4.5	72.7	
Japan	19,802	55,366	7.6	7.9	5.2	6.8	6.7	5.5	6.2	2.6	7.8	5.4	7.0	6.4	12.3	5.4	-0.7	-1.3	179.6	
Kazakhstan	4,534	2,578	-0.2	-39.5	-12.7	-0.2	1.4	-70.7	26.2	-10.6	9.2	8.7	-6.5	0.0	177.6	-37.6	43.1	-32.5	-43.1	
Latvia	1,336	567	1.4	1.9	-5.0	-19.3	4.4	3.2	5.6	12.8	14.8	8.4	10.7	0.4	3.7	9.0	-0.7	-6.6	-57.6	
Liechtenstein	11	46	36.3	14.0	19.8	-3.5	12.8	8.0	1.7	12.5	4.2	6.1	10.0	7.3	1.7	-5.9	4.3	-11.9	309.6	
Lithuania	1,423	558	24.3	-5.0	-15.4	-10.4	-21.6	-2.3	-6.3	6.7	4.2	4.1	14.1	1.8	8.5	11.7	-4.0	-5.8	-60.8	
Luxembourg	339	960	12.4	9.3	16.6	-7.1	6.9	-2.0	40.9	9.9	4.7	-5.3	-4.0	5.0	8.3	-7.0	7.8	13.8	183.1	
Malta	39	44	12.0	-0.6	2.0	-0.6	1.6	1.4	-0.8	-2.3	0.8	5.4	1.7	-8.2	7.8	0.8	-4.0	-6.8	13.0	
Monaco	9	11	16.8	4.7	-1.5	-3.9	4.1	5.3	9.5	-2.1	4.3	-1.5	1.5	2.7	-3.2	-2.3	11.7	-5.8	24.0	
Netherlands	33,659	36,089	14.8	6.9	14.5	-15.5	-2.4	-6.0	2.2	6.1	-2.3	3.4	-0.6	-6.3	1.1	-7.4	11.6	0.1	7.2	
New Zealand	471	777	3.8	-2.7	1.8	4.3	2.1	24.5	58.8	-1.6	-2.1	-14.2	-2.9	-8.7	-14.1	-7.3	-8.3	27.5	64.8	
Norway	NO	101	*	406.3	32.1	2700.0	17.4	-1.5	27.2	138.7	6.6	-2.5	78.8	77.2	8.9	8.2	11.2	11.6	*	
Poland	6,484	11,804	6.2	7.2	-6.2	7.8	-1.7	1.3	-4.3	10.7	2.5	3.6	0.6	3.8	-0.8	-1.8	2.4	3.6	82.0	
Portugal	NO	1,096	*	*	*	*	1784.3	221.3	86.4	59.0	26.4	22.6	2.0	4.6	5.6	9.6	11.2	11.3	*	
Romania	3,206	7,408	16.8	15.3	-8.3	12.8	11.1	-8.8	-0.1	3.6	-0.3	38.9	-5.8	2.9	24.7	-24.0	-4.1	3.1	131.1	
Russian Federation	57,045	100,444	-0.2	-11.5	-2.6	-4.7	-0.7	1.9	-4.0	5.0	-2.0	4.2	-8.8	-9.1	3.4	1.1	1.1	4.6	76.1	
Slovakia	2,842	3,654	1.1	7.7	13.5	7.5	7.3	6.0	-9.5	15.7	-1.2	-1.1	-8.2	0.9	-11.0	-13.7	7.2	3.2	28.6	
Slovenia	34	286	26.6	34.1	25.8	37.5	10.4	29.3	-5.1	15.7	-10.3	4.8	10.7	-18.6	-12.5	-11.1	18.1	8.6	743.4	
Spain	1,319	11,309	47.6	5.6	20.3	12.7	17.7	20.0	11.6	15.9	11.5	12.1	8.0	9.9	-3.7	8.7	3.9	-5.1	757.6	
Sweden	205	350	20.4	11.6	5.7	-5.4	9.2	5.2	-7.6	5.4	4.6	-10.1	1.2	-3.1	8.7	-0.5	-3.3	1.0	70.6	
Switzerland	2,356	3,769	14.1	12.7	9.6	-7.9	3.7	3.6	-3.1	5.3	-1.2	7.3	2.9	3.3	-3.8	-3.8	7.7	-1.0	60.0	
Turkey	104	16,290	281.6	22.9	89.9	30.4	8.3	8.0	22.4	-12.1	1.9	27.2	14.4	30.8	26.8	10.4	-5.3	-3.9	15532.1	
Ukraine	22,442	35,186	11.6	2.2	14.0	1.0	6.1	-9.2	-9.8	0.0	3.6	8.4	0.5	11.6	4.8	-11.4	4.6	-2.5	56.8	
United Kingdom	70,530	78,824	12.7	1.2	14.0	-7.0	3.4	1.9	2.4	2.5	-3.5	3.0	2.4	-3.1	-5.0	-4.2	1.4	-8.1	11.8	
United States	380,104	425,103	4.0	1.7	6.6	-2.4	-7.9	3.0	5.2	-4.5	3.2	2.7	-3.3	-2.0	-8.0	7.6	3.2	-2.2	11.8	

¹ In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.28**Contribution of fuels to CO₂ emissions from other sectors (%)**

	Liquid Fuels		Solid Fuels		Gaseous Fuels		Other Fuels	
	Base year ^a	2009	Base year ^a	2009	Base year ^a	2009	Base year ^a	2009
Australia	45.9	49.8	4.4	0.7	49.7	49.5	-	-
Austria	59.6	55.4	19.2	3.2	18.6	41.0	2.5	0.4
Belarus	36.5	50.4	47.0	12.5	16.5	37.1	0.1	-
Belgium	64.3	52.4	7.2	2.2	28.4	45.0	0.2	0.4
Bulgaria	45.2	41.6	54.8	37.7	-	20.7	-	-
Canada	27.9	18.2	0.3	0.4	71.8	81.5	-	-
Croatia	67.4	50.4	14.3	0.5	18.3	49.1	-	-
Czech Republic	8.1	1.2	77.7	21.4	14.2	77.4	-	-
Denmark	81.2	64.0	3.3	1.9	15.3	34.1	0.2	0.0
Estonia	55.7	51.8	36.9	7.1	7.4	41.1	-	-
European Union (27)	41.9	35.4	25.3	7.0	32.7	57.1	0.1	0.5
Finland	96.1	93.2	0.7	0.3	1.5	4.0	1.7	2.5
France	63.3	49.3	5.3	0.6	31.5	50.0	-	-
Germany	44.8	44.1	32.8	3.6	22.4	52.3	-	-
Greece	98.5	91.1	1.5	0.1	-	8.7	-	-
Hungary	29.2	7.2	50.5	4.4	20.3	88.3	-	-
Iceland	100.0	99.1	-	-	-	-	-	0.9
Ireland	37.9	54.6	57.2	21.0	4.9	24.4	-	-
Italy	50.6	23.6	1.2	0.0	47.5	73.0	0.7	3.4
Japan	84.8	64.5	2.9	1.3	12.3	34.2	-	-
Kazakhstan	20.5	25.2	70.5	54.9	8.8	19.9	0.2	-
Latvia	39.2	41.6	36.6	12.0	24.3	46.4	-	-
Liechtenstein	87.2	53.7	0.1	0.0	12.7	46.3	-	-
Lithuania	26.0	12.5	49.0	34.8	25.0	52.7	-	-
Luxembourg	72.1	47.3	2.0	0.1	25.9	52.6	-	-
Malta	59.8	6.6	-	-	40.2	93.4	-	-
Monaco	80.0	63.7	-	-	20.0	36.3	-	-
Netherlands	10.4	6.1	0.5	0.1	89.1	93.8	-	-
New Zealand	57.8	66.3	26.3	8.6	15.9	25.2	-	-
Norway	99.1	96.6	0.9	0.2	-	3.2	0.1	-
Poland	5.1	16.3	88.6	59.9	6.3	23.7	-	-
Portugal	100.0	77.0	-	-	-	23.0	-	-
Romania	46.8	21.1	21.8	0.6	31.4	78.3	-	-
Russian Federation	30.4	22.2	47.0	6.4	22.2	71.2	0.4	0.2
Slovakia	3.5	0.2	70.4	8.1	26.1	91.7	-	-
Slovenia	38.0	86.0	60.4	-	1.6	14.0	-	-
Spain	85.8	66.7	9.0	1.5	5.2	31.8	-	-
Sweden	96.5	89.4	1.5	-	2.0	10.6	-	-
Switzerland	86.3	76.1	0.3	0.2	13.4	23.7	-	-
Turkey	51.2	26.8	48.5	48.8	0.4	24.4	-	-
Ukraine	8.8	1.9	66.6	10.6	24.6	86.8	0.0	0.7
United Kingdom	17.6	13.7	17.9	3.7	64.4	82.5	0.1	0.0
United States	29.1	23.4	2.7	1.1	68.2	75.5	-	-

^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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Table 1.29a

CO₂ emissions from transport: all fuels - trend information

CO ₂ emissions (Gg)	Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	60,738	81,374	-1.1	4.1	3.4	1.9	0.0	1.0	2.7	-1.9	2.2	1.8	5.2	0.0	0.7	1.5	2.4	-0.6	34.0
Austria	13,755	21,391	10.6	1.8	9.9	-5.7	12.9	-2.9	5.6	6.6	9.6	8.4	2.2	1.2	-5.2	0.7	-5.4	-3.9	55.3
Belarus	12,986	5,317	-2.0	-9.8	-0.5	-8.9	-6.9	-17.6	-6.9	-0.1	31.8	-3.5	11.3	1.3	26.6	-0.1	12.8	-16.5	-59.1
Belgium	20,099	26,490	0.9	0.3	1.9	0.9	2.9	1.5	1.9	2.6	1.3	2.2	3.9	-3.4	-2.1	-0.5	9.1	-3.1	31.8
Bulgaria	7,094	8,108	-42.1	6.2	-1.6	0.7	26.5	4.2	-3.9	3.1	4.1	10.0	6.2	9.9	8.2	-2.1	4.9	-3.5	14.3
Canada	139,168	181,587	-3.5	2.5	2.5	3.7	1.9	2.7	0.6	-1.0	1.1	2.5	3.0	2.2	-0.2	2.8	-0.4	-2.8	30.5
Croatia	3,985	6,077	-26.5	5.8	7.9	9.3	5.0	5.5	0.2	1.3	6.7	8.0	2.6	4.0	6.5	7.3	-2.1	-1.4	52.5
Czech Republic	7,547	17,762	-9.2	23.8	10.2	5.4	4.2	1.4	1.6	6.8	4.3	12.0	4.9	8.4	2.0	5.3	-2.5	-1.6	135.4
Denmark	10,818	13,342	3.5	1.3	2.0	1.7	-0.2	0.3	-1.7	-0.1	0.8	3.7	2.5	0.9	2.9	4.6	-1.5	-5.9	23.3
Estonia	2,450	2,134	-9.0	-2.5	4.1	6.7	3.2	-6.8	-0.2	18.9	5.7	-4.1	2.4	3.9	9.4	5.4	-5.5	-7.6	-12.9
European Union (27)	759,163	920,741	0.8	1.8	3.0	1.4	3.2	2.0	0.0	1.6	1.4	0.8	2.1	-0.2	0.5	0.8	-1.7	-2.7	21.3
Finland	12,483	12,708	-2.8	-1.7	-0.1	4.9	1.2	1.9	-0.7	1.0	1.5	1.5	2.7	0.2	1.4	2.7	4.7	-5.0	1.8
France	118,999	130,155	2.2	1.3	1.1	1.7	1.6	2.4	-0.4	2.2	0.8	-0.3	0.4	-1.1	-0.7	-1.0	-4.5	-1.0	9.4
Germany	161,917	152,183	2.1	2.1	0.0	0.3	1.8	3.1	-2.1	-2.1	-0.8	-4.0	-0.1	-4.8	-2.5	-1.8	-0.2	-0.4	-6.0
Greece	14,487	25,322	5.1	2.2	2.9	4.5	9.9	2.2	-4.4	4.2	1.1	5.7	1.8	0.4	4.0	3.5	-4.2	13.2	74.8
Hungary	7,621	12,260	-12.5	1.9	0.0	6.1	13.6	4.4	-0.4	3.8	4.8	3.4	5.7	16.1	4.1	1.3	0.3	-1.5	60.9
Iceland	612	905	1.9	-3.8	-1.5	1.9	0.5	3.5	0.3	1.7	0.6	14.3	6.9	0.7	17.6	3.7	-5.5	-2.9	47.8
Ireland	5,039	12,977	4.0	3.8	17.0	4.7	18.0	10.8	7.5	4.8	1.8	1.6	5.5	6.4	5.4	4.9	-0.6	-7.7	157.5
Italy	101,269	117,873	2.5	2.0	1.1	1.5	3.3	1.3	0.3	1.7	1.6	0.8	1.6	-1.0	1.0	0.1	-3.9	-3.6	16.4
Japan	211,054	222,915	5.4	3.1	2.2	0.8	-0.3	0.8	-0.4	0.8	-2.2	-1.0	-0.2	-2.1	-1.4	-2.4	-4.1	-2.3	5.6
Kazakhstan	22,051	18,315	-11.0	-15.2	-17.4	-7.5	-4.9	-10.5	56.9	13.2	21.0	10.1	-17.0	15.1	34.1	14.9	24.3	-27.4	-16.9
Latvia	2,895	2,726	-6.3	-4.8	-1.7	-0.4	-1.2	-2.4	11.0	18.5	3.1	5.6	5.1	4.4	10.3	13.3	-5.6	-22.6	-5.8
Liechtenstein	75	84	17.5	2.5	1.6	4.4	-0.3	6.7	4.3	-3.8	-4.9	-0.3	-1.4	-0.5	-3.4	5.0	5.1	-6.8	11.6
Lithuania	7,379	4,368	2.2	15.9	1.0	8.8	3.3	-12.5	-11.7	7.2	3.4	1.2	9.0	6.4	6.0	16.4	-0.9	-17.3	-40.8
Luxembourg	2,600	6,005	18.8	-5.2	3.0	5.8	4.6	7.8	13.4	5.7	4.3	8.5	16.2	6.3	-4.2	-2.2	2.5	-7.8	131.0
Malta	341	539	5.9	3.1	5.2	2.4	1.5	1.8	1.4	4.8	2.0	0.3	-3.7	-5.8	8.0	0.8	0.7	2.8	57.9
Monaco	33	29	14.3	-3.4	-0.5	-4.9	-3.5	1.4	-5.0	0.6	-0.5	-1.0	-2.4	-4.5	-0.5	1.7	-4.7	-8.5	-12.3
Netherlands	26,009	34,073	1.1	1.8	2.5	1.3	2.4	3.2	1.1	1.5	2.2	2.0	1.0	0.1	2.6	-1.0	0.8	-4.0	31.0
New Zealand	8,536	13,588	0.2	6.4	0.8	2.1	1.6	1.9	4.6	0.5	4.0	4.4	2.4	0.3	1.2	0.8	0.9	-1.6	59.2
Norway	10,862	14,025	-1.1	3.4	4.8	2.0	1.3	4.7	-6.2	2.3	-1.2	2.7	3.6	1.5	2.4	4.8	-3.1	-2.1	29.1
Poland	21,847	43,772	-5.7	8.7	11.2	2.4	2.8	0.2	-3.6	-2.4	-0.9	3.1	6.3	5.3	6.2	3.9	9.7	0.7	100.4
Portugal	9,917	18,636	5.8	5.1	5.0	5.8	12.2	5.2	10.3	1.7	2.5	-0.5	-0.1	-0.7	0.4	-2.2	-1.4	-0.5	87.9
Romania	5,785	14,475	-14.6	-2.3	35.5	-3.5	-0.5	-21.8	11.5	18.9	7.9	1.2	19.6	-18.6	3.9	4.4	13.8	-0.9	150.2
Russian Federation	340,738	195,694	-3.0	-7.2	-4.4	-7.4	17.4	0.9	-21.7	5.5	3.8	5.1	3.8	4.6	4.5	3.8	5.5	-9.7	-42.6
Slovakia	4,892	6,120	-15.8	6.1	1.3	3.9	6.3	-2.3	-11.3	13.9	3.0	2.0	5.8	18.2	-7.7	13.4	2.5	-7.6	25.1
Slovenia	1,979	5,243	-5.6	9.8	15.7	1.5	-13.7	-5.0	4.1	3.6	0.3	3.6	3.8	6.7	4.9	12.6	17.9	-13.2	164.9
Spain	54,283	93,475	5.7	1.1	6.7	1.0	9.0	5.8	2.8	5.1	2.1	4.5	3.9	3.1	3.2	3.3	-5.2	-6.8	72.2
Sweden	18,778	20,160	-2.4	-0.5	-1.3	1.3	1.6	1.5	-1.3	1.1	3.0	1.5	1.7	1.2	-0.9	0.4	-2.5	-1.7	7.4
Switzerland	14,369	16,339	3.3	-2.1	0.4	3.9	1.5	4.1	1.6	-1.8	-0.7	1.2	0.8	0.5	0.6	2.1	2.4	-1.0	13.7
Turkey	25,955	46,707	-4.9	11.7	6.3	-4.6	-5.5	5.9	5.0	0.2	2.9	4.8	7.1	0.2	7.9	16.6	-7.8	-0.7	80.0
Ukraine	87,138	38,237	-11.3	-12.7	-10.9	-7.5	11.0	-14.8	-2.9	2.0	8.5	0.3	6.9	4.7	2.2	1.6	-0.1	-13.2	-56.1
United Kingdom	114,741	119,100	-0.7	-0.7	3.9	1.3	-0.3	0.9	-0.6	0.1	2.1	-0.2	1.2	0.7	0.2	0.9	-3.6	-3.9	3.8
United States	1,437,967	1,698,704	-2.8	2.7	2.5	1.2	1.8	4.0	2.8	-1.2	2.0	0.0	2.3	1.8	-0.8	0.8	-5.6	-3.8	18.1

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.29b

N₂O emissions from transport: all fuels - trend information

N ₂ O emissions (Gg)	Relative change (%)																			
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	2.41	5.79	6.3	9.8	7.8	6.0	9.8	10.0	10.5	4.4	9.0	7.4	5.9	-3.9	-3.9	-1.3	-2.8	-5.0	140.6	
Austria	0.63	0.78	17.1	1.8	2.7	-1.6	10.8	-2.4	3.0	2.5	8.1	3.1	-1.6	-3.5	-6.7	-5.1	-10.2	-8.2	24.8	
Belarus	0.11	0.04	-1.9	-9.3	0.2	-9.0	-6.5	-17.7	-12.8	-0.9	31.5	-5.0	11.1	2.7	22.4	-3.1	13.3	-15.4	-63.7	
Belgium	0.82	0.70	6.9	7.4	6.4	4.6	5.6	4.9	2.7	1.7	1.0	1.3	1.6	-4.3	-0.7	-50.6	0.7	-6.1	-14.5	
Bulgaria	0.26	0.31	-47.6	12.5	-10.7	-17.9	21.6	4.4	-12.1	-6.1	4.2	0.8	0.3	6.6	11.7	-7.1	1.9	-6.4	17.5	
Canada	20.27	25.43	1.0	3.8	6.2	6.4	0.0	5.1	2.9	-1.8	0.2	3.5	-1.5	-2.9	-5.6	0.3	-2.9	-8.8	25.5	
Croatia	0.13	0.21	-31.3	3.8	15.8	12.9	10.0	10.6	2.3	81.8	-44.3	4.7	92.0	1.4	-43.0	7.4	-4.8	1.3	57.4	
Czech Republic	0.49	2.32	-11.0	22.9	14.4	8.2	9.3	10.2	8.3	10.9	13.3	18.6	8.9	6.7	1.5	4.5	-3.7	2.4	375.5	
Denmark	0.37	0.44	5.0	5.4	5.5	3.6	-1.5	-0.7	-2.2	-1.8	-1.5	0.6	0.1	-2.8	-0.2	2.2	-3.1	-7.0	17.5	
Estonia	0.06	0.05	-5.6	6.7	9.5	6.2	-14.3	7.9	8.2	29.6	-0.8	1.0	1.5	-0.3	-18.9	3.4	-3.9	-10.5	-17.0	
European Union (27)	23.45	32.03	3.0	12.7	7.6	6.0	4.6	-3.6	-2.0	-3.5	0.2	-0.5	0.3	-4.4	0.1	-2.4	-3.1	-5.8	36.6	
Finland	0.56	0.56	-1.0	1.6	0.3	1.9	1.3	1.5	-1.1	1.7	-0.1	0.1	-0.8	-0.9	-1.1	-0.8	-3.1	-0.8	-0.5	
France	3.25	5.05	-0.3	20.7	25.5	17.7	7.6	-32.4	-3.2	4.2	2.5	1.6	2.7	-1.4	-0.1	0.7	2.5	-13.7	55.4	
Germany	2.19	3.18	34.5	9.6	4.6	2.4	1.2	0.7	-5.2	-2.7	-3.1	-7.3	-2.8	-7.6	-5.2	-5.1	-6.9	-3.3	45.1	
Greece	0.54	0.86	4.3	10.4	4.7	9.4	11.2	9.7	-32.7	3.6	0.3	2.0	3.3	-3.4	5.3	-0.1	-3.2	-8.8	58.7	
Hungary	0.31	1.27	-9.7	10.3	7.4	15.1	21.4	15.9	4.0	11.9	11.3	12.8	4.5	16.6	-13.9	-1.2	6.1	-3.1	311.4	
Iceland	0.02	0.13	2.8	115.9	-0.7	59.7	2.5	48.7	-0.7	1.0	1.0	5.2	4.2	17.3	6.9	1.1	-3.9	-0.6	645.7	
Ireland	0.19	0.40	2.2	4.2	18.8	16.4	20.5	1.7	7.1	5.6	-1.2	-2.1	1.4	-0.5	-0.1	-4.5	-22.8	-3.6	108.7	
Italy	2.91	3.45	5.0	13.5	11.0	3.7	0.4	3.0	-1.4	-1.3	-2.1	-4.9	-1.3	-26.7	7.7	-1.4	-8.3	-3.3	18.5	
Japan	13.56	8.60	3.9	3.0	1.9	1.0	-2.1	-0.1	-2.0	-3.9	-5.9	-6.5	-8.0	-7.8	-6.6	-5.9	-7.4	-0.4	-36.6	
Kazakhstan	0.10	0.29	11.8	-5.6	-22.9	-8.9	0.9	-33.2	46.0	36.7	19.2	0.4	-4.8	14.0	23.7	21.5	16.1	168.6	192.0	
Latvia	0.27	0.15	-3.4	1.0	-0.5	4.6	-4.2	-7.7	6.5	9.0	5.8	11.0	4.3	0.3	-4.3	6.9	-5.8	-20.5	-44.3	
Liechtenstein	0.00	0.00	36.8	18.1	-1.8	5.4	-5.4	3.5	4.8	-8.4	-13.4	-9.2	-8.3	-8.0	-11.5	-3.5	-3.1	-7.1	4.2	
Lithuania	0.88	0.23	-16.9	-0.5	-24.4	1.7	-3.5	-19.5	-16.6	2.3	1.8	-1.8	7.8	8.2	3.2	14.9	1.4	-19.5	-74.2	
Luxembourg	0.09	0.22	15.2	-0.6	4.2	8.7	0.3	2.8	6.9	1.1	0.3	5.6	11.1	2.5	-7.2	-3.8	4.3	-7.8	161.0	
Malta	0.00	0.00	6.0	3.0	5.1	2.4	1.4	1.8	1.2	4.5	1.8	2.7	-3.3	-6.3	7.5	0.9	0.4	3.2	59.8	
Monaco	0.00	0.00	15.0	17.4	18.6	8.6	7.5	12.3	1.4	4.2	4.1	-2.2	-1.7	-3.7	0.8	1.5	-4.5	-13.4	261.5	
Netherlands	0.88	1.39	20.3	7.0	1.8	1.0	-1.1	-1.5	-2.2	-0.2	-0.3	-2.0	-1.9	-2.3	1.3	-2.3	-1.0	-1.9	58.1	
New Zealand	0.24	0.47	0.9	9.6	2.5	3.6	2.0	2.8	6.5	0.9	4.8	4.2	2.0	2.2	1.7	1.3	1.5	-1.4	97.1	
Norway	0.50	0.69	-0.7	11.7	15.9	2.1	-13.9	19.4	-12.2	5.2	-1.7	5.0	5.5	-18.0	11.2	14.3	-8.1	-7.1	38.5	
Poland	0.90	1.78	-8.5	14.6	16.7	4.9	0.3	-1.1	-5.4	-3.7	-2.5	1.6	5.7	3.7	6.5	6.7	14.5	2.3	98.0	
Portugal	0.25	0.63	8.8	12.9	10.1	0.3	4.6	1.7	4.4	-6.0	0.3	-4.2	-0.5	-2.3	-1.6	0.3	0.0	-0.3	148.8	
Romania	0.05	0.12	-16.3	-6.3	38.4	-2.7	-1.9	-20.9	10.0	20.4	8.8	0.7	19.1	-18.6	4.4	5.9	10.6	1.5	146.7	
Russian Federation	2.53	8.40	17.7	5.5	5.2	8.1	21.5	9.3	-21.3	17.5	10.1	10.1	6.5	12.8	13.5	10.3	9.2	-1.4	232.4	
Slovakia	0.39	0.24	-18.8	13.7	8.7	10.0	10.8	2.7	-53.0	13.2	-5.3	-1.4	3.2	11.3	-8.8	2.0	-0.5	1.6	-39.6	
Slovenia	0.12	0.27	-3.1	21.5	23.8	1.3	-13.5	-2.7	4.1	0.0	-3.7	-1.4	-4.9	1.8	-1.0	3.3	10.6	-13.3	124.4	
Spain	1.70	2.85	4.4	10.4	17.2	9.4	15.1	13.8	5.5	-32.3	0.4	1.3	-4.6	1.2	2.4	3.2	-2.9	-7.8	67.7	
Sweden	0.47	0.52	-8.9	13.1	-1.9	6.9	-3.0	6.4	3.2	-6.8	-2.9	-1.9	-2.9	-1.7	-5.4	-3.4	-3.2	1.2	10.5	
Switzerland	0.47	0.32	11.8	2.4	6.1	3.9	-0.7	0.5	-3.5	-7.2	-7.1	-8.3	-33.1	-5.1	-6.5	2.2	1.9	-1.0	-32.1	
Turkey	0.84	1.96	-5.2	10.6	9.8	-7.0	-5.8	16.7	9.3	4.8	8.3	12.4	23.0	2.1	-19.2	22.6	-3.2	-3.7	132.7	
Ukraine	5.20	2.96	-9.0	-13.1	-14.4	-8.0	14.9	-22.7	-0.4	16.4	9.5	-7.3	15.0	10.8	2.8	8.3	-2.6	-8.6	-43.2	
United Kingdom	4.52	4.16	-0.4	16.8	-6.8	0.6	1.3	0.3	-0.8	-3.3	-2.1	-3.0	-1.5	-2.7	-1.9	-1.8	-10.5	-6.9	-7.9	
United States	137.10	71.54	4.7	2.3	1.3	1.1	-0.2	-2.0	-1.8	-5.7	-8.3	-7.9	-6.7	-8.3	-9.4	-10.5	-14.5	-9.2	-47.8	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.30

Road transportation - CO₂, N₂O (2009)

Key category	Share of national total (%)	CO ₂ emissions					N ₂ O emissions						
		Methods and EF used ^a		CO ₂ IEF			Key category	Share of national total (%)	Method and EF used ^a		N ₂ O IEF		
		Methods	EF	IEF in CRF based on GCV or NCV	Gasoline (t/TJ)	Diesel oil (t/TJ)			Methods	EF	IEF in CRF based on GCV or NCV	Gasoline (kg/TJ)	Diesel oil (kg/TJ)
							72.1 (US) 73.0 (Europe)	72.1 (US) 74.0 (Europe)					
IPCC default EF ^b				NCV	72.1 (US) 73.0 (Europe)	72.1 (US) 74.0 (Europe)				NCV	3-43 (US) 1-20 (Europe)	1-14 (US) 3-4 (Europe)	
Australia	L	12.8	T2	CS	GCV	70.24	72.84	0.31	T1, T3	CS, D	GCV	8.06	1.77
Austria	L, T	25.9	CS, M	CS	NCV	73.02	73.67	0.28	CS, M	CS	NCV	4.07	2.01
Belarus	L, T	4.2	D, T1	CS, D	NCV	68.61	73.33	0.01	D, T1	CS, D	NCV	0.60	0.60
Belgium	L, T	20.7	T1	CR, CS, D	NCV	68.61	73.33	0.16	M, T2	CR, CS	NCV	1.41	1.88
Bulgaria	L, T	12.9	T1, T2	D	NCV	70.63	74.81	0.15	T1, T2	D	NCV	4.14	1.77
Canada ^c	L, T	18.5	CS, T1, T3	CS	GCV	68.84	73.19	0.54	CS, T1, T3	CS	GCV	7.56	4.11
Croatia	L, T	20.0	T3	CR	NCV	69.94	73.78	0.22	T3	CR	NCV	3.75	1.73
Czech Republic	L, T	13.0	T1	D	NCV	72.67	73.87	L, T 0.54	T1, T2	CS, D	NCV	18.04	4.88
Denmark	L, T	19.7	OTH, T1	CS, D	NCV	72.99	74.00	0.19	T1	D	NCV	1.74	2.73
Estonia	L, T	11.9	T1	CS, D	NCV	73.00	73.33	0.10	T1, T3	CS, D	NCV	2.28	1.62
European Union (27)	L, T	18.8	CR, CS, D, M, OTH, T1, T2, T3	CR, CS, D, M	NCV	71.11	73.61	0.20	CR, CS, D, IE, M, T1, T2, T3	CR, CS, D, IE, M, OTH	NCV	2.54	2.32
Finland	L, T	16.9	M, T1	CS	NCV	72.90	73.60	0.24	CS, M, T1	CS, D	NCV	2.75	3.64
France	L, T	23.2	T3	CS	NCV	72.35	74.70	T 0.28	T3	CS	NCV	3.17	2.61
Germany	L, T	15.7	CS, T1, T2	CS	NCV	72.00	74.00	0.10	T1, T3	CS, M	NCV	1.37	1.49
Greece	L, T	17.1	T1	D	NCV	68.61	73.31	0.18	M, T1	D, M	NCV	2.80	1.68
Hungary	L, T	18.0	T1	D	NCV	68.61	73.33	L, T 0.59	T1, T2	CS, D	NCV	13.51	4.12
Iceland	L, T	18.5	T1	D	NCV	70.98	72.47	L, T 0.85	T2	D	NCV	15.70	3.52
Ireland	L, T	20.2	T1	CS	NCV	69.96	73.30	0.17	T3	M	NCV	1.96	1.88
Italy	L, T	22.4	M	CS	NCV	71.15	73.15	0.20	M	CS	NCV	1.78	2.21
Japan ^c	L, T	16.7	T1	CS	GCV	70.59	72.29	0.20	T2	CS	GCV	2.61	3.02
Kazakhstan	L, T	4.9	T2	CS, D	NCV	70.14	73.26	0.03	T2	D	NCV	0.33	3.90
Latvia	L, T	23.2	M, T1	CS, M	NCV	68.60	74.00	0.16	M, T1	CR, M, OTH	NCV	1.39	1.71
Liechtenstein	L, T	33.9	T1	CS	NCV	73.90	73.60	0.22	T1, T3	CS, D	NCV	1.62	1.50
Lithuania	L, T	18.4	T2	CS	NCV	72.97	72.89	0.23	T1, T2	CS, D	NCV	2.00	4.00
Luxembourg	L, T	51.3	T3	CS	NCV	68.89	73.47	0.58	T1, T3	D, OTH	NCV	2.92	2.50
Malta	L, T	17.7	D, T1	D	NCV	68.61	72.40	0.05	D, T1	D	NCV	0.60	0.60
Monaco	L	29.4	T1	D	NCV	73.00	74.00	T 1.19	T1	D	NCV	13.13	3.81
Netherlands	L, T	16.8	T2	CS	NCV	72.00	74.30	0.22	T2	CS	NCV	3.74	2.34
New Zealand ^c	L, T	17.3	D	CS	GCV	69.42	72.48	0.19	D	D	GCV	1.50	3.90
Norway	L, T	18.9	T1, T2	CS, PS	NCV	71.30	69.75	0.12	CS, T2, T3	CR, CS, D	NCV	1.60	1.26
Poland	L, T	11.1	T2	CS	NCV	70.36	73.16	0.13	T1, T2	D	NCV	2.64	3.31
Portugal	L, T	24.2	T2	CR, CS	NCV	69.20	74.00	0.25	T3	CR	NCV	3.38	2.00
Romania	L, T	10.7	T1	D	NCV	68.61	73.33	0.03	T1	D	NCV	0.60	0.60
Russian Federation	L, T	5.4	T1	D	NCV	68.61	73.33	0.11	T1	CS, D	NCV	5.14	3.67
Slovakia	L, T	13.9	D, M	D	NCV	72.16	74.73	0.14	M, T1	D	NCV	4.54	1.28
Slovenia	L, T	26.9	M	M	NCV	71.41	73.23	T 0.41	M	M	NCV	5.28	2.54
Spain	L, T	23.4	CR, CS, T3	CR	NCV	71.09	72.63	0.22	CR, CS, T3	CR	NCV	1.43	2.43
Sweden	L, T	31.5	T1	CS	NCV	72.00	72.02	0.20	IE, M	IE, M	NCV	1.65	1.31
Switzerland	L, T	30.8	T2	CS	NCV	73.90	73.60	0.19	D	CS	NCV	1.14	1.95
Turkey	L, T	10.7	T1	D	NCV	69.30	74.10	0.15	T1	D	NCV	4.03	3.90
Ukraine	L, T	7.4	T1	CS, D	NCV	68.61	73.33	0.24	T1	D	NCV	10.50	3.50
United Kingdom	L, T	19.8	T3	CS	NCV	70.06	73.21	0.17	T3	CS	NCV	1.27	2.60
United States ^c	L, T	22.4	T2	CS	GCV	71.18	73.79	T 0.31	M, T1, T2	CS, D, M	GCV	4.10	0.20

^a Information on methods and emission factors in this table is 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.3 Transport.

^b Source of default emission factors: IPCC Guidelines, volume 3, pages 1.70–1.83. For updates on the default emission factors for N₂O for US gasoline vehicles, see table 2.7, page 2.47 in the IPCC good practice guidance.

^c Australia, Canada, Japan, New Zealand and United States reported energy data on a gross calorific value (GCV) basis. 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. The IEFs included in this table have been converted into NCV-based values and are not reflecting the reported IEFs.

Table 1.31a

CO₂ emissions from road transportation - trend information

CO ₂ emissions (Gg)	Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	53,153	70,116	-1.9	2.8	3.1	1.9	1.6	2.0	2.5	-2.4	3.4	2.2	5.1	-0.4	0.7	0.3	1.4	-0.9	31.9
Austria	13,286	20,713	11.1	1.8	10.2	-5.9	12.5	-3.5	5.3	7.4	10.8	8.2	2.2	1.4	-5.8	0.8	-6.1	-3.3	55.9
Belarus	12,928	3,728	-2.7	-11.6	-2.9	-11.7	-10.3	-21.4	-21.7	-1.0	42.7	-8.2	15.3	3.1	26.0	-3.4	14.8	-16.8	-71.2
Belgium	19,270	25,777	1.0	0.3	2.0	1.2	3.1	1.5	1.7	2.8	1.3	2.2	4.0	-3.4	-2.0	-0.5	9.4	-3.1	33.8
Bulgaria	6,996	7,655	-42.3	8.4	0.1	1.4	24.1	3.2	-6.0	3.5	5.7	13.5	5.0	8.0	8.0	-3.9	6.4	-0.2	9.4
Canada	93,216	127,541	-2.2	1.4	-1.2	4.2	2.6	2.7	0.8	2.1	1.5	2.3	3.4	1.5	1.4	1.7	-0.5	-0.2	36.8
Croatia	3,559	5,765	-25.8	6.1	7.6	11.3	6.1	6.0	0.7	1.2	6.7	8.5	2.9	3.8	6.6	7.5	-2.8	-1.3	62.0
Czech Republic	6,190	17,283	-10.0	26.4	11.1	6.4	4.5	2.0	1.9	7.4	4.9	14.0	5.0	8.6	1.8	5.1	-2.9	-1.3	179.2
Denmark	9,375	12,251	4.4	0.9	1.7	2.0	1.7	1.4	-0.9	0.2	1.2	4.0	2.6	0.8	3.1	4.8	-1.8	-6.3	30.7
Estonia	2,268	2,001	-9.3	-2.5	3.1	8.3	1.9	-8.0	-0.1	21.7	3.5	-3.1	3.5	4.9	8.5	5.9	-4.9	-7.6	-11.8
European Union (27)	703,255	868,032	1.2	1.9	2.9	1.4	3.2	1.9	0.1	1.8	1.5	0.9	2.1	-0.2	0.6	0.8	-1.7	-2.7	23.4
Finland	10,806	11,238	-2.9	-1.5	-0.5	4.8	1.0	1.9	-0.8	1.7	2.0	1.6	3.1	0.3	1.3	3.2	-4.4	-4.6	4.0
France	111,467	121,417	2.5	0.9	0.8	1.7	1.6	2.2	-0.3	2.5	0.6	-0.1	0.2	-1.1	-0.5	-1.0	-4.8	-0.9	8.9
Germany	150,358	144,616	2.5	2.5	0.0	0.6	2.1	3.2	-2.2	-2.0	-1.0	-3.7	-0.1	-5.1	-2.5	-1.8	-0.1	-0.2	-3.8
Greece	11,742	20,965	7.2	3.2	4.8	2.3	5.1	1.8	1.2	2.2	3.7	6.1	0.6	1.1	3.2	4.7	-3.6	10.0	78.5
Hungary	6,807	11,992	-12.2	2.1	0.1	6.4	14.3	4.7	-0.1	4.2	5.1	3.3	6.2	16.7	4.0	1.3	0.2	-2.2	76.2
Iceland	521	852	3.5	-1.9	-3.6	5.8	1.4	4.5	1.9	1.0	1.4	12.6	5.2	4.0	14.7	3.6	-5.8	0.1	63.5
Ireland	4,701	12,602	4.4	2.8	17.6	5.4	19.2	10.8	8.0	4.4	2.7	1.6	5.5	6.4	6.0	5.1	-0.8	-7.7	168.1
Italy	93,387	109,906	2.1	2.0	0.4	1.5	3.2	1.2	0.2	2.4	1.9	1.0	1.8	-1.1	1.1	0.4	-4.0	-3.5	17.7
Japan	189,228	201,943	5.4	2.7	2.2	0.2	0.4	1.1	-0.6	1.1	-2.6	-1.0	0.5	-2.4	-1.6	-2.3	-3.8	-1.9	6.7
Kazakhstan	16,625	14,306	-15.8	-18.0	-16.4	-11.1	-4.8	4.7	20.9	10.5	20.1	5.6	8.3	22.3	15.9	17.4	21.8	-26.3	-13.9
Latvia	2,362	2,484	-7.2	-5.9	-1.9	-1.2	-0.1	-0.9	12.0	20.1	3.0	4.8	5.3	4.9	12.5	13.5	-6.1	-24.0	5.2
Liechtenstein	75	84	17.5	2.5	1.6	4.4	-0.3	6.7	4.3	-3.8	-4.9	-0.3	-1.4	-0.6	-3.5	5.0	5.1	-6.8	11.5
Lithuania	5,247	3,965	10.4	24.8	6.8	12.9	5.6	-10.8	-11.8	9.7	3.2	1.4	10.0	6.1	6.6	18.1	-1.0	-17.0	-24.4
Luxembourg	2,574	5,993	19.0	-5.1	2.9	5.8	4.6	7.8	13.5	5.7	4.4	8.6	16.3	6.4	-4.2	-2.1	2.2	-7.7	132.8
Malta	333	507	6.5	2.5	5.3	2.8	1.5	1.6	0.9	4.5	0.6	0.0	-4.6	-5.4	8.5	0.5	0.5	2.0	52.1
Monaco	32	27	14.1	-3.4	-0.3	-5.6	-3.2	0.8	-5.9	-0.5	0.2	-1.5	-2.9	-4.6	-0.4	1.2	-5.5	-9.7	-17.3
Netherlands	25,472	33,357	1.1	1.9	2.7	1.2	2.4	2.8	1.1	1.6	2.1	1.8	1.2	0.2	2.7	-1.1	0.8	-4.0	31.0
New Zealand	7,324	12,206	1.3	7.6	1.5	3.7	2.2	1.9	2.0	1.2	5.3	3.7	2.8	0.8	1.7	2.3	0.8	-1.2	66.7
Norway	7,630	9,697	-1.0	1.8	3.2	0.0	2.8	-0.6	-2.0	6.0	0.9	1.6	3.5	1.8	3.0	2.4	-1.3	-2.6	27.1
Poland	16,068	41,886	-2.3	9.2	10.9	3.7	3.4	2.0	-4.0	-2.5	-0.8	2.6	6.5	5.3	6.0	4.2	10.0	0.9	160.7
Portugal	9,246	18,019	6.6	5.3	5.3	6.0	12.6	5.4	10.7	1.8	2.5	-0.4	-0.3	-0.8	0.4	-2.3	-1.4	-0.4	94.9
Romania	4,574	13,997	-16.1	-2.5	39.8	-5.3	0.5	-23.3	11.2	28.4	6.7	1.7	20.4	-16.9	4.0	0.6	15.8	0.4	206.0
Russian Federation	176,308	116,319	-4.4	-8.5	-5.2	-2.0	15.5	0.8	-33.4	11.6	2.7	3.1	-1.4	11.8	8.6	6.0	9.3	-0.3	-34.0
Slovakia	4,501	6,026	-15.0	6.0	1.4	4.5	7.0	-2.1	-11.7	14.5	3.3	2.7	6.0	18.7	-8.0	13.8	2.6	-7.3	33.9
Slovenia	1,910	5,204	-6.0	9.8	16.0	1.5	-13.8	-5.0	4.1	3.6	0.2	3.7	3.8	6.7	5.0	12.7	17.9	-13.3	172.4
Spain	50,442	86,114	5.7	1.4	6.5	1.0	9.7	5.2	2.7	4.9	2.3	4.6	3.6	2.8	3.1	2.9	-5.4	-6.7	70.7
Sweden	17,309	18,899	-1.4	-0.9	-1.2	0.7	1.1	1.0	-1.2	1.4	3.4	1.3	1.8	1.5	-0.5	0.8	-2.8	-1.6	9.2
Switzerland	13,927	16,017	3.6	-2.2	0.4	4.1	1.6	4.2	1.7	-1.7	-0.6	1.3	0.8	0.6	0.6	2.1	2.5	-1.0	15.0
Turkey	24,036	39,536	-6.0	8.5	6.2	-5.8	-6.8	8.6	5.6	-0.9	1.9	4.0	5.3	1.3	7.4	15.8	-7.1	-0.9	64.5
Ukraine	46,346	27,396	-10.8	-13.9	-14.8	-8.7	13.7	-24.3	3.9	11.2	17.7	0.3	11.4	9.5	6.1	7.8	-1.5	-7.6	-40.9
United Kingdom	109,833	113,108	-0.7	-0.9	3.9	1.2	-0.6	0.8	-0.7	0.1	2.1	-0.2	1.1	0.5	0.3	1.0	-3.6	-3.9	3.0
United States	1,184,087	1,477,016	-1.6	1.9	2.7	2.1	3.3	3.7	0.8	0.7	2.6	0.8	2.4	0.7	0.1	0.6	-4.4	-2.6	24.7

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.31b

N₂O emissions from road transportation - trend information

N ₂ O emissions (Gg)	Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	2.20	5.48	6.3	9.5	7.9	6.3	11.2	11.0	10.8	4.5	9.7	7.8	5.9	-4.2	-4.1	-1.8	-3.4	-5.4	148.6
Austria	0.56	0.72	20.5	2.1	3.4	-1.8	11.4	-2.7	2.9	2.8	8.1	3.7	-2.1	-2.8	-7.8	-5.6	-11.3	-7.9	28.8
Belarus	0.11	0.03	-2.7	-11.3	-2.5	-11.7	-10.0	-21.3	-21.4	-1.0	43.0	-8.0	14.8	3.1	25.9	-3.4	14.6	-16.4	-71.0
Belgium	0.72	0.64	7.5	7.8	6.9	5.3	5.9	5.2	2.3	2.0	1.1	1.2	1.5	-4.4	1.3	-53.1	1.4	-5.6	-10.9
Bulgaria	0.26	0.28	-44.3	24.4	0.1	-21.3	27.0	0.7	-8.0	-5.6	6.7	2.7	0.4	7.1	13.1	-7.0	-0.1	-2.3	8.1
Canada	10.31	12.04	9.1	4.2	2.9	6.4	3.4	4.3	0.6	3.5	1.8	1.5	-5.4	-7.8	-8.4	-6.4	-10.6	-8.9	16.8
Croatia	0.12	0.20	-30.0	4.1	16.4	13.6	10.4	10.9	2.6	83.2	-44.7	4.8	93.5	1.3	-43.5	7.5	-5.1	1.4	62.6
Czech Republic	0.43	2.30	-11.2	24.4	15.3	8.9	10.0	10.7	8.5	11.1	13.6	18.9	9.0	6.8	1.4	4.5	-3.9	2.7	441.5
Denmark	0.30	0.39	6.4	5.6	5.2	4.5	1.1	0.8	-1.2	-1.6	-1.4	0.6	0.0	-3.3	-0.3	2.2	-3.8	-7.8	27.5
Estonia	0.06	0.05	-5.6	6.9	9.3	6.6	-14.9	8.0	8.5	30.5	-1.3	1.4	1.7	-0.2	-19.6	3.6	-3.7	-10.6	-16.6
European Union (27)	19.47	29.10	5.5	13.7	8.4	6.5	5.1	-3.8	-2.0	-3.7	0.2	-0.5	0.0	-4.8	0.2	-2.6	-3.3	-5.9	49.5
Finland	0.52	0.52	-0.7	2.0	0.0	1.6	1.2	1.5	-1.1	2.1	0.1	0.0	-0.8	-1.0	-1.4	-0.8	-3.1	-0.2	0.5
France	3.03	4.80	-0.3	21.4	26.5	18.4	7.9	-33.8	-3.3	4.6	2.5	1.8	2.7	-1.4	0.2	0.8	2.6	-14.3	58.2
Germany	1.96	3.03	38.9	10.2	4.7	2.7	1.4	0.7	-5.3	-2.6	-3.4	-7.2	-2.9	-7.9	-5.5	-5.3	-7.2	-3.2	54.3
Greece	0.39	0.70	10.9	14.0	5.7	9.7	9.4	11.5	-35.0	2.7	1.9	1.8	2.9	-3.6	5.1	0.6	-2.7	-13.0	78.1
Hungary	0.29	1.27	-9.6	10.5	7.4	15.2	21.6	16.0	4.1	11.9	11.3	12.7	4.6	16.7	-3.9	-1.2	6.1	-3.1	330.8
Iceland	0.01	0.13	4.4	134.2	-1.5	64.5	2.8	50.0	-0.4	0.9	1.2	4.8	3.9	18.2	6.3	1.1	-4.0	0.0	762.7
Ireland	0.13	0.34	4.2	5.4	19.7	20.6	23.6	2.0	8.3	5.0	0.3	-3.2	0.9	0.3	0.1	-5.7	-26.4	-2.1	158.0
Italy	2.54	3.16	5.0	14.5	11.5	4.2	0.3	2.9	-1.6	-0.8	-2.3	-5.1	-1.3	-28.5	7.8	-0.8	-8.0	-2.9	24.2
Japan	12.59	7.76	4.0	3.1	1.9	0.8	-2.0	0.0	-2.2	-4.0	-6.4	-6.9	-8.4	-8.5	-7.2	-6.3	-7.5	0.0	-38.4
Kazakhstan	0.06	0.27	-12.8	-19.5	-17.5	-13.2	-3.9	14.3	33.6	14.7	18.1	5.3	8.5	22.5	16.7	15.3	22.3	264.7	366.9
Latvia	0.06	0.06	-6.5	-3.7	-1.4	3.4	3.7	1.3	10.8	16.2	7.2	7.6	6.2	0.6	4.1	4.5	-12.0	-38.6	-10.1
Liechtenstein	0.00	0.00	36.8	18.1	-1.8	5.4	-5.4	3.5	4.8	-8.4	-13.5	-9.2	-8.3	-8.0	-11.6	-3.5	-3.1	-7.2	4.1
Lithuania	0.20	0.16	9.9	16.0	5.2	20.0	8.9	-10.4	-14.1	13.8	2.2	-0.6	11.5	7.5	8.1	22.1	1.0	-18.1	-19.3
Luxembourg	0.08	0.22	17.1	0.4	3.8	9.2	0.3	2.9	7.3	0.8	0.8	6.3	12.1	3.4	-6.9	-3.1	1.5	-6.7	188.8
Malta	0.00	0.00	6.6	2.5	5.1	2.8	1.4	1.6	0.7	4.2	0.5	0.0	-4.5	-4.9	8.3	1.0	0.2	2.5	52.6
Monaco	0.00	0.00	14.8	17.5	18.8	8.4	7.7	12.2	1.2	4.0	4.3	-2.3	-1.8	-3.7	0.8	1.4	-4.6	-13.7	261.0
Netherlands	0.87	1.38	20.4	7.0	1.8	1.0	-1.1	-1.6	-2.2	-0.2	-0.3	-2.1	-1.9	-2.3	1.3	-2.3	-1.0	-1.8	58.2
New Zealand	0.20	0.42	1.7	11.9	3.5	5.0	3.0	2.8	4.3	1.9	6.2	3.6	2.2	3.0	2.2	2.6	1.5	-1.0	111.5
Norway	0.18	0.19	2.0	7.4	10.3	6.2	1.3	1.4	1.7	2.1	0.8	-2.8	-0.9	-34.4	-0.4	5.2	-0.4	-1.0	4.5
Poland	0.49	1.60	-7.2	9.5	15.1	6.3	6.2	2.9	-4.3	-2.3	-2.3	1.2	5.2	4.7	7.2	6.7	14.3	2.0	224.4
Portugal	0.20	0.60	10.8	13.9	11.5	0.5	5.1	1.8	4.6	-6.0	0.4	-3.9	-0.5	-2.3	-1.5	0.2	0.0	0.6	196.3
Romania	0.04	0.12	-17.0	-7.0	44.0	-4.5	-0.1	-22.4	9.4	30.1	7.2	1.2	20.2	-16.9	4.6	-0.1	15.1	2.1	205.3
Russian Federation	1.49	8.00	32.1	7.7	7.7	10.4	24.1	10.1	-23.3	19.4	10.9	10.7	6.7	14.3	14.3	10.8	9.8	-0.3	435.2
Slovakia	0.23	0.20	-14.7	16.1	12.7	15.3	15.9	5.0	-62.4	20.1	-4.7	5.6	5.2	14.9	-12.2	3.5	1.4	5.6	-13.2
Slovenia	0.09	0.25	-6.2	23.0	25.9	1.6	-14.0	-2.7	4.2	0.1	-4.2	-1.2	-5.2	1.8	-1.0	3.5	10.7	-13.6	175.5
Spain	1.59	2.64	4.2	11.1	17.5	9.8	15.8	13.8	5.5	-33.8	0.5	1.2	-5.4	0.7	2.3	2.8	-2.8	-7.8	66.0
Sweden	0.32	0.40	-7.5	16.2	-2.0	7.6	-5.2	6.3	4.1	-7.9	-3.0	-3.1	-3.0	-1.5	-5.8	-3.4	-4.1	1.0	23.6
Switzerland	0.46	0.31	12.2	2.4	6.2	4.0	-0.7	0.5	-3.6	-7.3	-7.1	-8.4	-33.8	-5.1	-6.7	2.1	2.1	-1.1	-32.3
Turkey	0.80	1.75	-6.1	7.5	10.0	-8.3	-6.9	19.7	10.7	4.7	8.0	12.7	23.7	8.6	-20.7	14.1	-3.1	-3.4	120.2
Ukraine	4.88	2.90	-8.6	-12.9	-14.3	-7.9	15.2	-23.3	0.1	17.3	10.2	-7.5	15.6	11.3	2.9	8.6	-2.6	-8.3	-40.6
United Kingdom	3.80	3.16	-0.7	18.5	-8.3	0.1	0.6	-0.1	-1.2	-4.5	-3.0	-4.0	-2.9	-4.1	-2.3	-2.7	-13.0	-8.4	-16.8
United States	130.01	65.58	5.5	2.2	1.3	1.5	0.0	-2.7	-2.6	-5.1	-8.7	-8.1	-7.3	-9.5	-9.7	-11.7	-14.3	-8.8	-49.6

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.31c

N₂O implied emissions factor for road transportation: gasoline - trend information

N ₂ O IEF (kg/TJ)	Relative change (%)																	Base year ^a to 2009	
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008		2008 to 2009
Australia	3.56	8.06	9.9	8.5	6.9	6.0	11.5	10.1	9.3	8.0	6.9	6.6	0.2	-2.5	-3.6	-3.8	-4.5	-4.9	126.6
Austria	3.99	4.07	11.8	4.5	5.3	3.6	3.7	2.7	2.7	-2.0	-2.6	-3.5	-4.7	-5.7	-10.0	-9.3	-8.7	-12.0	1.8
Belarus	0.60	0.60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belgium	2.39	1.41	3.2	13.1	13.0	9.0	4.1	7.4	4.8	0.0	1.0	-4.5	4.6	-11.6	15.6	-69.8	-15.4	-5.1	-41.0
Bulgaria	2.89	4.14	-0.5	16.3	12.1	1.5	0.0	0.3	-1.2	-2.9	-1.6	-2.3	0.2	-3.5	-5.4	-5.9	-6.9	-7.9	43.1
Canada ^b	9.51	7.56	12.2	4.6	3.4	2.3	-0.2	0.5	-0.6	1.4	-0.4	-0.6	-8.7	-9.8	-11.0	-10.4	-12.2	-11.2	-20.4
Croatia	2.83	3.75	-0.5	5.6	6.7	4.9	4.4	4.0	4.6	105.6	-53.3	0.7	132.8	1.1	-57.3	-1.3	-3.0	-1.2	32.2
Czech Republic	7.15	18.04	1.9	8.1	3.0	5.6	6.6	6.6	10.7	6.4	12.2	7.7	6.5	3.2	2.8	-0.5	-1.0	0.8	152.5
Denmark	2.99	1.74	2.0	4.6	3.8	1.4	-2.7	-1.9	-1.2	-3.5	-5.4	-6.3	-6.2	-9.4	-10.1	-11.2	-10.0	-8.3	-41.7
Estonia	2.17	2.28	7.2	17.8	3.3	-2.8	-23.6	30.4	12.9	14.4	2.2	9.0	2.1	-4.4	-37.8	-7.9	-6.4	-4.0	5.0
European Union (27)	2.30	2.54	-7.6	16.4	7.6	7.0	3.4	-7.6	-1.2	-7.8	-2.7	-2.4	-2.7	-9.6	-3.1	-6.3	-8.0	-12.8	10.6
Finland	3.67	2.75	1.8	3.9	2.4	-2.6	1.4	0.8	0.0	0.1	-4.4	-3.8	-5.6	-5.1	-5.8	-7.6	-8.2	-2.0	-25.2
France	2.67	3.17	0.3	32.9	37.3	23.0	9.6	-43.7	-4.3	2.1	0.3	1.2	1.5	-3.6	-3.2	-4.0	9.8	-40.3	18.9
Germany	1.02	1.37	53.4	8.5	4.3	1.3	-1.8	-3.5	-4.9	-2.9	-4.6	-6.2	-5.7	-7.6	-8.5	-8.7	-14.6	-9.9	33.9
Greece	2.47	2.80	10.9	14.2	0.3	7.7	6.7	11.3	-43.1	-0.4	-2.9	-2.4	1.0	-7.3	4.9	-4.0	-2.0	-17.2	13.4
Hungary	2.44	13.51	5.8	13.0	12.7	14.5	13.3	20.5	9.0	12.9	13.3	10.8	1.1	0.5	-6.5	-1.0	9.0	0.1	454.0
Iceland	1.72	15.70	1.3	207.5	0.1	67.8	0.3	50.3	0.0	0.0	0.1	0.1	0.0	15.8	0.2	-0.1	0.0	0.0	815.1
Ireland	2.68	1.96	4.3	0.4	12.6	15.2	11.6	-7.6	2.2	-2.1	-4.4	-6.6	-5.7	-9.6	-9.6	-17.9	-48.7	7.3	-26.8
Italy	2.88	1.78	0.8	12.9	12.2	3.8	-1.4	3.0	1.2	-2.2	-6.8	-7.8	-2.4	-48.6	8.6	-4.4	-21.8	-6.0	-38.2
Japan ^b	6.82	2.61	-0.1	0.4	-0.7	-0.9	-4.4	-2.8	-5.2	-6.6	-7.9	-9.6	-10.4	-9.2	-10.3	-9.8	-9.7	1.2	-61.8
Kazakhstan	0.10	0.33	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	225.0	225.0
Latvia	1.81	1.39	0.4	3.8	1.8	8.2	7.7	4.2	4.2	0.9	12.0	9.1	6.1	-1.0	-10.5	-13.1	-11.7	-48.9	-23.3
Liechtenstein	1.85	1.62	22.2	15.8	-2.9	0.3	-1.4	-2.8	-4.3	-5.7	-7.6	-8.2	-7.9	-8.5	-9.3	-10.3	-11.5	0.0	-12.4
Lithuania	2.00	2.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Luxembourg	3.35	2.92	-0.6	8.0	2.9	3.6	-1.4	-3.2	-0.1	-1.3	-1.6	-8.3	-5.2	-7.4	-7.9	-22.8	-8.7	-12.0	-12.9
Malta	0.60	0.60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Monaco	1.70	13.13	0.4	28.2	24.1	18.0	13.7	12.4	9.1	6.9	4.5	2.8	2.6	2.1	1.3	0.9	1.1	0.1	672.8
Netherlands	3.33	3.74	25.2	6.6	-1.1	-0.2	-4.6	-4.8	-6.1	-4.6	-2.5	-5.3	-4.1	-4.2	-3.8	-3.5	-1.3	0.7	12.1
New Zealand ^b	1.50	1.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Norway	2.25	1.60	5.2	8.1	8.0	6.7	-1.0	0.9	3.9	-2.7	0.3	-3.9	-3.0	-43.2	-4.5	-1.6	-5.4	-4.1	-28.9
Poland	1.55	2.64	-0.8	4.6	4.4	5.7	6.2	2.2	6.4	0.0	0.3	1.1	1.0	3.5	0.2	2.5	0.4	0.0	69.9
Portugal	2.57	3.38	2.1	11.3	7.8	-3.7	-3.4	-3.2	-2.5	-9.8	-9.2	-8.8	-1.1	-0.7	-3.7	4.3	-7.5	-6.0	31.1
Romania	0.60	0.60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Russian Federation	0.60	5.14	44.5	16.0	13.8	12.1	10.8	9.8	8.9	8.2	7.5	7.0	6.6	6.2	5.8	5.5	0.0	0.0	756.7
Slovakia	1.78	4.54	5.4	31.5	27.8	25.9	16.8	11.1	-45.2	4.5	-4.3	3.2	7.9	0.5	-6.5	-8.9	2.0	20.8	155.0
Slovenia	3.89	5.28	-0.6	15.3	12.2	2.3	-1.0	0.9	0.7	-2.0	-1.6	-1.7	-1.3	-3.1	-4.4	-5.4	-8.1	-7.5	35.7
Spain	2.54	1.43	0.2	20.5	20.4	17.0	14.1	13.7	9.3	-51.9	-2.4	-7.0	-6.1	-9.4	-9.7	-8.1	-8.1	-36.1	-43.8
Sweden	1.43	1.65	-10.6	16.1	-1.5	10.7	-4.7	5.0	5.0	-10.5	-6.3	-3.7	-2.5	-2.1	-7.2	-8.5	-3.2	-3.3	14.8
Switzerland	2.89	1.14	8.0	5.5	3.8	-0.3	-2.1	-3.6	-4.8	-5.8	-6.7	-9.9	-38.5	-7.2	-12.6	-5.7	-10.7	-7.5	-60.6
Turkey	6.59	4.03	-3.2	-3.2	1.9	-18.9	-12.5	21.5	11.0	15.9	14.2	14.3	22.2	-57.0	-15.3	11.7	-0.1	0.0	-38.8
Ukraine	10.50	10.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United Kingdom	2.68	1.27	0.4	26.3	-13.7	-1.5	0.0	-2.4	-1.4	-7.0	-7.8	-6.6	-7.9	-7.2	-7.0	-8.7	-28.3	-18.8	-52.6
United States ^a	9.50	4.10	7.0	0.8	-0.9	0.2	-2.8	-5.8	-2.4	-5.9	-10.6	-8.6	-8.8	-9.0	-8.7	-11.6	-11.2	-8.6	-56.9

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

^b Australia, Canada, Japan, New Zealand and United States reported energy data on a gross calorific value (GCV) basis. 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. The IEFs included in this table have been converted into NCV-based values and are not reflecting the reported IEFs.

Table 1.31d

N₂O implied emissions factor for road transportation: diesel oil - trend information

N ₂ O IEF (kg/TJ)	Relative change (%)		Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	1.40	1.77	0.7	0.5	1.0	1.3	1.8	-1.1	-0.7	-2.4	1.3	0.0	-1.6	5.2	3.7	5.9	3.9	3.2	26.6
Austria	1.81	2.01	0.3	-1.0	-2.6	4.5	1.0	2.8	0.7	0.1	1.6	1.0	1.2	1.2	3.7	-1.4	-0.6	-0.3	10.8
Belarus	0.60	0.60	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
Belgium	2.89	1.88	8.4	3.4	-0.5	2.1	2.9	2.6	-0.6	0.3	0.2	1.3	-3.8	5.0	1.6	-47.0	-5.9	-2.2	-34.9
Bulgaria	2.42	1.77	-2.6	-20.5	-4.2	-3.6	-4.2	-4.1	-4.7	-3.8	-2.8	0.3	5.2	13.8	4.5	7.2	5.6	4.8	-27.0
Canada ^b	2.35	4.11	0.8	0.5	9.4	8.7	9.6	6.2	3.7	4.1	2.4	2.6	2.0	1.7	1.1	1.0	1.0	1.0	74.8
Croatia	1.84	1.73	-26.2	-23.2	10.0	-3.4	-5.9	10.0	-10.4	3.1	11.5	1.9	4.7	2.1	8.7	6.7	-1.6	8.3	-5.9
Czech Republic	2.45	4.88	0.0	2.2	3.9	4.3	6.0	4.6	3.1	6.1	4.5	4.0	8.7	6.2	-1.1	1.5	-4.2	13.0	99.3
Denmark	1.72	2.73	-0.1	4.4	3.6	4.1	4.2	4.1	2.3	3.1	3.3	3.3	3.3	2.4	2.7	3.2	2.4	1.5	58.9
Estonia	1.76	1.62	-4.1	5.3	4.9	-1.6	5.8	-9.4	-3.9	-10.8	-1.0	-6.4	2.5	-0.5	7.8	7.6	10.1	-1.9	-7.5
European Union (27)	1.62	2.32	-2.2	2.4	1.3	3.0	3.2	4.3	1.4	3.2	4.7	3.7	2.2	3.9	3.1	-0.6	3.2	3.1	42.7
Finland	3.28	3.64	2.5	2.8	-1.2	-3.1	-0.8	-0.9	0.2	0.8	1.3	1.1	-1.7	2.7	0.2	-1.0	4.3	5.7	10.7
France	1.23	2.61	-3.7	0.5	1.5	4.7	5.3	6.8	6.1	8.1	9.9	8.5	7.6	6.2	5.6	4.6	4.3	3.5	112.1
Germany	0.82	1.49	-0.6	5.3	6.4	8.2	9.2	8.1	6.2	6.3	4.0	1.9	3.6	0.8	-1.0	1.3	2.2	2.9	81.6
Greece	2.24	1.68	-8.8	-2.0	-0.4	2.1	-4.3	0.5	2.3	2.2	0.2	-7.3	4.1	2.2	-5.9	-4.7	8.6	-23.0	-25.0
Hungary	3.90	4.12	0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	0.0	-0.4	0.7	0.0	4.8	0.2	5.7
Iceland	3.05	3.52	0.7	0.5	0.9	1.0	2.5	1.0	0.8	0.9	0.6	-0.1	-0.3	0.8	-2.0	4.4	0.0	0	15.4
Ireland	1.02	1.88	-12.1	3.0	-8.0	-1.7	-6.7	5.9	0.9	23.5	12.1	10.6	8.9	9.7	9.0	7.9	7.6	4.1	85.0
Italy	1.34	2.21	0.8	3.3	2.9	1.2	-7.3	4.6	2.7	2.5	14.5	5.4	4.4	7.1	7.3	2.0	5.6	4.1	64.4
Japan ^b	1.94	3.02	-1.2	1.4	0.6	1.1	0.4	2.7	7.0	-0.6	5.8	3.4	-4.9	2.4	6.9	9.8	8.5	3.9	55.4
Kazakhstan	0.60	3.90	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	550.0	550.0
Latvia	2.25	1.71	-0.4	-1.3	-3.3	0.1	-0.8	-2.2	-2.0	-0.4	-4.5	-4.3	-4.1	-4.0	-1.5	2.4	1.0	7.3	-24.0
Liechtenstein	0.75	1.50	-1.3	-2.7	2.8	8.1	7.5	10.5	9.5	5.8	7.3	5.1	4.8	4.6	3.7	3.5	2.7	0	100.0
Lithuania	4.00	4.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Luxembourg	0.88	2.50	-1.4	-3.5	-3.1	12.0	1.3	6.2	5.7	4.5	8.0	27.7	19.2	11.9	3.5	10.0	3.6	5.2	185.1
Malta	0.60	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monaco	3.67	3.81	1.2	0.3	0.8	-0.1	0.1	-0.1	-0.1	0.5	-0.2	0.0	-0.2	-0.1	0.3	0.0	-0.2	-0.1	3.8
Netherlands	1.45	2.34	0.2	-0.2	4.3	6.6	7.8	5.8	10.2	6.7	1.7	1.7	1.4	0.7	1.3	-1.6	-0.6	0.1	61.1
New Zealand ^b	3.90	3.90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	0.44	1.26	-4.0	9.3	11.4	17.2	7.1	11.9	10.7	-0.2	5.0	4.3	3.6	3.5	5.1	13.1	7.4	7.4	188.7
Poland	3.10	3.31	-0.4	0.9	0.9	0.2	0.2	0.5	-5.9	0.3	0.6	0.2	0.8	0.0	0.5	1.0	1.6	0	6.8
Portugal	0.70	2.00	1.7	2.0	7.7	8.6	5.8	5.3	3.1	8.6	7.8	6.5	3.9	0.3	2.6	1.9	10.2	3.6	184.7
Romania	0.60	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Russian Federation	0.60	3.67	30.1	13.7	12.0	10.7	9.7	8.8	8.1	7.5	7.0	6.5	6.1	5.8	5.5	5.2	0	0	511.7
Slovakia	4.68	1.28	3.7	-0.1	2.2	0.0	0.3	2.3	-74.5	0.2	1.8	2.8	-3.8	-0.6	1.5	-3.5	-5.0	1.7	-72.6
Slovenia	2.88	2.54	-0.8	-3.1	-2.8	-1.4	-0.8	-0.9	-1.0	7.0	1.7	3.5	3.5	9.1	3.9	4.1	4.5	4.1	-11.8
Spain	2.00	2.43	-3.1	-0.2	-6.0	-4.8	1.3	6.2	0.6	-1.7	1.8	2.3	-8.4	4.0	4.7	3.5	6.3	8.4	21.5
Sweden	1.06	1.31	9.9	11.9	4.6	-5.0	-1.7	8.7	8.8	0.2	-1.3	-2.3	-5.9	-0.8	3.6	9.6	4.0	12.7	24.0
Switzerland	0.54	1.95	4.2	5.8	7.3	8.2	7.9	8.6	8.0	5.9	4.8	3.7	4.3	4.3	10.8	12.1	14.6	7.7	264.5
Turkey	IE	3.90	*	*	*	*	*	*	*	*	*	*	*	*	-29.6	-0.5	8.1	0.0	*
Ukraine	3.50	3.50	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United Kingdom	1.97	2.60	-1.1	3.6	0.1	3.7	6.5	4.1	3.6	2.3	2.3	2.8	2.9	-0.6	2.0	0.8	3.6	1.8	31.4
United States ^b	0.22	0.20	6.0	0.6	-1.7	0.0	-1.7	-2.4	-1.9	4.5	-1.8	-0.8	-2.7	-4.4	-2.6	-0.3	5.6	1.0	-7.7

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

^b Australia, Canada, Japan, New Zealand and United States reported energy data on a gross calorific value (GCV) basis. 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. The IEFs included in this table have been converted into NCV-based values and are not reflecting the reported IEFs.

Table 1.32

Civil aviation, navigation and international bunkers - CO₂ (2009)

	Methods and EF used ^a		IEF in CRF based on GCV or NCV	Civil aviation				Aviation bunkers		Navigation				Marine bunkers	
				Key category	Share of national total	CO ₂ IEF		CO ₂ IEF		Key category	Share of national total	CO ₂ IEF		CO ₂ IEF	
	Jet kerosene	Aviation gasoline				Jet kerosene	Aviation gasoline	Residual oil	Gas/diesel oil			Residual oil	Gas/diesel oil		
														(%)	(t/TJ)
IPCC default EF ^b			NCV			72.80	72.10	72.80	72.10			77.60	73.00	77.60	75.0 - 77.6
Australia	T2	CS, D	GCV	L, T	1.09	72.53	69.82	72.53	NO	T	0.53	76.70	72.84	76.70	72.84
Austria	CS, M, T2, T3	CS	NCV		0.08	72.82	72.75	72.82	NO		0.04	NO	73.67	NO	73.67
Belarus	D, T1	CS, D	NCV		0.00	70.79	68.61	70.79	NO		0.02	NO	73.33	NO	NE
Belgium	CS, M, T1	CR, CS, D	NCV		0.01	70.80	69.14	70.79	NO		0.33	NO	73.44	76.59	73.52
Bulgaria	T1, T2	CS, D	NCV		0.12	71.50	69.30	71.50	NO		-	IE	IE	77.40	74.10
Canada ^c	CS, T1, T2, T3	CS	GCV	L, T	1.01	71.32	73.55	71.32	NA	L	0.69	77.37	73.19	77.37	73.19
Croatia	T1, T3	CR, D	NCV	T	0.27	70.79	68.61	70.79	NO		0.50	76.59	73.33	76.59	73.33
Czech Republic	T1	D	NCV		0.01	74.25	73.30	74.22	NE		0.01	NO	73.48	NO	NO
Denmark	OTH, T1	CS, D	NCV		0.34	71.73	72.71	72.00	73.00	L, T	1.05	78.00	73.97	78.00	74.00
Estonia	T1, T2	CS, D	NCV		0.01	NO	74.37	73.20	NO		0.14	NO	73.33	76.59	73.33
European Union (27)	R, CS, D, M, OTH, T1, T2, T3	CR, CS, D, M, OTH	NCV	T	0.38	71.95	71.08	72.05	69.37	L	0.41	76.81	73.78	77.16	73.61
Finland	M, T1, T3	CS, D	NCV	T	0.42	73.20	71.30	73.20	NO	L, T	0.77	78.80	73.60	78.80	74.10
France	CR, T3	CS	NCV	L, T	0.87	71.59	73.00	71.59	NO	L, T	0.58	78.00	74.74	78.00	75.00
Germany	CS, T1, T2	CS, D	NCV		0.23	73.26	69.30	73.26	NO		0.08	NO	74.00	78.00	74.00
Greece	T1, T2	D	NCV	L, T	1.18	70.64	68.61	70.65	NO	L, T	2.29	76.59	73.33	76.59	73.33
Hungary	T1	D	NCV		-	NO	IE	70.79	NO		0.00	NO	73.33	NA	NA
Iceland	T1	D	NCV		0.47	70.79	68.61	70.79	69	L, T	0.68	76.59	73.33	76.59	73.33
Ireland	T1, T2	CS	NCV		0.16	71.36	IE	71.37	NO		-	NO	IE	76.00	73.30
Italy	D, M, T1, T2	CS	NCV	L	0.45	71.50	70.00	71.50	NO	L	0.97	76.54	73.27	76.54	73.27
Japan ^c	T1	CS	GCV	L, T	0.81	70.67	70.59	74.39	NO	L, T	0.88	IE	72.29	IE	72.29
Kazakhstan	T1, T2	CS, D	NCV	T	0.18	70.79	68.61	NCV	NE	NE	0.00	NO	NO	0	0
Latvia	M, T1, T2	CR, CS, D, M	NCV		0.00	81.08	70.20	72.91	NO		0.11	NO	74.00	76.60	74.00
Liechtenstein	T1	CS	NCV		0.06	73.20	NO	73.20	NO		-	NO	NO	NO	NO
Lithuania	T1, T2	CS, D	NCV		0.01	72.24	70.00	71.50	NO		0.08	81.29	72.89	78.00	74.00
Luxembourg	T1, T2, T3	CS, D	NCV		0.00	NO	69.30	71.50	69.30		0.01	NO	73.47	NO	73.47
Malta	D, T1, T2	CR, D	NCV		0.06	NA	NE	NE	NA	T	1.08	NA	73.33	76.59	73.33
Monaco	T1	D	NCV		-	NO	NO	70.78	NO	L, T	2.25	NO	74.00	NO	74.00
Netherlands	CS, T2	CS	NCV		0.02	71.50	72.00	71.50	NO		0.31	NO	74.30	77.40	74.30
New Zealand ^c	D	CS	GCV	L, T	1.31	71.47	68.67	71.47	NO		0.42	76.29	NO	76.95	72.48
Norway	T1, T2	CS, PS	NCV	L, T	2.09	73.09	71.30	73.09	NO	L, T	3.90	78.82	73.55	78.82	73.55
Poland	T1, T2	CS, D	NCV		0.02	73.26	72.10	73.26	NO		0.00	77.60	73.07	77.60	74.10
Portugal	CR, T1, T2	CR, CS, D, OTH	NCV		0.45	70.60	69.51	70.60	69.51		0.30	76.59	73.33	76.59	73.33
Romania	T1	D	NCV		0.03	70.79	68.61	70.79	68.61		0.02	76.59	73.33	76.59	73.33
Russian Federation	T1	D	NCV		0.38	70.79	IE	71.50	NO	T	0.06	76.59	73.33	77.40	74.10
Slovakia	CS, D, M, T1, T2	D	NCV		0.01	72.75	73.60	72.75	73.60		0.00	NO	75.01	NO	75.01
Slovenia	M, T1	D, M	NCV		0.01	NO	71.50	71.50	NO		-	NO	IE	77.15	NO
Spain	CR, CS, T2, T3	CR, D	NCV	L, T	0.99	72.65	72.65	72.65	NA	L, T	0.90	76.78	72.64	76.78	72.64
Sweden	CS, T1, T2	CS	NCV	L	0.89	71.50	70.00	71.49	NO	L	0.83	77.61	74.45	77.61	74.45
Switzerland	T2, T3	CS	NCV	T	0.24	73.20	IE	73.20	IE		0.22	NO	73.58	NO	73.60
Turkey	T1, T2	D	NCV	L, T	1.38	70.84	NO	71.50	NA		0.44	77.40	74.10	77.37	74.07
Ukraine	T1, T3	CS, D, OTH	NCV		0.04	71.50	68.61	71.50	NO	T	0.04	76.59	73.33	76.59	73.33
United Kingdom	T1, T2, T3	CS	NCV		0.37	71.76	69.55	71.76	69.46		0.27	77.81	73.80	77.81	73.80
United States ^c	T2	CS	GCV	L, T	1.90	72.06	68.98	72.06	NA	T	0.38	74.92	71.09	74.92	73.79

^a Information on methods and emission factors in this table is 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.3 Transport.

^b Source of default emission factors: IPCC Guidelines, volume 3, pages 1.89, 1.91 (for gas/diesel oil: single value for inland waterways and range for sea-going ships, boats).

^c Australia, Canada, Japan, New Zealand and United States reported energy data on a gross calorific value (GCV) basis. 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. The IEFs included in this table have been converted into NCV-based values and are not reflecting the reported IEFs.

Table 1.33

Domestic and international aviation - activity data (2009)

Activity data in CRF based on GCV or NCV		Civil aviation						Aviation bunkers						Total jet kerosene and aviation gasoline		
		Jet kerosene			Aviation gasoline			Jet kerosene			Aviation gasoline			CRF	IEA ^a	Difference
		CRF	IEA ^a	Difference	CRF	IEA ^a	Difference	CRF	IEA ^a	Difference	CRF	IEA ^a	Difference			
		(TJ)		(%)	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)
Australia	GCV	83,268	87309	4.9	3,105	3,077	-0.9	136,000	130,563	-4.0	NO	0	222,373	220,949	-0.6	
Austria	NCV	786	5117	551.4	141	0	-100.0	26,003	22,231	-14.5	NO	0	26,930	27,348	1.6	
Belarus	NCV	22	0	-100.0	21	0	-100.0	2,469	0	-100.0	NO	0	2,512	0	-100.0	
Belgium	NCV	3.56	0	-100.0	128	132	3.3	62,210	80,754	29.8	NO	0	62,341	80,886	29.7	
Bulgaria	NCV	946	946	0.0	44	44	0.0	6,364	6,364	0.0	NO	0	7,354	7,354	0.0	
Canada	GCV	99,993	183227	83.2	2,859	2,733	-4.4	138,652	28,544	-79.4	NA	0	241,504	214,504	-11.2	
Croatia	NCV	1,050	2322	121.0	45	44	-1.3	3,209	1,849	-42.4	NO	0	4,304	4,215	-2.1	
Czech Republic	NCV	87	1247	1339.9	88	88	0.5	14,246	14,147	-0.7	NE	0	14,420	15,482	7.4	
Denmark	NCV	2,832	1376	-51.4	79	88	11.9	32,143	32,465	1.0	4	0	35,058	33,929	-3.2	
Estonia	NCV	NO	43		24	0	-100.0	1,402	1,376	-1.9	NO	0	1,426	1,419	-0.5	
European Union (27)	NCV	236,264	319103	35.1	5,679	4,928	-13.2	1,831,594	1,763,000	-3.7	121	176	45.7	2,073,658	2,087,207	0.7
Finland	NCV	3,721	5633	51.4	44	88	102.3	21,449	21,285	-0.8	NO	0	25,214	27,006	7.1	
France	NCV	62,632	54094	-13.6	1,121	1,056	-5.8	225,990	228,674	1.2	NO	0	289,743	283,824	-2.0	
Germany	NCV	28,244	74691	164.5	595	660	11.0	340,707	298,678	-12.3	NO	0	369,545	374,029	1.2	
Greece	NCV	19,839	12169	-38.7	733	0	-100.0	37,018	35,690	-3.6	NO	0	57,590	47,859	-16.9	
Hungary	NCV	NO	0		IE	0		9,672	9,890	2.3	NO	0	9,672	9,890	2.3	
Iceland	NCV	280	258	-7.7	29	44	51.3	4,716	3,053	-35.3	1	0	5,026	3,355	-33.2	
Ireland	NCV	1,429	1247	-12.7	IE	88		30,739	23,220	-24.5	NO	0	32,167	24,555	-23.7	
Italy	NCV	29,999	28122	-6.3	747	748	0.2	125,431	125,474	0.0	NO	0	156,177	154,344	-1.2	
Japan	GCV	145,611	138306	-5.0	81	89	9.7	217,964	217,961	0.0	NO	0	363,656	356,356	-2.0	
Kazakhstan	NCV	6,254	3741	-40.2	1,149	44	-96.2	0	7,439	100.0	0	0	7,403	11,224	51.6	
Latvia	NCV	2	0	-100.0	2	0	-100.0	4,278	4,257	-0.5	NO	0	4,282	4,257	-0.6	
Liechtenstein	NCV	2			NO			12			NO		14			
Lithuania	NCV	18	0	-100.0	18	0	-100.0	1,522	1,505	-1.1	NO	0	1,558	1,505	-3.4	
Luxembourg	NCV	NO	0		7,7394069	0	-100.0	17,556	17,501	-0.3	0.8599341	0	17,565	17,501	-0.4	
Malta	NCV	NA	0		NE	0		NE	3,827		NA	0	NA,NE	3,827		
Monaco	NCV	NO			NO			37			NO		37,05643843			
Netherlands	NCV	230	1935	740.6	342	88	-74.3	142,854	144,738	1.3	NO	0	143,426	146,761	2.3	
New Zealand	GCV	13,116	13128	0.1	475	491	3.3	32,123	30,839	-4.0	NO	0	45,713	44,457	-2.7	
Norway	NCV	14,572	14534	-0.3	79	88	10.8	14,962	14,921	-0.3	NO	0	29,613	29,543	-0.2	
Poland	NCV	1,013	0	-100.0	154	0	-100.0	19,243	20,210	5.0	NO	176	20,410	20,386	-0.1	
Portugal	NCV	4,746	5977	25.9	29	88	203.7	34,277	34,271	0.0	65	0	39,116	40,336	3.1	
Romania	NCV	575	2924	408.7	5	176	3759.9	11,637	5,418	-53.4	41	0	12,257	8,518	-30.5	
Russian Federation	NCV	116,029	203863	75.7	IE	0		102,317	245,272	139.7	NO	0	218,346	449,135	105.7	
Slovakia	NCV	81	0	-100.0	5	0	-100.0	1,537	1,892	23.1	1	0	1,623	1,892	16.6	
Slovenia	NCV	NO	0		22	44	99.8	1,087	1,118	2.8	NO	0	1,109	1,162	4.7	
Spain	NCV	49,629	87935	77.2	434	440	1.5	172,938	132,784	-23.2	NO	0	223,000	221,159	-0.8	
Sweden	NCV	7,414	5934	-20.0	26	132	414.0	27,875	29,842	7.1	NO	0	35,315	35,908	1.7	
Switzerland	NCV	1,704	2064	21.1	IE	176		55,238	56,244	1.8	IE	0	56,942	58,484	2.7	
Turkey	NCV	72,049	30616	-57.5	NO	0		16,050	59,555	271.1	NA	0	88,099	90,171	2.4	
Ukraine	NCV	2,012	430	-78.6	2	44	1873.7	11,457	9,847	-14.1	NO	0	13,471	10,321	-23.4	
United Kingdom	NCV	28,571	29713	4.0	988	968	-2.0	454,586	465,389	2.4	5	0	484,150	496,070	2.5	
United States	GCV	1,806,534	1973416	9.2	27,995	25,536	-8.8	1,013,883	903,150	-10.9	NA	0	2,848,411	2,902,102	1.9	

^a Data provided by IEA on 25 May 2011, data for the Russian Federation were not yet available at the time.

^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 gasoline¹' and 'motor gasoline'.

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

^e IEA data for European Union (27) does not include Cyprus.

^f 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.

^g No IEA data for Liechtenstein are available. These data are not included in the data of Switzerland.

^h IEA data for Monaco are included in the data of France.

ⁱ IEA data for the Netherlands excludes data for the following territories: Suriname and the Netherlands Antilles.

Table 1.34

Domestic and international navigation - activity data (2009)

	Activity data in CRF based on GCV or NCV	Navigation						Marine bunkers						Total					
		Residual oil			Gas / diesel oil			Residual oil			Gas / diesel oil			Residual oil			Gas / diesel oil		
		CRF	IEA ^a	Difference	CRF	IEA ^a	Difference	CRF	IEA ^a	Difference	CRF	IEA ^a	Difference	CRF	IEA ^a	Difference	CRF	IEA ^a	Difference
		(TJ)	(%)	(%)	(TJ)	(%)	(%)	(TJ)	(%)	(%)	(TJ)	(%)	(%)	(TJ)	(%)	(%)	(TJ)	(%)	(%)
Australia	GCV	6,200	6,177	-0.4	14,647	18,446	25.9	31,800	31,950	0.5	2,800	2,599	-7.2	38,000	38,127	0.3	17,447	21,044	20.6
Austria	NCV	NO	0		363	426	17.5	NO	0		417	0	-100.0	NO	0		780	426	-45.4
Belarus	NCV	NO	0		192	0	-100.0	NO	0		NE	0		NO	0		192	0	-100.0
Belgium	NCV	NO	0		5,531	6,901	24.8	281,434	277,000	-1.6	15,098	15,080	-0.1	281,434	277,000	-1.6	20,628	21,982	6.6
Bulgaria	NCV	IE	0		IE	0		2,280	2280.005676	0.0	6,345	6,390	0.7	2,280	2280.005676	0.0	6,345	6,390	0.7
Canada	GCV	37,290	34,250	-8.1	29,234	27,690	-5.3	20,715	19,015	-8.2	766	724	-5.5	58,004	53,265	-8.2	30,000	28,414	-5.3
Croatia	NCV	16	0	-100.0	1,965	1,960	-0.3	225	240	6.6	60	43	-28.8	241	240	-0.5	2,024	2,002	-1.1
Czech Republic	NCV	NO	0		214	213	-0.3	NO	0		NO	0		NO	0		214	213	-0.3
Denmark	NCV	2,576	1,600	-37.9	5,642	6,475	14.8	9,515	10,920	14.8	10,919	10,394	-4.8	12,091	12,520	3.5	16,561	16,870	1.9
Estonia	NCV	NO	0		322	341	5.8	8,644	8,600	-0.5	639	639	0.0	8,644	8,600	-0.5	961	980	2.0
European Union (27)	NCV	96,962	92,320	-4.8	137,358	154,212	12.3	1,789,362	1,739,840	-2.8	266,972	257,219	-3.7	1,886,325	1,832,160	-2.9	404,331	411,431	1.8
Finland	NCV	2,008	1,960	-2.4	2,353	2,939	24.9	8,351	8,240	-1.3	2,041	2,045	0.2	10,359	10,200	-1.5	4,394	4,984	13.4
France	NCV	1,788	0	-100.0	32,489	2,556	-92.1	94,669	96,920	2.4	9,336	7,668	-17.9	96,457	96,920	0.5	41,825	10,224	-75.6
Germany	NCV	NO	0		9,740	5,921	-39.2	92,793	91,800	-1.1	19,870	20,576	3.6	92,793	91,800	-1.1	29,610	26,497	-10.5
Greece	NCV	25,320	25,200	-0.5	11,770	11,672	-0.8	94,808	94,360	-0.5	13,660	13,547	-0.8	120,128	119,560	-0.5	25,430	25,219	-0.8
Hungary	NCV	NO	0		42	43	1.4	NA	0		NA	0		NA,NO	0		42	43	1.4
Iceland	NCV	149	559,9845	275.7	272	213	-21.6	1,012	280	-72.3	1,191	2,428	104.0	1,161	840	-27.7	1,462	2,641	80.6
Ireland	NCV	NO	880		IE	43		1,342	1,640	22.2	2,748	3,025	10.0	1,342	2,520	87.8	2,748	3,067	11.6
Italy	NCV	26,856	26040.01194	-3.0	29,308	23,771	-18.9	89,404	87,200	-2.5	3,835	9,329	143.3	116,260	113,240	-2.6	33,143	33,100	-0.1
Japan	GCV	IE	94,615		7,168	41,450	478.3	IE	192,083		272	4,643	1,605.4	IE	286,698		7,440	46,093	519.5
Kazakhstan	NCV	NO	0		NO	170		0	0		0	0	0	0	0		0	170	100.0
Latvia	NCV	NO	0		161	170,40276	5.5	8,851	8,720	-1.5	2,592	2,599	0.3	8,851	8,720	-1.5	2,753	2,769	0.6
Liechtenstein	NCV	NO	0		NO	0		NO	0		NO	0		NO	0		NO	0	
Lithuania	NCV	11	0	-100.0	214	213	-0.5	4,592	4,560	-0.7	693	682	-1.6	4,603	4,560	-0.9	907	895	-1.4
Luxembourg	NCV	NO	0		15	0	-100.0	NO	0		1,470,666,326	0	-100.0	NO	0		16	0	-100.0
Malta	NCV	NA	0		423	0	-100.0	32293.4688	32159.9831	-0.4	15377.08039	15123.01468	-1.7	32293.4688	32159.9831	-0.4	15,800	15123.01468	-4.3
Monaco	NCV	NO	0		24	0		NO	0		278	0		NO	0		302	0	
Netherlands	NCV	NO	0		8,206	6,347	-22.6	546,076	531,680	-2.6	43,903	51,376	17.0	546,076	531,680	-2.6	52,108	57,723	10.8
New Zealand	GCV	4,103	1320.600456	-67.8	NO	2,599		13,565	12,695	-6.4	1,264	1,576	24.7	17,667	14,015	-20.7	1,264	4,175	230.2
Norway	NCV	3,869	3,800	-1.8	21,547	27,307	26.7	9,340	9,240	-1.1	14,340	11,289	-21.3	13,210	13,040	-1.3	35,887	38,596	7.5
Poland	NCV	21	0	-100.0	132	128	-2.9	7,584	7,600	0.2	2,737	2,726	-0.4	7,605	7,600	-0.1	2,869	2,854	-0.5
Portugal	NCV	2,121	4799.998728	126.3	864	3,451	299.4	19,755	18,000	-8.9	3,612	1,789	-50.5	21,876	22,800	4.2	4,476	5,240	17.1
Romania	NCV	0	0	-100.0	324	2,300	609.6	0	359.981064	1,480,815.8	1,679	255.60414	-84.8	0	360	1,241,214.0	2,004	2,556	27.6
Russian Federation	NCV	8,578	11,600	35.2	10,014	32,504	224.6	3,052	0	-100.0	22,404	0	-100.0	11,630	11,600	-0.3	32,418	32,504	0.3
Slovakia	NCV	NO	0		1	0	-100.0	NO	0		425	0	-100.0	NO	0		426	0	-100.0
Slovenia	NCV	NO	0		IE	0		1,354	1320.014304	-2.5	NO	0		1,354	1320.014304	-2.5	IE,NO	0	
Spain	NCV	30,187	7,360	-75.6	13,441	38,425	185.9	302,877	301,560	-0.4	60,523	59,853	-1.1	333,064	308,920	-7.2	73,964	98,278	32.9
Sweden	NCV	3,574	3,360	-6.0	1,959	1,874	-4.3	90,235	83,960	-7.0	3,729	3,621	-2.9	93,808	87,320	-6.9	5,688	5,495	-3.4
Switzerland ^d	NCV	NO	0		974	341	-65.0	NO	0		354	341	-3.6	NO	0		1,328	682	-48.7
Turkey	NCV	113	3,160	2,696.4	21,879	21,513	-1.7	7,106	7,080	-0.4	4,338	4,260	-1.8	7,219	10,240	41.8	26,217	25,773	-1.7
Ukraine	NCV	112	239.987376	113.8	1,919	1,363	-28.9	132	0	-100.0	882	0	-100.0	244	239.987376	-1.8	2,801	1,363	-51.3
United Kingdom	NCV	3,901	21,120	441.4	15,505	40,001	158.0	93,960	70,960	-24.5	45,673	30,502	-33.2	97,862	92,080	-5.9	61,178	70,503	15.2
United States	GCV	168,171	3,819	-97.7	191,034	0	-100.0	638,076	805,849	26.3	118,527	202,137	70.5	806,247	809,668	0.4	309,561	202,137	-34.7

^a Data provided by IEA on 25 May 2011, data for the Russian Federation were not available at the time.

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

^c 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.

^d IEA data for European Union (27) does not include Cyprus.

^e No IEA data for Liechtenstein are available. These data are not included in the data of Switzerland.

^f IEA data for Monaco are included in the data of France.

^g IEA data for the Netherlands excludes data for the following territories: Suriname and the Netherlands Antilles.

Table 1.35

CO₂ emissions from civil aviation - trend information

CO ₂ emissions (Gg)	Relative change (%)																			
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	2,895	5,943	23.6	15.5	8.7	4.1	-10.8	-4.9	5.4	9.2	-11.5	-2.5	3.2	2.9	2.8	3.4	11.6	0.7	105.3	
Austria	32	67	17.2	6.5	10.2	11.0	9.6	5.0	-17.1	-10.7	3.6	0.6	2.8	3.8	7.5	2.7	-4.0	-4.7	110.9	
Belarus	C	3	*	*	*	*	*	*	*	3.6	-13.5	27.5	27.1	3.5	13.6	-22.2	-44.6	-5.8	*	
Belgium	12	9	0	10.6	-14.8	-10.3	10.9	-1.1	14.2	1.6	7.8	-8.9	-35.3	27.1	-23.1	21.2	42.7	-20.7	-26.1	
Bulgaria	98	71	-19.9	-8.7	-9.6	-7.1	-16.0	147.6	-61.5	120.0	-40.9	-11.5	-17.4	-31.6	84.7	66.7	-67.5	77.0	-27.8	
Canada	6,983	6,975	-12.6	6.2	5.5	1.0	3.1	5.5	-2.6	-6.9	3.4	1.5	6.4	-0.5	2.0	-0.5	-0.7	-7.9	-0.1	
Croatia	155	77	-79.6	-14.7	-15.2	-1.6	2.6	0.3	-18.6	0.4	-5.7	-2.5	15.6	13.5	9.9	3.8	16.1	-12.3	-50.0	
Czech Republic	158	13	-9.0	-11.4	-12.1	-9.5	-85.7	0	-10.2	33.3	30.5	2.1	2.1	-18.4	25.0	100.1	41.0	-71.6	-91.9	
Denmark	285	209	-15.0	3.7	4.3	3.5	-3.7	-3.6	-13.6	0.9	-10.7	-0.2	-6.1	6.9	6.1	8.9	2.1	-7.2	-26.7	
Estonia	6	2	0	20.1	-10.9	3.2	-1.4	5.6	-8.1	-1.5	3.3	-6.4	-5.3	-22.5	-25.7	3.1	50.1	-12.4	-69.0	
European Union (27)	14,114	17,404	-1.4	7.2	8.9	6.4	2.7	8.0	3.0	-3.1	-4.3	-1.7	2.9	2.5	0.5	1.4	-3.9	-6.1	23.3	
Finland	385	275	-11.8	1.5	16.4	11.0	14.2	-0.9	-1.0	-2.0	-13.2	1.1	1.6	-0.9	-1.2	-5.8	-2.9	-7.3	-28.5	
France	4,298	4,566	2.7	12.2	9.9	3.4	2.1	1.9	-6.9	-3.0	-8.2	0.2	-2.1	-4.8	-3.0	0.6	-3.0	6.2		
Germany	2,309	2,110	-8.2	2.0	3.5	7.8	-0.5	3.0	5.6	-5.6	-3.9	-1.7	-1.6	5.3	5.8	0.7	-1.9	-6.0	-8.6	
Greece	717	1,452	-13.4	6.0	7.3	13.6	1.7	19.6	9.7	-7.8	-14.2	12.6	3.6	-1.2	5.6	5.2	-3.8	12.1	102.5	
Hungary	1	IE, NO	0	*	*	*	*	*	*	-13.3	*	*	*	*	*	*	*	*	*	
Iceland	32	22	-3.7	29.2	13.1	-6.3	5.0	-3.8	-12.1	-12.3	2.7	6.0	11.5	8.2	-21.7	19.0	-17.0	-31.3		
Ireland	59	102	0.1	7.0	2.9	7.4	15.1	6.2	13.7	13.5	-3.8	-2.3	2.5	2.6	5.2	7.7	0.0	-16.6	72.6	
Italy	1,613	2,197	-1.3	6.4	12.0	8.1	8.8	15.3	2.0	-8.5	0.1	-0.4	-7.6	-1.2	3.9	6.0	-5.2	-4.5	36.2	
Japan	7,162	9,781	8.4	12.3	-1.9	6.5	-0.3	-1.7	1.4	0.4	2.0	1.2	-3.6	1.3	3.5	-2.7	-5.5	-4.8	36.6	
Kazakhstan	3	522	27623.9	38.6	-36.9	-21.7	35.7	-89.7	10.5	700.6	23.3	-39.2	27.5	29.2	6.7	59.1	-26.6	2.9	16867.9	
Latvia	0	0	3.1	100.0	50.1	33.3	25.0	20.0	16.7	14.3	11.0	7.0	54.2	-9.4	-52.8	22.7	75.6	-90.3	364.4	
Liechtenstein	0	0.2	0	0	1.0	1.0	1.0	0.9	0.9	4.4	4.4	-28.4	35.1	60.7	-1.1	-2.1	19.1	106.9		
Lithuania	1	3	0	0	*	*	*	*	*	580.5	36.8	-71.2	52.3	-43.3	12.7	67.7	1.6	-41.2	265.8	
Luxembourg	0	1	51.9	7.7	2.1	1.4	-13.9	2.3	-4.7	-0.7	-7.3	16.4	-12.3	-0.9	-14.8	5.9	-4.2	2.2	152.2	
Malta	NA, NE	2	*	*	*	*	*	*	*	*	*	*	9.1	-40.1	-12.1	-27.2	8.7	-0.7	*	
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Netherlands	41	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
New Zealand	879	921	-12.5	2.1	-0.5	-4.4	3.7	-6.8	10.3	2.6	-6.4	12.5	3.0	-8.1	1.9	-18.2	10.8	-9.4	4.8	
Norway	679	1,071	2.6	7.5	11.1	2.8	2.4	14.9	-8.6	0.6	-14.1	4.5	-0.9	-15.9	8.2	16.0	3.9	3.2	57.6	
Poland	121	85	-13.8	-8.3	-10.1	-16.8	-11.8	-14.9	49.0	-5.0	23.6	-27.0	-7.0	11.1	28.0	7.8	13.0	-6.5	-29.4	
Portugal	236	337	-18.8	9.5	0.5	3.1	12.3	9.6	14.8	4.9	4.6	-4.4	12.7	2.9	-1.4	-0.8	-7.6	-6.4	42.6	
Romania	26	41	-4.1	-14.2	-38.7	15.3	-41.7	28.6	-41.6	7.1	1.2	69.2	-5.3	7.5	-17.7	354.0	-96.8	2264.6	59.6	
Russian Federation	19,568	8,213	-3.3	-4.7	-12.7	-2.8	-5.0	1.4	-6.5	8.0	1.3	3.4	4.9	-4.7	3.7	8.2	1.1	-20.5	-58.0	
Slovakia	8	6	-7.0	-0.2	17.2	-11.4	-8.1	1.4	3.6	-4.9	4.3	28.1	29.8	16.2	11.5	15.0	11.7	-58.6	-19.3	
Slovenia	1	2	-43.0	-2.6	11.8	6.8	23.8	-3.1	0.1	-18.2	-0.5	2.7	-21.3	-11.1	-10.4	13.6	-15.1	8.4	153.1	
Spain	1,906	3,637	11.5	7.0	14.0	10.6	1.5	9.7	4.3	2.7	-7.3	2.2	13.9	8.0	3.9	4.8	-8.0	-12.7	90.8	
Sweden	673	532	-8.9	1.4	-2.9	8.3	2.0	4.7	-7.9	-2.9	-4.0	-3.0	14.6	-0.7	-6.0	-2.9	4.8	-16.1	-21.0	
Switzerland	253	125	-7.4	-0.1	-3.3	-4.1	-3.8	-2.1	-5.4	-9.6	-11.7	-3.8	0.6	-13.5	-2.4	14.1	-14.4	5.3	-50.6	
Turkey	905	5,104	14.4	67.4	9.8	5.3	2.7	-12.0	7.9	8.6	12.7	10.2	16.2	-15.5	11.8	33.7	-14.6	-1.5	464.3	
Ukraine	781	144	-23.0	-24.9	-26.0	-20.5	-0.8	-6.4	-6.2	1.0	16.7	33.1	17.0	-5.1	12.0	8.1	-1.4	-31.5	-81.6	
United Kingdom	1,510	2,119	-1.6	8.2	10.4	2.7	8.6	9.4	8.4	4.3	-0.2	2.6	5.4	9.6	-3.6	-4.5	-4.3	-10.3	40.4	
United States	144,910	125,498	-7.2	3.0	4.8	3.6	-1.7	9.4	3.3	-7.6	-5.8	1.2	1.8	9.3	-12.7	-0.7	-9.1	-10.2	-13.4	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.36

CO₂ emissions from aviation bunkers - trend information

CO ₂ emissions (Gg)	Relative change (%)																			
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	4,339	9,371	4.0	9.5	7.8	3.6	10.6	0.5	0.9	6.3	-14.1	-11.5	20.0	15.7	1.1	11.5	-0.9	2.1	116.0	
Austria	886	1,893	12.2	12.0	10.5	4.0	3.5	-2.3	10.0	-2.6	-6.7	-5.7	18.7	13.6	4.5	6.2	0.3	-13.2	113.7	
Belarus	5,529	175	-35.5	-35.5	-10.1	-6.5	-43.1	15.2	63.2	8.1	22.4	8.5	-3.4	-20.9	-22.7	34.0	14.7	-29.1	-96.8	
Belgium	3,095	4,404	-16.0	14.5	15.8	7.8	13.0	12.7	1.5	-9.5	-16.7	8.8	-2.6	-4.9	4.1	8.1	8.0	2.4	42.3	
Bulgaria	583	455	-34.4	-0.7	-34.4	-26.1	-11.9	-46.0	14.7	29.5	19.8	28.1	-3.9	22.8	-4.4	1.1	16.4	-28.2	-22.0	
Canada	5,908	9,394	-8.5	8.7	18.2	3.8	3.0	4.4	3.2	-9.7	4.9	-3.1	14.0	7.4	-3.8	3.0	-2.6	-2.0	59.0	
Croatia	343	227	-80.1	-0.8	-5.7	8.0	8.8	-4.5	-14.3	0.0	-3.8	-0.9	16.1	20.7	1.6	3.2	11.9	-14.4	-33.8	
Czech Republic	648	1,057	-10.1	0.9	7.2	0.0	7.4	-6.5	-2.7	1.9	3.2	20.9	43.1	9.2	5.5	2.8	3.0	-4.4	63.1	
Denmark	1,736	2,315	-6.0	2.7	5.6	2.0	7.4	6.1	2.6	1.5	-13.7	4.0	14.3	5.2	0.3	2.5	0.0	-12.6	33.3	
Estonia	108	103	0	20.0	-11.1	40.9	-30.1	41.6	-2.9	-25.0	14.9	-0.6	60.6	64.6	-33.5	57.5	-44.4	20.2	-4.7	
European Union (27)	68,181	131,977	-1.7	5.8	5.0	4.1	8.0	7.6	6.1	-1.5	-1.9	3.6	7.7	5.7	4.3	3.3	0.5	-6.9	93.6	
Finland	1,008	1,570	-5.9	8.2	7.1	3.9	2.5	7.0	-2.8	2.5	-1.1	3.3	15.2	0.6	11.2	15.4	8.2	-12.4	55.8	
France	8,861	16,179	-3.5	0.8	6.0	2.2	6.9	10.4	4.4	1.1	0.3	0.9	6.9	1.4	5.7	4.5	0.3	-7.9	82.6	
Germany	12,022	24,959	-0.7	3.9	4.8	3.4	3.3	7.8	6.1	-2.2	-0.5	1.9	9.4	9.1	5.0	3.9	1.8	-2.7	107.6	
Greece	2,448	2,615	-13.8	-6.2	-4.2	-3.3	5.0	12.3	-12.3	-7.1	0.0	30.2	2.8	-23.2	19.9	2.2	4.0	-14.0	6.8	
Hungary	431	685	-20.9	-1.6	6.8	-5.1	4.6	7.3	6.3	-15.1	7.2	2.6	3.0	8.8	-1.7	10.2	11.4	-14.4	58.7	
Iceland	220	334	1.1	10.5	15.0	7.6	15.8	7.5	12.2	-14.4	-11.3	7.5	14.1	11.0	18.6	2.3	-16.4	-22.0	52.0	
Ireland	1,061	2,194	-3.5	-2.7	-8.2	21.0	2.6	18.9	16.0	20.4	6.6	-2.2	-5.6	16.0	15.7	5.5	-7.3	-21.1	106.8	
Italy	4,161	8,968	20.0	6.0	7.2	2.0	8.7	9.7	8.4	-0.1	-8.7	16.6	1.1	5.7	7.9	6.1	-3.3	-11.1	115.5	
Japan	13,189	15,404	5.5	12.3	9.0	3.8	4.5	-2.1	-0.2	-4.2	13.0	-3.6	3.9	0.7	-6.4	-8.0	-4.6	-12.1	16.8	
Kazakhstan	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Latvia	221	312	35.2	0	28.0	0	-9.4	0	-10.3	0	3.8	44.5	21.9	21.3	12.3	21.9	20.5	5.3	41.0	
Liechtenstein	0	1	0	0	2.8	2.7	2.7	2.6	2.5	2.5	-10.3	10.1	-28.4	35.1	60.7	-1.1	-2.1	19.1	106.9	
Lithuania	403	109	19.9	2.6	-17.5	-6.1	-9.7	-7.1	-3.8	26.8	-15.2	11.8	13.5	30.9	13.7	25.3	15.8	-52.1	-73.0	
Luxembourg	394	1,255	4.5	13.4	8.7	19.6	21.2	12.8	-4.7	8.2	8.3	4.2	8.8	1.6	-6.4	7.5	0.7	-4.4	218.3	
Malta	NA, NE	37	*	*	*	*	*	*	*	*	*	*	-10.5	32.3	1.8	7.3	0	-23.3	*	
Monaco	2	3	2.0	3.6	1.0	6.1	12.4	5.7	15.8	-7.6	-8.1	0.0	-10.1	8.2	5.8	9.8	-15.0	-21.0	7.2	
Netherlands	4,540	10,214	6.7	16.1	6.5	8.2	9.4	2.8	-0.8	-2.2	4.6	-1.6	6.9	3.6	0.9	1.1	0.3	-8.3	125.0	
New Zealand	1,308	2,181	-3.0	25.1	1.7	-0.9	9.8	3.7	-1.8	7.9	-0.6	3.7	11.2	-0.8	-1.3	4.9	0.8	-4.8	66.7	
Norway	619	1,094	-9.7	-5.0	18.1	11.5	6.6	14.6	-3.1	-8.5	-11.5	1.0	13.3	27.5	15.2	-6.9	-0.7	-4.9	76.5	
Poland	1,106	1,410	6.3	4.3	2.8	-31.4	-1.6	-11.6	62.4	-5.8	21.9	-32.3	-1.8	13.5	33.4	4.1	20.1	-9.2	27.4	
Portugal	1,453	2,425	5.1	4.2	-1.0	3.2	5.7	10.3	2.9	-2.6	-5.0	10.0	7.7	3.9	5.8	5.6	3.6	-6.4	66.9	
Romania	156	827	7.5	30.8	-26.9	-17.1	-21.4	35.1	24.1	-5.4	-5.0	34.2	3.9	16.0	9.5	-6.8	112.6	-6.9	431.0	
Russian Federation	4,528	7,316	-3.9	6.2	7.3	-0.9	-2.4	-4.4	7.6	2.6	-0.5	4.7	15.3	-2.7	9.2	17.0	9.5	-15.7	61.6	
Slovakia	63	112	-7.0	0.6	18.0	-11.4	-7.8	0.9	1.6	-5.9	3.8	32.2	35.2	16.0	12.1	16.1	12.9	-15.7	77.2	
Slovenia	97	78	-65.3	6.8	-7.4	5.5	-8.0	19.4	15.0	12.9	2.9	-4.4	-23.8	7.2	13.8	32.4	6.7	-25.1	-20.3	
Spain	5,660	12,564	-3.2	9.4	7.4	6.8	11.6	4.6	7.7	0.3	-4.3	5.8	9.8	6.1	4.8	5.3	1.0	-7.7	122.0	
Sweden	1,335	1,993	-18.5	6.4	2.7	5.8	7.2	12.3	2.5	-2.9	-13.9	-2.8	13.1	9.3	3.6	9.4	7.3	-15.3	49.3	
Switzerland	3,066	4,043	-2.4	6.6	4.1	3.9	4.8	7.4	4.7	-5.6	-7.7	-10.3	-5.8	1.7	5.1	6.9	8.0	-4.5	31.9	
Turkey	NE	1147,575	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	-8.7	*
Ukraine	2,368	819	-13.7	-30.1	-43.0	-3.0	-4.5	-8.4	-0.9	0.4	12.6	16.8	21.2	10.7	18.0	13.4	9.3	-12.3	-65.4	
United Kingdom	15,516	32,623	-1.6	6.2	5.8	6.4	11.3	8.7	10.3	-2.5	-1.8	2.4	9.7	8.4	1.2	-0.4	-3.5	-4.3	110.3	
United States	46,399	69,404	6.7	-9.1	14.8	-1.9	9.3	-10.2	3.8	0.8	8.7	-12.0	9.3	-8.4	31.4	-1.1	2.4	-8.1	49.6	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.37

CO₂ emissions from navigation - trend information

Country	CO ₂ emissions (Gg)		Relative change (%)																	
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	2,919	2,905	-11.2	20.0	3.6	-0.1	-12.5	-11.6	4.8	-10.6	-0.2	-0.2	8.0	3.0	-4.8	36.6	-2.8	3.4	-0.5	
Austria	34	35	-17.3	16.2	3.8	-0.2	11.4	-2.3	6.9	5.2	12.9	-18.4	26.0	-80.6	97.5	41.3	4.7	1.3	3.3	
Belarus	NA, NE, NO	15	*	*	*	*	*	*	*	*	*	*	*	*	29.0	5.0	2.6	-13.4	*	
Belgium	396	406	-2.8	4.9	2.4	1.9	2.5	4.3	8.9	2.3	2.0	2.6	3.5	-1.9	-16.0	5.8	0.0	-13.9	2.6	
Bulgaria	IE, NA, NO	IE, NA, NO	-94.4	0	50.5	-66.7	49.4	-0.8	*	*	*	*	*	*	*	*	*	*	*	*
Canada	4,693	4,774	4.4	-6.8	2.4	1.4	14.8	-3.9	2.8	8.6	-0.5	13.8	7.0	-2.9	-11.1	6.8	-3.7	-13.7	1.7	
Croatia	133	145	-19.6	12.7	51.4	-20.7	-23.5	-3.1	-2.1	7.2	20.6	0.3	-18.0	9.3	4.1	3.9	21.4	11.1	9.3	
Czech Republic	56	16	-0.8	3.2	-16.8	-16.1	-2.6	-41.7	-27.7	60.0	-50.0	0	50.0	-16.7	20.0	-16.7	-20.0	25.0	-72.1	
Denmark	861	652	0.3	5.1	6.5	-1.3	-16.8	-11.6	-9.5	-3.5	-1.7	0.1	3.0	-0.8	0.5	1.4	2.5	0.9	-24.3	
Estonia	22	24	-14.1	-1.4	77.4	-13.8	-1.9	-9.9	39.2	-5.7	51.0	-21.3	0.3	-1.7	33.2	59.1	10.3	-60.5	8.1	
European Union (27)	17,783	18,965	0.4	-4.2	1.5	0.3	5.9	1.7	-9.5	4.0	0.3	2.1	1.8	0.5	0.0	2.0	-2.2	2.7	6.6	
Finland	441	508	0.6	-6.4	6.5	6.4	-2.1	4.5	0.4	-8.5	5.4	2.0	-2.2	1.3	7.0	2.7	-16.2	4.1	15.2	
France	1,951	3,026	-10.4	2.3	-7.7	-0.7	1.0	8.8	-9.9	14.8	13.8	7.4	4.2	2.1	4.2	6.6	-2.3	2.0	55.1	
Germany	2,066	723	1.0	-20.9	-8.2	-20.9	-8.5	-18.4	-7.2	-3.8	-12.8	4.3	11.7	10.3	-12.8	1.1	-1.0	-13.1	-65.0	
Greece	1,825	2,808	1.4	-4.8	-14.3	21.4	54.1	-1.2	-42.8	35.8	-9.7	-0.7	12.0	-4.6	10.1	-6.9	-10.5	49.0	53.9	
Hungary	113	3	-8.3	-58.1	17.9	71.7	-26.6	-48.3	6.7	-6.3	180.0	361.9	-85.8	-34.5	36.1	-14.3	0	0	-97.3	
Iceland	59	31	-8.6	-35.7	17.6	-38.9	-23.4	-11.2	-30.6	62.2	-9.5	84.6	42.1	-53.6	127.1	18.3	-9.0	-42.8	-47.2	
Ireland	84	IE, NO	-0.1	-6.0	3.0	6.0	5.6	13.4	2.5	-7.1	-51.4	-5.2	4.2	0.8	-93.6	5.0	4.8	*	*	
Italy	5,420	4,762	7.4	-2.0	12.3	3.7	2.8	-4.4	-0.2	-2.0	-4.3	-0.5	-1.1	0.2	-3.7	-4.5	-1.1	-3.1	-12.1	
Japan	13,731	10,590	4.2	3.4	5.9	6.3	-11.1	-0.4	1.6	-3.1	1.2	-3.0	-8.7	0.1	-2.1	-3.7	-7.2	-6.2	-22.9	
Kazakhstan	226	0	-54.5	-11.7	-30.9	-27.6	-26.1	-99.3	302.3	75.2	-11.3	12.2	-27.6	70.8	8.7	-24.1	83684.7	-100.0	-99.9	
Latvia	1	12	-11.6	4.1	3.0	-2.8	0.8	4.1	4.0	1.1	-1.3	0.3	-1.9	-2.0	-10.3	484.7	53.7	123.7	1106.6	
Liechtenstein	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	15	16	75.0	-2.0	46.9	0.5	15.0	-48.4	-3.7	17.2	13.7	11.3	28.6	-1.2	14.0	-6.7	6.1	-12.9	6.7	
Luxembourg	1	1	14.5	-11.9	-1.2	3.8	-0.9	14.0	-13.5	11.4	7.6	8.0	-8.9	6.3	-6.0	2.1	9.0	-14.7	1.9	
Malta	8	31	-17.6	26.3	2.8	-13.5	1.1	10.5	20.5	13.6	44.2	-7.7	15.7	-8.9	-0.1	11.1	3.3	17.4	272.1	
Monaco	1	2	28.7	-5.1	-14.9	61.7	-19.7	36.4	40.1	32.4	-15.3	14.0	10.0	-1.1	-2.4	13.0	9.5	11.8	303.2	
Netherlands	405	610	2.3	-5.7	-8.0	9.0	5.3	32.8	-2.1	-0.4	3.8	16.4	-7.6	-5.5	-3.3	2.9	1.5	-3.6	50.6	
New Zealand	249	297	3.0	-9.1	-14.3	-26.2	-31.6	50.9	74.0	-13.1	11.3	2.9	-10.6	18.3	-18.4	10.1	-19.5	3.9	19.6	
Norway	1,696	2,001	-2.2	4.4	2.4	11.8	8.5	9.5	-13.4	-13.3	-3.4	3.1	2.9	14.5	-8.4	4.1	-9.9	3.0	17.9	
Poland	143	11	-15.1	57.6	2.0	-15.1	-21.9	44.4	-63.8	-43.8	16.9	-33.7	-35.8	24.2	32.1	45.0	-5.2	-40.4	-92.1	
Portugal	262	226	-1.5	-7.0	4.5	3.6	2.2	-10.0	-11.0	-3.4	4.9	0.7	2.1	-0.3	0.0	0.0	2.0	6.0	-13.8	
Romania	257	24	36.2	-15.9	28.1	146.4	-13.4	35.0	-51.5	-89.4	144.6	-62.7	81.8	85.3	-13.1	122.1	-3.8	-71.9	-90.7	
Russian Federation	16,019	1,402	-3.8	-21.5	-9.4	39.3	-33.1	99.2	138.1	-9.9	9.5	-11.3	-38.8	-2.1	-3.0	-22.4	1.4	10.1	-91.2	
Slovakia	0	0	-14.6	5.8	6.9	4.4	4.4	0.0	1.4	3.4	4.8	4.7	5.2	6.5	8.5	10.4	9.4	-4.8	71.1	
Slovenia	IE, NA, NO	IE, NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Spain	1,500	3,294	-0.9	-14.6	3.1	-20.2	0.4	34.0	4.5	13.3	11.5	3.8	1.9	3.9	9.9	18.0	2.2	-1.2	119.6	
Sweden	542	500	-24.7	18.7	-3.0	22.0	22.9	14.2	3.0	-1.4	-2.2	16.0	-12.2	-5.6	-9.7	-8.8	-0.4	12.1	-7.8	
Switzerland	112	117	-0.4	-0.4	0.6	0.6	0.6	0.6	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	4.2	
Turkey	497	1,630	6.7	16.5	-3.7	-0.2	4.0	-9.2	-5.3	28.5	2.7	8.4	38.1	5.8	12.7	10.4	-3.4	6.2	227.7	
Ukraine	2,564	149	-25.5	-29.5	-31.6	-28.0	0.4	1.0	4.0	0.1	0.8	8.3	-3.7	11.8	4.8	-22.2	-32.9	-94.2		
United Kingdom	1,751	1,517	-1.4	4.9	0.4	-1.9	-13.0	0.7	-6.6	-3.2	4.6	-1.9	0.8	1.9	-5.5	-2.3	-3.8	-5.1	-13.4	
United States	37,447	24,870	-11.9	25.0	-8.9	-32.9	-19.5	-12.6	141.3	-31.8	11.5	-27.4	5.8	18.6	10.1	14.8	-36.5	-19.2	-33.6	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.38

CO₂ emissions from marine bunkers - trend information

CO ₂ emissions (Gg)	Relative change (%)		Relative change (%)																	
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	2,057	2,511	-9.6	33.0	1.6	-7.3	-12.0	10.5	13.0	-6.1	9.1	-2.5	0.8	-5.8	18.5	-18.3	14.1	-13.5	22.1	
Austria	19	31	5.9	-2.0	-2.0	-2.0	-2.0	-1.1	9.5	0.0	0.0	-14.6	0.0	273.8	-34.3	-14.8	-13.0	-2.2	65.6	
Belarus	NA, NE, NO	NA, NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Belgium	13,307	22,696	1.2	-8.8	22.7	10.8	4.5	-19.3	8.1	0.9	39.7	1.5	5.6	2.9	9.3	11.5	1.8	-26.7	70.6	
Bulgaria	945	647	406.8	3.8	-13.1	-96.2	677.8	-88.6	701.2	50.0	9.4	30.5	-16.1	-4.3	-4.6	-50.4	134.2	69.4	-31.6	
Canada	3,003	1,576	3.6	3.8	-6.9	-1.2	24.0	-10.1	1.5	7.8	-24.3	-42.3	21.9	-2.0	-9.3	19.4	-17.4	-9.7	-47.5	
Croatia	109	22	-34.3	-26.3	12.6	-35.9	10.0	-18.9	-13.2	56.7	-18.0	-6.2	6.4	8.1	-22.8	24.1	-11.7	-67.6	-80.1	
Czech Republic	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Denmark	3,005	1,550	-11.1	4.6	-4.7	-8.3	-0.3	-6.2	3.1	-17.3	-19.9	5.1	-18.3	2.4	29.0	4.9	-14.6	-46.5	-48.4	
Estonia	574	709	3.8	-30.8	4.6	10.8	6.2	6.7	-9.3	-4.8	18.5	-4.9	33.0	-20.1	77.6	16.0	2.0	-10.5	23.4	
European Union (27)	110,084	158,174	-1.1	1.0	6.6	7.8	4.6	-4.4	4.8	5.2	2.8	2.5	6.0	5.0	7.3	0.6	-0.5	-9.9	43.7	
Finland	1,845	809	-4.7	-20.8	13.2	8.7	28.2	7.1	15.3	-10.5	12.7	-0.6	-19.5	-1.7	10.0	-17.9	-12.4	-38.0	-56.1	
France	8,088	8,084	3.6	3.2	4.9	10.3	10.1	1.6	3.3	-15.1	-3.0	8.7	13.8	-8.6	3.9	2.5	-12.7	-2.5	0.0	
Germany	7,915	8,737	-15.7	0.7	-1.6	7.5	-5.1	1.7	5.5	0.9	7.7	9.8	2.3	-6.4	3.5	19.5	-3.2	-8.4	10.4	
Greece	8,028	8,294	-8.2	7.5	-12.0	0.3	11.4	-11.0	15.5	-2.9	-10.3	2.4	0.9	-11.2	7.9	2.2	-2.4	-15.1	3.3	
Hungary	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Iceland	99	165	-62.0	54.0	-13.9	20.0	18.7	-7.2	33.4	-31.8	39.1	-30.7	36.5	-43.4	23.7	50.8	10.4	-27.9	66.5	
Ireland	57	303	88.5	200.3	35.1	-4.4	4.6	8.9	-12.2	6.7	-10.7	18.7	-12.2	-30.4	22.4	-11.7	-38.1	37.4	434.5	
Italy	4,389	7,258	-18.4	10.9	-29.2	7.1	4.3	3.3	26.7	15.1	15.3	13.2	8.3	1.7	7.6	4.2	8.8	-14.0	65.3	
Japan	17,640	15,391	5.5	1.1	-41.1	30.2	6.5	-5.3	4.5	-13.6	4.9	9.9	4.7	12.9	-5.9	-0.7	-8.3	-11.2	-12.8	
Kazakhstan	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Latvia	1,500	870	-70.1	-46.2	-35.3	-27.2	-79.0	-33.2	-20.0	2349.3	5.5	-8.7	7.9	28.7	-24.3	-9.5	15.9	32.9	-42.0	
Liechtenstein	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Lithuania	304	409	64.9	-7.1	-6.9	-53.9	-17.5	45.0	27.4	7.6	10.8	-0.3	3.4	26.8	-4.2	-13.0	-24.9	42.2	34.8	
Luxembourg	0	0	8.6	0.8	-6.1	-1.8	11.0	9.8	10.5	0.2	5.4	2.0	-3.3	34.1	5.6	-16.8	8.0	-19.9	58.6	
Malta	NA, NE	3,601	*	*	*	*	*	*	*	*	2.3	23.6	7.0	-32.5	14.1	12.0	8.1	23.9	*	
Monaco	4	21	29.3	-3.7	-8.3	39.4	-6.1	41.3	40.2	38.2	-15.9	17.5	13.3	-0.2	-2.4	15.6	11.6	10.5	403.1	
Netherlands	34,357	45,766	2.8	1.3	2.2	6.2	1.1	3.4	6.3	10.1	-1.2	-6.7	8.7	14.9	4.0	-8.5	-4.0	-7.5	33.2	
New Zealand	1,032	1,083	-11.3	-16.1	-4.9	3.7	-3.8	-14.8	-18.4	8.5	9.6	-3.9	-14.6	34.3	-2.3	2.3	13.0	-2.1	4.9	
Norway	1,478	1,791	-15.3	22.2	10.0	21.0	-4.5	-6.6	-2.8	-0.3	-20.3	-0.6	-4.2	15.0	0.0	-8.3	0.2	-14.0	21.2	
Poland	1,648	791	-57.7	117.0	15.2	-31.6	75.1	104.7	-47.1	-8.7	3.5	5.4	-11.0	27.1	-8.3	-15.7	11.0	-9.9	-52.0	
Portugal	1,383	1,778	-0.8	5.3	5.5	-2.5	0.7	30.7	10.1	-30.4	5.9	23.5	16.8	-12.4	9.1	5.2	10.8	-8.9	28.6	
Romania	1,352	124	23.7	-22.3	48.5	128.8	-1.2	-52.0	-46.9	-87.8	183.9	-60.5	53.9	97.2	3.4	142.8	1.6	-43.3	-90.8	
Russian Federation	7,586	1,896	-6.9	-23.6	-1.5	-22.1	-0.6	-20.2	-2.9	10.7	-2.6	-3.2	4.0	-15.1	-3.3	-10.2	-2.6	39.0	-75.0	
Slovakia	65	32	-12.2	35.0	-14.8	-40.4	39.8	-78.9	*	*	7.9	-24.3	-61.1	-92.0	4371.5	6.9	6.8	-8.4	-51.2	
Slovenia	NA	104	*	*	*	*	*	*	*	*	*	*	*	*	*	68.3	34.9	-50.8	*	
Spain	11,528	27,651	6.0	2.8	46.0	23.3	5.3	-2.4	2.2	11.9	2.4	1.9	3.1	9.8	4.4	2.3	3.7	-0.7	139.9	
Sweden	2,228	7,281	18.5	-1.7	5.9	17.3	15.4	-2.2	-2.8	-2.4	-11.8	34.5	17.8	2.1	7.5	3.1	-5.0	4.1	226.8	
Switzerland	56	26	-8.2	-9.3	-11.6	-2.4	-26.1	14.1	-14.7	-15.9	-12.4	17.8	0.5	13.9	-8.4	2.0	-11.5	-1.1	-53.6	
Turkey	NA, NE, NO	871	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	-18.6	*
Ukraine	3,528	75	*	*	*	*	*	-19.2	-9.2	7.2	-40.5	-29.3	20.8	13.5	-2.1	-31.9	-22.3	-31.1	-97.9	
United Kingdom	9,104	10,683	-0.1	3.0	10.9	8.3	4.6	-26.0	-9.5	2.8	-20.9	17.9	12.5	6.3	28.8	-4.5	12.8	-6.9	17.3	
United States	65,429	53,723	8.9	0.5	0.3	7.7	7.5	-19.9	-12.1	-5.9	6.6	8.3	21.0	1.7	1.5	0.0	8.1	-7.7	-17.9	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.39

Fugitive emissions from fuels: coal mining and handling - CH₄ (2009)

Key category	Share of national total (%)	Methods and EF used ^a		Activity data					CH ₄ IEF				
				CRF			IEA	Difference	Underground mines		Surface mines		
		Methods	EF	Underground mines	Surface mines	Total	Total		Mining activities	Post-mining activities	Mining activities	Post-mining activities	
				(Mt)			(%)	(kg/t)					
IPCC default Ef^b										4.50-16.75	0.60-2.68	0.20-1.34	0-0.13
Australia	L, T	4.80	T2, T3	CS, PS	104.1	406.9	511.0	402.9	-21.2	7.45	0.36	1.07	NE
Austria		-	NA	NA	NO	NO	NO	0.0		NO	NO	NO	IE
Belarus		-	NA	NA	NO	NO	NO	2.2		NO	NO	NO	NO
Belgium		-	T1	D	NO	NO	NO	0		NO	NO	NO	NO
Bulgaria	L, T	2.28	T1	D	3.0	26.5	29.5	27.2	-7.9	12.06	1.68	0.80	0.07
Canada	T	0.10	CS	CS	1.3	81.4	82.8	62.9	-24.0	2.99	IE	0.37	IE
Croatia		-	NA	NA	NO	NO	NO	0		NO	NO	NO	NO
Czech Republic	L, T	3.02	T1, T2	CS, D	11.0	45.4	56.4	56.4	0	12.26	1.64	0.77	0.07
Denmark		-	NA	NA	NO	NE, NO	NE, NO	0		NO	NO	NE, NO	NE, NO
Estonia		-	NA	NA	NO	NO	NO	15.3		NO	NO	NO	NO
European Union (27)	L, T	0.51	CR, CS, D, T1, T1b, T2, T3	R, CS, D, OTH, P	127.0	415.2	542.2	571.3	5.4	7.09	0.71	0.36	0.02
Finland		-	NA	NA	NO	NO	NO	9.0		NO	NO	NO	NO
France	T	-	CR	PS	NA	NA	NA	0		NA	NO	NA	NO
Germany	T	0.30	CS, T2	CS	13.8	169.9	183.6	183.6	0.0	8.85	0.58	0.01	IE
Greece	L	1.12	T1	D	NO	64.9	64.9	64.9	0	NO	NO	1.01	IE
Hungary	T	0.02	D, T2	CS, PS	1.0	8.0	9.0	9.0	0	0.62	0.06	NA	NA
Iceland		-	NA	NA	NO	NO	NO	0		NO	NO	NO	NO
Ireland		-	NA	NA	NO	NO	NO	2.8		NO	NO	NO	NO
Italy		0.00	T1	CR, CS, D	0.1	NO	0.1	0.1	0	10.05	0.30	NO	NA
Japan	T	0.00	T1, T3	D, OTH	0.6	0.6	1.2	0	-100.0	1.27	1.64	0.77	0.07
Kazakhstan	L, T	7.52	T1, T2, T3	CS, D	11.0	84.8	95.8	100.9	5.3	30.38	0.67	8.30	NO
Latvia		-	NA	NA	NO	NO	NO	0.0		NO	NO	NO	NO
Liechtenstein		-	NA	NA	NO	NO	NO			NO	NO	NO	NO
Lithuania		-	NA	NA	NO	NO	NO	0.1		NO	NO	NO	NO
Luxembourg		-	NA	NA	NO	NO	NO	0		NO	NO	NO	NO
Malta		-	NA	NA	NA	NA	NA	0		NA	NA	NA	NA
Monaco		-	NA	NA	NO	NO	NO			NO	NO	NO	NO
Netherlands		-	T1b	D	NA	NA	NA	0		NA	NA	NA	NA
New Zealand		0.49	T1	D	0.8	3.7	4.6	4.6	0.0	14.54	1.60	0.77	0.07
Norway		0.07	T2	CS	0.0	2.7	2.8	2.6	-4.4	7.16	IE	0.54	IE
Poland	L, T	1.93	CS, T1	CS	70.5	57.1	127.6	134.6	5.5	4.55	0.36	0.01	NE
Portugal		-	NA	NA	NO	NO	NO	0		NO	IE	NO	IE
Romania	L, T	1.86	T1	D	7.0	27.2	34.2	34.0	-0.6	11.73	1.64	0.77	0.07
Russian Federation	L, T	2.13	T2	CS	106.8	194.4	301.3			12.13	1.98	3.70	IE
Slovakia	L	0.82	T2	CS	2.6	NO	2.6	2.6	0.0	6.02	0.60	NO	NO
Slovenia	L, T	1.29	T3	CS	4.4	NO	4.4	4.4	0.0	1.86	0.82	NO	NO
Spain	T	0.17	CR, CS, T2	CR, CS	6.2	6.4	12.6	9.4	-25.1	2.94	1.44	0.26	0.05
Sweden		-	T2	CS	NO	NO	NO	0.7		NO	NO	NO	NO
Switzerland		-	NA	NA	NO	NO	NO	0		NO	NO	NO	NO
Turkey		0.54	T1	D	2.9	75.6	78.4	79.5	1.351368579	11.73	NA	0.82	NA
Ukraine	L, T	7.27	T1, T3	CS, D	73.9	IE	73.9	55.5	-24.9	17.20	1.34	IE	IE
United Kingdom	L, T	0.50	T3	CS, OTH	7.5	9.9	17.4	17.4	0.0	21.46	1.16	0.34	IE
United States	L, T	1.07	T2, T3	CS	301.2	671.5	972.7	972.7	0.0	10.58	0.89	0.91	0.15

^a Information on methods and emission factors in this table is 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.B.1 Solid fuels.

^b Source of default emission factors: IPCC Guidelines, volume 3, pages 1.105–1.110 (Tier 1).

Table 1.40

Fugitive emissions from fuels: CH₄ emissions from coal mining and handling - trend information

CH ₄ emissions (Gg)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	848	1,248	2.9	2.2	3.2	9.7	4.8	-6.9	8.2	-0.3	-3.8	-1.5	7.0	8.0	5.1	9.4	-0.3	0.4	47.2
Austria	1	IE, NO	-15.0	-5.2	-14.6	2.0	0.9	-0.2	10.3	-4.8	18.2	-18.4	-79.6	-97.4	8.3	*	*	*	*
Belarus	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	14	NO	-38.8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Bulgaria	77	65	-11.7	3.7	-2.8	1.0	1.2	-13.5	4.2	1.0	-2.7	3.8	-1.8	-7.5	5.0	10.5	1.2	-5.8	-16.2
Canada	91	34	9.0	-3.0	3.1	-7.2	-16.8	-20.7	-12.2	4.3	-31.1	-11.1	8.6	10.1	-2.3	7.8	-1.3	-5.9	-62.9
Croatia	2	NO	-10.9	-20.3	-19.3	-26.8	4.7	-69.9	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	362	191	-11.3	-1.9	-2.9	-1.9	-4.0	-9.5	4.4	2.4	-3.0	-3.9	-2.7	-0.3	6.7	-7.9	-2.3	-10.1	-47.2
Denmark	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Estonia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
European Union (27)	3,403	1,110	-4.6	1.9	-4.1	-3.4	-12.3	-2.9	-4.7	-6.6	-2.9	-5.5	-9.6	-7.3	-3.9	-9.6	-3.0	-9.9	-67.4
Finland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
France	191	NA, NO	-7.2	-0.9	-24.0	-14.9	-3.0	-5.0	-3.6	-36.0	-10.7	-28.9	90.8	*	*	*	*	*	*
Germany	877	132	-5.2	-1.7	-5.9	-1.2	-18.3	12.8	-10.0	-11.7	0.1	-7.7	-18.2	-12.0	-15.0	-17.6	-6.0	-26.2	-85.0
Greece	52	65	1.5	1.7	3.7	-1.6	3.5	1.9	3.0	3.8	6.2	-3.1	2.6	-0.9	-7.0	3.0	-1.1	-1.3	25.0
Hungary	44	1	-1.9	-13.1	5.9	-0.4	-5.3	-9.0	0.0	-18.0	14.7	-9.6	-55.7	-81.3	-2.5	-1.3	-7.0	-29.6	-98.5
Iceland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	NE, NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Italy	3	1	-11.9	-35.6	-17.6	-39.5	-86.6	-20.8	4730.7	17.0	17.3	53.4	-60.8	-3.1	-77.9	652.4	-25.9	-38.5	-71.5
Japan	134	2	-9.6	-21.5	-3.5	-22.4	-13.3	-0.8	-11.2	-25.9	-79.2	-20.7	-29.1	10.6	-7.4	-24.4	-11.0	0.9	-98.4
Kazakhstan	1,782	1,037	-1.8	-26.7	-8.5	-1.4	-5.6	-16.0	25.4	-10.8	-4.2	15.9	-0.9	-2.7	8.6	1.8	14.2	-1.5	-41.8
Latvia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Malta	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
New Zealand	13	17	2.8	26.4	40.3	-25.6	22.3	2.0	-3.4	4.8	-0.7	-6.2	-6.1	5.8	38.5	-41.2	37.3	-5.5	27.1
Norway	3	2	6.4	-1.6	2.2	-12.5	3.9	28.4	9.2	-9.3	-7.7	53.6	-36.0	-27.6	-2.7	60.1	-31.2	-22.2	-37.6
Poland	783	347	-5.7	2.4	1.8	0.8	-11.8	2.6	-6.0	-2.9	-7.2	1.4	-1.7	-2.7	-3.9	-7.3	-5.7	-9.5	-55.7
Portugal	3	IE, NO	-3.2	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Romania	304	116	-12.1	1.4	4.6	-19.0	-22.8	-13.0	19.3	8.2	-6.0	-0.4	-4.6	-3.4	4.2	3.1	1.2	-10.2	-61.9
Russian Federation	3,477	2,194	-16.2	-3.4	-5.9	-6.7	-9.7	6.4	1.9	4.5	-9.0	5.9	3.8	3.6	5.3	0.2	1.0	-4.8	-36.9
Slovakia	27	17	6.0	-0.7	1.3	1.8	1.8	-5.4	-2.3	-8.6	-2.4	-17.8	-6.4	-18.2	-9.3	-7.9	18.0	6.1	-37.8
Slovenia	17	12	-6.7	1.5	-4.5	7.2	-1.2	-6.7	-1.8	-7.7	13.4	3.1	-0.4	-5.6	-0.4	0.0	0.0	-2.0	-30.6
Spain	85	29	-11.3	0.3	1.3	-0.7	-10.3	-7.2	0.9	-12.1	-3.3	-2.0	-5.1	-5.4	-1.1	-5.0	-22.1	-9.4	-66.0
Sweden	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Switzerland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Turkey	68	95	-1.3	-7.9	4.6	5.1	2.8	-2.7	1.8	0.2	-10.9	-10.5	-4.9	20.6	9.0	13.6	5.4	3.2	39.7
Ukraine	2,638	1,283	-8.7	-18.8	-4.1	-1.7	0.7	-1.2	11.1	-15.8	15.6	-2.7	1.3	-0.6	-0.1	-6.3	5.2	-8.5	-51.4
United Kingdom	870	136	2.8	9.5	-7.2	-4.2	-14.7	-16.2	-12.5	-9.5	0.0	-14.0	-9.6	-17.1	-7.4	-30.1	5.4	2.8	-84.3
United States	4,003	3,382	-3.5	-1.6	-0.4	-0.6	0.6	-3.8	-4.0	0.0	-6.0	0.1	2.2	-2.0	2.3	-0.6	16.0	5.8	-15.5

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.41a**Fugitive emissions from fuels: oil and natural gas - CH₄, CO₂ (2009)**

	CH ₄				CO ₂			
	Key category	Share of national total (%)	Methods and EF used ^a		Key category	Share of national total (%)	Methods and EF used ^a	
			Methods	EF			Methods	EF
Australia	L, T	0.80	T1, T2, T3	CS, PS	L, T	1.20	T1, T2, T3	CS, PS
Austria		0.34	CS, T1, T2, T3	CS, D, PS	T	0.33	CS, T2	CS, D, PS
Belarus	L, T	1.68	CS, D, T1	CS, D		0.00	D	CS, D
Belgium		0.31	CS, M	CS		0.09	T1, T3	D, PS
Bulgaria		0.60	T1	D		0.01	T1	D
Canada	L, T	6.26	CS	CS	L, T	2.43	CS	CS
Croatia	L, T	5.10	T1	D	L, T	1.79	CS	CS
Czech Republic	L	0.51	T1, T2	CS, D		0.01	T1, T2	CS, D
Denmark		0.19	CR, CS	CR, CS, PS		0.41	CR	CS, PS
Estonia	L, T	1.99	T1	D		-	NA	NA
European Union (27)	L, T	0.84	CR, CS, D, M, OTH, T1, T1b, T2, T3	CR, CS, D, OTH, PS	L	0.40	CR, CS, D, T1, T2, T3	CS, D, OTH, PS
Finland		0.07	CS, T1, T2	CS, D, PS	T	0.17	CS	CS, D
France		0.20	CR	CS	L	0.75	CR	CS
Germany	L, T	0.80	CS, T1, T2, T3	CS, D		0.18	CS, T1, T2	CS, D
Greece		0.14	T1	D		0.01	T1	D
Hungary	L, T	3.11	CS, D	CS, D, OTH		0.15	D	D, PS
Iceland		-	NA	NA	L, T	3.79	CS	OTH
Ireland		0.06	CS, T1	CS, D		-	NA	NA
Italy	L, T	1.00	T1, T2	CS, D	L, T	0.44	T1, T2	CS, D
Japan		0.03	CS, T1	CS, D, OTH		0.00	T1	D
Kazakhstan	L	2.27	CS, D, T1	CS, D	L, T	1.12	CS, T1	CS, D
Latvia	L	0.98	CS	PS		-	NA	NA
Liechtenstein	T	0.42	T3	CS		-	NA	NA
Lithuania	L, T	1.20	T1	D		0.04	T1	D
Luxembourg		0.36	T1	D		0.00	T1	D
Malta		-	NA	NA		-	NA	NA
Monaco		0.01	T1	D		-	NA	NA
Netherlands	L, T	0.38	D, T1b, T2, T3	CS, D, PS	L, T	0.54	CS, D, T2, T3	CS, D, PS
New Zealand	L	0.77	D	CS, D	L, T	1.95	D	CS, D
Norway	L, T	1.15	T2	CS	L, T	4.73	T2	CS, PS
Poland	L, T	1.14	T1	CS, D		0.05	T1	CS, D
Portugal	L, T	0.88	CR, OTH	CR, OTH	L, T	0.87	D	CS, D
Romania	L, T	6.19	T1	D, OTH		0.02	T1	OTH
Russian Federation	L, T	15.79	T1, T1b, T2	CS, D	L, T	1.21	T1, T1b	D
Slovakia	L, T	1.83	T1	CS		0.00	T1	CS
Slovenia		0.15	T1, T3	CS, D		0.00	T1, T3	CS
Spain		0.14	CR, CS, T1	CR, CS, D	L	0.60	CR, CS, T1, T2	CS, D, PS
Sweden		0.03	CS, T1, T2	CS, D, PS	L, T	1.50	T1, T2, T3	CS, D, PS
Switzerland	T	0.33	CS	CS		0.11	CS	CS
Turkey		-	NA	NA		-	NA	NA
Ukraine	L, T	5.61	T1	CS, D		0.08	T1	CS, D
United Kingdom	L, T	0.92	T2, T3	CS, PS	L	0.81	T2, T3	CS, PS
United States	L, T	3.82	M	M	L, T	0.49	M	M

^a 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.B.2 Oil and natural gas.

Table 1.41b

Fugitive emissions from fuels: oil and natural gas - oil - CH₄, CO₂ (2009)

	Oil																					
	Exploration				Production				Transport				Refining (R) / Storage (S)									
	CH ₄ IEF ^a		CO ₂ IEF		Activity data		CH ₄ IEF ^a		CO ₂ IEF		Activity data		CH ₄ IEF ^a		CO ₂ IEF		Activity data					
	Value	Unit	Value	Unit	Description	Value	Unit	Description	Value	Unit	Description	Value	Unit	Description	Value	Unit	Description					
IPCC default EF^b						300 - 5,000		PJ			Oil produced	745.00			PJ		Oil tankered	20 - 250 (S) 90 - 1,400 (R)		PJ		Oil refined
Australia	IE	IE	Not specified	NA	2,052	NA	PJ	Crude oil and ORF produced	745	NA	PJ	Quantity shipped	1,086			197,449	PJ	Oil refined				
Austria	IE	IE	Not specified	number of wells drilled	7,030,516	191,314,554	Mt	Oil throughput	IE	IE	Not specified	oil loaded in tankers	31,663	NA	Mt	Oil refined (SNAP 0401)						
Belarus	NO	NO	Not specified	number of wells drilled	2,650	NA	PJ	PJ of oil produced	NO	NO	Not specified	PJ oil loaded in tankers	745	NA	PJ	(e.g. PJ oil refined)						
Belgium	NO	NO	Not specified	(SPEC)	NO	NO	Not specified	(spec)	NO	NO	Not specified	(spec)	103	NA	PJ	(e.g. PJ oil refined)						
Bulgaria	194	9,102	Not specified	number of wells drilled and tested	2,650	68,224	PJ	(e.g. PJ of oil produced)	NO	NO	PJ	(e.g. PJ oil loaded in tankers)	880	NO	PJ	(e.g. PJ oil refined)						
Canada	IE	IE	Not specified	NA	2,377	1,951	10 ³ m ³	Conventional Oil, Heavy Oil and Crude Oil Production	12	0	m ³	Convention, Heavy, and Crude Oil Production	12		3	TJ	Energy Consumption of Refineries					
Croatia	NE	NO	Not specified		2,650	NO	PJ	(e.g. PJ of oil produced)	745	NO	PJ	(e.g. PJ oil loaded in tankers)	135	NO	PJ	(e.g. PJ oil refined)						
Czech Republic	NE	NE	Not specified	(e.g. number of wells drilled)	5,287	7,305	PJ	(e.g. PJ of oil produced)	146	13	PJ	(e.g. PJ oil loaded in tankers)	1,150	NE	PJ	(e.g. PJ oil refined)						
Denmark	IE, NO	NA, NO	Not specified	(e.g. number of wells drilled)	0	NA, NO	Mg	Oil produced	IE, NE, NO	NA, NE, NO	Mg	Oil produced	268	NA, NO	kt	Oil refined						
Estonia	NO	NO	PJ	Shale Oil	IE	NO	PJ	(e.g. PJ of oil produced)	745	NO	PJ	(e.g. PJ oil loaded in tankers)	200	NO	PJ	(e.g. PJ oil refined)						
European Union (27)	NE	NE	Not specified		NE	NE	Not specified	Not estimated	NE	NE	Not specified	Not estimated	NE	NE	Not specified	Not estimated						
Finland	NO	NO	Not specified	(e.g. number of wells drilled)	NO	NO	Not specified	(e.g. PJ of oil produced)	NO	NO	Not specified	kt oil loaded in tankers	37	101	kt	kt oil refined						
France	NO	NO	Not specified		35,000	1,675,000	PJ	PJ Produced	NA	NA	PJ	PJ Loaded	104	982,022	PJ	PJ Refined						
Germany	64	0	Not specified	number of wells drilled	3	0	t	oil produced	0	0	t	oil transported in pipelines	0	NO	t	oil refined						
Greece	NO	NO	Not specified	(e.g. number of wells drilled)	1,450	270	10 ³ m ³	Crude oil and NGL production	NA	NA	PJ	Crude oil imports	880	IE	PJ	Refinery input (crude oil and NGL)						
Hungary	IE	IE	Not specified	(e.g. number of wells drilled)	49,497	NO	PJ	oil produced	6	IE	10 ³ m ³	pipeline and tankers	1,400	NO	PJ	oil refined						
Iceland	NO	NO	Not specified		NO	NO	Not specified		NO	NO	Not specified		NO	NO	Not specified							
Ireland	NO	NO	Not specified	(e.g. number of wells drilled)	NO	NO	Not specified	(e.g. PJ of oil produced)	NO	NO	Not specified	(e.g. PJ oil loaded in tankers)	110	NO	PJ	(e.g. PJ oil refined)						
Italy	IE	IE	Not specified	number of wells drilled	1,600	8	Gg	(Gg of oil produced)	NA	NA	Not specified	oil loaded in tankers	24	15,745	Gg	(Gg oil refined)						
Japan	158	3,325	Not specified	number of wells drilled	1	0	10 ³ l	oil produced	0	0	10 ³ l	Oil & Condensate produced	91	NE	PJ	oil refined						
Kazakhstan	0	0	Not specified		106	NA	kt	oil produced	30	NE	kt	oil transported by rail/sea	35	NA	kt	oil refined						
Latvia	NO	NO	Not specified	(e.g. number of wells drilled)	NO	NO	PJ	(e.g. PJ of oil produced)	NO	NO	PJ	(e.g. PJ oil loaded in tankers)	NO	NO	PJ	(e.g. PJ oil refined)						
Liechtenstein	NO	NO	Not specified	number of wells drilled	NO	NO	Not specified	oil produced	NO	NO	Not specified	oil loaded in tankers	NO	NO	Not specified	oil refined						
Lithuania	270	5,700	Not specified	(wells drilled)	1,450	270	10 ³ m ³	(conventional oil production)	5	0	10 ³ m ³	oil transported by pipelines	745	NO	PJ	(e.g. PJ oil refined)						
Luxembourg	NO	NO	Not specified	number of wells drilled	NO	NO	Not specified	oil produced	NO	NO	Not specified	oil loaded in tankers	NO	NO	Not specified	oil refined						
Malta	NA	NA	Not specified		NA	NA	Not specified		NA	NA	Not specified		NA	NA	Not specified							
Monaco	NO	NO	Not specified		NO	NO	Not specified		NO	NO	Not specified		NO	NO	Not specified							
Netherlands	IE	IE	Not specified	number of wells drilled/tested	IE	IE	10 ⁶ m ³	Refery input: crude oil, NGL	6	1	t	oil transported by pipeline	241	443,240	PJ	Refery input: crude oil, NGL						
New Zealand	IE	IE	Not specified	(e.g. number of wells drilled)	IE	IE	Not specified	(e.g. PJ of oil produced)	1	0	TJ	(e.g. PJ oil loaded in tankers)	1	NA	TJ	(e.g. PJ oil refined)						
Norway	IE	IE	kg	number of wells drilled	IE	IE	10 ⁶ m ³	oil produced	1,649	28,073	PJ	Oil loaded	4,177	1,603,935	PJ	Oil refined						
Poland	NA	NA	Not specified	NA	61,800	6,315,000	PJ	Production	6	1	Gg	oil l transported by pipeline	745	NA	PJ	oil refined						
Portugal	31	233	Not specified		NO	NO	Not specified		60,000	1,100,000	Mt	Consumption of crude	22	7,044	Mt	Production (crude and other materials)						
Romania	NE	NE	Not specified	number of wells drilled	300	68,089	PJ	(e.g. PJ of oil produced)	745	69	PJ	(e.g. PJ oil loaded in tankers)	110	NE	PJ	(e.g. PJ oil refined)						
Russian Federation	64	0	Not specified	number of wells drilled	1,690,371	314,759	Mt	oil produced	6,295	571	Mt	(oil transported in pipelines)	36,871	NE	Mt	oil refined						
Slovakia	NO	NO	Not specified	(e.g. number of wells drilled)	36,145	231	PJ	production	130	1	PJ	transport of crude oil (transfer)	130	1	PJ	refinin/storage						
Slovenia	NO	NO	Not specified	(e.g. number of wells drilled)	NO	NO	TJ	(e.g. PJ of oil produced)	NO	NO	Not specified	(e.g. PJ oil loaded in tankers)	NO	NO	TJ	(e.g. PJ oil refined)						
Spain	216	4,560	Not specified		1,706,000	318,003	Tg	Crude oil produced	27,000	NA	Tg	Transport of crude oil	992	34,226,594	Tg	Oil refined						
Sweden	1	142,432	TJ		NO	NO	Not specified		745	NE	PJ	(PJ oil loaded in tank ships)	13,083		Mt	Petroleum coke						
Switzerland	NO	NO	Not specified		NO	NO	Not specified		NO	NO	Not specified		1,042	31,387	PJ	Crude oil used						
Turkey	NE	NE	Not specified		NE	NE	Not specified		NE	NE	Not specified		NE	NE	Not specified							
Ukraine	70	169	Not specified	number of wells drilled and operated	1,450	270	10 ³ m ³	number of wells drilled	5	0	10 ³ m ³	Crude oil transported by pipeline	1,200	NE	PJ	Oil refined						
United Kingdom	25	3,200	t	Well testing fuel use	966	117,461	PJ	Oil and gas produced.	80	NO	Gg	Offshore loading of oil only	267	NO	PJ	Oil refinery throughput						
United States	IE	NA	Not specified	IE	737,834	162,877	10 ⁶ Bbl(oil US)	(e.g. Domestic Oil Production)	953	NA	10 ⁶ Bbl(oil US)	Refinery Feed	4,568	27,494	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 emissions factors: IPCC Guidelines, vol. 3, pages 1.119-1.121. For updated detailed emission factors on CH₄ and implied emissions factors on CO₂ and N₂O also look at the IPCC good practice guidance, table 2.16, pages 2.86-2.87.

Table 1.41c

Fugitive emissions from fuels: oil and natural gas - natural gas - CH₄, CO₂ (2009)

	Natural Gas															
	Production (P) / Processing (Pr)				Transmission				Distribution				Other leakage			
	CH ₄ IEF ^a	CO ₂ IEF	Activity data		CH ₄ IEF ^a	CO ₂ IEF	Activity data		CH ₄ IEF ^a	CO ₂ IEF	Activity data		CH ₄ IEF ^a	CO ₂ IEF	Activity data	
	Value	Unit	Description	Value	Unit	Description	Value	Unit	Description	Value	Unit	Description	Value	Unit	Description	
IPCC default EF ^b	15000-314000 (P) 288000-628000 (Pr)		PJ	Gas produced	57,000 - 628,000		PJ	Gas consumed/produced	57,000 - 628,000		PJ	Gas consumed/produced	0 - 384,000		PJ	Gas consumed
Australia	1,670	IE	PJ	Gas produced	9,739	470	PJ	Gas transmitted	242,635	14,665	PJ	Utility sales	IE	IE	Not specified	NE
Austria	IE	61,078	10 ⁶ m ³	gas produced	495	25	km	Pipelines length (km)	124	NA	km	Distribution network length	NO	NO	PJ	Gas consumed
Belarus	288,000	NA	PJ	PJ gas produced	9,686	NA	PJ	PJ gas consumed	IE	NA	Not specified	PJ gas consumed	83,591	NA	PJ	PJ gas consumed
Belgium	NO	NO	Not specified	(speci)	4,197	IE	PJ	(e.g. PJ gas consumed)	24,937	747	PJ	PJ gas consumed	NO	NO	Not specified	(speci)
Bulgaria	227,000	3,266	PJ	(e.g. PJ gas produced)	548	16	PJ	(e.g. PJ gas consumed)	274	96	PJ	(e.g. PJ gas consumed)	262,087	NO	PJ	(e.g. PJ gas consumed)
Canada	1,340	43	10 ⁶ m ³	Gross New Production of Natural Gas (also includes oil and Gas Well Drilling and Servicing)	3,257	24	km	Transmission Length	358	NE	km	Distribution Length	973	191	Not specified	
Croatia	458,000	5,523,518	PJ	(e.g. PJ gas produced)	IE	NO	PJ	(e.g. PJ gas consumed)	IE	NO	Not specified	(e.g. PJ gas consumed)	246,909	NO	Not specified	(e.g. PJ gas consumed)
Czech Republic	39,354	16	PJ	(e.g. PJ gas produced)	8,284	33	PJ	(e.g. PJ gas consumed)	128,158	510	PJ	(e.g. PJ gas consumed)	14,758	59	PJ	(e.g. PJ gas consumed)
Denmark	IE, NO	NA, NO	10 ⁶ m ³	Gas produced	1	NA, NO	10 ⁶ m ³	Gas transmission	47	NA, NO	10 ⁶ m ³	Gas distributed	IE, NO	NA, NO	Not specified	Incl. in transmission
Estonia	NO	NO	PJ	(e.g. PJ gas produced)	458,000	NO	PJ	(e.g. PJ gas consumed)	NO	NO	PJ	Natural Gas	266,090	NO	PJ	
European Union (27)	NE	NE	Not specified	Not estimated	NE	NE	Not specified	Not estimated	NE	NE	Not specified	Not estimated	NE	NE	Not specified	
Finland	NO	NO	Not specified	(e.g. PJ gas produced)	3,245	8,925	PJ	PJ gas consumed	165,017	467,547	PJ	PJ gas distributed via local networks	NO	NO	Not specified	t of natural gas released from pipelines
France	352	2,735,400	PJ	PJ Production	29,720	NA	PJ	PJ Consumed	IE	IE	Not specified		NO	NO	Not specified	
Germany	89	2,940	TJ	production and processing	13	NO	TJ	pipelines and containers	429	NO	km	distribution net	42	NO	TJ	gas consumed
Greece	351	106	10 ⁶ m ³	Natural gas production	2,551	16	km	Length of transmission pipeline	615	NA	km	Length of distribution mains	IE	IE	Not specified	(e.g. PJ gas consumed)
Hungary	106,410	NO	PJ	gas produced	42,676	NO	PJ	gas consumed	520	NO	km	Pipeline, length	NO	NO	Not specified	(e.g. PJ gas consumed)
Iceland	NO	NO	Not specified		NO	NO	Not specified		NO	NO	Not specified		NO	NO	Not specified	
Ireland	454	NO	PJ	PJ of Gas produced	IE	IE	Not specified	(e.g. PJ gas consumed)	25,219	NO	PJ	PJ of gas consumed	NO	NO	PJ	(e.g. PJ gas consumed)
Italy	1,600	95	10 ⁶ m ³	(Mm3 gas produced)	434	10	10 ⁶ m ³	(Mm3 gas transported)	5,215	119	10 ⁶ m ³	(Mm3 gas transported)	IE	NA	Not specified	
Japan	4	0	10 ³ m ³	gas produced	363	NA	km	Pipelines length	474	NA	PJ	LNG & NG Consumption with Town Gas Production	IE	NA	Not specified	not estimated
Kazakhstan	2,100	16	10 ⁶ m ³	gas produced	525	NE	10 ⁶ m ³	gas transported, including transit	19,761	NE	10 ⁶ m ³	gas consumed	37,109	NE	Not specified	
Latvia	NO	NO	TJ	(e.g. PJ gas produced)	C	NO	TJ	(e.g. PJ gas consumed)	C	NO	TJ	(e.g. PJ gas consumed)	C	NO	Not specified	
Liechtenstein	NO	NO	Not specified	gas produced	NO	NO	Not specified	gas consumed	562	NO	TJ	gas consumed	IE	NO	Not specified	
Lithuania	NO	NO	PJ	(e.g. PJ gas produced)	IE	IE	km	gas consumed	IE	IE	kha	distribution mains	IE	IE	PJ	(e.g. PJ gas consumed)
Luxembourg	NO	NO	Not specified	gas produced	13,070	24	PJ	gas consumed	30	1	TJ	gas consumed	IE	IE	Not specified	
Malta	NA	NA	Not specified		NA	NA	Not specified		NA	NA	Not specified		NO	NO	Not specified	
Monaco	NO	NO	Not specified		NO	NO	Not specified		1	NO	m ³	Gaz naturel	NO	NO	Not specified	
Netherlands	IE	NO	PJ	gas produced	1,953	NO	PJ	gas transported	104,449	3,206	10 ³ km	natural gas distribution network	IE	NE	Not specified	
New Zealand	IE	IE	Not specified	(e.g. PJ gas produced)	413,946	52,800	TJ	(e.g. PJ gas consumed)	13,945	2,118	TJ	(e.g. PJ gas consumed)	85,362	NA	Not specified	(e.g. PJ gas consumed)
Norway	IE	IE	10 ⁶ m ³	gas produced	IE	IE	Not specified	gas consumed	NE	IE	Not specified	gas consumed	NA, NE	NA, NE	Not specified	
Poland	96,972	23,522	PJ	Production	53,205	522	PJ	gas consumed	310,713	1,167	PJ	gas consumed	1,290	10	Not specified	NA
Portugal	NO	NO	Not specified		5,368	14,781	Gg	gas consumed	IE	IE	Gg	gas consumed	IE	IE	Not specified	
Romania	288,000	3,208	PJ	(e.g. PJ gas produced)	361,707	2,332	PJ	(e.g. PJ gas consumed)	IE	IE	Not specified	gas consumed	157,664	NE	PJ	(e.g. PJ gas consumed)
Russian Federation	3,629	122	10 ⁶ m ³	gas produced	7,319	3	kt	(total gas transmission)	26,035	NE	10 ⁶ m ³	gas consumed	8,747	NE	10 ⁶ m ³	gas consumed
Slovakia	752,926	4,807	PJ	production	2,900	19	km	transfer	710	5	km	distribution	IE	IE	PJ	consumed
Slovenia	39	0	TJ	PJ gas produced	197	0	km	length of transport pipelines	157	0	km	length of pipelines	1	0	Not specified	(e.g. PJ gas consumed)
Spain	70,658	2,441	PJ	PJ gas produced (NCV)	497	7	PJ	PJ gas (NCV)	15,749	225	PJ	PJ gas consumed (NCV)	NE	NE	Not specified	(e.g. PJ gas consumed)
Sweden	NO	NO	Not specified		NO	NO	TJ	Pressure levelling losses	NO	NO	Not specified	(e.g. PJ gas consumed)	NO	NO	Not specified	
Switzerland	NO	NO	Not specified		370	160	km	See documentation box	IE	IE	Not specified		IE	IE	Not specified	
Turkey	NE	NE	Not specified		NE	NE	Not specified		NE	NE	Not specified		NE	NE	Not specified	
Ukraine	2,900	95	10 ⁶ m ³	Natural Gas Produced	2,999,027	27,198	10 ³ km	Length of natural gas transmission pipeline	820,000	7,450	10 ³ km	Length of natural gas distribution network	232,231	2,070	PJ	Residential and Non-residential Gas Consumed
United Kingdom	1,389	107,109	PJ	(e.g. PJ gas produced)	IE	IE	Not specified	(e.g. PJ gas consumed)	64,677	2,816	PJ	Gas consumed	1	0	Not specified	(e.g. PJ gas consumed)
United States	338,807	1,066,733	10 ⁹ ft ³	(e.g. Total Natural Gas Produced)	92,702	2,829	10 ⁹ ft ³	(e.g. Total Natural Gas Consumed)	60,532	1,798	10 ⁹ ft ³	(e.g. Total Natural Gas Consumed)	IE	IE	Not specified	(e.g. PJ gas consumed)

^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 emissions factors: IPCC Guidelines, vol. 3, pages 1.119–1.121. For updated detailed emission factors on CH₄ and implied emissions factors on CO₂ and N₂O also look at the IPCC good practice guidance, table 2.16, pages 2.86–2.87.

Table 1.41d

Fugitive emissions from fuels: oil and natural gas - venting and flaring - CH₄, CO₂ (2009)

	Venting and flaring																					
	Oil								Gas								Combined					
	Venting ^a				Flaring ^a				Venting ^a				Flaring ^a				Venting ^a		Flaring ^a			
	CH ₄ IEF ^b	Activity data	CH ₄ IEF ^b	CO ₂ IEF	Activity data	CH ₄ IEF ^b	CO ₂ IEF	Activity data	CH ₄ IEF ^b	Activity data	CH ₄ IEF ^b	CO ₂ IEF	Activity data	CH ₄ IEF ^b	Activity data	CH ₄ IEF ^b	CO ₂ IEF	Activity data	CH ₄ IEF ^b	CO ₂ IEF	Activity data	
value	unit	Description	value	unit	Description	value	unit	Description	value	unit	Description	value	unit	Description	value	unit	Description	value	unit	Description		
IPCC default EF ^c	1,000-3,000	PJ	Oil produced	1,000-3,000	PJ	Oil produced			6,000-209,000	PJ	Gas produced	6,000-209,000	PJ	Gas produced	3,000-14,000	PJ	Oil produced	3,000-14,000	PJ	Oil and gas produced		
Australia	NA	Not specified	NA	IE	IE	Not specified	IE	IE	16,328	PJ	PJ gas produced	IE	IE	Not specified	IE	IE	Not specified	NA	NA	PJ	PJ gas and oil produced	
Austria	NA	Mt	oil produced	NA	NA	PJ	Oil consumed	NA	NA	PJ	gas produced	NA	NA	PJ	gas consumed	NA	Mt	Oil Produced	NA	NA	Mt	oil consumed
Belarus	IE	Not specified	PJ oil produced	IE	IE	Not specified	PJ gas consumption	IE	TJ	PJ gas produced	IE	NA	Not specified	PJ gas consumption	6,000	PJ		5	55,820	TJ		
Belgium	NO	Not specified	(spec)	NO	NO	Not specified	(spec)	NO	Not specified	(spec)	NO	NO	Not specified	(spec)	NO	Not specified	(spec)	IE	NE	Not specified	(spec)	
Bulgaria	10,350	PJ	(e.g. PJ oil produced)	25	40,500	PJ	(e.g. PJ gas consumption)	392	PJ	(e.g. PJ gas produced)	2	3,550	PJ	(e.g. PJ gas consumption)	NO	Not specified		NO	NO	Not specified		
Canada	6,529	m ³	Conventional oil, Heavy Oil and Crude Oil Production	1,078	1,618,139	10 ⁶ m ³	Flared Gas and Flare	1,021	10 ⁶ m ³	gross new production of natural Gas	91	139,461	10 ⁶ m ³	Flared Gas and Flare	242	Not specified	Number of Wells Drilled (Number)	33	50,501	Not specified	Number of Wells Drilled (Number)	
Croatia	NO	PJ	(e.g. PJ oil produced)	IE	NO	Not specified	(e.g. PJ gas consumption)	18,000	PJ	(e.g. PJ gas produced)	IE	NO	Not specified	(e.g. PJ gas consumption)	NO	Not specified		NO	NO	Not specified		
Czech Republic	11,104	PJ	(e.g. PJ oil produced)	997	1,812,771	PJ	(e.g. PJ gas consumption)	NO	Not specified	(e.g. PJ gas produced)	NO	NO	PJ	(e.g. PJ gas consumption)	NO	Not specified		NO	NO	Not specified		
Denmark	NO	Not specified	(e.g. PJ oil produced)	0	57	GJ	Refinery gas consumption	15	GJ	Venting in gas terminals	0	59	GJ	Gas consumption	NO	Not specified		NO	NO	Not specified		
Estonia	IE	PJ	(e.g. PJ oil produced)	NO	NO	PJ	Shale Oil	NO	NO	PJ	Natural Gas	NO	NO	PJ	Natural Gas	NO	NO	NO	NO	PJ	Oil and Gas	
European Union (27)	NE	Not specified	Not estimated	NE	NE	Not specified	Not estimated	NE	Not specified	Not estimated	NE	NE	Not specified	Not estimated	NE	Not specified	Not estimated	NE	NE	Not specified	Not estimated	
Finland	NO	kt	kt oil refined	1	96,044	kt	used fuels, TJ	NO	Not specified	(e.g. PJ gas produced)	NO	NA	Not specified	(e.g. PJ gas consumption)	NO	Not specified		NO	NO	Not specified		
France	NO	Not specified		39	113,834	PJ	PJ Consumed	NO	Not specified		IE	IE	GJ	gas consumed	NO	Not specified	646,649	52,744,400	PJ	PJ Consumed		
Germany	IE	m ³		IE	IE	Gg		IE	m ³	vented natural gas	1	1,185	10 ³ m ³	flared natural gas	IE	m ³		IE	IE	m ³		
Greece	6,284	10 ³ m ³	Crude oil and NGL production	135	67,000	10 ³ m ³	Crude oil and NGL production	316,500	10 ⁶ m ³	Crude oil and NGL production	22	3,473	10 ⁶ m ³	Natural gas production	NO	Not specified		NO	NO	Not specified		
Hungary	2,000	PJ	PJ oil produced	687	2,597,396	PJ	Oil production	24,000	PJ	PJ gas produced	30	4,798	10 ⁶ m ³	gas production	NA	Not specified		NA	NA	Not specified	Oil and gas produced, oil refining	
Iceland	NO	Not specified		NO	NO	Not specified		NO	Not specified		NO	NO	Not specified		NO	Not specified		NO	NO	Not specified		
Ireland	NO	Not specified	(e.g. PJ oil produced)	NO	NO	Not specified	(e.g. PJ gas consumption)	IE	Not specified	(e.g. PJ gas consumed)	NO	NO	Not specified	PJ	quantity of gas flared	NO	Not specified	NO	NO	Not specified		
Italy	71	Gg	oil produced	6	56,017	Gg	oil produced	IE	Not specified		11	1,800	10 ³ m ³	gas produced	NO	Not specified		NO	NO	Not specified		
Japan	1	10 ³ t	oil produced	0	67	10 ³ t	oil produced	IE	km	pipeline length	0	4	10 ³ m ³	gas produced	IE	Not specified	included elsewhere	IE	IE	Not specified	included elsewhere	
Kazakhstan	0	Not specified		0	0	Not specified		0	Not specified		0	0	Not specified		0	Not specified		657	1,887,132	10 ⁶ m ³	gas flared	
Latvia	NO	PJ	(e.g. PJ oil produced)	NO	NO	PJ	(e.g. PJ gas consumption)	NO	PJ	(e.g. PJ gas produced)	NO	NO	PJ	(e.g. PJ gas consumption)	NO	Not specified		NO	NO	Not specified		
Liechtenstein	NO	Not specified	oil produced	NO	NO	Not specified	gas consumed	NO	Not specified	gas produced	NO	NO	Not specified	gas consumed	NO	Not specified	gas produced	NO	NO	Not specified	Gas/Oil Produced	
Lithuania	1,381	10 ³ m ³	(conventional oil production and oil transported by tanker truck)	138	67,000	10 ³ m ³	(conventional oil production)	IE	Not specified	km (transmission pipeline)	NO	NO	PJ	(e.g. PJ gas consumption)	NO	Not specified		NO	NO	Not specified		
Luxembourg	NO	Not specified	oil produced	NO	NO	Not specified	gas consumed	NO	Not specified	gas produced	NO	NO	Not specified	gas consumed	NO	Not specified	combined oil and gas production	NO	NO	Not specified	combined oil and gas consumption	
Malta	NA	Not specified		NA	NA	Not specified		NA	Not specified		NA	NA	Not specified		NA	Not specified		NA	NA	Not specified		
Monaco	NO	Not specified		NO	NO	Not specified		NO	Not specified		NO	NO	Not specified		NO	Not specified		NO	NO	Not specified		
Netherlands	IE	10 ⁶ m ³	oil produced	IE	IE	10 ⁶ m ³	oil produced	NO	PJ	gas produced	IE	IE	PJ	gas produced	IE	Not specified		IE	IE	Not specified		
New Zealand	IE	Not specified	(e.g. PJ oil produced)	IE	IE	Not specified	(e.g. PJ gas consumption)	IE	Not specified	(e.g. PJ gas produced)	IE	IE	TJ	(e.g. PJ gas consumption)	IE	Not specified		194	52,119	TJ	venting & flaring from oil & gas	
Norway	IE	Not specified	(e.g. PJ oil produced)	9,456	75,650,118	PJ	Oil flared	IE	Not specified	(e.g. PJ gas produced)	31,614	61,949,876	PJ	Gas flared	1,863	PJ	Oil and gas produced	IE	IE	Not specified		
Poland	IE	10 ³ m ³	oil produced	IE	IE	10 ³ m ³	oil produced	IE	Not specified	NA	IE	IE	10 ³ m ³	gas production	NO	Not specified	NA	NO	NO	Not specified	NA	
Portugal	1,624	Mt	Oil refined	IE	IE	Not specified		NO	Not specified		IE	IE	Not specified		NO	Not specified		IE	IE	Not specified		
Romania	283,264	PJ	(e.g. PJ oil produced)	NE	NE	Not specified	(e.g. PJ gas consumption)	18,000	PJ	(e.g. PJ gas produced)	NE	NE	Not specified	(e.g. PJ gas consumption)	NE	Not specified	(PJ gas and oil produced)	NE	NE	Not specified	(PJ gas and oil combined consumption)	
Russian Federation	1,610	kt	oil produced	IE	IE	kt	oil production	IE	km	length of pipelines	23	3,720	10 ⁶ m ³	gas production	1,820	kt	(NGL production)	12,000	2,000,000	10 ⁶ m ³	(Associated gas flaring)	
Slovakia	6,506	PJ	production	6,506	42	PJ	production	1,200	km	transfer	29,281	187	PJ	production	NO	Not specified		NO	NO	Not specified		
Slovenia	NO	Not specified	(e.g. PJ oil produced)	NO	NO	Not specified	(e.g. PJ gas consumption)	NO	Not specified	(e.g. PJ gas produced)	NO	NO	Not specified	(e.g. PJ gas consumption)	NO	Not specified		NO	NO	Not specified		
Spain	NA	Not specified	(e.g. PJ oil produced)	500	4,336,173	Tg	(e.g. PJ gas consumption)	16,897,252	PJ	gas produced	5,498	56,001,730	PJ	(e.g. PJ gas consumption)	NA	Not specified		IE	IE	Not specified		
Sweden	IE	Not specified	(e.g. PJ oil produced)	1	54,819	TJ	Refinery gas other liquid fuels	IE	Not specified	(e.g. PJ gas produced)	IE	IE	Not specified	(e.g. PJ gas consumption)	IE	Not specified		NA	NA	Not specified		
Switzerland	IE	Not specified		81	192,130	PJ	Crude oil used	IE	Not specified		NO	NO	Not specified		NO	Not specified	(specify)	NO	NO	Not specified		
Turkey	NE	Not specified		NE	NE	Not specified		NE	Not specified		NE	NE	Not specified		NE	Not specified		IE	IE	Not specified		
Ukraine	1,381	10 ³ m ³	oil produced	138	67,000	10 ³ m ³	oil produced	1,072,275	10 ⁶ m ³	gas transmission	11	1,800	10 ⁶ m ³	Natural Gas Produced	IE	Not specified		IE	IE	Not specified		
United Kingdom	NA	Not specified	(e.g. PJ oil produced)	9	2,618	t	(e.g. PJ gas consumption)	NA	Not specified	(e.g. PJ gas produced)	10	2,047	t	(e.g. PJ gas consumption)	IE	Not specified		IE	IE	PJ	Gas flared (tonnes)	
United States	IE	Not specified	oil produced	IE	IE	Not specified	(e.g. Total Natural Gas Consumption)	IE	Not specified	(e.g. Total Natural Gas Produced)	IE	IE	Not specified	(e.g. Total Natural Gas Consumption)	IE	Not specified		IE	58,123,547	10 ¹² Btu	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 emissions factors: IPCC Guidelines, vol. 3, pages 1.119-1.121. For updated detailed emission factors on CH₄ and implied emissions factors on CO₂ and N₂O also look at the IPCC good practice guidance, table 2.16, pages 2.86-2.87.

Table 1.42a

Fugitive emissions from fuels: CO₂ emissions from oil and natural gas - trend information

CO ₂ emissions (Gg)	Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	5,982	6,557	-3.9	3.2	-6.9	-3.3	4.3	8.3	12.6	6.6	-6.5	-10.5	-4.3	-3.2	4.0	6.5	1.7	4.8	9.6
Austria	102	265	8.8	-0.4	-44.0	69.6	17.7	20.2	-3.5	11.1	-8.6	39.5	-9.9	-2.4	13.2	2.2	-10.5	25.0	159.7
Belarus	6	2	-14.3	-4.4	-32.7	-4.1	3.7	-1.6	6.1	-0.5	-3.4	27.1	-22.9	-9.7	-0.5	-7.8	0.5	4.4	-66.9
Belgium	84	117	-1.6	0.3	9.9	0.8	7.3	9.9	50.3	-10.7	3.6	-27.2	-8.1	1.9	25.2	-12.1	1.5	0.6	38.8
Bulgaria	6	3	-9.4	0.6	-18.2	-15.4	-3.9	5.5	-14.5	0.9	-1.5	-17.5	675.0	54.3	-3.1	-41.1	-24.4	-82.3	-52.0
Canada	11,462	16,738	-2.7	3.9	8.0	1.3	9.2	-8.6	-0.4	-2.3	1.3	2.9	-1.5	-2.7	5.0	-4.6	4.8	2.1	46.0
Croatia	416	516	9.6	15.2	-7.6	-6.9	-1.8	-10.8	20.5	8.6	-3.2	2.8	3.8	-2.7	-4.1	0.3	-13.4	-10.3	24.2
Czech Republic	4	17	32.4	13.0	4.0	4.7	25.5	-11.8	-4.6	5.4	38.1	29.9	-3.7	3.0	-15.2	-6.6	-2.3	-8.5	325.0
Denmark	300	258	97.6	-21.1	9.8	40.6	-25.9	112.6	-34.4	6.9	-15.9	3.3	11.1	-27.1	-4.1	-12.6	-10.1	-31.5	-14.1
Estonia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
European Union (27)	19,287	18,228	2.5	4.0	1.7	-4.9	-2.7	-5.7	-1.4	0.1	0.1	0.6	-3.2	1.8	0.5	0.4	-5.8	-1.4	-5.5
Finland	219	115	-4.9	3.1	-9.4	26.4	-26.7	-10.9	0.3	-7.1	4.5	-4.2	-3.7	11.0	-10.2	15.3	6.6	-17.7	-47.2
France	4,508	3,894	6.3	-8.0	2.1	2.1	-1.7	-2.9	0.4	-1.5	-7.4	-1.9	2.4	-1.4	6.4	-4.6	4.4	-7.6	-13.6
Germany	1,715	1,658	12.1	2.1	7.3	-2.0	-1.3	5.6	-4.6	0.6	-0.2	3.8	-6.0	-2.5	-1.2	-7.3	-7.8	-6.4	-3.3
Greece	70	8	1.0	-14.4	12.6	-10.2	-30.6	-94.7	1573.0	-29.4	4.7	-34.9	-1.3	-17.5	-3.7	-23.6	-23.5	41.1	-89.3
Hungary	196	100	-1.6	2.3	-9.6	-9.2	-7.8	-3.9	-7.7	-10.0	-1.0	6.6	-4.8	36.3	-20.2	-9.1	2.9	3.7	-48.8
Iceland	67	175	0	22.6	0.6	-13.1	31.8	30.7	33.0	-5.5	3.1	-13.5	-10.0	-0.6	26.8	-3.2	22.2	-5.5	162.7
Ireland	IE, NO	IE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Italy	3,344	2,170	-2.3	-1.6	-4.4	6.9	-3.8	-22.9	7.5	-5.6	-7.3	25.4	-24.1	-1.7	3.6	-0.6	3.8	-4.2	-35.1
Japan	37	35	46.5	-0.4	-3.1	-2.8	-10.9	-10.9	-5.3	-10.0	-4.6	11.4	1.6	7.4	-4.5	4.6	0.9	-7.1	-4.0
Kazakhstan	5,847	3,260	2.8	1.8	11.2	12.3	0.6	21.1	-12.1	-27.0	1.3	-9.9	24.1	-2.0	16.6	-12.6	-33.4	-5.2	-44.3
Latvia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Liechtenstein	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	1	10	160.1	37.1	23.7	36.5	28.0	-14.5	36.2	48.9	-7.9	-11.9	-21.0	-28.2	-16.1	-15.0	-17.0	-9.9	807.6
Luxembourg	0	0	3.7	14.0	9.4	2.3	0.8	3.5	2.6	11.4	43.1	1.4	10.9	-1.6	4.9	-6.4	-4.4	1.1	158.7
Malta	NA, NE, NO	NA, NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	775	1,066	-8.6	-13.2	-13.0	28.8	-37.3	-29.3	22.0	-36.3	559.0	-6.7	-4.5	7.6	-0.5	5.6	-18.5	15.9	37.6
New Zealand	459	1,374	20.7	-7.5	33.2	9.4	-3.0	-12.9	-3.7	4.7	-4.4	2.9	41.3	6.0	4.9	6.3	21.6	10.8	199.4
Norway	2,650	2,428	-20.7	-1.1	16.0	-8.3	3.3	21.3	5.8	-8.3	-14.2	-2.2	-5.3	-2.4	-3.2	44.9	-16.4	-21.1	-8.4
Poland	46	188	-0.2	2.5	8.6	-7.9	23.6	19.5	49.8	17.3	-5.6	5.2	15.9	-4.1	-6.0	-9.5	6.0	-9.9	308.5
Portugal	156	646	2.7	32.8	-10.5	23.6	-2.9	-4.0	-10.9	28.1	-1.2	9.5	-3.7	-9.2	3.6	11.0	4.8	-15.1	315.1
Romania	IE, NE, NO	26	-14.2	-0.3	-1.8	-4.2	-1.7	-2.9	-1.4	-0.9	-2.3	-2.3	-3.3	-4.5	-7.4	-5.1	-0.9	-6.7	*
Russian Federation	22,483	26,143	3.2	7.5	1.3	7.5	0.6	8.2	-0.4	1.4	43.2	-1.7	14.4	4.8	1.5	21.2	-15.3	-13.2	16.3
Slovakia	0	0	-9.0	9.6	2.1	0.8	6.8	-0.1	6.5	2.4	-3.2	6.5	-4.5	-7.0	3.0	-14.4	-1.5	63.6	65.5
Slovenia	0	0	2.4	13.9	-18.7	-13.8	14.9	-3.2	-4.0	-5.2	-7.0	-3.6	-8.5	-1.6	-3.2	-2.1	-1.5	-4.8	-55.4
Spain	1,656	2,191	-2.0	-11.5	-2.4	4.1	4.6	3.1	7.1	-5.5	2.7	-10.8	14.1	-1.2	6.2	9.3	-9.8	1.5	32.3
Sweden	304	898	-17.4	15.9	-4.9	-1.4	6.7	0.1	17.0	-10.2	-4.2	5.4	-2.9	1.0	174.3	4.6	-0.5	1.1	195.5
Switzerland	91	58	17.6	-7.4	7.5	-3.9	-5.7	-9.9	-4.6	3.0	-4.7	-4.9	6.5	-5.9	9.6	-11.5	4.7	-4.2	-36.3
Turkey	NA, NE	NA, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	371	285	-8.4	-2.3	0.2	-0.2	-7.1	-0.8	-1.5	0.0	0.5	6.6	6.6	4.3	4.3	-0.8	-2.9	-6.2	-23.3
United Kingdom	5,778	4,599	-1.1	21.1	5.7	-21.6	-1.0	-14.4	-4.9	3.5	-4.8	-5.2	-2.9	12.7	-15.0	3.3	-15.5	7.6	-20.4
United States	38,130	32,634	0.6	3.8	-5.8	-1.1	-24.8	3.4	-2.5	-1.7	2.8	-3.9	-1.3	4.2	2.8	0.9	5.6	-1.9	-14.4

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

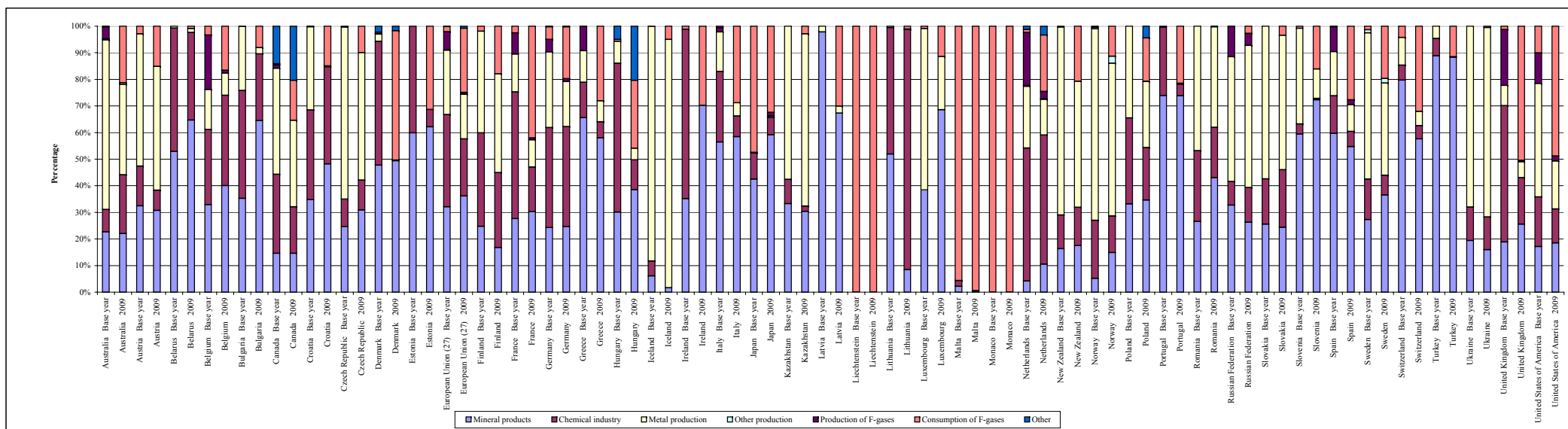
Table 1.42b

Fugitive emissions from fuels: CH₄ emissions from oil and natural gas - trend information

CH ₄ emissions (Gg)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	331	208	-10.2	19.9	-8.5	4.1	-2.9	-16.9	8.2	2.2	-5.9	-6.9	-2.5	-3.8	-5.1	-5.6	8.9	-9.0	-37.3
Austria	9	13	-0.1	3.5	-0.1	0.6	-1.8	-5.4	1.0	-0.9	-1.0	1.6	10.9	2.7	4.2	3.5	1.1	6.6	38.6
Belarus	59	70	-10.1	-4.1	8.4	8.8	-3.9	-2.2	6.9	0.5	0.9	3.9	6.1	-2.7	4.8	10.1	-4.6	-15.7	19.6
Belgium	25	18	-0.9	1.1	-2.9	-5.5	-3.5	0.3	-2.9	-1.7	-4.7	-4.5	-1.7	4.1	-0.8	-0.5	-5.3	1.1	-26.1
Bulgaria	51	17	-23.6	15.8	0.1	6.6	-20.9	-22.0	25.7	-10.5	-13.3	1.7	21.3	19.5	0.3	-0.9	-5.4	-36.0	-67.1
Canada	1,365	2,058	3.9	6.9	7.5	3.5	1.9	-1.5	5.3	1.6	-1.6	1.4	1.3	-1.1	0.9	-1.6	-2.8	-4.2	50.7
Croatia	57	70	-6.2	1.1	-0.1	6.0	-13.0	-1.0	6.0	11.7	4.1	0.8	2.1	0.0	10.6	9.9	-5.6	-3.5	22.6
Czech Republic	43	32	-14.7	0.0	8.3	-1.8	5.2	-2.3	-5.0	-6.1	2.9	-8.8	-7.1	19.5	2.2	0.2	-8.5	6.4	-24.5
Denmark	2	6	24.1	14.2	-2.1	6.4	-1.5	13.0	3.0	4.7	0.7	2.4	19.3	-0.2	25.5	-5.1	-0.5	-8.2	168.1
Estonia	38	16	0.0	15.0	10.7	-2.7	-5.4	-2.6	14.7	7.7	-16.4	10.5	17.9	3.0	1.3	-0.5	-4.3	-32.4	-57.6
European Union (27)	2,838	1,840	-5.9	-1.2	-0.2	-7.0	-0.9	-4.3	-0.7	0.2	-1.1	-1.5	-2.2	-1.5	-3.3	-1.6	-1.1	-3.6	-35.2
Finland	1	2	273.0	-0.5	3.4	-13.2	1.8	-19.0	-6.8	23.1	-15.8	7.9	-10.6	16.4	-13.4	-7.7	-4.4	-5.9	312.8
France	74	50	-2.6	-3.5	-3.9	-0.3	0.2	-0.8	-0.1	-1.1	-0.2	-0.6	-1.3	-4.9	-0.4	1.2	0.7	-12.2	-32.9
Germany	363	350	4.9	-12.9	4.5	-3.1	0.0	-2.0	-1.2	2.2	-1.0	-0.7	-1.9	0.3	-0.9	-2.2	-0.6	-8.8	-3.6
Greece	4	8	-3.1	-6.2	94.9	5.7	12.7	-16.6	27.8	0.8	-0.5	4.6	1.8	-1.3	7.5	2.8	4.1	3.3	87.8
Hungary	77	99	3.6	5.6	2.2	1.1	1.0	-1.2	1.2	-1.8	-0.9	1.9	0.9	0.0	0.6	0.3	-1.8	2.2	28.5
Iceland	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	6	2	-2.8	-3.2	-3.6	-4.1	-12.7	-3.0	-4.8	7.8	-24.7	804.6	-89.4	-14.1	-17.1	27.0	-13.9	-31.4	-73.0
Italy	348	234	-0.4	-3.3	-1.6	-0.5	1.4	-2.9	-3.4	-5.7	-0.5	-2.5	-2.4	-0.5	-9.6	-3.4	1.4	-1.9	-32.8
Japan	11	17	11.1	-0.5	-0.7	2.7	-1.8	-1.1	4.3	-2.2	7.5	2.6	3.7	5.1	5.6	7.2	-0.6	-4.0	50.8
Kazakhstan	434	314	3.1	12.1	-5.7	-39.9	-5.8	6.5	7.0	21.0	-4.4	14.3	17.5	13.6	4.1	11.4	5.1	-7.3	-27.7
Latvia	13	5	-3.7	-2.6	-3.6	-6.7	-4.1	-4.7	-7.5	-3.0	4.3	-21.8	-1.1	11.8	-27.5	2.6	2.7	-5.4	-61.6
Liechtenstein	0	0	18.1	8.5	9.8	3.7	8.7	6.8	4.0	7.1	5.4	5.8	5.2	12.6	3.5	0.6	2.8	-5.7	223.1
Lithuania	7	12	5.0	6.9	3.1	5.9	9.1	-0.9	4.6	7.4	-1.0	-0.3	-1.4	4.7	0.7	-0.4	2.4	3.2	74.3
Luxembourg	1	2	3.7	14.0	9.4	2.3	0.8	3.5	2.6	11.4	43.1	1.4	10.9	-1.6	4.9	-6.4	-4.4	1.1	158.7
Malta	NA, NE, NO	NA, NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	0	0	16.8	4.7	-1.5	-3.9	4.1	5.3	9.5	-2.0	5.0	-0.6	0.9	2.2	6.9	-4.9	4.2	-5.7	25.3
Netherlands	78	36	0.1	-0.2	-7.4	-33.7	1.1	-14.1	-7.1	-1.8	-4.0	-0.6	-5.4	5.7	-7.4	8.7	4.3	-4.2	-53.5
New Zealand	24	26	4.8	-5.3	16.8	16.2	-9.1	14.7	-0.7	4.6	-4.9	-17.8	-14.3	0.2	2.6	14.2	0.7	-0.3	8.7
Norway	15	28	11.4	-1.7	4.1	11.9	-6.1	-6.0	18.1	14.9	-9.8	2.8	9.1	-13.8	-10.2	14.0	-9.6	-6.7	85.1
Poland	164	205	-5.2	8.9	4.7	-0.3	1.3	-3.0	8.2	4.5	-2.4	10.1	6.0	2.6	0.9	0.0	1.0	-2.1	24.8
Portugal	2	31	-4.9	-3.8	-11.1	84.9	66.1	29.1	-6.3	150.8	16.6	16.4	-38.5	-59.4	0.0	18.4	125.0	40.3	1170.9
Romania	1,039	386	-15.5	1.3	-1.3	-17.2	-3.4	-5.4	-0.8	-2.3	0.0	7.1	-5.0	-4.9	-1.8	-6.8	-2.4	-11.2	-62.9
Russian Federation	16,153	16,234	0.8	-3.3	0.2	-6.5	5.0	0.1	3.0	0.1	3.6	3.8	2.2	0.8	2.5	1.0	0.3	6.0	0.5
Slovakia	24	38	2.1	9.6	2.1	0.8	6.8	-0.1	6.5	2.3	-3.2	6.5	-4.5	-6.9	0.5	10.3	-1.5	8.2	54.4
Slovenia	3	1	2.4	-5.1	-3.3	-4.5	-7.5	-3.2	-4.2	-5.4	-7.0	-3.6	-8.5	-1.7	-3.2	-2.1	-1.5	-4.8	-48.2
Spain	29	25	15.8	2.0	-5.4	16.2	5.9	-28.1	11.8	11.6	9.5	-28.3	20.1	10.7	-34.0	-10.6	1.4	3.6	-13.7
Sweden	1	1	-1.1	1.7	2.8	3.6	-0.5	-5.2	5.7	-3.6	-3.8	2.6	5.1	-5.4	1.3	-7.5	15.3	-7.9	11.8
Switzerland	18	8	-5.1	-7.6	-8.1	-5.9	-2.0	3.1	-7.4	2.0	-10.9	-9.7	-1.3	-1.2	-1.8	-1.0	1.5	0.0	-54.4
Turkey	NA, NE	NA, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	1,524	990	-7.3	-4.2	1.7	-3.4	-7.1	1.6	-0.9	-1.8	0.1	7.2	1.9	2.2	-0.3	-1.5	-2.8	-10.9	-35.1
United Kingdom	492	251	-2.1	0.9	-2.8	-5.6	-2.2	-4.6	-4.3	0.7	-3.0	-25.6	4.3	-4.0	-5.8	4.2	-7.3	0.0	-49.0
United States	10,723	12,007	0.9	0.2	1.6	-0.3	-0.3	-2.9	5.9	2.5	0.5	-1.5	-4.0	-6.4	12.4	-4.8	2.9	4.2	12.0

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Figure 2.1
Contribution of subsectors to total GHG emissions in Industrial processes^a



^a In accordance with the UNFCCC reporting guidelines on annual GHG inventories of Annex 1 Parties, the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 2.1

Mineral products - CO₂ (2009)

	Methods and EF used ^a		Key category	Share of national total (%)	Cement production			Lime production		
	Methods	EF			Description ^b	Activity data (production)		Key category	Share of national total (%)	CO ₂ IEF (t/t)
						Value	CO ₂ IEF			
						(kt)	(t/t)			
IPCC default EF ^c							0.499 (cement)			
IPCC default EF ^d							0.51 (clinker)			0.59-0.86
Australia	T2	CS	L	0.7	Clinker production	6,986	0.55		0.2	0.8
Austria	CS, T1, T3	CS, D, PS	L, T	2.2	Clinker Production [kt]	3,428	0.52	L	0.6	0.7
Belarus	D, T1, T2	D	L, T	2.1	Used clincer production data	3,602	0.52		0.7	0.7
Belgium	T3	CS, PS	L, T	2.2	2.A.1-Cement Production,,,Activity Data,,, (kt)	5,132	0.54	L, T	1.1	0.8
Bulgaria	T1, T2	CS, D, PS	L	1.7	Klinker - kt	1,859	0.54	L	1.1	0.8
Canada	T1, T2	CS, D	L, T	0.7	Clinker Production Data	9,876	0.52	T	0.2	0.7
Croatia	T1, T2	CS, D	L, T	4.2	(e.g. cement or clinker production)	2,488	0.49		0.5	0.8
Czech Republic	CS, T1, T3	CR, CS, D, PS	L	1.2	(clinker production)	2,923	0.54	L, T	0.5	0.7
Denmark	CS, T1	CS, D, PS	L	1.2	Production of Clinker	1,493	0.51		0.1	0.7
Estonia	T1, T2	D, PS	L, T	1.5	Clinker production	477	0.54		0.1	0.7
European Union (27)	CR, CS, D, OTH, T1, T2, T3	CR, CS, D, OTH, PS	L	1.8	2.A.1-Cement Production,,,Activity Data,,, (kt)	NE	NE	L	0.4	NE
Finland	T2	CS, D	L, T	0.6	clinker production	764	0.50	L	0.5	0.7
France	CR	D, PS	L, T	1.5	kt of Clinker	14,568	0.53		0.4	0.7
Germany	T1, T2	CS, D	L	1.3	(clinker production)	23,232	0.53	L	0.5	0.8
Greece	CS, T1	CS, D, PS	L, T	3.7	clinker production	8,649	0.53		0.2	0.8
Hungary	CS, D, T2	CS, D, PS	L	1.5	Clinker Production	1,883	0.52		0.3	0.8
Iceland	D, T2	D, PS	T	0.6	clinker production	52	0.54		-	NO
Ireland	T1, T2	D, PS	L, T	2.1	Clinker production	2,438	0.54		0.3	0.8
Italy	D, T2	CS, D, PS	L, T	2.7	(clinker production)	25,259	0.53		0.3	0.6
Japan	CS, D, T2	CS, D	L, T	2.0	Clinker produced	49,195	0.50		0.4	0.4
Kazakhstan	D, T1a	D	L	0.7	clinker produced	3,922	0.52	T	0.2	0.8
Latvia	CR, T1, T2, T3	D, OTH, PS	L	1.7	clinker production	341	0.52		0.1	0.8
Liechtenstein	NA	NA	-	-	Production	NO	NO		-	NO
Lithuania	CS, T1, T2	CS, D, PS	L, T	1.3	(clinker production)	522	0.55	T	0.0	0.8
Luxembourg	CS, T2	CS, PS	L, T	3.2	clinker production	708.048	0.53		-	NO
Malta	CS, D	CS, D	-	-	(not occuring)	NO	NO		-	NO
Monaco	NA	NA	-	-		NO	NO		-	NO
Netherlands	CS	CS, D, PS		0.2	Clinker production	800	0.52		-	IE
New Zealand	T1a, T2	D, PS	L	0.8	Cement production	C	C		0.2	0.7
Norway	T2	CS	L, T	1.6	Production quantity	1,528	0.55		0.3	0.4
Poland	T1, T2, T3	CS, D, OTH, PS	L, T	1.5	Clinker production	10,659	0.54	T	0.3	0.8
Portugal	CR, D, OTH, T3	CR, CS, D, OTH	L, T	4.3	Total clinker production	6,164	0.52		0.5	0.8
Romania	CR, CS, D, OTH, T2	CR, D, PS	L, T	2.4	(clinker production data)	5,802	0.53	L	1.2	C
Russian Federation	D, T2	CS, D	L	0.9	(clinker production)	37,559	0.53		0.3	0.7
Slovakia	T3	PS	L, T	2.8	Clinker Production	2,348	0.51	L, T	1.6	0.8
Slovenia	CS, D, T2	CS, D	L, T	2.2	Clinker produced	801	0.54	T	0.4	0.7
Spain	CS, D, T2	CS, D, PS	L, T	3.1	Clinker production	21,595	0.53		0.4	0.8
Sweden	CS, D, T2	CS, D, PS	L, T	2.1	Produced amount of clinker	2,305	0.56	L, T	0.7	0.8
Switzerland	CS, D, T2	CS, D	L, T	3.3	clinker production	3,281	0.53		0.1	C
Turkey	T1, T2	CS, D	L, T	6.9	clinker	49,009	0.52	L, T	0.7	0.7
Ukraine	T1, T2, T3	CS, D	L, T	0.7	clinker production	5,038	0.51	L	0.8	0.8
United Kingdom	T2	CS, D	L, T	0.7	clinker production kt	C	C		0.1	0.4
United States	CS, T1, T2	CS, D	T	0.4	Clinker Production	56,116	0.52		0.2	0.8

^a 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 2.A Mineral products.

^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: IPCC Guidelines, volume 3, page 2.6.

^d Source of default emission factors: IPCC good practice guidance, pages 3.13 and 3.22.

Table 2.2a

CO₂ emissions from cement production - trend information

CO ₂ emissions (Gg)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	3,463	3,829	-8.1	-3.6	-3.4	-1.8	9.1	1.3	2.9	-2.2	-1.5	2.8	-0.8	3.1	6.1	2.1	-2.7	-0.9	10.6
Austria	2,033	1,799	-1.4	-22.4	0.2	7.8	-9.2	0.5	6.5	0.5	0.9	1.1	2.0	0.4	8.7	9.0	0.1	-15.7	-11.5
Belarus	991	1,874	-3.9	-10.6	14.1	29.2	10.5	-3.3	-2.7	-5.1	19.4	18.6	11.0	12.6	7.2	3.6	12.0	3.4	89.1
Belgium	2,824	2,795	2.0	2.4	-7.6	5.1	0.4	-1.9	5.0	-9.6	1.2	-2.0	-3.3	3.4	6.1	-0.8	-1.8	-7.8	-1.0
Bulgaria	2,406	1,000	-41.0	38.3	-1.6	-19.8	-28.9	-1.1	9.5	1.4	-1.1	4.8	13.5	12.0	-4.2	27.7	-4.0	-46.3	-58.5
Canada	5,436	5,108	-18.2	13.2	-5.3	7.6	2.6	4.2	1.5	-2.8	3.0	1.1	4.2	1.2	1.9	0.1	-9.6	-22.8	-6.0
Croatia	1,086	1,224	-35.3	-25.3	8.9	15.7	7.7	30.7	11.5	14.5	-2.2	-0.6	6.3	2.0	5.9	1.5	-5.3	-19.8	12.7
Czech Republic	2,489	1,566	-7.2	-9.2	5.6	-1.6	-0.8	-5.1	-1.3	-15.9	-13.8	6.9	10.7	-2.2	7.6	16.9	-2.3	-21.5	-37.1
Denmark	882	764	23.3	1.0	6.5	12.4	-3.6	-2.5	2.2	0.2	2.0	-6.1	9.7	-6.5	2.4	0.8	-17.9	-33.8	-13.4
Estonia	483	257	-0.8	5.4	3.9	9.6	1.9	-10.5	3.5	1.6	-6.2	-5.9	8.8	2.2	10.9	44.2	1.0	-57.4	-46.8
European Union (27)	101,481	80,939	-7.7	3.8	-3.2	2.4	2.2	0.9	1.0	-2.9	-0.7	1.2	4.2	0.2	2.4	4.5	-7.1	-18.7	-20.2
Finland	734	382	-22.0	4.0	1.0	17.6	-0.3	6.8	5.6	-0.3	-3.6	-3.8	13.4	4.5	3.2	4.5	6.5	-40.2	-47.9
France	10,937	7,679	-5.0	-1.6	-2.3	-3.8	7.1	-3.5	2.1	1.1	-0.1	-1.0	5.9	0.5	0.6	1.8	-4.9	-13.5	-29.8
Germany	15,146	12,313	-10.2	1.4	-4.8	3.1	1.8	1.5	-3.3	-11.5	-5.0	5.3	4.2	-7.2	2.2	8.3	-6.0	-8.4	-18.7
Greece	5,641	4,582	-0.8	7.4	0.3	0.5	-0.4	-0.3	2.7	0.4	-3.8	0.9	-0.1	6.7	-2.8	-2.9	-3.5	-24.3	-18.8
Hungary	1,778	973	-37.3	0.3	-6.2	5.7	3.7	0.5	10.8	0.9	4.9	-1.7	-7.7	-10.6	8.1	2.5	-5.1	-22.8	-45.3
Iceland	52	28	-6.9	0.8	10.8	11.4	17.0	13.6	6.7	-10.5	-33.7	-16.1	55.1	8.4	13.2	3.5	-3.7	-53.8	-45.5
Ireland	884	1,327	-11.5	2.3	11.8	16.5	-7.5	10.1	45.9	8.8	0.5	14.4	7.9	2.7	-0.4	1.1	-11.3	-37.0	50.1
Italy	16,084	13,454	-1.0	11.0	-8.6	1.8	2.1	5.1	3.8	3.6	-0.4	4.2	1.5	-1.0	0.4	2.5	-10.0	-16.6	-16.4
Japan	37,905	24,755	4.3	-0.4	1.0	-6.2	-11.4	-1.0	0.3	-2.1	-5.7	-1.5	-2.1	3.2	-0.9	-4.2	-6.9	-11.4	-34.7
Kazakhstan	3,271	2,041	-8.6	-26.5	-21.5	-40.3	-4.5	28.2	49.2	69.5	0.0	26.8	41.6	-7.1	3.3	26.5	-8.3	20.4	-37.6
Latvia	366	179	-10.6	17.6	12.9	1.7	-2.8	32.0	-36.3	23.9	7.4	10.4	5.7	-2.9	25.6	1.3	-2.3	6.6	-51.1
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	1,668	287	-7.1	-19.3	3.1	15.3	12.5	-16.0	-15.4	-3.1	2.5	0.7	20.0	9.2	34.6	1.5	-13.3	-36.8	-82.8
Luxembourg	570	378	-4.5	-10.9	-1.4	3.3	0.4	4.9	5.6	-12.8	3.4	-12.2	9.8	-1.8	-1.0	-1.2	-6.8	-6.4	-33.7
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	416	416	19.7	-7.6	-26.2	19.0	14.9	19.7	-9.3	1.9	2.3	-11.2	2.8	-5.6	-4.9	0.8	-1.0	4.3	0.1
New Zealand	445	594	-2.5	8.4	-5.3	4.3	-8.2	8.8	-0.3	0.8	3.0	-3.1	-8.7	18.4	-5.6	26.4	-7.1	-6.4	33.5
Norway	634	842	-6.7	3.6	-1.4	6.9	-2.4	-0.9	-0.3	-4.1	2.6	3.3	-20.8	8.9	3.2	8.0	-4.2	1.1	32.7
Poland	7,082	5,757	-0.7	0.4	-6.7	8.4	-6.0	-2.5	-1.0	-18.9	-5.8	-2.2	11.0	-0.3	18.3	17.8	-5.1	-14.0	-18.7
Portugal	3,176	3,223	3.0	5.2	-2.1	5.1	-0.7	8.2	-0.5	-4.8	7.8	-7.5	10.7	2.1	-2.1	4.1	-3.7	-19.7	1.5
Romania	5,572	3,093	-28.0	13.5	1.7	-6.1	-3.0	-9.3	0.4	4.2	-4.6	0.3	12.9	6.1	15.1	10.9	2.9	-25.3	-44.5
Russian Federation	34,609	19,746	-5.1	1.0	-23.6	-3.5	-2.9	10.5	14.7	5.0	7.9	9.1	12.0	6.4	10.3	12.6	-14.5	-16.4	-42.9
Slovakia	1,438	1,199	-29.1	3.5	-4.7	10.4	50.0	0.3	-34.9	1.6	-3.6	-20.9	32.0	3.2	10.6	6.9	8.5	-24.2	-16.6
Slovenia	515	433	-11.4	6.1	7.4	1.2	4.2	1.0	5.4	3.0	-12.1	1.6	4.7	2.8	5.1	6.2	9.4	-28.7	-15.8
Spain	12,279	11,402	-4.7	7.5	-2.0	5.3	8.3	4.5	2.1	1.9	3.4	3.3	1.6	3.1	-0.3	0.5	-14.5	-20.8	-7.1
Sweden	1,272	1,289	-10.6	16.8	-5.5	-9.8	2.5	0.5	13.0	3.4	-3.8	-5.8	6.5	4.4	9.6	-7.1	4.4	-9.5	1.4
Switzerland	2,525	1,737	-12.9	-5.7	-10.0	-10.3	0.0	-0.1	7.4	1.9	-3.8	-2.2	6.0	6.6	-0.2	1.9	-1.3	-5.2	-31.2
Turkey	10,535	25,494	12.1	4.7	2.8	3.1	1.5	-4.1	3.5	-0.7	2.6	3.1	7.8	11.0	5.0	8.9	7.6	9.6	142.0
Ukraine	9,287	2,571	-5.1	-31.7	-36.6	11.8	15.4	-9.2	-10.8	9.5	13.9	28.2	17.9	12.2	14.6	12.4	1.6	-58.4	-72.3
United Kingdom	7,295	3,720	-17.8	-1.3	2.1	4.6	1.9	-4.5	-3.0	-7.7	2.5	-2.0	1.9	-0.6	-0.8	3.8	-14.9	-28.5	-49.0
United States	33,278	29,018	-2.2	0.3	0.5	3.3	2.5	2.0	2.8	0.4	3.9	0.4	5.8	0.9	1.3	-2.7	-9.0	-28.4	-12.8

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 2.2b

CO₂ implied emission factors for cement production - trend information

CO ₂ IEF (t/t)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	0.558	0.548	-0.1	0.4	0.0	0.1	-0.5	-0.9	-0.1	-0.2	-0.4	-0.6	0.3	0.5	-0.2	-0.4	0.0	0.1	-1.8
Austria	0.551	0.525	0.2	0.4	0.7	1.2	-1.8	-0.2	0.9	0.2	-0.9	1.0	-1.2	0.5	-4.1	-0.2	0.0	-1.7	-4.7
Belarus	0.520	0.520	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Belgium	0.534	0.545	0.2	0.0	-0.2	0.1	0.0	-0.1	0.1	-0.6	0.4	3.8	-1.4	-3.8	2.4	-0.5	-0.1	1.3	2.1
Bulgaria	0.531	0.538	0.0	0.2	-0.1	0.1	0.7	1.1	0.0	0.1	-0.3	0.0	-0.1	-0.6	-0.1	0.2	-0.3	1.4	1.4
Canada	0.517	0.517	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Croatia	0.516	0.492	-0.2	-1.3	-0.1	-1.5	0.1	0.2	0.7	-0.5	-0.7	-0.4	0.3	-0.6	-0.2	-0.3	0.0	-1.5	-4.7
Czech Republic	0.527	0.536	0.4	0.4	0.4	1.1	1.1	0.6	-1.0	0.7	-0.1	0	0	-3.1	-0.3	0.1	-0.3	0.9	1.7
Denmark	0.628	0.512	-4.3	-5.9	1.0	12.2	-2.6	0.5	-0.5	-1.2	1.1	-0.3	-0.7	-3.2	-2.0	-1.9	-2.2	0.6	-18.4
Estonia	0.531	0.538	1.5	-0.4	-0.4	-0.5	0.5	0.0	-1.5	0.0	0.0	0.3	1.5	1.2	0.0	0.2	0.1	0.4	1.5
European Union (27)	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Finland	0.499	0.500	0.0	0.0	0.1	-0.4	0.1	0.0	0.1	-0.1	0.2	0.0	0.1	0.2	-0.1	-0.3	0.0	0.1	0.1
France	0.524	0.527	0.0	0.0	0	0.0	0	0	0	0	0	0	0.7	-0.5	-1.6	0.1	1.7	0.2	0.5
Germany	0.530	0.530	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Greece	0.530	0.530	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	-0.1	0.8	-1.3	-1.2	2.2	-0.6	0.0
Hungary	0.560	0.517	-2.7	0.2	2.1	-1.6	0.2	0.1	-0.7	1.3	-1.5	-2.0	-0.2	-5.2	0.4	0.7	-0.9	1.1	-7.8
Iceland	0.532	0.542	0	0	0	0	0	0	0	0	0	0	0	2.3	0	1.3	0.2	-1.8	1.9
Ireland	0.549	0.544	0.0	0.0	-0.1	0.0	0.0	0.0	-0.3	-0.1	-0.3	-1.6	-0.1	0.0	-0.4	0.2	1.2	0.6	-0.9
Italy	0.540	0.533	0	0	0	0	0	0	0	0	0	0	-1.5	-1.2	0.1	0.9	-2.4	2.8	-1.4
Japan	0.497	0.503	0	0	0	0	0	0	-0.5	0.5	0.1	0.2	0.2	0.2	0.0	0.0	0.2	0.3	1.2
Kazakhstan	0.531	0.520	0.0	-0.1	0.1	0.3	-0.3	0.0	0.0	0.1	0.0	0.0	0.1	0.0	-0.3	0.2	0.0	-1.8	-2.0
Latvia	0.548	0.525	-3.3	0.4	0.1	-0.1	0.2	-1.8	0.3	1.9	-1.3	1.2	-2.0	-4.9	0.8	-1.0	-1.2	4.6	-4.2
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	0.546	0.550	-0.5	-1.8	-0.1	1.1	-0.2	0.0	-1.0	1.3	1.1	0.2	-0.2	-5.2	2.7	0.5	-0.5	1.9	0.8
Luxembourg	0.544	0.534	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0.7	-1.8
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	0.540	0.520	0	0.1	-0.2	0.2	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	-4.3	-1.5	-6.4	0.8	8.2	-3.7
New Zealand	C	C	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Norway	0.510	0.551	1.2	-0.2	0.3	-0.4	3.4	-0.2	0.6	-0.7	0.0	0.4	0.6	-0.9	-0.5	-0.6	2.3	1.5	8.1
Poland	0.529	0.540	0	0	0	0	0	0	0	0.4	-0.2	-0.4	-0.2	1.3	-0.1	0.4	0.5	0.4	2.1
Portugal	0.518	0.523	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.1	0.2	-1.0	1.0	-0.3	1.0	0.8
Romania	0.527	0.533	-0.1	0.0	0.0	0.0	0.1	0.3	-0.3	0.0	-0.1	0.1	-0.4	0	0.0	0.0	1.4	0.1	1.1
Russian Federation	0.526	0.526	0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slovakia	0.507	0.510	0	0	0	0	0	0	-0.4	-0.7	0.9	1.9	2.0	-0.3	0.5	-2.0	0.7	-1.7	0.7
Slovenia	0.541	0.541	0	0	0	0	0	0.1	-0.2	0.0	0.0	0.1	-0.4	0.2	-0.4	0.5	0.0	0.0	-0.1
Spain	0.529	0.528	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.3	0.6	0.4	0.2	-0.2
Sweden	0.542	0.559	0.0	-0.8	0.8	-0.6	-0.3	0.0	0.1	-0.1	0.2	0.0	-0.2	1.3	1.3	-0.9	-1.6	3.8	3.2
Switzerland	0.525	0.529	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	-0.5	0.1	0.1	0.0	0.8
Turkey	0.520	0.520	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ukraine	0.532	0.510	0.0	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	0	0.0	-1.4	-0.8	0.0	0.6	-0.3	-1.0	-4.1
United Kingdom	C	C	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
United States	0.517	0.517	0	0	0	0	0.0	0.0	0	0	0.0	0.0	0	0	0.0	0	0	0.0	0

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 2.3

Chemical industry - CO₂ and N₂O (2009)

	CO ₂						N ₂ O								
	Methods and EF used ^a		Ammonia production				Methods and EF used ^a		Nitric acid production			Adipic acid production			
	Methods	EF	Key category	Share of national total	Activity data (production)	CO ₂ IEF	Methods	EF	Key category	Share of national total	Activity data (production)	N ₂ O IEF	Key category	Share of national total	N ₂ O IEF
				(%)	(kt)	(t/t)				(%)	(kt)	(t/t)		(%)	(t/t)
IPCC default EF ^b					1.5-1.6						0.002-0.019			0.59-0.86	
Australia	CS, T1b, T2	CS, D		-	C	IE	CS, T3	CS		-	C	IE		-	NO
Austria	CS, T2	CS, PS	L	0.6	449	1.1	CS	PS	T	0.2	496	0.001		-	NO
Belarus	T2	CS	L	1.5	1,009	1.3	T1	D		0.0	1	0.005		-	NO
Belgium	T3	D, PS	L, T	0.7	684	1.2	T3	PS	L, T	1.2	1,563	0.003		-	NO
Bulgaria	D, T2	D, PS	L, T	1.0	C	C	T3	PS	T	0.5	C	C		-	NO
Canada	D	CS	L	0.9	3,982	1.6	CS, D, T3	CS, D		0.2	1,093	0.003	T	0.1	C
Croatia	T1a	PS	L	1.5	375	1.2	T1	PS	L, T	2.2	261	0.008		-	NO
Czech Republic	T1	CS	L	0.5	264	2.4	CS, T1	CS, PS		0.4	505	0.003		-	NO
Denmark	CS	D		-	NO	NO	NA	NA	T	-	NO	NA, NO		-	NO
Estonia	T1a	PS	T	0.2	23	1.3	NA	NA		-	NO	NO		-	NO
European Union (27)	CR, CS, D, T1, T1a, T1b, T2, T3	CR, CS, D, OTH, PS	L	0.5	NE	NE	CR, CS, D, T1, T2, T3	CR, CS, D, OTH, PS	T	0.4	NE	NE	T	0.2	NE
Finland	T2	CS, D		-	NO	NO	T2	PS	L, T	1.2	477	0.005		-	NO
France	CR	PS	L, T	0.4	1,184	1.8	CR	PS	T	0.4	2,337	0.003	T	0.3	C
Germany	CS, T2, T3	CS, D, PS	L, T	0.7	2,747	2.5	T3	PS		0.4	2,247	0.005	L, T	0.9	C
Greece	T1a	CS		0.2	103	1.8	D	D	T	0.3	169	0.007		-	NO
Hungary	D, T2	D	L, T	0.6	177	2.4	T2	PS	T	0.0	440	0.000		-	NO
Iceland	NA	NA		-	NO	NO	NA	NA		-	NO	NO		-	NO
Ireland	NA	NA	T	-	NO	NO	NA	NA	T	-	NO	NO		-	NO
Italy	D	CR, PS	T	0.1	354	2.0	D	D, PS	T	0.1	419	0.003	T	0.2	0.03
Japan	T1	CS		0.2	1,078	1.8	D, T1	CS, PS		0.0	461	0.003	T	0.1	C
Kazakhstan	T1	D		0.1	101	1.5	NA	NA		-	NO	NO		-	NO
Latvia	NA	NA		-	NO	NO	NA	NA		-	NO	NO		-	NO
Liechtenstein	NA	NA		-	NO	NO	NA	NA		-	NO	NO		-	NO
Lithuania	T2	PS	L, T	5.8	574	2.2	T1	D	L, T	9.4	932	0.007		-	NO
Luxembourg	NA	NA		-	NO	NO	NA	NA		-	NO	NO		-	NO
Malta	D	D		-	NO	NO	NA	NA		-	NO	NO		-	NO
Monaco	NA	NA		-	NO	NO	NA	NA		-	NO	NO		-	NO
Netherlands	CS, T1, T1b	CS, D, PS	L	1.4	C	C	T2	PS	T	0.2	C	C		-	NO
New Zealand	T2	CS, PS		0.5	260	1.5	NA	NA		-	NO	NO		-	NO
Norway	T2	CS, D	L, T	0.7	361	1.4	CS, T2, T3	PS	L, T	0.9	1,151	0.001		-	NO
Poland	T1, T2	CR, CS, D	L, T	0.9	2,011	1.7	T1	CS	T	0.2	2,139	0.001		-	NO
Portugal	D	CS	T	-	C	NO	D	CR, OTH	T	0.2	C	C		-	NO
Romania	T1b	D	L, T	1.3	1,139	1.5	D	CR, D	T	0.4	590	0.003	T	-	NO
Russian Federation	D, T1a, T3	CS, D	T	0.7	12,949	1.2	D	D		0.2	6,336	0.002		-	NO
Slovakia	T2	CS, PS	L, T	1.4	344	1.8	T1, T2	D, PS	L, T	2.9	419	0.010		-	NO
Slovenia	D	D		-	NO	NO	NA	NA		-	NO	NO		-	NO
Spain	D, T3	PS		0.1	409	1.2	D	CS	T	0.2	656	0.004		-	NA
Sweden	CS, D	PS		-	NO	NO	CS, T2	PS	T	0.5	243	0.004		-	NO
Switzerland	CS	CS		-	C	IE	D	CS		0.1	C	C		-	NO
Turkey	NA	NA	T	-	NA	NA	NA	NA		-	C	C		-	NA
Ukraine	T1, T3	D, PS	L, T	1.7	3,111	2.1	T1	CS, OTH		0.5	1,453	0.005		0.0	C
United Kingdom	CS, T1	CS, OTH		0.1	26	30.8	CS	CS	T	0.2	1,053	0.003	T	0.0	C
United States	CS, T1	CS, D	T	0.1	9,372	1.2	T2, T3	CS, D, OTH		0.2	5,924	0.008	T	0.0	0.01

^a 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 2.B Chemical industry.

^b Source of default emission factors: ammonia; IPCC Guidelines, volume 3, page 2.16 nitric acid and adipic acid; IPCC good practice guidance, pages 3.34 and 3.44.

Table 2.4a

CO₂ emissions from ammonia production - trend information

CO ₂ emissions (Gg)			Relative change (%)																	
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Austria	517	486	5.6	5.9	0.3	-1.2	-1.3	1.0	-2.3	-8.8	2.9	8.3	-11.1	7.6	7.7	-12.6	12.5	-8.8	-5.9	
Belarus	1671	1312	-4.0	24.0	1.4	-12.9	16.0	11.8	-4.6	-0.6	5.1	0.5	0.0	0.9	5.5	2.2	-6.1	5.8	-21.5	
Belgium	420	845	-8.9	9.7	-4.8	0.8	-4.5	21.0	-2.7	-5.7	2.8	1.7	-0.7	5.9	-16.5	16.3	-22.9	-15.8	100.9	
Bulgaria	3138	577	-6.4	18.5	-0.3	-14.8	-44.2	-29.8	65.3	-9.4	-36.7	-3.0	24.5	6.8	-18.9	7.1	-2.1	-40.5	-81.6	
Canada	4994	6212	-1.6	12.3	-0.6	1.4	-0.2	3.5	0.1	-10.0	1.3	-1.0	11.6	-7.4	3.9	-5.1	7.3	-7.2	24.4	
Croatia	466	445	-4.1	-2.5	8.6	8.7	-25.0	26.7	1.2	-18.9	-9.9	12.5	21.0	-2.2	-1.5	9.3	1.7	-16.1	-4.5	
Czech Republic	807	634	-3.1	-11.7	7.6	-8.4	3.1	-14.8	14.4	-15.8	-12.8	30.2	-0.7	-12.8	-4.6	-6.3	13.2	3.0	-21.4	
Denmark	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Estonia	420	30	-7.0	8.0	-3.9	-1.9	1.1	-3.3	-10.3	7.4	-74.4	115.0	83.6	8.5	-0.2	-4.3	4.1	-89.0	-92.9	
European Union (27)	32704	24127	-5.9	11.2	0.0	-6.3	-5.5	-2.2	11.3	-7.1	-6.8	5.6	2.0	4.4	-9.0	8.8	-6.3	-13.6	-26.2	
Finland	44	NO	1.1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
France	3033	2155	2.8	-2.3	4.7	-3.1	1.1	-4.4	2.9	-11.3	-19.4	0.0	6.1	5.0	-37.6	37.4	2.7	12.3	-28.9	
Germany	5745	6845	-10.2	20.7	-0.2	0.9	2.2	-3.1	7.9	-7.9	9.3	0.3	-5.6	8.6	-4.9	4.0	-3.9	-7.7	19.1	
Greece	240	188	-4.4	*	*	*	*	60.0	-2.8	-50.8	14.9	74.7	6.3	-9.0	11.1	2.2	-23.0	-18.6	-21.9	
Hungary	1616	433	-46.7	0.6	10.7	-4.2	-10.6	-9.5	26.0	-12.2	-32.0	-0.5	28.7	12.6	-6.0	9.3	-24.7	10.0	-73.2	
Iceland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Ireland	990	NO	4.0	-7.9	-5.2	16.3	-1.3	-11.0	-6.4	18.0	-22.1	-100.0	*	*	*	*	*	*	*	
Italy	2765	695	-4.3	-3.3	-32.9	12.2	-8.3	-10.3	12.7	4.0	10.4	23.6	12.8	-6.9	-8.2	2.0	-19.7	-21.2	-74.9	
Japan	3385	1909	-1.5	1.1	0.7	-2.5	-11.2	10.0	-3.2	-7.0	-8.1	-10.2	0.5	-12.3	1.3	2.6	-11.2	-4.1	-43.6	
Kazakhstan	684	152	-0.6	41.3	53.7	-23.8	-90.5	*	*	*	*	190.9	14.9	-86.2	499.5	292.1	7.2	-20.8	-77.8	
Latvia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Lithuania	1190	1252	9.0	59.5	26.8	-16.6	6.1	-1.7	4.6	5.9	5.3	-3.4	-6.7	7.6	-2.2	106.3	-18.1	-34.3	5.2	
Luxembourg	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Netherlands	3096	2857	12.7	-0.9	-5.3	5.2	1.6	-0.7	0.6	-16.0	-4.2	-1.1	7.4	0.6	-1.1	-1.8	-5.5	0.2	-7.7	
New Zealand	278	387	1.1	1.3	-10.8	15.9	7.0	15.0	-5.6	11.2	-7.8	14.2	-1.3	-7.7	10.8	-7.5	-6.5	16.6	39.1	
Norway	500	335	-11.7	7.9	-6.5	8.2	-48.6	-35.4	124.1	-7.2	-5.7	35.5	6.8	-32.6	10.4	-18.6	20.3	-7.5	-33.0	
Poland	4358	3493	-0.9	15.0	-1.8	1.5	-7.6	-11.3	23.8	-4.7	-22.3	45.8	2.6	6.1	-4.9	-0.5	1.6	-18.3	-19.8	
Portugal	569	NO	-0.2	166.5	28.3	-1.0	4.5	9.2	10.1	-18.0	-5.6	28.6	-0.3	-12.0	-31.1	41.1	-12.4	*	*	
Romania	5006	1709	-36.9	25.4	1.8	-48.3	-50.8	78.2	50.5	-8.0	-1.6	27.1	-1.6	13.3	-1.9	-13.2	-7.0	-10.7	-65.9	
Russian Federation	17727	16037	-1.3	5.7	-2.9	-8.4	-12.0	16.6	11.7	-1.8	0.6	5.0	6.2	2.4	3.4	0.4	-4.6	0.2	-9.5	
Slovakia	617	618	-1.4	9.9	7.1	-0.8	-11.4	0.1	10.8	1.9	-2.8	-11.5	15.2	4.4	-16.5	2.0	-9.4	11.1	0.2	
Slovenia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Spain	709	510	20.8	1.6	4.3	5.7	-5.9	-7.3	-1.7	0.5	-2.5	2.8	-5.6	8.0	-9.1	6.2	-19.7	1.0	-28.1	
Sweden	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Switzerland	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Turkey	713	NA	-5.0	16.4	3.3	3.2	-42.8	-71.9	-35.2	25.6	347.9	-3.7	13.9	-7.5	-69.9	*	*	*	*	
Ukraine	11896	6465	-3.7	10.9	-9.8	7.8	-2.7	13.6	-3.4	5.2	-0.6	6.9	-1.0	6.8	-0.7	-6.7	-4.4	-39.5	-45.6	
United Kingdom	1322	801	0.2	0.2	0.2	-34.4	25.0	0.2	16.9	5.6	-9.4	-6.4	8.5	-11.3	-24.1	42.3	-8.3	-27.7	-39.4	
United States	13047	7855	1.8	-4.3	2.2	1.4	0.8	-8.4	-6.0	-24.1	13.7	-16.0	8.5	-3.9	-4.5	3.3	-13.1	-0.4	-39.8	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 2.4b

CO₂ implied emission factors for ammonia production - trend information

CO ₂ IEF (t/t)	Relative change (%)		Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Austria	1.12	1.08	2.5	-0.5	-2.1	-0.2	-2.2	-0.3	-0.7	-1.8	-0.6	-1.6	-11.0	14.7	2.6	-0.5	1.5	-0.7	-3.5
Belarus	1.30	1.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Belgium	1.17	1.23	12.0	0.7	-3.1	-0.6	-1.6	2.0	1.3	3.3	-2.2	-4.8	6.6	-4.4	-6.3	5.7	-0.7	3.9	5.7
Bulgaria	C	C	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Canada	1.56	1.56	0	0	0	0	0	0	0.8	-0.8	0.4	-0.4	0.8	-0.8	0	0	0	0	0
Croatia	1.35	1.19	-4.8	-9.6	9.7	0.9	0.0	-1.2	-0.8	1.5	-0.6	0.1	-3.7	-0.8	1.0	-1.2	-1.7	-0.5	-12.2
Czech Republic	2.40	2.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denmark	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Estonia	1.43	1.31	1.2	-3.4	-4.7	-3.2	-1.2	2.2	1.1	3.7	-0.6	3.0	-10.5	3.0	0.4	0.3	0.3	1.5	-8.1
European Union (27)	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Finland	1.55	NO	0.1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
France	1.57	1.82	1.9	-2.5	-0.3	-0.5	2.7	-0.1	-3.5	-1.7	-5.2	1.6	8.9	-2.5	-0.6	0.7	-1.1	24.2	15.7
Germany	2.12	2.49	0.7	-1.3	-2.5	2.7	-1.9	2.2	-3.2	0.3	2.0	-0.5	1.7	-2.0	-2.6	2.3	0.8	4.6	17.3
Greece	0.77	1.82	17.0	*	*	*	*	67.8	53.7	5.6	-16.2	9.5	-0.2	1.1	-0.6	-0.8	1.4	-0.3	137.6
Hungary	2.44	2.44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Iceland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	2.30	NO	0	0	0	0	0	0	0.0	0.1	0.0	0.0	*	*	*	*	*	*	*
Italy	1.90	1.96	0	0	0	0	0	0	0	0.2	1.4	0.7	-0.7	-0.4	-1.3	-2.0	5.4	3.2	3.2
Japan	1.81	1.77	0.6	-1.6	-0.1	-0.6	-4.6	7.5	-2.3	1.7	0.7	-1.7	-4.0	-9.4	-0.8	4.1	1.1	3.1	-2.2
Kazakhstan	1.50	1.50	0	0	0	0	0	*	*	*	*	*	*	*	*	*	*	*	0
Latvia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	2.09	2.18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.1	1.6	-2.0	0.3	0.0	1.0	5.5	4.3
Luxembourg	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	C	C	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
New Zealand	1.62	1.49	1.2	2.2	4.7	0.4	-10.7	-1.7	-2.3	0.8	-1.5	-0.7	1.1	3.1	-2.4	4.9	0.1	-1.3	-8.4
Norway	1.44	1.40	2.1	0.9	-0.8	21.9	-16.2	9.7	-8.5	-4.3	-4.1	13.9	-10.9	-0.1	-2.5	-0.5	1.8	1.1	-2.7
Poland	1.82	1.74	-2.8	-0.5	1.0	-1.5	1.5	1.8	-1.5	1.7	2.5	3.5	-6.0	3.1	3.2	-4.3	-1.2	1.0	-4.8
Portugal	C	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Romania	1.50	1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Russian Federation	1.41	1.24	4.1	-3.3	-2.9	1.2	-3.5	0.0	-2.6	-1.2	1.5	-0.7	-1.7	-1.7	-0.5	-1.1	-1.2	-1.7	-12.0
Slovakia	1.71	1.80	1.0	1.3	-0.1	-0.3	-0.3	0.2	0.1	-0.3	0.1	0.1	-0.1	-0.1	0.5	-0.2	0.0	5.9	4.8
Slovenia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Spain	1.24	1.25	1.4	1.5	1.6	0.3	0.4	-2.6	-2.2	1.5	0.4	0.7	0.9	-2.2	0.9	-1.4	0.1	4.2	0.9
Sweden	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Switzerland	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Turkey	1.60	NA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*
Ukraine	2.45	2.08	1.8	4.0	-15.2	4.8	0.9	0.2	0.2	1.8	-0.4	2.7	-1.9	-3.5	0.5	-6.6	0.4	-4.8	-15.0
United Kingdom	29.53	30.85	-1.3	0.3	0.2	-19.7	14.5	-6.9	9.4	33.4	-4.8	1.2	9.3	-8.9	-7.3	10.3	-2.2	-13.4	4.5
United States	1.20	1.24	0	0	0	0	0	0	0.2	3.4	0.2	2.0	-0.7	2.1	-0.6	-0.9	-3.3	0.9	3.0

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 2.5a

N₂O emissions from nitric acid production - trend information

N ₂ O emissions (Gg)	Base year ^a		Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Austria	3	1	1.7	3.9	2.0	-1.3	4.0	3.0	3.0	-17.4	2.6	9.4	-68.2	-2.4	2.2	-3.6	20.7	-49.2	-81.9
Belarus	0	0	-15.6	-10.5	-15.5	17.8	17.4	2.0	-11.9	15.1	16.3	-3.1	13.1	15.8	-12.9	0	0	10.5	29.5
Belgium	11	5	-2.9	9.2	10.6	-4.7	2.1	-2.7	-5.6	-4.3	-8.6	-18.9	4.4	-1.7	-32.1	-34.6	4.0	3.8	-58.7
Bulgaria	6	1	-32.7	50.1	2.9	-24.9	-44.3	-21.0	42.4	1.8	-16.0	9.6	13.4	12.9	-23.5	12.0	-4.0	-53.1	-84.8
Canada	3	4	4.4	5.0	10.2	-4.4	-2.1	12.7	5.4	4.4	-2.2	0.7	-2.9	1.9	-1.4	-8.3	8.6	-6.4	13.6
Croatia	3	2	-12.2	-3.8	-6.9	5.1	-24.7	18.0	17.7	-15.9	-2.9	-5.7	22.0	-2.4	-1.1	10.5	2.1	-16.4	-21.3
Czech Republic	4	2	-34.8	14.9	-9.4	9.0	7.7	-17.8	13.8	-1.1	-13.5	-0.3	14.2	-5.7	-10.5	-17.5	-6.3	-23.5	-55.1
Denmark	3	NO	-8.4	12.1	-7.7	1.7	-4.9	17.8	5.6	-11.8	-12.6	15.6	-40.7	*	*	*	*	*	*
Estonia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
European Union (27)	162	54	-11.8	2.3	3.8	-3.9	-3.6	2.9	4.9	-8.3	-10.8	3.1	6.7	-2.2	-8.6	-6.7	-23.8	-36.0	-66.5
Finland	5	3	-13.1	1.9	0.0	-1.4	-4.7	-2.1	1.3	-5.3	3.4	5.5	6.3	8.6	-11.5	2.8	6.7	-49.8	-52.1
France	21	6	1.4	-9.2	0	2.7	-0.5	1.9	1.0	-15.7	-11.4	-0.5	0.7	-6.9	-13.8	-7.3	-18.8	-28.1	-69.7
Germany	11	11	-8.6	14.0	0.8	-1.6	-0.1	6.2	4.9	-5.8	11.7	6.1	13.3	1.9	4.3	0.8	-18.7	-21.3	-2.2
Greece	4	1	-17.6	-0.5	14.2	-12.2	-17.7	3.8	2.4	-16.0	-3.7	-7.7	-4.9	-0.3	-18.9	-0.7	-3.9	-13.0	-66.9
Hungary	15	0	-49.5	-33.7	42.9	-3.7	-16.0	-12.4	31.7	8.6	-35.7	5.6	33.5	-1.9	-17.5	-36.7	-99.4	191.4	-99.7
Iceland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	3	NO	-21.5	0	0	0	0.0	0	0.0	-28.1	-50.0	*	*	*	*	*	*	*	*
Italy	7	1	-4.2	10.5	-4.2	1.5	-14.8	-14.1	36.0	-3.6	-17.1	12.5	58.5	-6.5	-27.4	-9.5	-67.7	6.5	-81.7
Japan	2	2	-0.4	-1.6	-2.4	3.3	2.8	-3.1	4.1	-8.2	2.9	6.8	1.9	-4.7	-9.4	-16.6	-14.7	-5.1	-37.7
Kazakhstan	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Latvia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	2	7	4.9	11.4	37.3	10.4	29.3	5.3	17.4	10.3	8.1	3.1	9.4	13.6	0.3	28.6	-6.6	-15.9	162.5
Luxembourg	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	20	1	1.4	-5.8	-0.3	0	-0.5	-4.3	-1.1	-9.4	-5.8	0.6	11.0	0.7	-1.1	-23.1	-87.0	-19.8	-92.9
New Zealand	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Norway	7	1	-7.6	-0.2	-1.1	-0.8	5.1	13.7	-9.6	-2.9	13.5	-10.4	8.0	5.8	-16.8	-15.3	-32.2	-50.7	-77.8
Poland	14	3	-8.8	13.5	-0.1	-6.3	-7.6	-2.1	22.7	2.6	-18.0	20.2	2.7	4.3	-0.7	3.1	-15.2	-77.0	-80.1
Portugal	2	0	-5.7	22.6	5.4	1.4	-30.0	66.6	-41.8	-1.9	-5.1	6.2	12.4	-7.3	-1.6	2.3	-13.0	-67.8	-77.7
Romania	18	2	-41.6	14.3	6.1	-26.5	-26.4	10.3	38.0	-12.9	2.1	22.8	10.7	2.7	-20.0	16.5	-6.9	-79.6	-90.5
Russian Federation	12	13	2.7	13.7	9.7	-10.4	-13.8	10.2	19.6	6.6	16.5	-4.9	6.6	8.4	0.2	5.7	-10.2	14.1	5.2
Slovakia	4	4	-30.7	14.8	16.8	-5.4	-15.0	-24.9	29.9	13.1	-10.6	10.7	14.3	-3.1	31.7	-14.2	5.2	-18.7	7.8
Slovenia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Spain	9	3	-16.8	9.5	2.9	-4.1	-7.2	9.1	-3.1	-9.6	-10.0	-6.6	-11.4	3.5	-19.5	-14.7	-0.7	-9.3	-68.0
Sweden	3	1	5.3	-8.5	-4.0	-1.2	12.7	-12.3	-3.7	-25.0	-8.0	-2.2	-0.9	3.0	3.9	-46.5	9.9	13.5	-62.6
Switzerland	0	0	-9.0	-1.7	-3.3	-11.7	6.6	1.6	9.6	5.2	3.5	-10.4	4.8	-15.2	14.1	-2.1	14.8	-13.3	-14.8
Turkey	0	C	758.7	414.3	-7.1	-28.5	24.4	4.1	-1.9	-19.1	15.1	-5.8	2.6	-54.4	72.0	*	*	*	*
Ukraine	12	7	-11.6	-21.6	18.5	9.4	-18.6	8.1	12.1	-3.1	21.9	0.6	-14.1	18.5	0.2	30.3	-7.6	-31.5	-46.2
United Kingdom	13	4	1.1	-5.2	1.8	-5.1	17.2	47.3	-8.1	-22.3	-37.3	9.4	13.5	-23.6	-12.9	0.3	-16.9	-24.4	-71.7
United States	57	47	-0.1	1.4	4.1	2.5	-1.6	-3.7	-2.6	-18.8	8.2	-6.0	-0.8	3.8	-2.1	19.1	-14.6	-11.4	-17.7

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1988), Romania (1989) and Slovenia (1986).

Table 2.5b

N₂O implied emission factors for nitric acid production – trend information

N ₂ O IEF (t/t)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Austria	0.006	0.001	0.7	7.7	-0.4	0.0	0.7	1.4	-1.0	-13.6	0.4	2.4	-69.0	0.2	-1.7	11.9	7.3	-42.5	-80.6
Belarus	0.005	0.005	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0
Belgium	0.008	0.003	0	0	-0.7	-1.0	-1.6	-1.3	0.5	-1.7	-5.9	-29.7	7.3	-2.8	-31.2	-33.7	5.9	20.6	-62.1
Bulgaria	C	C	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Canada	0.003	0.003	10.5	-3.6	5.1	-0.7	4.7	4.8	-1.2	6.5	-9.8	2.0	-11.8	7.7	-4.2	-2.0	33.8	-21.3	0.3
Croatia	0.008	0.008	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0.0	0.0
Czech Republic	0.007	0.003	-1.2	1.4	-6.8	9.4	-2.3	-3.8	2.5	-1.2	0.0	-12.9	7.1	-5.4	-12.3	-19.2	2.4	-23.3	-52.9
Denmark	0.007	NA, NO	0	0	0	0	0	0	0	0	0.0	0.0	0.0	*	*	*	*	*	*
Estonia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
European Union (27)	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Finland	0.010	0.005	-0.8	-1.4	0.0	-2.0	1.2	-2.4	1.6	-0.6	-0.7	-1.0	0.8	-6.1	-14.1	0.2	4.4	-33.8	-44.9
France	0.007	0.003	4.3	-9.8	-9.3	8.8	2.0	2.8	-4.3	-3.2	-2.9	-8.4	-1.2	-9.0	0.3	-6.8	-24.0	-22.6	-58.5
Germany	0.006	0.005	-0.5	2.4	-1.3	0	0	2.8	-3.3	0	-4.3	-0.2	-2.8	0.3	-1.6	-5.7	-11.0	-8.3	-26.1
Greece	0.007	0.007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hungary	0.014	0.000	-1.9	-1.7	-2.3	0.8	2.7	0.3	-2.0	-0.6	-1.0	1.7	-1.5	-16.0	-13.3	-38.5	-99.3	155.6	-99.2
Iceland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	0.010	NO	2.2	0	0	0	0.0	0	0.0	-28.1	0	*	*	*	*	*	*	*	*
Italy	0.006	0.003	0.6	-0.1	3.4	-1.1	-0.6	-4.5	5.5	1.8	-19.4	13.1	38.7	0.6	-21.1	-5.8	-67.7	28.4	-54.7
Japan	0.004	0.003	-0.7	-1.1	1.9	2.4	10.5	-4.9	1.9	-0.3	-2.6	10.2	3.3	-3.7	-20.1	-3.6	4.0	-0.3	-4.6
Kazakhstan	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Latvia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	0.007	0.007	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.1	-0.1	0.0	0.0	0.0
Luxembourg	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	C	C	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
New Zealand	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Norway	0.005	0.001	-9.0	-5.0	-0.2	1.2	1.0	15.6	-10.9	-4.8	12.5	-13.1	7.7	6.4	-18.7	-15.0	-29.8	-33.0	-74.4
Poland	0.006	0.001	0	0	0	0	0	0	0	0	0	0	0	-2.0	0.2	0	-15.1	-75.6	-79.7
Portugal	C	C	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Romania	0.009	0.003	-0.9	-0.3	-0.2	0.2	0.1	0.7	0.2	0.5	-1.2	-0.3	1.6	-1.0	1.0	-0.6	1.4	-69.4	-69.3
Russian Federation	0.002	0.002	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Slovakia	0.009	0.010	-8.0	3.8	4.3	0.3	-5.1	-7.5	-2.2	-0.8	2.8	-1.7	-1.0	2.2	16.2	-1.1	1.1	-1.1	3.2
Slovenia	NO	NO	*	*	*	*	*	*	2.8	-2.7	0	0	0	-6.5	*	*	*	*	*
Spain	0.007	0.004	-7.1	-0.5	0.5	-0.9	0.7	-0.3	-1.0	1.1	-3.1	-7.9	-2.6	-0.6	-3.7	-2.4	-1.8	-12.5	-35.2
Sweden	0.007	0.004	-0.3	-17.2	0.0	1.4	9.9	-8.5	-14.1	14.3	-1.3	-0.4	-0.3	0.0	0.9	-41.7	3.2	24.1	-42.4
Switzerland	C	C	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Turkey	0.019	C	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	*	*	*	*
Ukraine	0.005	0.005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
United Kingdom	0.005	0.003	0.2	-1.6	0.1	-1.4	5.6	57.8	10.3	-4.5	-36.6	4.5	14.0	-23.9	1.6	-8.4	3.1	-7.2	-35.2
United States	0.008	0.008	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0.0	0.0	0	0.0	0.0

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 2.6a

N₂O emissions from adipic acid production - trend information

N ₂ O emissions (Gg)	Relative change (%)																			
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Austria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belarus	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Bulgaria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Canada	34.6	2.1	-6.7	-2.2	6.9	-13.8	-48.8	-65.5	-48.5	-10.6	55.6	-13.3	185.2	-14.4	-54.4	23.4	61.5	-72.5	-93.8	
Croatia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Denmark	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Estonia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
European Union (27)	193.1	34.9	1.9	-3.8	2.7	-3.8	-37.4	-59.7	-6.1	31.4	-11.9	-2.9	-8.2	-13.9	-44.3	36.5	-3.9	25.4	-82.0	
Finland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
France	47.8	4.6	-2.1	4.6	2.8	-0.9	-44.2	-53.2	-29.6	51.0	-17.8	4.0	-71.6	29.3	1.2	2.1	-7.0	-3.1	-90.4	
Germany	60.7	27.6	5.6	-9.9	6.3	-11.8	-67.7	-70.0	-27.5	165.6	4.3	-1.8	26.5	-31.5	-8.3	87.2	-2.2	55.8	-54.4	
Greece	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Hungary	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Iceland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Italy	14.8	2.4	10.5	15.7	-2.7	0.3	4.8	5.1	4.4	5.4	-1.7	-6.8	3.4	-8.5	-76.6	-45.0	-9.5	5.8	-83.7	
Japan	24.2	3.5	-9.7	-1.0	13.8	6.5	-13.7	-84.1	215.2	-82.4	-28.9	-6.2	84.0	-38.1	76.7	-70.5	180.3	42.6	-85.6	
Kazakhstan	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Latvia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
New Zealand	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Norway	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Poland	1.5	NO	-35.2	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Portugal	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Romania	2.2	NO	-14.9	10.3	0.8	39.7	3.7	-19.7	24.1	-42.6	*	*	*	*	*	*	*	*	*	*
Russian Federation	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovakia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovenia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Spain	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Sweden	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Switzerland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Turkey	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	0.8	0.1	-2.3	-7.3	57.3	14.6	1.4	-23.1	132.3	-3.8	-12.0	41.6	7.7	-26.0	7.4	11.7	-49.7	-85.7	-92.9	
United Kingdom	66.9	0.2	0.5	-10.5	-1.2	2.8	-1.6	-95.0	94.4	20.8	-54.1	-10.8	89.9	-16.1	-34.5	63.1	-4.3	-92.5	-99.7	
United States	50.9	6.3	-2.2	23.8	-1.2	-43.6	-45.3	-8.1	12.0	-14.9	11.3	9.9	-33.3	29.3	-13.2	-14.6	-44.4	-4.8	-87.7	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 2.6b

N₂O implied emission factors for adipic acid production – trend information

N ₂ O IEF (t/t)	Relative change (%)																			
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Austria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belarus	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Bulgaria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Canada	C	C	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Croatia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Denmark	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Estonia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
European Union (27)	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Finland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
France	C	C	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Germany	C	C	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Greece	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Hungary	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Iceland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Italy	0.30	0.03	0	0	0	0	0	0	0	0	0	0	-8.3	-5.2	-79.1	-45.0	0.0	2.8	-89.7	
Japan	C	C	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Kazakhstan	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Latvia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
New Zealand	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Norway	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Poland	0.30	NO	0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Portugal	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Romania	0.30	NO	0	0	0	0	-0.1	0.2	0.0	-0.1	*	*	*	*	*	*	*	*	*	
Russian Federation	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovakia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovenia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Spain	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Sweden	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Switzerland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Turkey	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	C	C	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
United Kingdom	C	C	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
United States	0.07	0.01	1.5	22.5	-2.3	-45.7	-44.7	-12.7	9.8	-5.7	0.9	9.3	-34.5	35.1	-18.7	-11.5	-40.5	1.0	-89.0	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 2.7

Metal production - CO₂ (2009)

	Methods and EF used ^a		Iron and steel ^b						Aluminium production				
	Methods	EF	Key category	Share of national total (%)	CO ₂ IEF t/t	Steel		Pig iron		Key category	Share of national total (%)	Activity Data (production) (kt)	CO ₂ IEF t/t
						Activity Data (production) (kt)	CO ₂ IEF t/t	Activity Data (production) (kt)	CO ₂ IEF t/t				
IPCC default EF^c					1.5-1.6								1.5-1.8
Australia	T1b, T2	CS	L, T	1.1	0.8	5,274	NA	NO	NO		0.6	1,980	1.6
Austria	CS, T1, T2	D, PS	L, T	5.5	0.3	5,077	0.1	4,376	0.9	T	-	NO	NO
Belarus				0.0	IE, NO	IE	IE	IE	IE		-	NO	NO
Belgium	CS, D, T3	PS	L, T	0.8	0.1	5,765	0.0	3,087	0.3		-	NO	NO
Bulgaria	D, T2	CS, D, PS	T	0.1	0.1	731	0.1	NO	NO		-	4	NO
Canada	CS, T2	CS, OTH	L, T	1.1	C, NA	C	C	C	C	L, T	0.7	3,031	1.7
Croatia	T2	D		0.0	0.2	46	0.2	NO	NO	T	-	NO	NO
Czech Republic	T1	D	L, T	4.0	0.4	4,663	1.1	3,490	IE		-	NO	NO
Denmark	NA	NA		-	NA, NO	NO	NA, NO	NO	NA, NO		-	NO	NO
Estonia	NA	NA		-	NA, NO	NO	NO	NO	NO		-	NO	NO
European Union (27)	CR, CS, D, T1, T1a, T1b, T2, T3	CR, CS, D, PS	L, T	1.0	NE	NE	NE	NE	NE		0.1	NE	NE
Finland	CS, T1, T2, T3	CS, D	L, T	2.9	0.5	3,066	0.6	IE	IE		-	NO	NO
France	CR	CS, PS	L	0.5	0.1	14,471	0.1	9,519	0.1		0.1	C	C
Germany	CS, T2, T3	CS	L, T	1.3	0.2	32,670	0.4	20,104	IE		0.0	292	1.4
Greece	CR, CS	CR, PS		0.1	0.1	1,999	0.1	NO	NO		0.2	C	C
Hungary	CS	D		0.3	0.1	1,401	0.1	1,050	IE		-	NO	NO
Iceland	T1, T2	D		-	NA, NO	NO	NO	NO	NO	L, T	26.2	817	1.5
Ireland	NA	NA		-	NO	NO	NO	NO	NO		-	NO	NO
Italy	D	CR, CS, PS	T	0.2	0.0	19,848	0.0	5,692	0.1		0.1	166	2.1
Japan	CS	OTH		0.0	NA, NE	NE	IE	NE	IE		-	5	IE
Kazakhstan	T1a, T2	D, PS	L, T	2.1	0.8	4,217	0.1	2,997	1.9		0.1	127	2.0
Latvia	T2	PS		0.1	0.1	73	0.1	NO	NO		-	NO	NO
Liechtenstein	NA	NA		-	NO	NO	NO	NO	NO		-	NO	NO
Lithuania	T1	D		0.0	0.9	NO	NO	5	0.9		-	NO	NO
Luxembourg	CS, T2	CS	L, T	1.1	0.1	2,120	0.1	NO	NO		-	NO	NO
Malta	NA	NA		-	NA, NO	NO	NO	NO	NO		-	NO	NO
Monaco	NA	NA		-	NA, NO	NO	NO	NO	NO		-	NO	NO
Netherlands	T1a, T2	CS	L, T	0.5	0.2	5,244	0.0	NO	NO		0.1	166	1.3
New Zealand	T2	D, PS	L	2.2	C, IE, NO	C	C	IE	IE	T	0.6	271	1.7
Norway	T2, T3	CS, PS	L	0.5	0.4	546.063	0.0	82	3.0	L, T	3.4	1,119	1.5
Poland	CS, T1, T2, T3	CS, D	L, T	1.5	0.4	IE	IE	2,984	0.8		0.0	17	1.8
Portugal	D, T2	D, PS		0.0	0.0	2,143	0.0	IE	IE		-	NO	NO
Romania	T1b, T2	CS, D	L, T	2.8	0.5	2,836	0.1	1,569	2.2		0.2	C	C
Russian Federation	T1b, T2, T3	CS, D, PS	L, T	3.4	0.6	59,362	0.1	44,021	1.5		0.3	C	C
Slovakia	T1, T2, T3	CS, D, PS	L, T	10.2	0.6	3,642	0.1	3,019	1.2		0.4	150	1.2
Slovenia	D, T2, T3	D, PS		0.2	0.1	458	0.1	NO	NO		0.3	35	1.5
Spain	D, T2	CS, PS	L, T	0.5	0.1	14,296	0.1	C	C		0.2	C	C
Sweden	CS, D, T2	PS	L, T	2.2	0.1	967	0.1	2,062	0.6		0.2	70	1.4
Switzerland	CS, T1	CS		0.3	0.1	935	0.1	NO	NO	T	-	NO	NO
Turkey	NA	NA		-	IE, NA	C	IE	C	IE		-	NA	C
Ukraine	T1, T2, T3	CS, D, PS	L, T	13.0	0.9	29,848	0.1	25,683	1.7		-	C	IE
United Kingdom	T2, T3	CS		0.1	0.1	2,145	0.0	7,671	IE		0.1	254	1.5
United States	T1, T2	CS, D	L, T	0.6	0.6	36,700	0.2	20,261	0.8		0.0	1,727	1.7

^a 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 2.C Metal production.

^b CO₂ emission estimates from sinter (2.C.1.3) were reported by Belgium, European Union, Poland, Spain, Sweden and the United States; CO emission estimates from coke (2.C.1.4) were reported by Australia, European Union, Finland, Poland and the United States.

^c Source of default emission factors: IPCC Guidelines, volume 3, pages 2.28 and 2.33.

Table 2.8a

CO₂ emissions from iron and steel production - trend information

CO ₂ emissions (Gg)	Relative change (%)		Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	9,018	6,020	-2.6	2.9	-0.5	-0.2	-3.8	4.9	-5.6	-7.5	-2.6	-2.7	6.8	-20.7	-0.9	1.9	1.4	-19.3	-33.2
Austria	3,546	4,412	-1.0	14.9	-5.6	10.7	-4.9	-3.6	11.8	-1.0	10.8	-1.8	-1.7	12.3	4.0	5.6	5.9	-24.0	24.4
Belarus	6	12	1.0	-15.5	19.1	37.7	15.7	2.7	12.0	-0.7	-0.3	5.4	13.3	8.0	10.7	4.0	11.4	-7.9	120.2
Belgium	2,434	938	-10.6	5.7	-13.9	3.3	4.9	3.0	-8.2	-10.9	29.2	-15.1	-2.8	-1.7	3.3	-7.7	4.3	-53.3	-61.5
Bulgaria	2,700	73	-21.0	6.3	-5.5	11.2	-15.0	-10.3	-0.1	-10.1	-4.0	23.2	-14.8	-6.1	-2.7	-10.9	-56.2	-89.3	-97.3
Canada	10,193	7,646	17.0	4.0	-1.6	-1.8	2.0	2.3	0.2	-7.8	-2.0	-0.9	1.6	-2.7	8.8	-0.3	-3.6	-27.8	-25.0
Croatia	21	11	-16.7	-39.9	26.5	42.5	56.6	-32.6	-32.7	-2.9	-2.4	64.7	75.8	-24.5	17.9	-6.3	89.3	-51.9	-47.3
Czech Republic	12,533	5,298	-29.9	5.2	-7.5	6.7	-11.7	-20.6	18.2	-6.7	4.1	8.7	4.2	-14.2	13.2	2.4	-7.8	-25.9	-57.7
Denmark	28	NA, NO	0.0	15.1	-8.8	-0.5	20.5	2.0	-5.4	14.6	*	*	*	*	*	*	*	*	*
Estonia	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
European Union (27)	84,574	46,972	-15.3	0.6	-7.5	8.2	-9.1	-9.1	10.2	-9.0	2.4	9.9	5.7	1.7	5.2	-1.5	-5.9	-32.8	-44.5
Finland	1,935	1,941	0.7	-1.8	6.2	9.8	0.2	0.8	-2.5	2.2	-4.9	7.2	3.8	-6.6	2.8	0.9	2.6	-23.1	0.3
France	3,151	2,588	1.1	20.9	-28.8	13.2	-5.8	-5.8	-8.3	-6.2	23.7	7.6	15.8	-8.5	-14.9	2.6	-2.9	-15.0	-17.9
Germany	22,712	11,669	-3.3	-10.0	-4.0	10.1	-9.0	-7.8	23.9	-14.0	-13.6	30.7	13.7	-6.5	2.1	-9.9	-0.9	-38.9	-48.6
Greece	93	137	-1.9	10.7	-13.8	25.4	9.1	-14.1	16.1	16.0	43.6	-7.5	15.6	21.5	0.2	3.5	-9.7	-34.0	47.8
Hungary	470	180	-34.9	-4.0	0.6	-9.1	7.4	-0.3	3.5	4.2	5.3	-3.1	-2.0	0.6	6.4	7.6	-6.4	-33.6	-61.6
Iceland	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Italy	3,124	901	-5.2	-2.3	-19.8	-7.6	-9.2	-24.1	-16.9	0.7	-4.2	-4.5	13.1	19.7	1.9	-4.9	-4.1	-36.8	-71.2
Japan	356	112	-9.3	3.3	6.4	1.2	-23.8	-13.2	-2.4	-15.2	4.9	9.3	6.7	-6.2	-26.6	19.4	-26.5	-28.1	-68.6
Kazakhstan	8,629	6,040	-3.0	13.5	-6.5	29.8	-10.6	24.5	8.2	0.9	1.2	2.5	3.4	-2.7	-11.0	7.1	-4.4	-2.5	-30.0
Latvia	13	10	-32.1	-32.3	-21.4	129.5	6.3	-9.3	9.3	-4.6	-5.5	60.0	6.2	-4.3	1.7	15.9	-40.1	9.5	-25.5
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	21	4	-19.8	-3.4	-2.4	9.2	10.1	6.7	6.7	4.4	-7.6	0.9	-3.0	2.0	-4.5	-4.7	-23.5	-19.5	-81.2
Luxembourg	985	129	-4.8	-39.6	-10.5	-29.4	-52.2	5.0	-1.1	6.0	0.4	-2.2	0.3	0.3	37.2	-3.0	-16.8	-24.0	-86.9
Malta	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	2,514	1,054	-13.9	0.0	-3.5	16.8	-18.1	-8.5	-15.9	-1.2	7.4	10.6	-16.7	18.5	-5.3	20.5	-37.8	-3.6	-58.1
New Zealand	1,307	1,563	8.8	5.4	-2.6	-11.0	7.7	3.3	-0.9	5.0	-2.4	13.2	0.7	-2.8	-0.3	1.7	-6.5	1.6	19.6
Norway	213	270	-10.3	3.2	7.7	-21.2	13.8	4.0	7.3	13.0	-1.9	9.9	4.3	-20.3	23.1	-1.7	-1.7	-23.8	27.1
Poland	10,042	5,641	-28.9	30.7	-15.7	25.2	-47.7	35.7	39.8	-23.2	4.1	13.4	-2.8	63.1	21.7	-0.6	8.5	-34.7	-43.8
Portugal	16	18	5.4	-11.0	-2.8	28.7	-1.9	8.2	9.0	-9.3	-44.3	12.3	2.0	2.0	5.8	5.5	5.1	-16.2	13.3
Romania	15,804	3,682	-36.1	10.9	-6.2	7.0	-0.2	-39.1	0.9	-7.4	34.1	-11.0	4.3	8.2	19.5	3.8	-33.4	-34.4	-76.7
Russian Federation	100,963	72,947	-20.0	9.0	-6.4	0.4	-7.2	17.8	8.9	2.7	4.9	-1.2	3.9	-2.6	7.8	-0.6	-6.2	-8.6	-27.7
Slovakia	5,381	4,447	-11.1	-3.7	-8.9	5.2	0.9	9.5	4.2	-0.8	6.0	4.3	2.6	-4.5	0.1	-1.5	-8.7	-14.0	-17.3
Slovenia	40	30	-42.0	-3.9	-19.1	15.9	2.0	1.9	15.0	-0.5	5.6	9.4	18.6	38.5	-2.2	5.4	3.9	-32.2	-25.5
Spain	2,428	1,684	-3.8	-49.9	2.0	17.9	7.3	-0.1	8.2	-1.6	7.9	-9.3	5.4	21.1	15.2	-13.2	-4.1	-13.9	-30.6
Sweden	2,462	1,334	-2.5	5.2	-5.6	0.7	-3.1	0.0	1.9	3.8	3.0	-5.2	6.5	-9.0	-4.6	5.4	-3.5	-45.4	-45.8
Switzerland	111	131	4.3	-41.8	3.1	6.9	11.6	46.0	11.3	2.5	7.4	1.6	7.3	-5.5	8.1	1.0	3.8	-28.9	18.2
Turkey	IE, NA	IE, NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	84,427	48,114	-17.1	-9.2	1.4	17.2	0.7	5.8	9.1	0.7	0.9	2.5	1.7	-3.7	8.8	10.1	-10.2	-12.7	-43.0
United Kingdom	1,859	803	-34.0	22.6	18.1	-14.9	-12.1	20.7	-9.6	-34.5	-35.2	105.8	13.6	25.9	-16.8	33.4	22.1	-68.6	-56.8
United States	99,528	41,871	-9.0	4.0	-2.1	1.5	-6.7	-2.6	2.0	-12.1	-4.8	-3.3	-2.1	-3.1	4.3	3.3	-7.1	-36.6	-57.9

^a In accordance with the UNFCCC reporting guidelines on annual GHG inventories of Annex 1 Parties, the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 2.8b

CO₂ implied emission factors for iron and steel production (steel) - trend information

CO ₂ IEF (t/t)	Base year ^a		Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Austria	0.12	0.12	0.6	2.5	-0.7	-1.2	-0.2	-1.4	0.6	-1.8	1.0	-0.9	0.5	3.3	0.7	0.2	-0.8	1.4	-1.9
Belarus	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	0.09	0.02	-2.9	2.4	-19.2	3.2	6.9	-2.9	-1.3	9.2	-16.2	8.2	-13.8	-4.2	-5.0	-5.5	12.3	-70.2	-80.0
Bulgaria	0.94	0.10	6.8	-2.7	4.7	3.8	-0.2	6.5	-6.7	-7.9	1.9	-1.1	-6.2	0.4	-9.8	-0.9	-37.0	-80.5	-89.3
Canada	0.09	C	3.5	1.9	1.7	-3.0	-3.2	-1.2	-1.1	-4.2	1.3	-1.5	3.1	-3.0	1.2	1.2	-0.3	*	*
Croatia	0.13	0.24	19.0	-16.1	25.4	-6.7	6.1	-8.3	-26.6	20.3	67.2	31.9	-16.4	-11.7	7.8	-1.1	4.0	44.3	95.0
Czech Republic	1.24	1.14	-11.2	18.3	-16.9	14.3	-17.3	2.7	3.7	-8.1	0.6	4.7	0.5	-2.6	-0.6	16.3	-11.5	2.8	-8.4
Denmark	0.05	NA, NO	0.0	16.1	-1.4	-19.1	31.4	-4.3	19.6	0.2	*	*	*	*	*	*	*	*	*
Estonia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
European Union (27)	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Finland	0.68	0.63	-0.3	5.8	2.2	-3.0	-5.3	0.7	-5.8	6.3	-6.5	-9.9	2.4	-4.8	-3.6	15.1	2.9	10.8	-6.3
France	0.09	0.08	7.2	0.9	-10.3	-1.6	0.1	-2.4	-21.4	17.5	-0.4	43.1	-18.9	2.3	-0.8	-2.5	0.5	8.1	-9.4
Germany	0.26	0.36	0.8	74.9	1.5	-2.6	-7.0	-3.4	12.4	-11.0	-14.0	31.4	9.8	-2.6	-3.8	-12.3	5.0	-14.3	38.2
Greece	0.09	0.07	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	-4.8	-2.2	-6.5	-18.5	-26.1
Hungary	0.13	0.13	0	0	0	0.7	-0.1	-0.2	0.3	-0.3	0.3	-0.1	-0.2	0.1	0.2	0.1	0.1	-0.6	0.4
Iceland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Italy	0.05	0.02	0.7	-7.6	-8.3	-9.2	-10.3	-22.7	-25.8	4.6	2.0	-2.7	-0.7	-3.8	3.7	1.2	1.6	9.9	-53.3
Japan	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Kazakhstan	0.13	0.11	0.3	1.5	-5.7	0.8	4.4	0.8	-0.3	-0.3	-1.0	-0.5	-1.6	7.4	-16.8	-1.7	4.6	-9.3	-14.3
Latvia	0.12	0.13	0	7.4	2.7	-4.5	-1.2	1.6	-0.6	1.3	0.9	-7.6	-0.5	0.7	0.6	-3.4	-16.9	41.2	10.8
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	0.12	0.06	0.0	-17.3	-4.8	-16.4	-19.3	0.0	0.0	0.0	0.0	0.0	21.1	7.4	-4.7	-8.2	-6.1	-47.4	*
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	0.01	0.00	0.0	0.0	0.0	0.0	0.0	0.0	-27.7	33.5	36.1	-23.8	-25.4	59.3	-0.8	-18.9	17.4	-57.9	-52.7
New Zealand	C	C	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Norway	0.03	0.04	16.3	0.0	0.0	0.0	0.0	-2.6	-2.9	10.8	-1.3	0.0	0.0	0.0	12.9	-14.6	17.4	-14.3	30.2
Poland	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Portugal	0.01	0.01	-2.1	-5.0	-1.6	5.3	-2.9	0.6	1.2	-4.7	-20.4	-1.8	-0.3	-0.3	-0.8	-0.7	-0.6	2.3	-26.0
Romania	0.06	0.06	-2.8	9.3	4.0	1.8	5.7	-3.9	-3.0	0.2	11.9	-2.0	-6.6	-6.0	-4.0	22.0	-41.9	41.5	1.8
Russian Federation	0.09	0.10	-4.9	4.9	0.5	0.7	1.5	0.3	-6.0	1.0	1.2	-1.2	-1.8	-2.5	-1.7	-2.9	-0.6	8.0	12.6
Slovakia	0.14	0.12	0.0	0.0	0.3	-0.3	-11.1	-1.8	3.0	-3.6	-0.7	3.1	-4.1	2.0	5.1	-8.2	-0.2	3.9	-13.1
Slovenia	0.02	0.07	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	1.5	-2.8	12.5	30.5	-9.6	3.2	2.7	0.1	303.6
Spain	0.07	0.06	0.0	-17.7	-2.8	1.2	-0.5	10.4	2.3	-4.3	2.7	-9.8	0.6	13.3	9.7	-15.0	-3.0	6.0	-18.4
Sweden	0.09	0.13	-0.7	6.5	6.0	-9.9	3.0	0.4	-0.5	-1.7	2.9	-0.2	3.3	11.6	-3.1	3.9	2.0	19.5	49.7
Switzerland	0.10	0.14	0	0	0	0	0	40.0	0	0	0	0	0	0	0	0	0	0	40.0
Turkey	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	0.10	0.13	3.1	5.8	13.7	0.4	-20.1	1.6	-0.6	1.3	-0.9	2.4	2.3	4.0	0.8	-0.4	2.3	2.3	24.8
United Kingdom	0.01	0.01	-0.9	-0.9	-1.0	-1.0	-1.0	-1.0	-1.0	0	0	0	0	0	0	0	0	0	-9.1
United States	0.22	0.17	4.6	-2.9	-7.5	-4.5	-5.9	-8.6	-2.5	12.8	-18.3	-6.5	-22.3	47.6	-2.1	3.4	-13.2	21.9	-22.0

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 2.9a

CO₂ emissions from aluminium production - trend information

CO ₂ emissions (Gg)	Relative change (%)																			
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	2,021	3,136	0.1	-2.3	11.8	-1.2	14.2	3.5	1.8	3.7	4.9	1.0	-0.8	1.0	-0.4	3.6	-0.5	0.3	55.2	
Austria	158	NO	0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Belarus	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Belgium	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Bulgaria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Canada	2,715	5,026	15.9	-3.4	6.1	1.7	1.2	-0.7	-1.3	7.8	5.2	3.7	-7.8	14.6	5.2	0.1	1.5	-2.8	85.2	
Croatia	111	NO	-31.4	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Czech Republic	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Denmark	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Estonia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
European Union (27)	4,631	3,442	-4.8	5.0	3.9	2.6	4.3	3.7	2.5	2.5	2.5	1.0	2.8	0.3	-5.4	1.8	-2.2	-26.0	-25.7	
Finland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
France	534	629	-11.2	-2.9	3.0	6.4	4.6	9.1	-0.5	4.6	4.5	-4.9	-4.5	-1.4	6.6	-5.4	-9.2	-2.4	17.9	
Germany	1,012	399	-6.7	14.2	0.3	-0.8	7.0	3.3	1.9	1.4	0.3	1.0	1.2	-3.4	-20.0	7.3	9.4	-51.9	-60.6	
Greece	232	195	1.8	-5.2	0.0	1.3	10.1	9.5	1.7	-0.3	1.2	1.5	0.2	-0.8	-0.2	0.6	-1.2	-23.4	-16.1	
Hungary	133	NO	-16.3	7.6	4.9	0.6	0.1	-0.2	0.6	2.2	2.0	-0.7	-2.0	-7.5	*	*	*	*	*	
Iceland	136	1,212	2.0	1.9	4.1	20.4	40.5	30.8	-0.5	8.2	5.0	2.3	1.4	0.4	24.0	34.1	71.8	3.8	788.1	
Ireland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Italy	359	345	-6.0	1.3	3.7	1.8	-0.4	0.1	1.5	-1.2	1.7	13.8	-10.6	-0.6	-0.6	19.2	4.4	-6.8	-4.1	
Japan	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Kazakhstan	NO	255	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	742.6	19.6	*
Latvia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	395	224	-3.1	-1.7	5.2	2.0	14.3	8.5	5.0	-2.8	-3.0	-0.5	16.7	1.1	-14.5	4.1	3.9	-49.9	-43.2	
New Zealand	449	452	0.0	-3.3	13.4	3.4	-0.4	5.2	-0.4	-2.5	6.7	-0.9	0.5	0.0	-1.3	4.7	-12.6	-10.8	0.6	
Norway	1,419	1,725	-1.2	1.1	0.7	8.4	7.2	1.4	1.6	0.8	3.1	9.2	10.3	4.3	0.8	-0.6	-1.0	-20.0	21.6	
Poland	86	30	-0.4	12.6	-6.8	3.3	1.0	-5.9	2.7	4.3	7.7	-2.7	3.0	-9.1	4.4	11.7	-25.2	-63.9	-64.7	
Portugal	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Romania	398	301	-8.2	19.0	-0.3	16.7	6.7	-0.4	-0.5	3.8	3.8	6.1	8.7	11.0	7.0	2.6	0.9	-24.2	-24.4	
Russian Federation	5,112	6,521	-5.3	4.6	3.5	0.5	0.7	3.8	2.0	1.5	1.6	3.6	3.4	1.3	4.1	6.0	5.1	-9.4	27.6	
Slovakia	121	184	-1.6	-0.6	184.8	-1.1	-2.0	1.1	0.6	0.2	-0.2	1.6	40.6	-2.0	-14.8	-2.1	3.3	-7.5	51.3	
Slovenia	89	51	-15.8	4.3	-7.6	4.8	-2.1	-3.8	1.3	-0.2	43.7	9.4	0.6	2.4	-3.0	-7.9	-29.2	-57.7	-42.6	
Spain	610	596	-0.4	7.0	-0.2	0.6	-1.1	0.9	0.8	1.7	1.9	0.4	1.2	2.0	3.0	-1.4	2.1	-13.2	-2.4	
Sweden	133	98	0.2	7.9	6.1	-0.5	2.1	0.6	3.5	1.6	-0.8	0.0	-3.6	2.0	-0.8	-1.8	-18.3	-14.6	-26.7	
Switzerland	139	NO	-5.9	-14.2	28.3	2.7	18.3	6.6	3.2	2.1	10.7	9.2	2.3	-0.2	-73.2	*	*	*	*	
Turkey	110	C	-8.3	2.9	1.0	-0.1	-0.3	-0.2	-0.3	0.4	1.2	1.0	1.4	-6.3	0.0	*	*	*	*	
Ukraine	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
United Kingdom	450	391	1.3	2.8	0.9	3.2	4.3	4.2	12.5	11.7	1.0	-0.5	4.9	2.8	-2.6	1.2	-10.4	-22.4	-13.3	
United States	6,831	3,009	1.7	2.2	5.8	0.5	2.9	1.5	-3.2	-28.0	2.5	0.3	-6.0	-2.1	-8.2	11.8	5.3	-32.8	-55.9	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 2.9b

CO₂ implied emission factors for aluminium production - trend information

CO ₂ IEF (t/t)	Relative change (%)		Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	1.64	1.58	0	5.0	8.0	-5.7	0.3	-2.5	-1.5	1.0	3.7	-1.5	-1.9	0.3	-1.6	1.4	-1.1	-0.5	-3.2
Austria	1.80	NO	0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belarus	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Bulgaria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Canada	1.74	1.66	-0.7	0.2	1.1	-0.3	-0.8	-1.8	-0.1	-1.1	0.3	0.5	-0.6	2.3	0.0	-0.9	0.2	0.1	-4.6
Croatia	1.50	NO	0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Denmark	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Estonia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
European Union (27)	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Finland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
France	C	C	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Germany	1.37	1.37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Greece	C	C	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Hungary	1.80	NO	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	*	*	*	*	*
Iceland	1.55	1.48	0.5	0.2	0.9	0.7	-0.1	2.4	-2.4	0.3	-2.9	1.3	-0.4	-0.1	3.6	-4.0	0.2	-0.8	-4.6
Ireland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Italy	1.55	2.08	0	0	0	0	0	0	0	0.2	13.2	-12.4	0.8	-1.3	26.8	2.2	4.8	34.2	
Japan	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Kazakhstan	NO	2.01	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	-6.8	0.0
Latvia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	1.45	1.35	-0.1	-0.3	0.1	-0.2	0.1	0.2	-0.2	0.2	0.1	-0.1	0.1	-0.1	0.2	-7.0	-0.2	0.2	-7.0
New Zealand	1.70	1.67	0.7	-3.7	8.2	-5.3	-3.4	2.7	-0.7	-0.9	3.6	-1.0	-3.3	-0.3	2.5	-0.5	-2.3	4.0	-1.9
Norway	1.63	1.54	-2.6	2.6	-0.1	0.7	-1.1	0.1	-0.6	0.1	-0.7	-0.9	-1.0	-1.1	1.3	0.8	-1.4	-2.1	-5.5
Poland	1.80	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Portugal	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Romania	C	C	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Russian Federation	C	C	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovakia	1.80	1.23	0	0	-16.7	0	0	0	0	0	0	0	0	-3.4	-14.4	-3.5	1.7	0.7	-31.8
Slovenia	2.01	1.48	-3.3	4.5	-4.5	1.0	-1.4	-5.2	0.2	-0.1	1.9	-1.4	-1.4	2.4	-1.4	-1.6	-5.6	1.9	-26.4
Spain	C	C	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Sweden	1.38	1.40	-0.4	-3.7	2.3	-0.6	3.8	-2.7	1.8	0.9	0.3	-0.6	-3.6	0.7	0.0	0.0	0.0	0.0	1.3
Switzerland	1.60	NO	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*	*	*
Turkey	1.80	C	0	0	0	0	0	0	0	0	0	0	0	0	*	*	*	*	*
Ukraine	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
United Kingdom	1.55	1.54	0.0	-0.1	0.0	-0.1	0.0	-0.1	-0.5	0	0	0	0	0	0	0	0	0	-0.9
United States	1.69	1.74	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.3	0.2	-0.1	0.3	1.0	-0.6	-0.4	-0.2	1.4	3.5	3.2

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 2.10
Metal production - PFCs and SF₆ (2009)

	PFCs								SF ₆							
	Methods and EF used ^a		Aluminium production - PFCs						Methods and EF used ^b		SF ₆ used in magnesium foundries					
			Key category	Share of national total (%)	Activity data (aluminium production) (kt)	IEF		Ratio IEF CF ₄ / IEF C ₂ F ₆			Key category	Share of national total (%)	Activity data (production)		SF ₆ IEF (kg/t)	Actual SF ₆ emissions ^c (t)
	CF ₄	C ₂ F ₆				Description	Value (t)									
IPCC default EF ^c	Methods	EF							Methods	EF						
						0.31-1.7	0.04-0.17								1 ^d	
Australia	T1c	CS	T	0.1	1,980	0.02	0.00	8.3	NA	NA			(SF ₆ consumption)	NO	NO	NO
Austria	NA	NA	T	-	NO	NO	NO	-	T1	D	T	0.0	cast Magnesium [t]	3,600	0	0.0
Belarus	NA	NA		-	NO	NO	NO	-	NA	NA			NO	NO	NO	NO
Belgium	NA	NA		-	NO	NO	NO	-	NA	NA			2.C.4.2-Magnesium	NO	NO	NO
Bulgaria	NA	NA		-	4	NO	NO	-	NA	NA			NO	NO	NO	NO
Canada	CS	OTH	T	0.3	3,031	0.10	0.01	12.8	D, T3	D		0.0	SF ₆ use	8	1,000	8.1
Croatia	NA	NA	T	-	NO	NO	NO	-	NA	NA			NO	NO	NO	NO
Czech Republic	NA	NA		-	NO	NO	NO	-	NA	NA			NO	NO	NO	NO
Denmark	NA	NA		-	NO	NO	NO	-	NA	NA			(SF ₆ consumption)	NO	NO	NO
Estonia	NA	NA		-	NO	NO	NO	-	NA	NA			(Magnesium Foundries)	NO	NO	NO
European Union (27)	S, T1, T1c, T2, T3	CS, D, PS	T	0.0	NE	NE	NE	-	CR, D, T1, T2	CS, D, PS		0.0	2.C.4.2-Magnesium	NE	NE	15.4
Finland	NA	NA		-	NO	NO	NO	-	NA	NA			(SF ₆ consumption)	C	C	C
France			T	0.0	C	C	C	-	CR	CS, PS		0.0	SF ₆ consumption	NA	NA	10.0
Germany	T3	CS	T	0.0	292	0.11	0.01	10.0	D	D		0.0	Consumption Mg-Production	4	1,000	3.6
Greece	T3	PS	T	0.0	C	C	C	-	NA	NA			NO	NO	NO	NO
Hungary	NA	NA		-	NO	NO	NO	-	NA	NA			NO	NO	NO	NO
Iceland	T2	D	L, T	3.3	817	0.02	0.00	7.8	NA	NA			NO	NO	NO	NO
Ireland	NA	NA		-	NO	NO	NO	-	NA	NA			NO	NO	NO	NO
Italy	T2	D, PS	T	0.0	166	0.12	0.01	8.3	D	PS		0.0	consumption of SF ₆	0	1,000	0.4
Japan	T1b	CS		0.0	5	0.30	0.03	10.0	CS	CS		0.0	SF ₆ consumption	10	1,000	10.0
Kazakhstan			T	0.3	127	1.00	0.10	10.0	NA	NA			(country specific)	NO	NO	NO
Latvia	NA	NA		-	NO	NO	NO	-	NA	NA			NO	NO	NO	NO
Liechtenstein	NA	NA		-	NO	NO	NO	-	NA	NA			NO	NO	NO	NO
Lithuania	NA	NA		-	NO	NO	NO	-	NA	NA			NO	NO	NO	NO
Luxembourg	NA	NA		-	NO	NO	NO	-	NA	NA			magnesium production	NO	NO	NO
Malta	NA	NA		-	NO	NO	NO	-	NA	NA			(Not occurring)	NO	NO	NO
Monaco	NA	NA		-	NO	NO	NO	-	NA	NA			NO	NO	NO	NO
Netherlands	T2	PS	T	0.0	166	0.03	0.00	7.1	NA	NA			NO	NO	NO	NO
New Zealand	T2	D	T	0.1	271	0.02	0.00	8.3	NA	NA			SF ₆ consumption	NO	NA	NA
Norway	T2	CS	L, T	0.7	1,119	0.04	0.01	8.4	NA	NA	T		NO	NO	NO	NO
Poland	T1c	D		0.0	17	0.11	0.01	10.0	T1	D		0.0	Magnesium alloy used for cast	182	1	0.2
Portugal	NA	NA		-	NO	NO	NO	-	NA	NA			(SF ₆ consumption)	NO	NO	NO
Romania	T1	D	T	0.4	C	C	C	-	NA	NA			(SF ₆ consumption)	NO	NO	NO
Russian Federation	T2	D, PS	T	0.1	C	C	C	-	NA	NA			(SF ₆ consumption)	NO	NO	NO
Slovakia	T3	PS	T	0.0	150	0.02	0.00	10.0	NA	NA			NO	NO	NO	NO
Slovenia	T3	PS	T	0.0	35	0.03	0.00	7.8	NA	NA			NO	NO	NO	NO
Spain	T2	PS	T	0.0	C	C	C	-	NA	NA			NO	NO	NA	NA
Sweden	T2	CS	T	0.1	70	0.06	0.01	7.8	D	D		0.0	SF ₆ consumption	1	1,000	1.2
Switzerland	NA	NA	T	-	NO	NO	NO	-	CS, T1	CS		0.1	(specify)	1	1,000	1.1
Turkey	NA	NA		-	NA	C	C	-	NA	NA			NO	NA	NA	NA
Ukraine	T3	CS		0.0	C	C	C	-	NA	NA			Magnesium Foundries	NO	NO	NO
United Kingdom	CS	CS, PS		0.0	254	0.03	0.00	7.8	T2	PS			SF ₆ consumption	IE	IE	IE
United States	T2	CS	T	0.0	1,727	0.11	0.02	6.2	D	CS	T	0.0	Magnesium Production and Processing	C	C	44.0

^a 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 PFCs for all subcategories within the category 2.C Metal production.

^b 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 SF₆ for all subcategories within the category 2.C Metal production.

^c Source of default emission factors: IPCC good practice guidance, page 3.44.

^d The default SF₆ emission factor is 1 kg/t magnesium produced or smelted.

^e IPCC good practice guidance state that SF₆ emissions equal consumption in Magnesium Smelters and Foundries (IPCC good practice, page 3.48).

Table 2.11

CF₄ emissions from aluminium production - trend information

CF ₄ emissions (t)	Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	513.3	40.4	0.1	-29.3	-7.9	-12.9	35.2	-31.4	13.0	40.0	-4.1	-2.5	1.8	4.5	-61.7	-15.2	-23.7	-18.3	-92.1
Austria	137.3	NO	0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belarus	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Bulgaria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Canada	905.4	299.8	6.3	-8.5	2.5	-1.9	1.7	-17.2	-7.4	-18.9	-14.3	1.3	0.9	8.1	-21.3	-15.1	2.7	-3.9	-66.9
Croatia	126.2	NO	-31.4	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Denmark	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Estonia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
European Union (27)	2,122.8	158.0	-9.7	-0.4	-4.9	-2.0	-2.1	-5.5	-23.0	-14.4	26.5	-29.0	-24.0	-17.7	-14.1	-4.0	-19.2	-39.1	-92.6
Finland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
France	368.6	4.0	-13.9	-16.5	-14.2	2.9	27.2	32.8	-37.9	-23.3	99.1	-14.7	-42.6	-43.4	-15.9	-27.0	-78.8	-61.1	-98.9
Germany	335.5	33.3	-14.5	5.4	-5.3	-26.8	8.4	-26.2	-58.6	4.3	16.0	9.7	-5.7	-24.5	-44.1	2.7	27.9	0	-90.1
Greece	34.6	4.7	0.3	-10.7	-14.2	130.5	22.9	-10.7	12.0	-38.4	-3.0	-11.7	-8.5	-0.2	-14.5	-3.6	26.4	-52.5	-86.3
Hungary	36.2	NO	-13.7	5.0	-4.5	-0.3	7.6	2.4	20.3	-5.8	1.6	-6.7	6.2	3.9	*	*	*	*	*
Iceland	54.6	19.9	-17.0	32.0	-57.3	227.5	118.7	-3.8	-26.6	-27.9	-20.9	-17.6	-35.5	-32.4	1177.0	-15.6	24.1	-56.2	-63.6
Ireland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Italy	198.3	19.1	-21.9	-12.6	-49.2	1.8	0.6	-0.7	38.7	17.8	-15.2	34.7	-41.2	16.1	-14.5	28.1	-44.4	31.4	-90.4
Japan	NE	1.5	*	*	-5.5	-9.8	-16.9	-41.0	-38.9	-11.6	-5.7	2.5	-2.7	0.0	0.1	-0.9	-0.2	-24.9	*
Kazakhstan	NO	127.1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	804.2	19.7	*
Latvia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	277.3	5.5	-0.8	-3.0	11.5	6.8	-26.4	-25.8	4.7	-4.5	53.6	-77.7	-74.4	-17.4	-28.4	64.6	-30.5	-40.0	-98.0
New Zealand	81.9	5.9	-0.7	-21.4	61.8	-16.1	-59.3	-15.0	-1.4	4.5	5.9	48.1	-18.4	-23.3	39.4	-51.4	-9.6	23.0	-92.8
Norway	467.4	49.9	-10.9	-1.2	-8.8	-11.1	-8.8	-6.5	-5.0	0.6	7.4	-37.6	-2.8	-4.4	-12.5	9.5	-6.3	-52.3	-89.3
Poland	29.1	1.9	-0.4	12.6	-6.8	3.3	1.0	-5.9	2.7	4.3	7.7	-2.7	3.0	-9.1	4.4	11.7	-25.2	-93.2	-93.3
Portugal	NE	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Romania	451.4	62.2	-8.2	19.0	-0.3	1.0	-1.8	-8.6	-19.4	-19.2	-31.3	-36.5	8.7	11.0	7.0	2.6	0.9	-24.2	-86.2
Russian Federation	1,630.8	319.6	6.2	-4.1	-12.3	-15.3	-3.6	-2.4	3.3	-9.5	-16.7	-10.5	0.0	-5.4	-11.2	-10.1	-5.0	-34.9	-80.4
Slovakia	36.6	2.4	-1.6	-13.4	-69.7	-3.4	-33.1	-49.4	0.6	0.2	-0.2	83.0	-7.4	3.8	78.6	-30.5	45.3	-50.9	-93.5
Slovenia	37.2	1.0	17.5	-0.2	-4.4	3.0	-2.7	3.2	0.3	0	10.3	2.7	0.6	11.0	-6.0	-27.0	-77.7	-64.5	-97.4
Spain	122.2	11.5	-6.4	1.6	-4.9	2.2	-7.5	-9.9	-44.8	-48.6	5.0	-4.4	-3.6	-20.6	-6.4	-6.9	-3.9	-31.7	-90.6
Sweden	53.7	4.4	0.7	8.6	-13.3	-8.5	-2.8	9.7	-17.7	-2.3	9.0	0.4	0.3	2.6	-4.7	0.9	-10.7	-86.3	-91.9
Switzerland	13.3	NO	-15.6	-20.7	17.9	-6.3	6.8	-8.7	-31.2	2.1	10.7	9.2	-4.1	-6.9	-73.4	*	*	*	*
Turkey	87.4	C	23.4	-14.5	0.7	-0.7	0.1	-0.5	0.1	0.1	0.6	-0.1	0.9	-6.8	-17.0	*	*	*	*
Ukraine	27.4	6.3	-20.2	10.4	-19.6	2.6	-17.9	-15.6	13.7	-3.2	-12.0	-21.8	21.0	52.5	-21.9	39.2	12.6	-69.0	-77.1
United Kingdom	174.2	7.9	-17.8	-17.4	-1.2	-21.6	-5.4	-10.0	35.5	-15.7	-30.8	-26.3	38.0	-60.8	113.9	-35.0	41.4	-48.6	-95.5
United States	2,440.1	198.2	-16.1	-1.7	5.4	-11.6	-18.1	-1.6	1.8	-60.8	50.3	-28.2	-26.3	5.0	-16.6	50.6	-31.1	-41.5	-91.9

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 2.12

Production of halocarbons and SF₆ - HFCs, PFCs and SF₆ (2009)

	HFCs							PFCs		SF ₆	
	Methods and EF used ^d		Key category	Share of national total	Production of HCFC-22			Methods and EF used ^d	Methods and EF used ^d		
	Methods	EF			Activity data (HCFC-22 production)		IEF				
					CRF	International ^b	HFC-23				
		(%)	(t)	(kg/t)							
IPCC default EF^e							40.0				
Australia	NA	NA	T	-	NO	-15.7	NO	NA	NA	NA	NA
Austria	NA	NA		-	NO		NA	NA	NA	NA	NA
Belarus	NA	NA		-	NO		NO	NA	NA	NA	NA
Belgium	NA	NA		-	NO		NO			NA	NA
Bulgaria	NA	NA		-	NO		NO	NA	NA	NA	NA
Canada	NA	NA	T	-	NA	72	NO	NA	NA	NA	NA
Croatia	NA	NA		-	NO		NO	NA	NA	NA	NA
Czech Republic	NA	NA		-	NO	0	NO	NA	NA	NA	NA
Denmark ^c	NA	NA		-	NO		NO	NA	NA	NA	NA
Estonia	NA	NA		-	NO		NO	NA	NA	NA	NA
European Union (27)	CR, T1, T2, T3	PS	T	0.0	C, NA, NE, NO	2,159	C, NA, NE, NO	CR, T2	PS	T3	PS
Finland	NA	NA		-	NO	-1.1	NO	NA	NA	NA	NA
France	CR	PS	T	0.0	C	845	C	CR	PS	NA	NA
Germany	T3	PS		-	NE	892	C	NA	NA	T3	PS
Greece	NA	NA	T	-	NO		NO	NA	NA	NA	NA
Hungary	NA	NA		-	NO	-0.1	NO	NA	NA	NA	NA
Iceland	NA	NA		-	NO		NO	NA	NA	NA	NA
Ireland	NA	NA		-	NA		NA	NA	NA	NA	NA
Italy	NA	NA		-	C		NA	NA	NA	NA	NA
Japan	CS	CS		0.0	26,682	494	0.1	CS	CS	CS	CS
Kazakhstan	NA	NA		-	NO		NO	NA	NA	NA	NA
Latvia	NA	NA		-	NO		NO	NA	NA	NA	NA
Liechtenstein	NA	NA		-	NO		NO	NA	NA	NA	NA
Lithuania	NA	NA		-	NO		NO	NA	NA	NA	NA
Luxembourg	NA	NA		-	NO		NO	NA	NA	NA	NA
Malta	NA	NA		-	NO		NO	NA	NA	NA	NA
Monaco	NA	NA		-	NO		NO	NA	NA	NA	NA
Netherlands ^d	T1, T2	PS	T	0.1	C	208	C	NA	NA	NA	NA
New Zealand	NA	NA		-	NO		NO	NA	NA	NA	NA
Norway	NA	NA		-	NO	0	NO	NA	NA	NA	NA
Poland	NA	NA		-	NO		NO	NA	NA	NA	NA
Portugal	NA	NA		-	NO		NO	NA	NA	NA	NA
Romania	NA	NA		-	NO		NO	NA	NA	NA	NA
Russian Federation	D, T2	D, PS	T	0.3	18,773	292	44.6	D	D	D	PS
Slovakia	NA	NA		-	NO	-0.1	NO	NA	NA	NA	NA
Slovenia	NA	NA		-	NO		NO	NA	NA	NA	NA
Spain	T2	PS	T	0.1	C	84	C	NA	NA	NA	NA
Sweden	NA	NA		-	NO		NO	NA	NA	NA	NA
Switzerland	NA	NA		-	NO		NO	NA	NA	NA	NA
Turkey	NA	NA		-	NA		NA	NA	NA	NA	NA
Ukraine	NA	NA		-	NO		NO	NA	NA	NA	NA
United Kingdom ^f	T2	PS		-	IE	132	IE	T2	PS	NA	NA
United States	M, T2	CS, M	T	0.1	91,478	2,799	5.0	NA	NA	NA	NA

^a 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 HFCs, PFCs and SF₆ for all subcategories within the category 2.E Production of halocarbons and SF₆.

^b Source of data for HCFC production: Ozone secretariat, downloaded from http://ozone.unep.org/Data_Reporting/Data_Access on 24 May 2011. Data are for total HCFC production in units of ODP (ozone depleting potential).

^c Data for Denmark includes Greenland since 1991 and Faroe Islands since October 2007.

^d Data for the Netherlands excludes data for the following territories: Suriname and the Netherlands Antilles.

^e Source of default emission factors: IPCC Guidelines, volume 3, page 2.35.

^f The United Kingdom reported aggregated HFC emissions from 2.E.1 Production and 2.E.2 Fugitive.

Table 2.13

HFC-23 emissions from production of halocarbons and SF₆ - trend information

HFC-23 emissions (t)			Relative change (%)																	
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	96	NA, NO	0	-11.4	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Austria	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Belarus	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Belgium	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Bulgaria	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Canada	66	NA, NO	8.9	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Croatia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Czech Republic	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Denmark	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Estonia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
European Union (27)	1,806	68	-0.3	6.8	7.7	6.7	-8.9	-33.6	-21.4	-40.2	-20.8	-5.9	-37.4	-14.5	-53.5	-27.7	-3.2	-32.9	-96.2	
Finland	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
France	140	13	30.3	-76.2	73.8	-6.7	-37.9	98.7	-19.5	4.4	3.3	-34.4	33.9	17.3	15.8	-38.1	10.8	-51.3	-91.0	
Germany	C, NA, NO	C, NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Greece	80	NO	18.4	51.7	15.2	5.7	10.1	15.2	-25.6	-14.8	0.4	-16.7	-4.2	-15.4	*	*	*	*	*	
Hungary	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Iceland	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Italy	30	NA, NO	0	0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Japan	NE, NO	3	*	*	-8.1	-5.8	-6.2	2.3	-12.0	-24.7	-34.7	-17.6	-79.7	-54.5	41.8	-66.9	115.6	-91.5	*	
Kazakhstan	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Latvia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Malta	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	379	13	-22.1	-8.3	19.6	-2.6	16.1	-55.8	-29.6	-81.4	52.2	-39.4	-14.6	-44.7	43.1	-13.6	-12.6	-27.4	-96.5	
New Zealand	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Norway	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Poland	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Portugal	NE, NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Romania	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Russian Federation	2,428	557	-4.8	-0.2	-12.0	32.1	21.1	3.7	17.1	-5.8	-24.7	-26.6	24.1	4.7	-14.5	-10.1	1.4	-40.9	-77.1	
Slovakia	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovenia	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Spain	205	39	-9.3	34.1	9.0	14.4	-12.2	16.0	7.3	-54.1	-62.1	52.6	-57.2	-15.5	29.8	-20.3	0.6	-28.3	-81.2	
Sweden	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Switzerland	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Turkey	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
United Kingdom	972	4	4.1	5.3	2.3	9.0	-22.6	-60.3	-46.7	-10.0	-16.0	-4.0	-81.8	-4.9	-39.6	-54.2	-48.0	0	-99.6	
United States	3,113	460	-10.1	4.5	-5.5	-3.4	31.2	-23.0	-5.9	-31.0	6.9	-41.8	40.2	-8.1	-12.6	22.8	-19.9	-60.5	-85.2	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 2.14a

Consumption of halocarbons and SF₆ - HFCs (2009)

	Methods and EF used ^a		HFC-23			HFC-32			HFC-41			HFC-431-0mee			HFC-125		
	Methods	EF	P ^b	A ^c	Ratio P / A	P ^b	A ^c	Ratio P / A	P ^b	A ^c	Ratio P / A	P ^b	A ^c	Ratio P / A	P ^b	A ^c	Ratio P / A
			2.F(p)	2.F(a)		(Gg CO ₂ equivalent)	2.F(p)		2.F(a)	(Gg CO ₂ equivalent)		2.F(p)	2.F(a)		(Gg CO ₂ equivalent)	2.F(p)	
Australia	M	D	IE, NO	IE, NA, NO	IE, NA, NO	IE, NO	138.96	IE, NO	IE, NO	IE, NA, NO	IE, NA, NO	IE, NO	IE, NA, NO	IE, NA, NO	IE, NO	1,387.56	IE, NO
Austria	CS	CS	89.22	38.60	2.31	15.07	8.28	1.82	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	290.61	222.79	1.30
Belarus			NE, NO	2.27	NE, NO	NE, NO	0.03	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	7.87	NE, NO
Belgium	T1, T2	CS, D, PS	0.97	0.9711	1	39.67	15.57	2.55	NO	NO	NO	NO	NO	NO	711.13	403.85	1.76
Bulgaria	T2	D	IE, NA, NO	NO	IE, NA, NO	IE, NA, NO	13.74	IE, NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	IE, NA, NO	71.33	IE, NA, NO
Canada	T2	D	8.98	7.62	1.18	112.84	57.88	1.95	IE, NA, NO	IE, NA, NE, NO	IE, NA, NE, NO	2.05	2.13	0.96	2,049.71	1,292.81	1.59
Croatia	T2	D	NO	NO	NO	13.23	5.58	2.37	NO	NO	NO	NO	NO	NO	181.69	54.56	3.33
Czech Republic	D, T1, T2	D	4.68	4.68	1.00	134.49	17.22	7.81	NA, NE, NO	NO	NA, NE, NO	NA, NE, NO	NO	NA, NE, NO	868.06	303.95	2.86
Denmark	T1	D	2.81	2.81	1.00	11.32	11.61	0.98	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	195.17	215.33	0.91
Estonia	T2	CS	NE, NO	0.65	NE, NO	NE, NO	2.03	NE, NO	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	NE, NO	37.29	NE, NO
European Union (27)	H, RA, T1, T1b, T2, D, M, OTH		IE	2,035.83	IE	IE	992.22	IE	IE	IE, NA, NO	IE, NA, NO	IE	450.84	IE	IE	13,166.74	IE
Finland	T1, T2	D	1.29	C, NA, NO	C, NA, NO	35.43	14.92	2.37	NO	NO	NO	NO	NO	NO	466.05	271.68	1.72
France			95.93	26.12	3.67	273.60	181.48	1.51	NA	NO	NA, NO	355.88	355.88	1.00	2,463.35	2,853.71	0.86
Germany	CS, T2	CS, D	2,706.96	260.18	10.40	1,303.01	60.13	21.67	IE, NO	NA, NO	IE, NA, NO	C, IE, NO	C, NO	C, IE, NO	18,611.58	1,812.52	10.27
Greece	CS, T2	D	NE	NA, NO	NA, NE, NO	NE	60.24	NE	NE	NA, NO	NA, NE, NO	NE	NA, NO	NA, NE, NO	NE	280.58	NE
Hungary	CS, D, T1	CS, D	1.00	0.88	1.14	14.91	10.31	1.45	NO	NO	NO	NO	NO	NO	354.00	238.68	1.48
Iceland	T1a	D	NE, NO	NA, NE, NO	NA, NE, NO	0.15	0.13	1.18	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	NA, NE, NO	NA, NE, NO	69.78	30.05	2.32
Ireland	T1, T2, T3	CS	37.82	5.11	7.40	13.69	3.42	4.00	NO	NO	NO	NO	NO	NO	233.07	57.72	4.04
Italy	CS, T2	CS, PS	NA, NO	30.17	NA, NO	98.12	391.82	0.25	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	1,417.70	2,752.78	0.52
Japan	CS, T1	CS, D	7,289.10	5.27	1,381.97	IE, NE	495.76	IE, NE	NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NE, NO	IE, NA, NO	IE, NA, NE, NO	IE, NE	2,136.55	IE, NE
Kazakhstan	CS	CS	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO
Latvia	T2	D, OTH	NO	0.02	NO	2.35	0.62	3.79	NO	NO	NO	NO	NO	NO	67.74	10.55	6.42
Liechtenstein			NO	NO	NO	NO	0.05	NO	NO	NO	NO	NO	NO	NO	NO	1.43	NO
Lithuania	T1, T2	CS, D	NE, NO	NO	NE, NO	0.48	0.05	8.98	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	73.11	11.87	6.16
Luxembourg	CS	CS	NE	NA, NO	NA, NE, NO	NE	0.81	NE	NE	NA, NO	NA, NE, NO	NE	NA, NO	NA, NE, NO	NE	16.02	NE
Malta	CS, M	CS, M	NE, NO	0.00	NE, NO	NE, NO	1.40	NE, NO	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	NE, NO	9.58	NE, NO
Monaco	T1a	D	NO	NA, NO	NA, NO	0.11	0.11	1.00	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	0.65	0.65	1.00
Netherlands	CS, T2	CS	NE, NO	IE, NA, NO	IE, NA, NE, NO	NE, NO	13.07	NE, NO	NE, NO	IE, NA, NO	IE, NA, NE, NO	NE, NO	IE, NA, NO	IE, NA, NE, NO	NE, NO	345.22	NE, NO
New Zealand	T1a, T2	CS, D	-0.02	NA, NE, NO	NA, NE, NO	60.68	13.90	4.36	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	490.94	258.81	1.90
Norway	T2	CS	1.25	1.72	0.73	10.25	5.62	1.83	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	175.28	159.57	1.10
Poland	T1, T1a, T1b, T2	D	NO	NA, NO	NA, NO	62.63	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	1,452.69	NA, NO	NA, NO
Portugal	RA, T2	CS, D	1.06	3.37	0.31	65.73	44.32	1.48	NO	NO	NO	NO	NO	NO	1,479.67	263.63	5.61
Romania	T2	D	NE, NO	0.47	NE, NO	2.90	0.15	19.54	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	44.23	5.38	8.23
Russian Federation	T1, T1a, T2	D	384.02	177.68	2.16	122.51	51.18	2.39	NE, NO	NA, NO	NA, NE, NO	NE, NO	NA, NO	NA, NE, NO	3,020.58	861.63	3.51
Slovakia	D	CS	0.67	0.82	0.81	20.24	6.97	2.90	NO	NO	NO	NO	NO	NO	204.34	77.67	2.63
Slovenia	T2	CS, D	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Spain	D, T1, T2	D	NE, NO	1,641.28	NE, NO	C, NE	NA	C, NA, NE	NE, NO	NA	NA, NE, NO	NE, NO	NA	NA, NE, NO	NE, NO	693.50	NE, NO
Sweden	CS, T2	CS, D, PS	NA, NE, NO	0.81	NA, NE, NO	20.35	5.62	3.62	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	205.04	85.62	2.39
Switzerland	T1, T2	CS, D	18.14	3.55	5.12	40.56	8.12	4.99	NA, NO	NO	NA, NO	0.78	1.03	0.75	542.15	211.25	2.57
Turkey	T1	D	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE
Ukraine	CS, T1, T2	CS, D, OTH	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	3.57	NE, NO	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	15.38	NE, NO
United Kingdom	OTH, T2, T3	CS, OTH	IE, NE, NO	18.89	IE, NE, NO	IE, NA, NE, NO	130.55	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NO	IE, NA, NE, NO	IE, NA, NE, NO	94.96	IE, NA, NE, NO	IE, NA, NE, NO	2,160.84	IE, NA, NE, NO
United States	M, T2	CS, M	347.70	347.54	1.00	5,924.50	1,650.88	3.59	NE, NO	NA, NO	NA, NE, NO	C, IE, NE	C, NA, NO	IE, NA, NE, NO	50,311.79	21,644.07	2.32

^a 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 HFCs for all subcategories within the category 2.F Consumption of halocarbons and SF₆.

^b P = Potential emissions

^c A = Actual emissions

Table 2.14b

Consumption of halocarbons and SF₆ - HFCs (2009)

	Methods and EF used ^a		HFC-134			HFC-134a			HFC-152a			HFC-143			HFC-143a				
			Methods	EF	P ^b	A ^c	Ratio P / A	P ^b	A ^c	Ratio P / A	P ^b	A ^c	Ratio P / A	P ^b	A ^c	Ratio P / A	P ^b	A ^c	Ratio P / A
					2.F(p)	2.F(a)		2.F(p)	2.F(a)		2.F(p)	2.F(a)		2.F(p)	2.F(a)		2.F(p)	2.F(a)	
					(Gg CO ₂ equivalent)			(Gg CO ₂ equivalent)			(Gg CO ₂ equivalent)			(Gg CO ₂ equivalent)			(Gg CO ₂ equivalent)		
Australia	M	D	IE, NO	IE, NA, NO	IE, NA, NO	IE, NO	4,335.72	IE, NO	IE, NO	IE, NA, NO	IE, NA, NO	IE, NO	IE, NA, NO	IE, NA, NO	IE, NO	66.77	IE, NO		
Austria	CS	CS	NE, NO	NO	NE, NO	NE, NO	359.68	487.14	0.74	17.20	18.25	0.94	NE, NO	NO	NE, NO	335.68	278.60	1.20	
Belarus			NE, NO	2.41	NE, NO	NE, NO	6.28	NE, NO	NE, NO	0.00	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	13.34	NE, NO		
Belgium	T1, T2	CS, D, PS	NO	NO	NO	NO	1,147.14	803.82	1.43	44.57	46.05	0.97	NO	NO	NO	818.65	519.58	1.58	
Bulgaria	T2	D	NA, NO	NO	NA, NO	IE, NA, NO	114.74	IE, NA, NO	IE, NA, NO	49.64	IE, NA, NO	NA, NO	NO	NA, NO	IE, NA, NO	16.05	IE, NA, NO		
Canada	T2	D	0.03	0.01	3.66	6,302.73	3,923.89	1.61	66.29	43.06	1.54	IE, NA, NO	IE, NA, NE, NO	IE, NA, NE, NO	2,162.51	1,458.12	1.48		
Croatia	T2	D	NO	NO	NO	141.31	319.40	0.44	6.41	NE, NO	NE, NO	NO	NO	NO	197.11	47.82	4.12		
Czech Republic	D, T1, T2	D	NA, NE, NO	NO	NA, NE, NO	910.52	347.22	2.62	NA, NE, NO	NO	NA, NE, NO	NA, NE, NO	NO	NA, NE, NO	365.07	295.39	1.24		
Denmark	T1	D	NE, NO	NE, NO	NE, NO	206.66	332.07	0.62	1.68	0.52	3.22	NE, NO	NE, NO	NE, NO	227.86	253.95	0.90		
Estonia	T2	CS	NE, NO	NE, NO	NE, NO	NE, NO	49.90	NE, NO	NE, NO	5.70	NE, NO	NE, NO	NO	NE, NO	NE, NO	44.12	NE, NO		
European Union (27)	H, RA, T1, T1a, T1b, T2	D, M, OTH	IE	4.65	IE	IE	37,617.55	IE	IE	389.22	IE	IE	0.05	IE	IE	13,291.91	IE		
Finland	T1, T2	D	NO	NO	NO	481.26	232.23	2.07	0.35	0.18	1.92	NO	NO	NO	448.51	287.69	1.56		
France			NA	NO	NA, NO	6,030.72	8,297.72	0.73	41.66	54.35	0.77	NA	NO	NA, NO	1,936.76	3,310.91	0.58		
Germany	CS, T2	CS, D	IE, NO	NA, NO	IE, NA, NO	51,497.60	6,521.12	7.90	5.48	54.36	0.10	IE, NO	NA, NO	IE, NA, NO	20,385.37	2,384.54	8.55		
Greece	CS, T2	D	NE	NA, NO	NA, NE, NO	NE	2,153.72	NE	NE	35.88	NE	NE	NA, NO	NA, NE, NO	NE	NA, NO	NA, NE, NO		
Hungary	CS, D, T1	CS, D	NO	NO	NO	438.82	278.76	1.57	0.07	0.06	1.15	NO	NO	NO	418.69	275.37	1.52		
Iceland	T1a	D	NE, NO	NA, NE, NO	NA, NE, NO	15.53	16.66	0.93	NE, NO	0.04	NE, NO	NE, NO	NA, NE, NO	NA, NE, NO	100.01	38.94	2.57		
Ireland	T1, T2, T3	CS	NO	NO	NO	1,010.28	349.47	2.89	5.68	1.03	5.51	NO	NO	NO	255.17	62.93	4.06		
Italy	CS, T2	CS, PS	NA, NO	NO	NA, NO	793.47	3,116.24	0.25	7.93	NO	NO	NA, NO	NO	NA, NO	1,375.60	1,533.67	0.90		
Japan	CS, T1	CS, D	NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NE	3,627.00	IE, NE	IE, NE	221.75	IE, NE	NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NE	IE, NA, NE, NO	IE, NA, NE, NO		
Kazakhstan	CS	CS	NO	NA, NO	NA, NO	NO	416.26	NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO		
Latvia	T2	D, OTH	NO	NO	NO	42.83	75.26	0.57	NO	0.00	NO	NO	NO	NO	86.94	8.15	10.66		
Liechtenstein			NO	NO	NO	NO	2.44	NO	NO	NO	NO	NO	NO	NO	NO	1.43	NO		
Lithuania	T1, T2	CS, D	NE, NO	NO	NE, NO	4.73	5.34	0.89	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	113.89	18.62	6.12		
Luxembourg	CS	CS	NE	NA, NO	NA, NE, NO	NE	32.50	NE	NE	0.04	NE	NE	NA, NO	NA, NE, NO	NE	16.18	NE		
Malta	CS, M	CS, M	NE, NO	NE, NO	NE, NO	NE, NO	17.81	NE, NO	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	NE, NO	11.44	NE, NO		
Monaco	T1a	D	NO	NA, NO	NA, NO	2.77	1.05	2.63	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	0.20	0.20	1.00		
Netherlands	CS, T2	CS	NE, NO	IE, NA, NO	IE, NA, NE, NO	NE, NO	498.63	NE, NO	NE, NO	IE, NA, NO	IE, NA, NE, NO	NE, NO	IE, NA, NO	IE, NA, NE, NO	NE, NO	417.81	NE, NO		
New Zealand	T1a, T2	CS, D	NO	NA, NO	NA, NO	319.92	306.45	1.04	0.00	NA, NE, NO	NA, NE, NO	NO	NA, NO	NA, NO	346.13	298.62	1.16		
Norway	T2	CS	0.04	0.09	0.39	781.17	365.92	2.13	21.64	5.56	3.89	0.60	0.52	1.16	161.65	164.79	0.98		
Poland	T1, T1a, T1b, T1c	D	NO	NA, NO	NA, NO	2,512.81	3,878.74	0.65	29.43	27.97	1.05	NO	NA, NO	NA, NO	1,622.89	NA, NO	NA, NO		
Portugal	RA, T2	CS, D	NO	NO	NO	633.47	666.87	0.95	NO	39.64	NO	NO	NO	NO	1,634.50	87.51	18.68		
Romania	T2	D	NE, NO	0.34	NE, NO	75.02	10.35	7.25	NE, NO	NO	NE, NO	NE, NO	0.05	NE, NO	49.69	6.45	7.71		
Russian Federation	T1, T1a, T2	D	NE, NO	NA, NO	NA, NE, NO	2,729.67	2,043.55	1.34	1.62	0.76	2.12	NE, NO	NA, NO	NA, NE, NO	1,563.42	743.12	2.10		
Slovakia	D	CS	NO	NO	NO	264.94	134.74	1.97	0.06	0.15	0.38	NO	NO	NO	162.64	73.91	2.20		
Slovenia	T2	CS, D	NO	NO	NO	202.08	121.37	1.66	NO	NO	NO	NO	NO	NO	NO	NO	NO		
Spain	D, T1, T2	D	NE, NO	NA	NA, NE, NO	NE, NO	3,270.98	NE, NO	NE, NO	10.05	NE, NO	NE, NO	NA	NA, NE, NO	C, NE	989.28	C, NE		
Sweden	CS, T2	CS, D, PS	NO	NA, NO	NA, NO	735.38	730.06	1.01	42.09	29.26	1.44	NO	NA, NO	NA, NO	158.73	80.42	1.97		
Switzerland	T1, T2	CS, D	NA, NO	NO	NA, NO	748.42	370.47	2.02	0.03	0.16	0.18	NA, NO	NO	NA, NO	494.08	256.31	1.93		
Turkey	T1	D	NA, NE	NA, NE	NA, NE	2,839.25	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE		
Ukraine	CS, T1, T2	CS, D, OTH	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	260.49	NE, NO	NE, NO	NA, NE, NO	IE, NA, NE, NO	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	NA, NE, NO	NA, NE, NO		
United Kingdom	OTH, T2, T3	CS, OTH	IE, NA, NE, NO	4.31	IE, NA, NE, NO	NA, NE, NO	5,141.60	IE, NA, NE, NO	NA, NE, NO	16.08	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NO	IE, NA, NE, NO	NA, NE, NO	2,361.15	IE, NA, NE, NO		
United States	M, T2	CS, M	NE, NO	C, NA, NO	C, NA, NE, NO	86,187.63	66,665.69	1.29	C, IE, NE	C, NA, NO	C, IE, NA, NE, NO	NE, NO	C, NA, NO	C, NA, NE, NO	36,338.43	22,031.74	1.65		

^a 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 HFCs for all subcategories within the category 2.F Consumption of halocarbons and SF₆.

^b P = Potential emissions

^c A = Actual emissions

Table 2.14c
Consumption of halocarbons and SF₆ - HFCs (2009)

	Methods and EF used ^a		HFC-227ea			HFC-236fa			HFC-245ca			Unspecified HFCs			Total		
	Methods	EF	P ^b	A ^c	Ratio P / A	P ^b	A ^c	Ratio P / A	P ^b	A ^c	Ratio P / A	P ^b	A ^c	Ratio P / A	P ^b	A ^c	Ratio P / A
			2.F(p)	2.F(a)		2.F(p)	2.F(a)		2.F(p)	2.F(a)		2.F(p)	2.F(a)		2.F(p)	2.F(a)	
			(Gg CO ₂ equivalent)	(Gg CO ₂ equivalent)		(Gg CO ₂ equivalent)	(Gg CO ₂ equivalent)		(Gg CO ₂ equivalent)	(Gg CO ₂ equivalent)		(Gg CO ₂ equivalent)	(Gg CO ₂ equivalent)		(Gg CO ₂ equivalent)	(Gg CO ₂ equivalent)	
Australia	M	D	IE, NO	IE, NA, NO	IE, NA, NO	IE, NO	IE, NA, NO	IE, NA, NO	IE, NO	IE, NA, NO	IE, NA, NO	10,365.41	320.61	32.33	10,365.41	6,249.63	1.66
Austria	CS	CS	5.82	0.24	24.58	NE, NO	NO	NE, NO	NE, NO	NE, NO	NE, NO	12.03	1.71	7.04	1,125.30	1,055.62	1.07
Belarus			NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	32.20	NE, NO
Belgium	T1, T2	CS, D, PS	22.29	11.62	1.92	NO	NO	NO	NO	NO	NO	NO	NO	NO	2,784.41	1,801.45	1.55
Bulgaria	T2	D	IE, NA, NO	2.50	IE, NA, NO	IE, NA, NO	NO	IE, NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	IE, NA, NO	268.00	19.32
Canada	T2	D	NO	0.12	NO	IE, NA, NO	NA, NE, NO	IE, NA, NE, NO	IE, NA, NO	IE, NA, NE, NO	IE, NA, NE, NO	NA, NO	NA, NE, NO	NA, NE, NO	10,705.14	6,785.62	1.58
Croatia	T2	D	2.76	1.38	2.00	NO	NO	NO	NO	NO	NO	NO	NO	NO	542.51	428.74	1.27
Czech Republic	D, T1, T2	D	29.49	29.59	1.00	43.09	43.09	1.00	0.50	0.51	0.98	NA, NE, NO	NO	NA, NE, NO	2,355.90	1,041.67	2.26
Denmark	T1	D	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	0.23	0.23	1.00	645.73	816.53	0.79
Estonia	T2	CS	NE, NO	0.90	NE, NO	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	NE, NO	140.66	NE, NO
European Union (27)	H, RA, T1, T1a, D, M, OTH,		IE	1,590.53	IE	IE	70.56	IE	IE	0.51	IE	234,057.08	902.95	259.21	234,057.08	70,513.57	3.32
Finland	T1, T2	D	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	1,432.89	888.83	1.61
France			704.10	146.42	4.81	NA	NO	NA, NO	NA	NO	NA, NO	1,001.14	NO	NO	12,903.14	15,315.98	0.84
Germany	CS, T2	CS, D	1,099.90	84.94	12.95	C, IE, NO	7.75	C, IE, NO	IE, NO	NA, NO	IE, NA, NO	IE, NO	NA, NO	IE, NA, NO	95,609.90	11,185.53	8.55
Greece	CS, T2	D	NE	38.54	NE	NE	NA, NO	NA, NE, NO	NE	NA, NO	NA, NE, NO	NE	NA, NO	NA, NE, NO	NE	2,568.96	NE
Hungary	CS, D, T1	CS, D	50.35	47.24	1.07	NO	NO	NO	NO	NO	NO	NO	NO	NO	1,277.85	851.29	1.50
Iceland	T1a	D	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	NA, NE, NO	NA, NE, NO	185.47	85.82	2.16
Ireland	T1, T2, T3	CS	257.84	21.24	12.14	NO	NO	NO	NO	NO	NO	NO	NO	NO	1,813.55	500.92	3.62
Italy	CS, T2	CS, PS	32.31	145.81	0.22	NA, NO	NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NO	NA, NO	4,614.21	8,170.90	0.56
Japan	CS, T1	CS, D	NO	125.32	NO	NO	NA, NE, NO	IE, NA, NE, NO	NO	IE, NA, NE, NO	IE, NA, NE, NO	31,409.96	9,837.94	3.19	38,699.06	16,449.59	2.35
Kazakhstan	CS	CS	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	416.26	NO
Latvia	T2	D, OTH	NO	0.04	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	199.87	94.65	2.11
Liechtenstein			NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	5.34	20.52
Lithuania	T1, T2	CS, D	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	192.21	35.89	5.36
Luxembourg	CS	CS	NE	0.24	NE	NE	NA, NO	NA, NE, NO	NE	NA, NO	NA, NE, NO	NE	NA, NO	NA, NE, NO	NE	65.78	NE
Malta	CS, M	CS, M	NE, NO	1.32	NE, NO	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	198.47	NO	NO	198.47	41.55	4.78
Monaco	T1a	D	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	3.74	2.02	1.85
Netherlands	CS, T2	CS	NE, NO	IE, NA, NO	IE, NA, NE, NO	NE, NO	IE, NA, NO	IE, NA, NE, NO	NE, NO	IE, NA, NO	IE, NA, NE, NO	NE, NO	523.28	NE, NO	NE, NO	1,798.01	12.79
New Zealand	T1a, T2	CS, D	1.51	1.44	1.04	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	0.53	NA, NO	NA, NO	1,219.68	879.23	1.39
Norway	T2	CS	11.22	3.88	2.89	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	1,163.11	707.68	1.64
Poland	T1, T1a, T1b, T1c	D	41.65	24.11	1.73	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	5,722.11	3,930.82	1.46
Portugal	RA, T2	CS, D	NO	2.40	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	3,814.44	1,107.75	3.44
Romania	T2	D	NE, NO	1.94	NE, NO	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	171.83	25.12	6.84
Russian Federation	T1, T1a, T2	D	172.26	70.75	2.43	NE, NO	NA, NO	NA, NE, NO	NE, NO	NA, NO	NA, NE, NO	NE, NO	NA, NO	NA, NE, NO	7,994.07	3,948.67	2.02
Slovakia	D	CS	11.52	1.15	10.00	20.92	4.18	5.00	NO	NO	NO	NO	NO	NO	685.32	299.61	2.29
Slovenia	T2	CS, D	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	202.08	121.37	1.66
Spain	D, T1, T2	D	NE, NO	257.81	NE, NO	NE, NO	15.54	NE, NO	NE, NO	NA	NA, NE, NO	NE, NO	NA	NA, NE, NO	C, NE, NO	6,878.44	C, NE, NO
Sweden	CS, T2	CS, D, PS	21.88	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	1,183.48	931.79	1.27
Switzerland	T1, T2	CS, D	1.64	3.42	0.48	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	1,845.79	854.32	2.16
Turkey	T1	D	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	2,839.25	NA, NE
Ukraine	CS, T1, T2	CS, D, OTH	NE, NO	NA, NE, NO	IE, NA, NE, NO	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	60.34	NE, NO	NE, NO	339.78	NE, NO
United Kingdom	OTH, T2, T3	CS, OTH	NA, NE, NO	800.11	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	68,030.57	80.93	840.59	68,030.57	10,809.44	6.29
United States	M, T2	CS, M	C, IE, NE	C, NA, NO	IE, NA, NE, NO	1,370.88	905.12	1.51	C, NE, NO	C, NA, NO	C, NA, NE, NO	21,283.11	7,045.13	3.02	201,764.05	120,290.16	1.68

^a 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 HFCs for all subcategories within the category 2.F Consumption of halocarbons and SF₆.

^b P = Potential emissions

^c A = Actual emissions

Table 2.15a

Consumption of halocarbons and SF₆ - PFCs (2009)

	Methods and EF used ^b		CF ₄			C ₂ F ₆			C ₃ F ₈			C ₄ F ₁₀			c-C ₄ F ₈		
			P ^c	A ^d	Ratio P / A	P ^c	A ^d	Ratio P / A	P ^c	A ^d	Ratio P / A	P ^c	A ^d	Ratio P / A	P ^c	A ^d	Ratio P / A
Methods	EF	(Gg CO ₂ equivalent)			(Gg CO ₂ equivalent)			(Gg CO ₂ equivalent)			(Gg CO ₂ equivalent)			(Gg CO ₂ equivalent)			
Australia	NA	NA	NE, NO	NA, NO	NA, NE, NO	NE, NO	NA, NO	NA, NE, NO	NE, NO	NA, NO	NA, NE, NO	NE, NO	NA, NO	NA, NE, NO	NE, NO	NA, NO	NA, NE, NO
Austria	CS	CS	IE, NE, NO	IE, NO	IE, NE, NO	IE, NE, NO	IE, NO	IE, NE, NO	6.41	6.41	1.00	IE, NE, NO	NO	IE, NE, NO	IE, NO	IE, NO	IE, NO
Belarus	NA	NA	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
Belgium	T2	PS	1.89	1.8915	1.00	0.85	0.8464	1.00	50.96	NO	NO	NO	NO	NO	NO	NO	NO
Bulgaria	T2	D	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	IE, NA, NO	0.01	IE, NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO
Canada	T2	D	29.65	4.27	6.95	0.81	3.52	0.23	0.10	0.54	0.19	NA, NO	NA, NE, NO	NA, NE, NO	0.26	0.25	1.03
Croatia	NA	NA	NO	NO	NO	NO	NO	NO	0.22	NO	NO	NO	NO	NO	NO	NO	NO
Czech Republic	D	D	5.04	3.83	1.32	32.94	21.90	1.50	1.40	1.40	1.00	NA, NE, NO	NO	NA, NE, NO	NA, NE, NO	NO	NA, NE, NO
Denmark			2.34	2.34	1.00	NE, NO	NE, NO	NE, NO	NA, NE, NO	7.92	NA, NE, NO	NE, NO	NE, NO	NE, NO	3.92	3.92	1.00
Estonia	NA	NA	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO
European Union (27)	OTH, T1, T1a,	CS, D, OTH, PS	IE	197.54	IE	IE	264.94	IE	IE	305.20	IE	IE	18.94	IE	IE	28.44	IE
Finland	T1, T2	D	C, NO	C, NA, NO	C, NA, NO	NO	NA, NO	NA, NO	-0.03	8.24	0.00	NO	NO	NO	C, NO	C, NO	C, NO
France			NA	59.07	NA	NA	63.23	NA	NA	5.18	NA	NA	NO	NA, NO	NA	1.51	NA
Germany	T2	CS, D	IE, NO	55.88	IE, NO	216.17	66.64	3.24	117.71	57.37	2.05	IE, NO	NA, NO	IE, NA, NO	IE, NO	1.45	IE, NO
Greece	NA	NA	NE	NA, NO	NA, NE, NO	NE	NA, NO	NA, NE, NO	NE	NA, NO	NA, NE, NO	NE	NO	NE, NO	NE	NA, NO	NA, NE, NO
Hungary	CS	CS	NO	NO	NO	NO	NO	NO	3.53	1.72	2.04	NO	NO	NO	NO	NO	NO
Iceland	NA	NA	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	NA, NE, NO	NA, NE, NO
Ireland	T1a	CS	21.51	15.19	1.42	93.03	47.25	1.97	NO	NO	NO	NO	NO	NO	9.82	3.13	3.14
Italy	CS	PS	89.52	42.55	2.10	65.70	11.29	5.82	0.59	0.03	22.48	NO	NO	NO	78.74	18.33	4.29
Japan	CS, T1	CS, D	2,593.50	IE, NA, NE, NO	IE, NA, NE, NO	IE, NE	IE, NA, NE, NO	IE, NA, NE, NO	IE, NE	IE, NA, NE, NO	IE, NA, NE, NO	NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NE	IE, NA, NE, NO	IE, NA, NE, NO
Kazakhstan	NA	NA	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO
Latvia	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Liechtenstein	CS	CS	NO	NO	NO	NO	NO	NO	NO	0.05	NO	NO	NO	NO	NO	NO	NO
Lithuania	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Luxembourg	CS	CS	NO	NO	NO	NO	NO	NO	0.22	NO	NO	NO	NO	NO	NO	NO	NO
Malta	CS	CS	NO	NO	NO	NO	0.00	NO	NO	0.00	NO	NO	NO	NO	NO	NO	NO
Monaco	T1a	D	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	0.02	0.02	1.00	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO
Netherlands	CS, T2	PS	C, NE	NO	C, NE, NO	C, NE	NO	C, NE, NO	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO
New Zealand	T2	D	IE, NA, NO	NA, NO	IE, NA, NO	IE, NA, NO	NA, NO	IE, NA, NO	1.32	1.32	1.00	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
Norway	T2	CS	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	-0.51	0.04	-12.22	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO
Poland			NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	14.20	NO	NO	NA, NO	NA, NO
Portugal	T1	CS	NO	NO	NO	0.12	0.00	200.60	0.51	0.00	200.60	NO	NO	NO	NO	NO	NO
Romania	NA	NA	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO
Russian Federation	T1	D	183.35	3.43	53.49	2.42	NA, NO	NA, NO	20.51	7.38	2.78	NE, NO	NA, NO	NA, NE, NO	1,127.24	155.22	7.26
Slovakia	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Slovenia	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Spain	T1, T2	D	NE, NO	NA	NA, NE, NO	NE, NO	NA	NA, NE, NO	NE, NO	210.68	NE, NO	NE, NO	4.56	NE, NO	NE, NO	NA	NA, NE, NO
Sweden	CS	CS, D	NA, NE, NO	NA, NO	NA, NE, NO	NA, NE, NO	NA, NO	NA, NE, NO	1.82	1.83	0.99	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO
Switzerland	T1, T2	CS, D	30.31	14.93	2.03	25.67	2.01	12.77	3.78	8.03	0.47	NA, NO	NO	NA, NO	0.96	0.96	1.00
Turkey	NA	NA	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE
Ukraine			NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	23.34	NE, NO	NE, NO	NA, NE, NO	NA, NE, NO
United Kingdom	OTH, T1, T2, T3	CS, OTH	IE, NE, NO	16.79	IE, NE, NO	IE, NA, NE, NO	53.78	IE, NA, NE, NO	IE, NA, NE, NO	4.19	IE, NA, NE, NO	IE, NA, NE, NO	0.18	IE, NA, NE, NO	IE, NA, NE, NO	0.09	IE, NA, NE, NO
United States	M, T2	CS, M	911.21	1,488.30	0.61	1,167.63	2,491.23	0.47	63.24	33.07	1.91	C, IE, NE, NO	C, NA, NO	IE, NA, NE, NO	267.12	30.97	8.62

^a 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 PFCs for all subcategories within the category 2.F Consumption of halocarbons and SF₆.

^b P = Potential emissions

^c A = Actual emissions

Table 2.15b

Consumption of halocarbons and SF₆ - PFCs (2009)

Methods and EF used ^a			C ₂ F ₁₂			C ₆ F ₁₄			Unspecified PFCs			Total		
Methods	EF		P ^b	A ^c	Ratio P / A	P ^b	A ^c	Ratio P / A	P ^b	A ^c	Ratio P / A	P ^b	A ^c	Ratio P / A
			2.F(p)	2.F(a)		2.F(p)	2.F(a)		2.F(p)	2.F(a)		2.F(p)	2.F(a)	
			(Gg CO ₂ equivalent)			(Gg CO ₂ equivalent)			(Gg CO ₂ equivalent)			(Gg CO ₂ equivalent)		
Australia	NA	NA	NE, NO	NA, NO	NA, NE, NO	NE, NO	NA, NO	NA, NE, NO	NE, NO	NA, NO	NA, NE, NO	NE, NO	NA, NO	NA, NE, NO
Austria	CS	CS	NO	NO	NO	NO	NO	NO	222.85	28.64	7.78	229.25	35.05	6.54
Belarus	NA	NA	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NA, NE, NO	NA, NE, NO
Belgium	T2	PS	NO	NO	NO	271.58	NO	NO	NO	NO	NO	325.28	2.7379	118.81
Bulgaria	T2	D	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	IE, NA, NO	0.01	IE, NA, NO
Canada	T2	D	NA, NO	0.01	NA, NO	NA, NO	0.00	NA, NO	NA, NO	NA, NE, NO	NA, NE, NO	30.82	8.59	3.59
Croatia	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO	NO	0.22	NA, NO	NA, NO
Czech Republic	D	D	NA, NE, NO	NO	NA, NE, NO	NA, NE, NO	NO	NA, NE, NO	NA, NE, NO	NO	NA, NE, NO	39.38	27.14	1.45
Denmark			NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	6.26	14.18	0.44
Estonia	NA	NA	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	NE, NO	NA, NO	NA, NE, NO
European Union (27)	OTH, T1, T1a, T1, T2	CS, D, OTH, PS	IE	IE, NA, NO	IE, NA, NO	IE	182.12	IE	5,085.53	154.90	32.83	5,085.53	1,152.08	4.41
Finland			NO	NO	NO	NO	NO	NO	11.31	1.08	10.49	11.28	9.32	1.21
France			NA	NO	NA, NO	3,622.19	182.12	19.89	NA	NO	NA, NO	3,622.19	311.11	11.64
Germany	T2	CS, D	IE, NO	NA, NO	IE, NA, NO	IE, NO	NA, NO	IE, NA, NO	IE, NO	NA, NO	IE, NA, NO	333.88	181.34	1.84
Greece	NA	NA	NE	NA, NO	NA, NE, NO	NE	NA, NO	NA, NE, NO	NE	NA, NO	NA, NE, NO	NE	NA, NO	NA, NE, NO
Hungary	CS	CS	NO	NO	NO	NO	NO	NO	NO	NO	NO	3.53	1.72	2.04
Iceland	NA	NA	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	NA, NE, NO	NA, NE, NO
Ireland	T1a	CS	NO	NO	NO	NO	NO	NO	NO	NO	NO	124.37	65.57	1.90
Italy	CS	PS	NO	NO	NO	NO	NO	NO	NO	NO	NO	234.54	72.20	3.25
Japan	CS, T1	CS, D	IE, NE	IE, NA, NE, NO	IE, NA, NE, NO	IE, NE	3.63	IE, NE	6,903.30	2,857.34	2.42	9,496.80	2,860.96	3.32
Kazakhstan	NA	NA	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO
Latvia	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA, NO	NA, NO
Liechtenstein	CS	CS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0.05	21.07
Lithuania	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA, NO	NA, NO
Luxembourg	CS	CS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0.22	NO
Malta	CS	CS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0.00	NO
Monaco	T1a	D	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	0.02	0.02	1.00
Netherlands	CS, T2	PS	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	C, NE	125.18	C, NE	C, NE, NO	125.18	C, NE, NO
New Zealand	T2	D	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	1.32	1.32	1.00
Norway	T2	CS	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	-0.51	0.04	-12.22
Poland			NA, NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	14.20	NO
Portugal	T1	CS	NO	NO	NO	NO	NO	NO	NO	NO	NO	0.63	0.00	200.60
Romania	NA	NA	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	NE, NO	NO	NE, NO	NE, NO	NA, NO	NA, NE, NO
Russian Federation	T1	D	NE, NO	NA, NO	NA, NE, NO	NE, NO	NA, NO	NA, NE, NO	NE, NO	NA, NO	NA, NE, NO	1,333.52	166.03	8.03
Slovakia	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA, NO	NA, NO
Slovenia	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Spain	T1, T2	D	NE, NO	NA	NA, NE, NO	NE, NO	NA	NA, NE, NO	NE, NO	NA	NA, NE, NO	NE, NO	215.24	NE, NO
Sweden	CS	CS, D	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	NO	NA, NO	NA, NO	1.82	1.83	0.99
Switzerland	T1, T2	CS, D	NA, NO	NO	NA, NO	10.77	8.77	1.23	NA, NO	NA, NO	NA, NO	71.48	34.70	2.06
Turkey	NA	NA	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE
Ukraine			NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	NA, NE, NO	NA, NE, NO	NE, NO	23.34	NE, NO
United Kingdom	OTH, T1, T2, T3	CS, OTH	IE, NA, NE, NO	IE, NA, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NO	IE, NA, NE, NO	153.13	0.02	6,444.88	153.13	75.05	2.04
United States	M, T2	CS, M	C, IE, NE, NO	C, NA, NO	IE, NA, NE, NO	C, IE, NE, NO	C, NA, NO	IE, NA, NE, NO	IE, NE, NO	NA, NO	IE, NA, NE, NO	2,409.21	4,043.56	0.60

^a 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 PFCs for all subcategories within the category 2.F Consumption of halocarbons and SF₆.

^b P = Potential emissions

^c A = Actual emissions

Table 2.16**Consumption of halocarbons and SF₆ - SF₆ (2009)**

	Methods and EF used ^a		SF ₆		Ratio P / A
	Methods	EF	P ^b	A ^c	
			2.F(p)	2.F(a)	
			(Gg CO ₂ equivalent)		
Australia	T1, T2	CS	NE, NO	60.07	NE, NO
Austria	CS	CS	354.15	348.58	1.02
Belarus	D	D	NE, NO	2.42	NE, NO
Belgium	T2	CS, D, PS	23.66	96.50	0.25
Bulgaria	T2	D	IE, NA, NO	10.07	43.26
Canada	T1, T3	OTH	NE, NO	184.32	1.00
Croatia	T2	PS	2.92	14.11	0.21
Czech Republic	D, T3	D	132.17	49.61	2.66
Denmark	T1	D	102.77	36.90	2.79
Estonia	T2, T3	CS	NE, NO	1.44	NE, NO
European Union (27)	, D, OTH, T1, T1a, T2,	CR, CS, D, OTH, PS	65,231.82	5,745.03	11.35
Finland	T1, T2, T3	D	70.24	41.34	1.70
France			10,059.51	336.46	29.90
Germany	CS, T2, T3	CS, D	48,862.12	2,872.82	17.01
Greece	CS	CS	NA, NE	5.02	NA, NE
Hungary	T1	CS, D	238.92	219.66	1.09
Iceland	T1	CR, D	NE, NO	5.94	NE, NO
Ireland	T1, T1a	CS	128.61	65.30	1.97
Italy	CS, T3	CS, PS	1,521.93	388.84	3.91
Japan	CS, T1	CS, D	36,031.64	1,351.76	26.66
Kazakhstan	T3		NO	3.31	NO
Latvia	T2	D	NE, NO	13.53	1.04
Liechtenstein	CS	CS	1.18	0.14	8.26
Lithuania	T1, T2	CS	0.03	5.00	0.01
Luxembourg	CS	CS	NE	7.40	NE
Malta	CS	CS, PS	NE, NO	1.57	NE, NO
Monaco	D	D	0.11	0.08	1.30
Netherlands	CS, T2	D, PS	C, NE	175.16	C, NE
New Zealand	T2, T3	CS	130.98	19.75	6.63
Norway	T2	CS	397.32	64.47	6.16
Poland			140.01	35.07	3.99
Portugal	T3	CS	1,405.40	7.85	179.04
Romania	T2	D	NE, NO	7.38	NE, NO
Russian Federation	T2	D	5,158.34	141.09	36.56
Slovakia	T2	CS	107.19	19.39	5.53
Slovenia	T2	CS, D	22.23	14.17	1.57
Spain	T2	D	NE, NO	350.98	NE, NO
Sweden	CS, D	CR, CS, D, PS	835.54	53.10	15.74
Switzerland	T1, T2, T3	CS, D, PS	-82.48	143.19	-0.58
Turkey	T1	D	944.66	803.47	1.18
Ukraine	T2	D	NE, NO	32.09	NE, NO
United Kingdom	OTH, T3	CS, OTH	777.46	583.95	1.33
United States	M, T2, T3	CS, M	19,014.52	13,788.87	1.38

^a 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 SF₆ for all subcategories within the category 2.F Consumption of halocarbons and SF₆.

^b P = Potential emissions

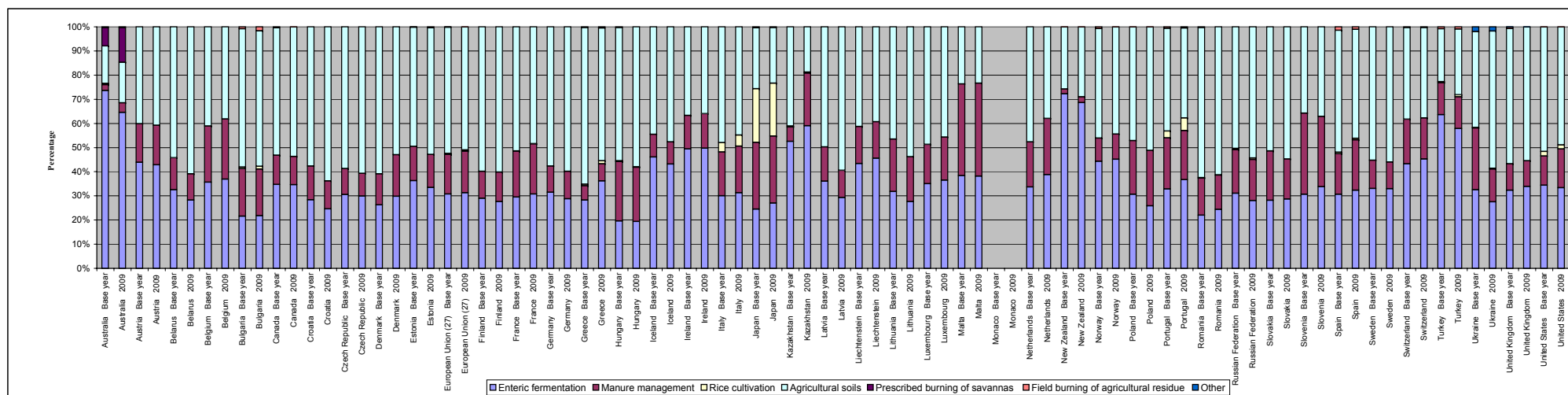
^c A = Actual emissions

Table 3.1**Solvent and other product use - CO₂ and N₂O (2009)**

	Methods and EF used ^a		Key category (CO ₂)	Methods and EF used ^a		Key category (N ₂ O)	Paint application		Degreasing and dry cleaning			
	CO ₂			N ₂ O			CO ₂		CO ₂		N ₂ O	
	Methods	EF		Methods	EF		Share of national total (%)	CO ₂ IEF (t/t)	Share of national total (%)	CO ₂ IEF (t/t)	Share of national total (%)	N ₂ O IEF (t/t)
Australia	NA	NA		NA	NA		-	NA	-	NA	-	NA
Austria	CR, CS	CS	T	CS	D		0.1	1.16	0.0	1.46	-	NA
Belarus	NA	NA		T1	D		-	NA	-	NA	-	NA
Belgium	NA	NA		T1	CS		-	NA	-	NA	-	NA
Bulgaria	D, T1	D	T	D	CS, D		0.0	1.39	0.0	2.15	-	NA
Canada	NA	NA		T1	OTH		-	NA	-	NA	-	NA
Croatia	OTH	OTH		T1	D		0.1	1.15	0.0	NA	-	NE
Czech Republic	CR	CS		D	D		0.1	3.14	0.0	3.14	-	NA
Denmark	CS, OTH	CS, OTH		CS, OTH	D, OTH		0.0	0.16	0.0	0.00	-	NA, NE
Estonia	T1	D		T2	CS		0.0	2.20	0.0	2.20	-	NO
European Union (27)	CR, CS, D, M, OTH, T1, T2, T3	CR, CS, D, M, OTH, PS		CR, CS, D, OTH, T1, T2	CS, D, OTH, PS		0.1	NE	0.0	NE	-	NA, NE, NO
Finland	T2	D		CS	CS		0.0	2.20	0.0	2.20	-	NO
France	CR	CS, PS	T	CR	CS		0.1	2.54	0.0	0.88	-	NA
Germany	CS	CS		CS	CS		0.1	NE	0.0	NE	-	NO
Greece	CR	CR		OTH	OTH		0.0	0.00	0.0	0.00	-	NA
Hungary	CS	CS		CS, T2	PS	T	0.1	0.54	0.0	0.06	-	NO
Iceland	D	D		T1	D		0.1	1.56	0.0	3.12	-	NA
Ireland	CR, CS	CR		NA	NA		0.0	3.12	0.0	3.12	-	NA
Italy	CR, CS	CR, CS		CS	CS		0.1	0.71	0.0	2.36	-	NA
Japan	NA	NA		CS	OTH		-	NA	-	NE	-	NA
Kazakhstan	NA	NA		NA	NA		-	NE	-	NE	-	NE
Latvia	T3	CS		CS	CS		0.0	C	0.0	C	-	NO
Liechtenstein	CS	CS	T	CS	CS		0.1	0.37	0.0	NA	-	NO
Lithuania	CR	D		NA	NA		0.2	3.12	0.1	3.12	-	NE
Luxembourg	M	M		CS	CS		0.0	1.48	0.0	1.51	-	NA
Malta	NA	NA		CS	CS		-	NA	-	NA	-	NA
Monaco	NA	NA		NA	NA		-	NE	-	NE	-	NE
Netherlands	CS	CS		CS	CS		0.0	2.46	0.0	0.64	-	NO
New Zealand	NA	NA		D	D		-	NE	-	NE	-	NA
Norway	T2	CS		CS	CS		0.0	3.00	0.0	3.00	-	NA
Poland	CS	CS		CS	CS		0.1	3.12	0.0	3.12	-	NA
Portugal	CR, D	CR, CS, OTH		D	D		0.1	NE	0.0	NE	-	NO
Romania	CR	CR		NA	NA		0.0	NE	0.0	NE	-	NE
Russian Federation	NA	NA		CS	CS		-	NE	-	NE	-	NE
Slovakia	T1	D		D	CS		0.1	1.60	0.0	NA	-	NO
Slovenia	NA	NA		D	D	T	-	NO	-	NE	-	NE
Spain	D	CR		CS	CS	L	0.1	0.54	0.0	2.82	-	NA
Sweden	CS	CS		CS	CS		0.1	1.62	0.0	0.65	-	NA
Switzerland	CS	CS		CS	CS		0.0	0.06	0.0	NA	-	NO
Turkey	NA	NA		NA	NA		-	NE	-	NE	-	NE
Ukraine	NA	NA		OTH	OTH		-	NE	-	NE	-	NE
United Kingdom	NA	NA		NA	NA		-	NE	-	NE	-	NE
United States	NA	NA		CS	D		-	NE	-	NE	-	NE

^a Information on methods and emission factors in this table is as reported by Parties in the table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the Solvent and other product use sector.

Figure 4.1
Contribution of subsectors to total GHG emissions in the Agriculture sector



^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 4.1
Enteric fermentation - CH₄ (2009)

Key category	Share of national total (%)	Methods and EF used ^a		Cattle					Sheep			Swine					
				Activity data (population size)			Dairy cattle		Non-dairy cattle	Activity data (population size)			Activity data (population size)				
				CRF	FAO ^b	Difference	CH ₄ IEF		CH ₄ IEF	CRF	FAO ^b	Difference	CH ₄ IEF	CRF	FAO ^b	Difference	CH ₄ IEF
							(thousands of head)	(%)									
IPCC default EF ^c							56-118 ^d	44-56 ^d				8.0			1.5		
Australia	L, T	10.0	CS, T1, T2	CS, D	26,129	27,907	6.8	115	72	72,463	72,740	0.4	6.9	2,338	2,302	-1.5	1.4
Austria	L, T	4.1	T1, T2	CS, D	2,026	1,997	-1.4	116	56	345	333	-3.3	8.0	3,137	3,064	-2.3	1.5
Belarus	L, T	7.3	T1, T2	CS, D	4,142	4,131	-0.3	110	51	52	53	0.1	8.0	3,743	3,704	-1.0	1.5
Belgium	L	2.9	T1, T2	CS, D	2,650	2,600	-1.9	124	45	108	135	25.0	8.0	6,437	6,321	-1.8	1.5
Bulgaria	L, T	2.3	T1, T2	CS, D	552	565	2.3			1,438	1,475	2.6	6.7	757	784	3.6	1.5
Canada	L, T	2.8	T1, T2	CS, D	13,958	13,180	-5.6	125	58	935	808	-13.6	8.0	11,935	12,180	2.1	1.5
Croatia	L, T	2.8	T1, T2	CS, D	447	447	0.0	99	66	619	619	0	8.0	1,250	1,250	0.0	1.5
Czech Republic	L, T	1.8	T1, T2	CS, D	1,363	1,349	-1.0	117	52	183	197	7.6	8.0	1,971	1,909	-3.1	1.5
Denmark	L, T	4.6	T1, T2	CS, D, OTH	1,542	1,542	0.0	134	43	215	104	-51.5	13.2	12,369	12,369	0.0	1.0
Estonia	L, T	2.6	T1, T2	CS, D	235	238	1.4	136	60	77	78	2.2	8.0	365	365	-0.1	0.8
European Union (27)	L, T	3.2	CR, CS, T1, T2, T3	CR, CS, D, OTH	88,962	89,489	0.6	115	49	102,354	101,081	-1.2	7.3	145,010	153,319	5.7	1.3
Finland	L, T	2.4	T1, T2	CS, D, OTH	918	918	0	126	1E	118	118	0	8.4	1,381	1,381	0.0	1.5
France	L, T	5.7	T2	CS	19,948	19,199	-3.8	117	53	8,067	7,715	-4.4	9.8	11,426	14,810	29.6	1.1
Germany	L	2.3	CS, T1, T2	CS, D	12,945	12,945	0.0	128	46	2,350	2,370	0.8	8.0	23,445	26,887	14.7	1.2
Greece	L, T	2.6	T1, T2	CS, D	651	620	-4.8	117	55	8,790	8,994	2.3	9.1	906	942	4.0	1.5
Hungary	L, T	2.4	T1, T2	CS, D	702	701	-0.1	131	58	1,261	1,236	-2.0	8.0	3,248	3,383	4.2	1.5
Iceland	L, T	5.0	T1, T2	CS, D, OTH	63	73	15.8	82	30	605	469	-22.4	10.3	32	43	35.7	1.5
Ireland	L, T	13.9	CS, T1, T2	CS, D	5,935	6,716	13.2	108	55	4,727	4,778	1.1	5.9	1,535	1,468	-4.3	1.1
Italy	L	2.2	T1, T2	CS, D	6,103	6,447	5.6	113	45	8,013	8,175	2.0	8.0	9,157	9,252	1.0	1.5
Japan		0.6	CS, T1	CS, D	3,983	4,423	11.1	108	63	12	14	14.88593468	4.1	9,900	9,899	0.0	1.1
Kazakhstan	L, T	4.8	T1, T1b	D	6,766	5,992	-11.4	86	56	19,801	14,126	-28.6613137	8.0	1,684	1,347	-20.0	1.5
Latvia	L, T	6.2	T1, T2	CS, D	378	380	0.5	116	52	71	67	-5.1	8.0	377	384	1.9	1.5
Liechtenstein	L	4.2	T2	CS	5	6	18.0	120	81	4			10.3	2	2	-0.6	1.5
Lithuania	L, T	5.9	T1, T2	CS, D	729	771	5.8	103	57	54	48	-12.1	8.0	928	897	-3.3	1.2
Luxembourg	L	2.1	T1, T2	CS, D, OTH	196.47	196	0	118	55	8,824	9	0	8.0	80,217	80	0	1.5
Malta	L	1.1	CR	CR, D	16,264	18	9.3	100	48	12,889	13	-0.4	8.0	65,918	66	-0.6	1.5
Monaco		-	NA	NA	NO			NO	NO	NO			NO	NO			NO
Netherlands	L, T	3.3	T1, T2	CS, D	3,968	3,996	0.7	127	72	1,117	1,099	-1.6	8.0	12,186	12,108	-0.6	1.5
New Zealand	L, T	31.9	T1, T2	CS, D	9,961	9,961	0.0	77	56	32,384	32,384	0	11.2	323	323	0	1.5
Norway	L, T	3.7	T1, T2	CS, D	872	878	0.7	99	86	1,526	2,296	50.5	14.4	704	839	19.3	1.5
Poland	L, T	2.4	T1, T2	CS, D	5,700	5,700	0.0	97	49	286	286	0.0	8.2	14,279	14,279	0	1.5
Portugal	L, T	3.8	T2	CS	1,425	1,439	1.0	125	55	3,044	3,145	3.3	9.1	2,344	2,340	-0.2	1.4
Romania	L, T	4.7	T1	D	2,482	2,684	8.1	92	56	9,141	8,882	-2.8	8.0	5,793	6,174	6.6	1.5
Russian Federation	L, T	1.8	CS, T1, T2	CS, D	21,821	21,038	-3.6	102	55	21,387	19,602	-8.3	8.0	17,248	16,162	-6.3	1.5
Slovakia	L, T	2.0	T1, T2	CS, D	472	484	2.5	106	54	377	377	0	9.8	741	741	0	1.5
Slovenia	L, T	3.5	T1, T2	CS, D	473	470	-0.6	103	51	138	139	0.6	8.0	415	432	4.0	1.6
Spain	L, T	3.4	CS, T1, T2, T3	CS, D	6,048	6,020	-0.5	103	55	19,718	19,718	0.0	8.8	25,046	26,290	5.0	0.9
Sweden	L, T	4.5	CS, T1, T2	CS, D	1,538	1,538	0.0	132	55	540	540	0.0	8.0	1,529	1,529	0.0	1.5
Switzerland	L, T	4.9	T2	CS	1,597	1,597	0.0	121	81	432	432	0	10.7	1,557	1,557	0.0	1.4
Turkey	L, T	4.0	T1	D	10,756	10,860	1.0	65	44	21,750	23,975	10.2	5.1	2	2	-9.4	1.0
Ukraine	L, T	2.5	T1, T2, T3	CS, D, OTH	4,953	5,079	2.5	108	73	1,146	1,096	-4.4	9.9	7,051	6,526	-7.4	1.5
United Kingdom	L, T	2.7	T1, T2	CS, D	10,025	9,901	-1.2	109	43	32,038	30,783	-3.9	4.6	4,724	4,601	-2.6	1.5
United States	L	2.1	M, T1, T2	CS, D, M	99,495	94,521	-5.0	115	55	5,747	5,747	0	8.0	66,142	67,148	1.5	1.5

Note: Bulgaria, Croatia, Estonia, Liechtenstein, Luxembourg, Netherlands, Norway Switzerland and Ukraine have used Option B to report livestock types and emissions within the category 4.A Enteric fermentation. Cattle population and the CH₄ IEFs are included in this table for these Parties.

^a Information on methods and emission factors in this table is presented 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 the various livestock types within the category 4.A Enteric fermentation - CH₄.

^b Source of international statistics: FAOSTAT data, downloaded on 23 May 2011 from <http://faostat.fao.org/site/573/default.aspx>. Time series population data on cattle, swine and sheep for Belarus, Croatia, Estonia, Latvia, Lithuania, Russian Federation, Slovenia and Ukraine are available from 1992; data for Czech Republic and Slovakia are available from 1993. Data for Luxembourg are included in the data of Belgium for 1990-1999.

^c Source of default emission factors: IPCC Guidelines, volume 3, tables 4-3 and 4-4 (pages 4.10-4.11).

^d For dairy and non-dairy cattle, IPCC default emission factors (in kg CH₄/head/year) are provided by regions as shown below (see footnote c for source reference).

	North America	Western Europe	Eastern Europe	Oceania	Asia
Dairy cattle	118	100.0	81	68	56
Non-dairy cattle	47	48.0	56	53	44

Table 4.2

CH₄ emissions from enteric fermentation - trend information

CH ₄ emissions (Gg)	Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	3,044	2,606	0.2	-0.9	-0.4	0.7	-0.1	1.1	0.5	0.7	-2.2	0.1	0.5	0.5	-1.7	-3.2	-1.9	-2.5	-14.4
Austria	179	155	-1.5	1.9	-1.6	-1.8	-0.8	-0.9	-0.6	-1.4	-2.0	-0.9	0.0	-1.3	-0.3	0.4	-0.2	1.3	-13.0
Belarus	475	306	-4.7	-6.7	-4.7	-1.5	-1.2	-5.5	-4.9	-1.2	-4.7	-1.9	1.3	2.9	1.1	-0.2	2.3	2.4	-35.4
Belgium	197	169	-0.7	1.1	-1.8	-1.3	-1.0	0.2	-2.9	0.1	-3.3	-3.3	-1.1	-1.3	-0.9	1.6	-0.6	0.6	-14.1
Bulgaria	195	64	-3.9	-15.8	-5.0	-3.1	-2.5	3.6	-2.2	-13.6	3.4	4.0	-2.0	-2.7	-2.6	-5.9	-1.8	-5.1	-67.2
Canada	776	920	1.9	5.2	1.7	-0.1	0.1	-0.8	2.5	3.0	0.9	0.3	3.5	2.2	-3.0	-2.6	-2.4	-4.6	18.6
Croatia	59	39	-8.3	-3.7	-4.7	-0.5	-1.4	-0.5	-1.6	2.5	-1.3	4.6	4.0	4.4	1.9	-3.6	3.6	-0.7	-34.4
Czech Republic	232	112	-5.8	-2.6	-0.9	-6.7	-6.2	2.1	-4.0	0.7	-2.3	-2.6	-3.2	0.2	-1.9	1.0	1.7	-2.3	-51.6
Denmark	156	137	-0.1	-0.4	-0.5	-3.4	-0.1	-3.9	-0.9	2.4	-2.4	-1.4	-3.2	-0.3	0.0	2.4	0.6	2.2	-11.9
Estonia	52	21	-5.4	-11.5	-4.5	-1.0	-2.9	-14.1	-1.4	5.3	-5.7	1.3	1.1	0.8	0.4	-1.8	0.3	-1.4	-60.3
European Union (27)	8,951	7,100	-3.7	-0.5	0.2	-1.3	-0.6	-0.7	-2.0	-1.2	-1.6	-0.7	-1.4	0.0	-0.7	0.3	0.0	-1.1	-20.7
Finland	92	75	-3.9	-5.7	0.2	1.1	-2.4	-1.5	0.2	-1.3	1.0	-1.1	-1.1	-0.7	0.1	-1.4	-0.7	0.6	-18.3
France	1,535	1,411	-1.5	0.6	0.0	-1.0	-0.7	-0.1	1.1	0.2	-1.3	-2.3	-1.8	0.0	-0.1	0.1	1.2	-1.2	-8.1
Germany	1,300	998	-9.7	0.4	0.3	-2.9	-1.3	-0.2	-2.0	1.3	-3.6	-1.3	-2.7	-0.4	-2.2	0.4	1.5	-0.1	-23.2
Greece	155	154	-0.7	0.5	1.0	0.0	0.7	0.1	-0.1	-0.1	1.1	0.2	0.0	0.2	-0.2	-0.5	-0.3	-0.5	-0.3
Hungary	164	77	-7.5	-0.5	-1.0	-2.8	1.1	0.2	-0.4	-3.7	-1.3	-1.1	-3.1	-0.6	-3.1	0.0	-1.6	-1.7	-53.2
Iceland	13	11	-3.5	-3.6	0.7	-1.8	1.2	0.3	-3.7	-0.1	-1.8	-1.0	-2.2	-0.1	0.9	1.2	1.2	0.9	-12.1
Ireland	453	414	0.9	0.0	2.3	2.2	1.6	-2.4	-4.7	-1.1	-0.7	-0.9	0.0	-0.6	-0.5	-3.3	-0.4	-1.4	-8.5
Italy	580	513	2.2	1.8	0.5	0.4	-0.7	1.1	-2.1	-6.8	-2.7	0.2	-2.0	0.1	-2.0	3.7	-0.9	-1.3	-11.5
Japan	366	326	1.4	-1.1	-0.7	-0.6	-0.5	-0.8	-0.5	-0.6	-0.7	-1.5	-1.4	-0.9	0.0	-0.4	-0.9	-0.9	-10.8
Kazakhstan	1,039	658	-1.9	-16.6	-23.8	-20.7	-4.8	0.5	3.3	5.8	6.6	7.1	7.4	5.2	5.0	3.6	7.6	2.2	-36.7
Latvia	102	32	-4.4	-2.5	-4.7	-1.6	-7.7	-13.5	-0.7	5.2	-0.7	-2.5	-1.1	3.2	-1.1	4.6	-3.5	-0.8	-68.9
Liechtenstein	0.47	0.50	-1.3	1.7	0.2	-1.3	0.4	-2.0	-3.9	8.8	-0.2	1.5	1.7	1.7	3.6	1.7	0.9	-0.7	6.2
Lithuania	149	61	-5.6	-5.3	0.9	-1.4	-6.3	-5.2	-11.1	3.0	3.5	4.1	-1.6	0.8	3.8	-1.6	1.0	-6.1	-59.2
Luxembourg	12	12	-0.3	2.8	1.2	-2.0	-1.0	-0.1	-1.3	2.5	-2.8	-3.0	-1.0	-0.2	-1.3	3.6	2.2	0.8	-5.8
Malta	2	2	-0.8	5.9	-1.2	1.0	-1.8	-0.4	8.0	-4.1	0.8	-3.6	5.0	-0.9	-3.6	2.3	-6.3	-5.6	-5.6
Monaco	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	359	309	2.5	-0.1	-4.4	-1.2	-2.3	-0.2	-4.1	2.0	-5.7	0.7	0.3	-0.2	-0.2	1.3	2.0	0.6	-13.8
New Zealand	1,041	1,072	0.5	0.8	0.9	2.2	-2.5	1.1	3.2	0.7	-0.7	1.3	-0.2	0.9	0.3	-3.3	-3.7	0.7	2.9
Norway	95	90	1.3	0.9	0.2	-0.7	0.8	-0.3	-1.5	-1.8	-2.0	2.7	-2.2	0.6	-3.7	1.8	-0.3	-0.8	-4.8
Poland	748	438	-10.9	-5.2	-3.3	3.4	2.4	-5.4	-7.0	-3.9	-2.9	-0.6	-2.8	2.1	2.5	1.5	0.3	-1.5	-41.4
Portugal	126	136	1.3	4.6	2.1	-3.4	3.5	3.2	1.5	-0.6	-0.2	-2.1	3.3	0.8	0.0	-1.9	-0.5	-3.2	8.5
Romania	506	293	-11.0	-2.1	-0.2	-2.3	-5.6	-5.6	-5.1	-1.7	3.1	1.9	-1.0	1.3	2.7	-1.6	7.5	-3.8	-42.1
Russian Federation	4,693	1,899	-2.9	-10.0	-10.4	-9.6	-10.6	-12.3	0.5	2.1	-0.4	-2.9	-3.4	-5.8	-4.8	2.1	0.9	0.3	-59.5
Slovakia	95	41	-8.3	7.2	-6.3	-10.5	-5.7	-4.0	-1.2	2.6	-3.2	-4.3	-5.9	1.5	-1.6	-0.6	-3.1	-4.5	-56.5
Slovenia	32	32	-4.9	5.0	-1.3	-4.9	2.6	4.4	6.8	-2.0	2.0	-4.9	-1.3	1.7	0.3	4.6	-2.2	-0.8	-1.0
Spain	551	597	1.3	0.9	7.7	-1.1	2.3	1.5	0.4	2.7	0.6	1.5	-2.5	-1.5	-1.1	1.7	-4.5	-1.2	8.2
Sweden	146	128	-2.1	-3.0	-1.1	0.2	-2.9	-0.9	-2.5	-1.1	-0.6	-1.6	1.5	-1.1	0.0	-2.1	-0.7	-0.8	-11.8
Switzerland	126	121	-0.1	0.9	-1.2	-2.1	-0.6	-1.6	-0.2	1.1	-0.4	-0.9	-0.5	0.7	0.8	1.1	3.0	-0.9	-4.1
Turkey	903	708	3.3	-2.3	0.0	-6.6	-1.9	0.5	-3.9	-2.8	-7.6	1.9	-2.0	3.3	3.1	0.7	-2.7	-2.5	-21.6
Ukraine	1,599	438	-2.7	-10.8	-10.9	-15.2	-3.5	-12.8	-11.5	1.9	1.2	-11.2	-7.1	-0.9	-1.8	-9.7	-5.7	-3.4	-72.6
United Kingdom	882	727	-1.5	-1.1	1.0	-3.2	-0.1	0.2	-3.8	-6.2	-1.2	0.4	0.8	1.1	-1.9	-0.5	-2.4	-1.7	-17.6
United States	6,290	6,655	0.1	2.2	-0.7	-2.0	-1.1	0.0	-1.1	-0.6	0.3	-1.3	0.1	1.6	1.7	1.6	-0.3	-0.6	5.8

Note: Bulgaria, Croatia, Estonia, Liechtenstein, Luxembourg, Netherlands, Norway Switzerland and Ukraine have used Option B to report livestock types and emissions within the category 4.A Enteric fermentation.

^a In accordance with the UNFCCC reporting guidelines on annual GHG inventories of Annex 1 Parties, the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 4.3a

CH₄ emissions from enteric fermentation: dairy cattle - trend information

CH ₄ emissions (Gg)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	275	292	-0.8	4.0	3.5	4.3	4.8	2.9	1.9	-0.2	-1.3	-1.5	-0.7	-2.5	-3.9	-6.3	-2.2	-2.5	6.0
Austria	88	62	-3.1	-9.2	-0.9	4.1	2.2	-3.2	-9.8	-2.1	-0.7	-4.1	-2.3	-0.8	-0.3	0.2	1.6	0.6	-29.8
Belarus	222	159	-4.6	-3.4	-3.1	-0.9	-1.0	-5.0	-3.4	0.3	-2.8	-2.7	1.5	2.9	-0.2	-2.5	1.2	1.9	-28.4
Belgium	83	59	-4.8	0.2	-4.0	-2.1	1.1	-0.7	-3.7	-0.6	-2.2	-2.4	-2.3	-2.4	-1.7	0.2	0.0	2.0	-29.2
Bulgaria																			
Canada	159	122	-3.1	1.3	1.9	-0.5	-2.6	-6.5	-1.7	-2.4	0.7	-2.1	-0.6	-0.7	-1.1	-2.7	-0.6	-0.4	-22.9
Croatia	36	21	-10.4	-4.8	-5.6	0.4	-1.6	-1.2	-1.4	-0.5	-1.1	3.2	-9.3	9.5	2.9	-2.8	-4.5	1.0	-41.5
Czech Republic	119	66	-7.2	-3.8	-0.7	-8.7	-3.9	2.9	-2.7	0.0	-0.8	-1.9	-2.9	3.8	-1.3	0.5	1.2	-0.2	-44.6
Denmark	88	75	-0.7	0.0	-1.1	-4.5	0.1	-5.0	-1.2	-0.1	-0.5	-0.1	-3.9	1.7	-1.6	0.1	2.3	3.5	-14.2
Estonia	28	13	-5.8	-11.3	-2.3	2.0	-1.4	-15.3	0.1	4.6	-10.9	1.4	3.3	-0.6	-0.3	-4.5	0.7	-2.7	-53.8
European Union (27)	3,688	2,757	-5.1	-1.6	-0.9	-1.7	-0.8	-0.9	-3.0	0.0	-1.3	-0.8	-1.6	0.9	-1.6	-0.9	0.6	-1.6	-25.3
Finland	48	37	-8.4	-3.6	-1.4	1.9	-1.6	-1.1	1.7	-0.9	-0.2	-2.3	-1.2	-1.4	-1.5	-2.5	-2.1	1.2	-23.9
France	556	437	-4.2	-0.8	-1.6	-1.6	-0.8	-0.4	0.1	-0.2	0.6	-2.4	-1.4	0.3	-2.1	-2.1	1.7	-3.6	-21.3
Germany	673	539	-9.2	0.3	0.7	-2.6	-2.4	-0.3	-2.8	1.3	-2.2	-0.1	-1.7	0.0	-3.2	0.7	2.4	-0.3	-19.9
Greece	19	17	-0.8	-2.6	1.8	-2.2	-2.8	-0.9	0.8	0.3	-1.9	-4.0	2.6	3.2	-0.7	-3.0	2.3	-0.7	-8.1
Hungary	63	34	-9.9	-0.4	0.5	-0.8	2.1	0.4	1.6	-1.7	-4.5	-4.3	-6.4	-0.7	-6.4	-1.4	-0.7	-3.2	-46.6
Iceland	3	2	-1.9	-0.2	-1.6	-1.6	-0.8	-3.0	-4.0	-2.6	-2.3	-2.0	-2.3	0.8	4.0	2.2	0.9	0.9	-14.8
Ireland	137	119	-1.3	-0.3	0.4	-0.3	-0.8	-1.0	-1.5	-0.2	-0.5	-0.7	0.2	-2.9	0.6	-1.2	0.3	-1.2	-13.2
Italy	245	212	-6.7	4.3	1.5	0.8	1.5	0.3	-3.7	-0.1	-4.0	0.1	-1.8	1.5	-0.8	0.9	0.9	1.1	-13.4
Japan	193	153	0.5	-1.1	-0.6	-1.2	-1.5	-1.9	-1.3	-0.8	-0.6	-1.4	-1.6	-1.5	-1.4	-1.8	-2.0	-1.2	-20.7
Kazakhstan	279	259	2.8	-10.9	-19.0	-16.1	1.4	-0.7	3.9	6.6	5.4	4.8	5.4	3.1	5.9	1.9	14.6	1.4	-7.1
Latvia	51	19	-3.3	-4.8	-4.0	2.5	-6.6	-15.0	1.3	3.9	-2.9	-6.1	0.4	1.1	-0.4	0.7	-3.6	-2.1	-62.3
Liechtenstein	0.32	0.31	-0.1	-0.6	0.5	0.2	0.6	-0.5	-4.3	10.8	-2.4	-0.4	-1.7	0.4	3.7	0.1	0.0	-2.1	-2.9
Lithuania	76	38	-4.0	-3.7	1.7	0.1	-5.8	-9.7	-6.7	3.4	1.4	1.2	-1.5	-2.6	-2.4	2.6	0.5	-5.7	-50.1
Luxembourg	6	5	-5.3	1.1	-0.9	-2.2	-0.3	-0.8	-2.4	0.3	-0.6	-2.2	-0.6	-0.5	-1.0	1.5	2.0	1.8	-16.3
Malta	1	1	0.0	0.0	0.0	0.0	0.0	0.0	-31.8	-5.2	-3.7	-5.3	3.0	0.0	-4.3	0.7	-3.9	-4.4	-46.2
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	207	189	-0.7	0.7	-4.5	-1.5	1.2	0.4	-4.6	4.1	-5.0	2.1	0.7	-1.3	0.2	0.8	2.9	0.5	-8.8
New Zealand	241	451	5.0	6.5	5.1	2.7	-1.3	2.3	8.7	7.2	4.8	2.6	-1.5	-0.2	1.2	0.0	5.5	5.0	87.1
Norway	46	30	-1.5	-0.1	1.0	-2.4	-1.8	0.7	-6.5	-2.3	-1.0	-1.2	-2.1	-2.8	-1.9	-1.4	-2.9	-11.5	-34.2
Poland	445	261	-8.4	-7.7	-2.4	1.8	1.4	-4.0	-8.4	-1.5	-4.2	1.3	-3.0	0.6	1.4	0.3	1.4	-3.7	-41.4
Portugal	37	37	-1.9	3.4	1.5	0.6	0.9	7.2	-1.0	-1.2	0.4	-4.9	0.1	2.8	-1.4	-3.6	0.4	0.1	-0.3
Romania	154	131	0.0	2.8	0.0	-2.4	-2.7	-2.5	1.1	1.2	1.1	2.3	-3.5	2.0	2.8	-4.9	-4.9	-4.5	-15.1
Russian Federation	2,112	949	-2.9	-6.8	-7.2	-6.2	-8.6	-9.7	0.8	1.6	-2.9	-4.7	-4.0	-6.6	-6.7	0.1	-1.2	0.0	-55.1
Slovakia	40	22	-6.3	1.3	-3.3	-6.6	-4.1	-2.4	1.2	-1.8	2.9	-4.2	-5.4	1.8	-1.3	-0.4	-1.6	-5.7	-46.6
Slovenia	18	12	-3.5	1.9	-15.7	-3.0	0.6	3.6	-2.1	-1.5	6.7	-7.7	0.8	-5.4	-5.2	3.8	-2.1	-2.2	-36.3
Spain	116	85	4.0	-2.1	1.2	-2.0	0.8	-1.5	-3.2	1.7	1.7	-2.3	-2.5	-2.0	-4.5	-2.6	-1.3	-3.6	-26.6
Sweden	69	47	-8.0	-3.8	-5.1	1.7	-4.5	0.5	-4.8	-0.7	-0.1	-3.1	1.0	-2.3	0.1	-4.2	-3.6	0.4	-31.8
Switzerland	81	73	0.8	1.1	-0.2	-1.1	0.7	-6.1	-1.0	0.7	-0.7	-1.8	-0.9	0.0	-0.1	1.3	3.5	-3.2	-9.8
Turkey	371	273	4.1	-2.7	1.5	-6.3	-1.8	1.1	-4.5	-3.5	-13.4	14.9	-23.1	3.3	5.3	1.2	-2.8	1.6	-26.6
Ukraine	925	320	-1.3	-7.2	-8.1	-12.3	-2.8	-11.1	-10.2	1.3	0.9	-10.0	-6.4	-0.1	-2.1	-10.6	-5.5	-4.7	-65.4
United Kingdom	254	203	-2.8	-2.9	0.9	-8.3	-1.6	2.3	-5.3	-3.0	2.0	-1.2	-1.0	11.9	-4.9	-2.3	-2.8	-2.3	-20.1
United States	1,513	1,581	-1.0	-0.3	-1.2	-0.4	-0.8	2.8	1.1	-0.5	0.3	-7.0	5.0	1.9	2.1	4.4	1.3	1.1	4.5

Note: Bulgaria, Croatia, Estonia, Liechtenstein, Luxembourg, Netherlands, Norway Switzerland and Ukraine have used Option B to report livestock types and emissions within the category 4.A Enteric fermentation. For these Parties, emissions from mature dairy cattle are included in this table.

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 4.3b

CH₄ implied emission factors for enteric fermentation: dairy cattle - trend information

CH ₄ IEF (kg/head/yr)	Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	107	115	0.7	0.5	0.1	0.3	0.2	0.9	0.4	0.7	-0.4	0.0	-0.1	0.5	0.7	0.0	0.0	-0.2	6.9
Austria	97	116	0.1	4.1	0.4	0.8	1.0	1.1	1.3	1.6	0.8	1.3	1.3	-0.2	1.0	0.8	0.5	0.1	19.1
Belarus	92	110	-2.0	-2.1	0.1	2.5	1.4	-2.2	-0.8	3.1	0.8	0.9	4.7	5.7	3.1	1.1	3.2	2.5	18.6
Belgium	99	124	0.2	0.7	1.4	1.3	-0.1	1.1	3.2	1.2	1.3	1.1	0.9	1.6	1.6	1.0	0.9	1.0	24.9
Bulgaria																			
Canada	116	125	0.5	0.5	2.1	0.5	1.2	-4.2	2.4	-1.2	1.1	-0.5	0.0	1.3	1.2	-0.4	-0.2	-0.2	7.7
Croatia	78	99	-2.3	1.2	2.7	1.8	1.7	-0.4	0.9	2.6	1.8	1.1	1.1	5.5	3.8	0.4	1.2	1.1	26.8
Czech Republic	96	117	-4.0	4.0	1.5	-2.3	4.3	3.7	1.6	0.7	1.7	-0.9	0.0	3.6	0.5	0.3	0.5	1.4	22.4
Denmark	117	134	0.8	-0.4	-0.8	-0.2	0.3	-0.7	-0.4	1.8	1.8	2.2	1.7	1.5	0.9	0.9	0.0	2.5	14.7
Estonia	101	136	0.1	1.1	5.6	4.4	4.3	-2.9	5.8	6.5	-0.9	0.4	3.6	2.7	3.8	0.5	3.3	1.0	34.2
European Union (27)	97	115	0.8	1.4	0.7	0.5	0.7	0.9	0.9	1.1	1.1	0.7	1.1	2.1	0.3	0.5	0.7	0.1	18.1
Finland	98	126	0.7	0.8	0.2	2.3	0.4	1.7	4.0	1.7	1.8	1.7	1.7	0.4	1.4	1.8	0.2	0.9	28.5
France	105	117	1.2	1.2	0.4	0.9	0.5	0.6	0.5	-0.3	1.1	0.0	0.6	1.6	-0.1	-1.9	2.0	-0.3	11.8
Germany	106	128	2.4	1.1	1.3	0.7	1.5	1.1	1.4	1.8	0.5	1.1	0.3	1.2	0.5	0.9	-1.2	0.0	21.1
Greece	88	117	0.6	3.7	-1.1	1.3	2.9	-0.1	0.7	0.8	4.5	-0.7	2.3	3.3	-1.0	0.6	1.4	0.7	32.3
Hungary	108	131	-2.7	2.3	-0.4	1.4	3.7	-0.5	0.3	1.7	4.5	-0.1	-0.1	2.5	2.0	1.5	0.7	-0.9	21.2
Iceland	84	82	0	0.0	-0.2	0.1	0.0	-0.1	-0.2	-0.2	-0.3	-0.2	0.2	-0.1	0.0	0.0	-0.1	0.1	-2.0
Ireland	102	108	0.2	1.0	1.4	0.1	0.4	-0.7	0.6	1.6	-0.1	1.0	-0.4	-1.7	2.4	0.1	0.3	-2.7	5.3
Italy	93	113	5.3	0.9	1.5	0.9	-0.3	-0.1	-0.9	-0.7	4.3	0.0	2.2	1.3	0.3	0.0	1.3	-1.5	21.8
Japan	98	108	0.4	0.9	0.9	0.7	0.8	0.6	0.4	0.1	0.2	0.1	0.1	0.6	1.1	1.0	0.3	-0.1	10.0
Kazakhstan	75	86	-0.8	-0.7	-3.1	1.3	9.5	-1.1	1.2	3.4	0.8	0.4	0.6	0.3	0.7	0.4	11.6	-0.2	15.2
Latvia	96	116	-2.5	1.7	1.9	7.2	1.5	-0.1	2.0	1.7	-1.1	3.5	0.3	1.7	1.4	1.8	1.8	0.8	21.9
Liechtenstein	111	120	0.2	0.7	0.1	1.3	0.9	0.5	1.5	2.4	0.6	0.3	1.7	-0.8	-0.3	-0.1	0.5	-1.6	7.9
Lithuania	91	103	-2.8	1.0	1.0	1.3	2.1	-1.8	5.2	2.6	1.1	0.1	1.7	1.4	1.8	3.4	0.9	0	13.1
Luxembourg	97	118	0.2	1.9	0.4	1.3	0.5	1.1	1.6	1.4	1.2	1.3	1.2	0.9	0.8	0.6	-0.5	0.1	21.2
Malta	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	110	127	0.7	0.1	-2.0	3.1	0.0	1.8	0.8	1.7	-1.5	2.6	1.2	1.2	1.1	1.3	-0.8	-1.0	15.0
New Zealand	70	77	5.4	0.0	3.2	0.5	-3.3	2.9	2.1	1.0	-0.9	3.8	-2.5	1.0	-0.4	-1.8	-0.5	0.0	9.8
Norway	135	99	-2.2	-0.7	-0.4	-2.4	-2.8	1.3	-5.0	1.7	2.8	-2.4	-1.0	-4.3	2.2	-3.6	-1.0	-10.6	-26.5
Poland	93	97	-1.6	-0.4	0.9	0.9	-0.1	-0.5	1.1	1.6	0.2	0.5	0.6	0.7	0.3	1.7	0.7	0.5	4.8
Portugal	95	125	-0.3	3.1	2.4	0.8	2.0	9.0	1.0	2.0	2.0	-2.4	0.1	4.6	0.8	-0.3	2.9	2.0	31.7
Romania	71	92	2.9	2.3	0.8	0.5	-0.4	-0.5	-1.6	1.2	1.6	1.6	4.4	-1.7	1.9	-0.8	0.9	-0.2	30.3
Russian Federation	100	102	-1.8	0.4	-2.1	3.1	-0.2	-2.6	3.3	5.5	0.6	-1.0	1.8	1.0	0.1	1.6	-0.3	2.2	2.4
Slovakia	74	106	2.7	2.4	2.4	1.1	4.5	1.2	2.3	2.7	2.7	1.3	0.3	2.8	3.6	1.0	0.5	-2.5	43.6
Slovenia	77	103	5.8	2.0	7.4	1.6	1.3	1.8	4.1	1.8	3.5	-1.1	-1.7	5.4	1.4	0.3	0.4	-1.9	33.6
Spain	72	103	6.8	4.1	-2.4	0.4	0.6	4.4	3.0	1.8	-0.3	2.8	1.7	1.9	2.0	2.1	2.0	2.8	41.9
Sweden	120	132	0.3	1.6	-1.9	1.2	-0.5	0.5	-0.2	1.7	0.1	0.3	0.7	0.4	1.4	0.5	-0.3	0.5	10.1
Switzerland	102	121	0.9	1.1	-0.4	1.6	1.5	1.3	1.0	0.7	1.1	1.3	1.9	0.0	0.3	1.8	1.2	1.5	19.6
Turkey	61	65	0.6	1.0	0.2	0.3	0.2	0.3	0.3	0.2	0.4	0.1	0.1	0.2	0.6	0.3	0.7	0.3	7.2
Ukraine	93	108	0.3	-2.8	-1.0	-2.4	7.3	-4.0	-1.7	7.2	3.8	-3.1	3.4	9.0	6.3	-2.9	2.5	1.4	16.6
United Kingdom	89	109	-0.1	1.3	1.5	-4.2	0.6	1.6	-1.0	0.7	3.1	0.4	1.9	15.6	-3.9	2.1	-0.5	0.5	22.5
United States	107	115	-0.4	0.0	-0.4	0.7	0.3	3.0	0.8	-0.7	0.7	-7.4	6.6	0.8	0.3	3.7	0.1	0.3	7.4

Note: Bulgaria, Croatia, Estonia, Liechtenstein, Luxembourg, Netherlands, Norway Switzerland and Ukraine have used Option B to report livestock types and emissions within the category 4.A Enteric fermentation. For these Parties, CH₄ IEF from mature dairy cattle are included in this table.

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 4.4a

CH₄ emissions from enteric fermentation: non-dairy cattle - trend information

CH ₄ Emissions (Gg)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	1,565	1,706	2.0	0.6	0.8	0.8	-0.5	0.8	0.9	2.4	-0.8	0.8	0.2	1.9	0.6	0.0	0.0	-1.4	9.0
Austria	81	84	-0.2	13.1	-2.4	-7.2	-3.5	2.1	8.4	-0.9	-2.9	1.2	1.9	-1.8	-0.2	-0.1	-1.0	1.7	3.3
Belarus	237	138	-5.0	-10.5	-6.6	-2.1	-1.3	-6.2	-6.8	-3.0	-2.0	-0.7	1.4	3.3	2.9	2.7	3.9	3.1	-41.7
Belgium	102	98	3.0	1.7	-0.5	-1.1	-2.9	0.6	-1.7	0.9	-4.1	-4.0	-0.3	-0.7	-0.7	2.4	-1.0	-0.2	-3.1
Bulgaria																			
Canada	588	753	3.3	6.0	1.6	-0.2	0.3	-0.1	3.0	3.6	0.7	0.6	4.3	2.7	-3.4	-2.6	-2.5	-5.3	27.9
Croatia	3	2	39.6	26.6	1.4	-6.6	13.2	-23.7	-8.2	4.3	14.9	-8.9	63.4	-19.3	-3.8	-14.1	17.9	-25.7	-41.5
Czech Republic	102	41	-4.4	-0.5	-1.3	-5.0	-9.4	1.5	-5.3	1.9	-4.1	-3.8	-3.5	-4.6	-3.2	1.4	3.7	-4.2	-59.4
Denmark	53	42	-0.4	-1.2	-0.1	-3.5	-2.2	-4.0	-0.9	5.0	-7.5	-4.5	-5.2	-3.5	2.6	7.5	-0.7	3.4	-20.0
Estonia	14	4	-0.6	-13.6	-6.4	-5.9	-7.7	-9.1	-6.2	2.5	10.3	-0.6	-1.6	3.5	1.4	4.0	-2.3	3.5	-66.9
European Union (27)	3,819	3,178	-3.0	1.3	0.7	-1.2	-0.8	-0.5	-1.3	-0.8	-2.0	-0.9	-1.3	-0.5	-0.2	1.7	-0.3	-0.6	-16.8
Finland	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
France	834	855	0.4	1.6	0.9	-0.7	-0.6	0.2	1.8	0.6	-2.4	-2.6	-2.1	-0.1	1.3	1.9	1.4	0.0	2.5
Germany	563	402	-10.7	0.5	-0.3	-3.7	-0.4	0.9	-1.2	1.1	-5.7	-3.0	-4.2	-1.2	-1.0	-0.1	0.9	0.1	-28.7
Greece	26	28	-2.3	2.4	3.7	0.8	6.5	-0.1	-3.4	-2.2	9.2	8.8	3.3	2.8	0.1	-0.4	-1.8	-0.2	8.9
Hungary	63	26	-6.5	1.1	-3.9	-4.3	-3.4	-1.9	-8.8	-6.5	3.6	-0.1	0.3	-0.8	3.2	4.0	-1.0	2.0	-59.7
Iceland	1	1	10.3	2.9	8.9	-16.1	3.7	2.1	-0.4	-3.4	-5.8	-2.2	-5.1	0.6	0.9	6.8	4.4	1.2	11.5
Ireland	264	264	1.4	0.6	3.8	3.9	2.2	-3.2	-6.0	-0.9	0.1	-0.7	-3.2	1.1	-0.3	-3.6	0.2	-0.9	-0.1
Italy	233	188	13.8	-2.0	-1.8	0.8	-3.4	1.3	-1.6	-7.1	-1.8	0.1	-3.5	-0.9	-6.1	6.7	-3.5	-4.9	-19.2
Japan	158	161	3.0	-1.0	-0.8	0.0	0.6	0.4	0.4	-0.4	-0.8	-1.8	-1.2	-0.3	1.4	1.0	0.1	-0.7	1.7
Kazakhstan	397	210	-4.5	-18.4	-24.6	-23.6	-8.8	1.5	2.8	5.9	7.8	9.0	8.6	6.6	2.5	4.7	2.5	1.9	-47.1
Latvia	47	11	-5.8	2.5	-4.5	-8.5	-10.3	-10.4	-5.7	8.5	4.0	5.5	-4.2	8.2	-2.5	12.3	-4.2	1.4	-76.5
Liechtenstein	0.00	0.03	27.0	13.0	11.5	10.3	9.3	8.5	7.9	50.7	33.6	33.6	40.2	29.7	11.9	15.1	-2.6	-4.6	2065.0
Lithuania	67	20	-7.4	-9.4	0.0	-5.6	-7.8	7.7	-21.4	1.7	9.6	11.3	-2.5	8.4	16.9	-7.8	2.2	-6.0	-69.9
Luxembourg	2	2	12.6	7.6	3.9	-1.8	-1.2	2.7	1.0	2.7	-3.3	-4.4	-1.7	0.9	-0.7	5.5	7.4	2.2	47.1
Malta	IE	0	*	*	*	*	*	*	*	-4.7	6.5	-3.8	12.0	2.9	-1.4	1.3	-11.5	-11.4	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	8	9	17.5	0.7	-2.7	0.6	-0.1	8.5	6.5	-1.1	-6.3	2.6	1.3	2.5	-4.9	2.1	-11.4	-3.5	14.9
New Zealand	233	230	4.0	0.9	-4.1	-0.1	-7.7	2.8	2.6	0.5	-1.8	2.0	-2.3	0.8	1.9	-3.4	-8.0	-0.4	-1.1
Norway	14	23	8.0	3.2	2.1	6.5	7.4	-5.5	5.6	-4.9	-7.9	6.8	2.1	8.5	-7.6	7.1	0.2	14.4	61.8
Poland	219	147	-18.6	-1.2	-1.9	8.4	4.4	-8.4	-4.3	-9.6	0.2	-4.6	-1.1	4.7	4.7	4.6	1.4	4.2	-32.8
Portugal	49	62	3.9	8.7	3.6	-4.1	3.1	2.2	2.7	2.4	-1.8	-0.2	4.0	1.3	-1.6	0.6	3.2	-3.4	27.5
Romania	232	60	-19.8	-7.0	1.9	-0.5	-9.4	-9.8	-16.4	-6.1	8.0	0.7	3.9	-1.4	5.2	-3.2	-3.6	-9.1	-74.4
Russian Federation	1,925	685	-3.7	-11.3	-13.0	-12.5	-12.4	-15.9	1.3	4.2	3.1	-2.0	-4.1	-6.5	-4.0	2.8	1.5	0.2	-64.4
Slovakia	45	15	-10.2	14.4	-10.0	-16.1	-5.0	-7.3	-4.3	10.5	-11.4	-5.1	-9.1	2.0	-2.8	-0.5	-5.4	-4.8	-68.0
Slovenia	13	18	-7.2	8.8	16.2	-7.9	3.2	5.8	13.6	-2.6	-2.7	-3.0	-3.0	7.2	3.9	5.8	-1.7	0.1	45.2
Spain	192	289	3.7	13.1	5.7	-1.5	4.3	3.8	-0.1	6.0	1.8	3.9	-1.1	-2.3	-1.0	4.6	-3.5	-1.4	50.7
Sweden	59	64	4.1	-1.9	2.4	-0.6	-1.6	-2.1	-0.5	-1.7	-0.8	-1.5	1.9	-0.8	-0.6	-0.7	1.3	-1.7	8.8
Switzerland	IE	9	*	*	*	*	*	*	8.8	12.8	14.8	12.1	7.4	12.1	11.2	7.2	5.1	10.2	*
Turkey	241	290	6.7	1.5	0.2	-5.5	-0.9	-0.5	-0.6	-0.4	-0.9	-12.3	30.5	5.4	2.4	1.9	-0.4	-2.8	20.2
Ukraine	32	7	7.7	-2.6	-1.5	-9.4	-17.6	-11.8	-18.9	-17.4	8.5	-12.0	-19.1	-0.3	-2.8	-8.9	-14.3	-6.9	-79.2
United Kingdom	394	352	-1.2	0.2	2.4	-2.9	-0.8	-0.8	-2.3	-4.9	-2.6	2.2	1.9	-2.1	-1.5	2.1	-2.0	-0.4	-10.8
United States	4,502	4,742	0.4	3.2	-0.4	-2.5	-1.3	-0.7	-1.8	-0.7	0.1	0.0	-1.7	1.1	1.5	0.7	-0.9	-1.1	5.3

Note: Bulgaria, Croatia, Estonia, Liechtenstein, Luxembourg, Netherlands, Norway Switzerland and Ukraine have used Option B to report livestock types and emissions within the category 4.A Enteric fermentation. For these Parties, emissions from mature non-dairy cattle are included in this table.

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 4.4b

CH₄ implied emission factors for enteric fermentation: non-dairy cattle - trend information

CH ₄ IEF (kg/head/yr)	Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	71	72	0.1	-0.4	-0.3	0.0	0.0	0.4	0.1	0.3	0.1	0.6	0.3	-0.1	-0.1	0.3	0.3	0.2	1.6
Austria	48	56	1.1	6.0	0.3	-1.1	-1.2	1.2	2.8	0.0	-0.1	0.1	0.6	0.7	-0.1	-0.1	-0.4	-0.1	16.1
Belarus	51	51	0.0	0.2	0.1	-0.1	0.0	0.3	0.3	-0.1	-0.1	0.0	0.1	-0.1	0.0	0.1	0.1	0.1	1.1
Belgium	42	45	0.6	0.2	-0.2	1.4	0.1	0.3	0.3	1.2	0.4	0.0	0.6	0.1	0.2	0.7	0.0	-0.6	7.4
Bulgaria																			
Canada	56	58	1.1	-0.3	-2.4	-0.3	0.6	1.0	1.8	0.2	0.2	0.6	-3.0	0.4	0.3	-0.4	0.6	-1.1	3.7
Croatia	66	66	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0	0	0	0.0	0	0	0.0
Czech Republic	44	52	1.4	4.9	0.6	1.0	0.0	5.4	0.3	0.7	0.8	0.5	-0.2	-0.9	-1.6	-0.7	2.9	-0.6	16.2
Denmark	35	43	0.1	0.0	-0.5	0.8	-0.3	0.7	0.2	0.8	0.1	0.4	-1.1	3.8	4.9	3.7	0.7	6.5	21.6
Estonia	61	60	0.0	0	0.0	0.0	0.0	-0.1	-0.2	0.3	0.1	-0.3	0.0	-0.2	0.1	-0.2	-0.2	-0.1	-0.8
European Union (27)	47	49	0.7	0.7	0.4	0.3	0.7	0.0	0.4	0.5	-0.2	0.1	-0.2	0.1	0.1	0.3	0.2	0.0	5.0
Finland	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
France	51	53	0.7	0.3	0.6	0.5	-0.1	0.0	0.1	-0.3	-0.4	0.0	-0.9	-0.3	0.2	-0.2	0.3	0.6	3.5
Germany	43	46	2.0	0.8	0.6	-0.2	0.5	0.7	0.4	0.3	-0.8	0.0	-0.3	0.1	0.5	0.5	-0.7	0.3	7.2
Greece	53	55	0.0	0.7	0.2	1.2	-0.4	-0.6	0.7	0.3	-0.2	-0.1	0.0	0.6	-0.3	0.5	-0.1	0.1	3.5
Hungary	52	58	-2.2	0.3	-0.6	0	0	0	-0.3	-0.3	-0.2	0.7	1.3	0.2	1.1	0.7	0.4	0.2	11.4
Iceland	29	30	1.2	-0.2	1.9	-9.3	0.7	-2.6	1.6	-0.6	-0.5	-0.5	-1.5	-0.1	-1.1	1.8	0.8	2.1	2.6
Ireland	57	55	-1.8	-1.3	1.4	-0.2	-2.0	-4.4	0.5	3.1	-1.5	0.4	2.2	1.1	-0.3	-0.1	2.3	-1.2	-4.3
Italy	46	45	4.2	-2.6	0.0	0.8	-1.9	0.8	-0.7	-0.6	-0.5	0.3	-0.8	0.3	-3.6	3.2	-1.3	-2.1	-2.3
Japan	64	63	-0.1	0.3	0.6	0.8	0.9	0.8	0.3	-0.2	-0.5	-0.7	-0.7	-0.7	-0.5	-1.0	-1.0	-0.8	-2.5
Kazakhstan	56	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Latvia	52	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Liechtenstein	81	81	0	0	0	0	0	0.0	0	0	0	0	0	0.0	0.0	0	0	0	0.0
Lithuania	45	57	0.4	1.6	3.3	1.1	3.8	2.8	2.4	1.7	1.1	2.7	-0.9	1.1	2.0	8.0	0.9	0.1	24.7
Luxembourg	55	55	0.1	0.0	0.0	-0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4
Malta	IE	48	*	*	*	*	*	*	*	0	0	0	0	0	0	0	0	0	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	65	72	0.7	0.9	-2.8	2.0	-0.7	3.4	-0.5	0.5	-0.2	7.6	0.4	-1.8	0.8	1.4	0.5	-0.6	11.4
New Zealand	51	56	2.2	-1.7	2.5	0.9	0.1	-1.9	3.7	1.6	-0.6	-1.0	1.6	1.3	1.6	-2.4	-2.3	0.5	10.7
Norway	51	86	4.5	0.4	0.0	4.6	5.6	-4.2	10.3	-2.4	-3.8	6.0	2.4	7.4	-3.2	6.3	1.8	16.0	69.3
Poland	40	49	-2.1	1.6	-0.5	4.3	16.7	-0.4	0.5	-1.1	2.8	-2.1	0.2	-0.4	1.1	0.0	0.0	2.0	23.0
Portugal	50	55	1.9	7.0	1.8	-4.9	1.9	0.5	1.1	1.5	-1.4	-0.3	2.8	-0.6	-2.8	-0.4	2.4	-3.5	10.8
Romania	56	56	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0	0	0	0	0
Russian Federation	48	55	0.3	3.6	-2.6	1.3	-0.8	-4.9	2.1	6.0	1.3	-1.2	2.3	1.6	2.5	1.7	0.1	2.8	13.5
Slovakia	45	54	1.6	1.5	1.5	-5.4	11.5	-0.3	-0.2	13.2	-6.8	-4.9	2.4	5.4	0.3	0.6	-2.3	-1.5	21.1
Slovenia	39	51	2.6	2.1	4.6	2.4	0.3	0.7	3.6	0.9	-0.4	1.2	-2.3	2.4	1.0	-0.5	0.1	-0.8	28.6
Spain	55	55	-0.9	0.7	-0.7	-1.4	0.1	-0.1	1.0	0.4	-0.6	0.4	-1.0	0.1	-0.1	-0.2	1.2	1.0	0.3
Sweden	52	55	0.9	-0.2	0.1	0.3	0.2	-0.1	0.1	0.1	0.2	-0.1	0.2	0.3	0.1	0.4	0.4	-0.1	5.2
Switzerland	IE	81	*	*	*	*	*	*	0	0	0	0	0	0	0	0	0	0	*
Turkey	44	44	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ukraine	81	73	1.0	-1.3	0.6	-1.7	-1.4	-0.4	-2.2	-1.2	2.8	-1.8	-4.4	0.4	-1.5	0.2	-1.9	0.5	-9.5
United Kingdom	43	43	0.0	0.0	0.2	0.3	0.1	0.1	-0.2	0.2	0.2	-0.4	0.2	0.2	0.4	-0.8	-0.1	-0.1	0.9
United States	52	55	0.3	0.5	0.3	-0.1	0.1	-0.7	-0.3	0.2	0.1	1.0	0.3	0.5	0.2	1.2	0.5	-0.3	7.2

Note: Bulgaria, Croatia, Estonia, Liechtenstein, Luxembourg, Netherlands, Norway Switzerland and Ukraine have used Option B to report livestock types and emissions within the category 4.A Enteric fermentation. For these Parties, CH₄ IEF from mature non-dairy cattle are included in this table.

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 4.5
Manure management - CH₄ (2009)

Key category	Share of national total (%)	Methods and EF used ^a		Cattle		Sheep	Swine
				Dairy cattle ^b	Non-dairy cattle ^b		
		Methods	EF	CH ₄ IEF ^c			
				(kg/head/yr)			
IPCC default EF ^c				6 to 81	1 to 38	0.19 to 0.37	3 to 20
Australia	0.3	CS, M, T2	CS, D	8.87	0.04	0.00	23.06
Austria	0.4	T1, T2	CS, D	8.56	3.98	0.19	1.15
Belarus	0.8	T1, T2	CS, D	5.14	2.39	0.19	4.43
Belgium	L	T2	CS, D	16.31	2.60	0.62	9.68
Bulgaria	L, T	T1, T2	CS, D			0.14	9.19
Canada	0.4	T1, T2	CS, D	27.15	2.71	0.26	5.00
Croatia	0.6	T1	D	6.00	4.00	0.19	4.00
Czech Republic	0.3	T1	D	14.00	6.00	0.19	3.00
Denmark	L, T	CS, T1, T2	CS, D	33.03	10.45	1.61	2.07
Estonia	0.3	T1	CS, D	10.57	4.34	0.19	3.15
European Union (27)	L	CR, CS, T1, T2, T3	CR, CS, D	20.95	9.17	0.24	7.74
Finland	0.4	T2	CS	14.78	IE	0.19	IE
France	L, T	CR, T1	CS, D	18.30	19.87	0.28	21.01
Germany	L	T1, T2	CS, D	29.14	5.70	0.22	4.63
Greece	0.3	T1	D	9.31	1.68	0.25	7.00
Hungary	L, T	T1, T2	CS	7.59	2.05	0.19	10.87
Iceland	0.5	T1	D	14.00	6.00	0.19	3.00
Ireland	L, T	T1, T2	CS, D	20.41	11.17	0.15	12.74
Italy	L	T1, T2	CS, D	12.67	6.62	0.22	6.72
Japan	0.2	CS, T1	CS, D	62.22	1.80	0.28	1.39
Kazakhstan	0.3	D, T1	D	6.00	4.00	0.19	4.00
Latvia	0.9	T1, T2	CS, D	10.34	4.00	0.19	4.00
Liechtenstein	L	T2	D	24.24	8.05	0.36	3.08
Lithuania	L	T1, T2	CS, D	20.92	10.59	0.19	15.26
Luxembourg	L	T1, T2	CS, D	36.69	9.51	0.19	19.52
Malta	1.0	CR	CR	44.00	20.00	0.28	10.00
Monaco	-	NA	NA	NO	NO	NO	NO
Netherlands	L	T2	CS	41.73	3.45	0.16	4.40
New Zealand	L	T1, T2	CS, D	3.29	0.69	0.11	20.00
Norway	L	T2	CS	14.41	11.91	0.76	1.99
Poland	L, T	T1, T2	CS, D	10.53	4.93	0.17	6.54
Portugal	L	T2	CS	6.80	1.39	1.67	21.40
Romania	L	T1	D	19.00	13.00	0.28	7.00
Russian Federation	0.2	CS, T1, T2	CS, D	4.76	4.31	0.19	5.98
Slovakia	0.3	T1, T2	D	4.00	3.80	0.19	4.00
Slovenia	L	T1, T2	CS, D	55.93	21.55	0.19	14.30
Spain	L	CS, T1, T2, T3	CS, D	16.11	1.24	0.24	9.47
Sweden	L, T	T1, T2	CS, D	20.23	6.74	0.19	3.29
Switzerland	L	T2	CS, D	25.66	13.30	1.20	5.43
Turkey	T	T1	D	10.15	1.00	0.12	3.45
Ukraine	T	T1, T2	CS, D, OTH	5.81	8.15	0.19	4.67
United Kingdom	L	T1, T2	CS, D	26.88	4.15	0.11	7.06
United States	L, T	M, T1, T2	CS, D, M	84.86	1.52	0.54	13.65

^a Information on methods and emission factors in this table is reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for the various livestock types within the category 4.B Manure management - CH₄

^b Information on implied emission factors reported by Bulgaria, Croatia, Estonia, Liechtenstein, Luxembourg, Netherlands, Norway Switzerland and Ukraine refers to mature dairy cattle and mature non-dairy respectively, as these Parties have used Option B to report livestock types within the category 4.B manure management.

^c Source of default emission factors: IPCC Guidelines, volume 3, tables 4-5 and 4-6 (pages 4.12-4.13). Default emission factors are provided according to climate regions (cool, temperate, warm), as shown below.

Default IPCC emission factors according to climate regions^d

	Dairy cattle			Non-dairy cattle			Swine		
	cool	temperate	warm	cool	temperate	warm	cool	temperate	warm
North America	36	54	76	1	2	3	10	14	18
Western Europe	14	44	81	6	20	38	3	10	19
Eastern Europe	6	19	33	4	13	23	4	7	11
Oceania	31	32	33	5	6	7	20	20	20
Asia	7	16	27	1	1	2	1	4	7
	Sheep								
	cool	temperate	warm						
Developed countries	0.19	0.28	0.37						

Table 4.6
Manure management - N₂O (2009)

	Key category	Share of national total (%)	Methods and EF used ^a		Animal waste management systems (AWMS)				N excretion rates				
					Anaerobic lagoons	Liquid systems	Solid storage and dry lot	Other	Dairy cattle	Non-dairy cattle	Sheep	Swine	Poultry
					N ₂ O IEF (kg N ₂ O-N/kg N)				(kg N / head / year)				
IPCC default EF					0.001 ^b	0.001 ^b	0.02 ^b	0.005 ^c	60 to 100 ^d	40 to 70 ^d	16 to 20 ^d	12 to 20 ^d	0.6 ^d
Australia	T	0.3	CS, M, T1, T2	D	0.001	0.001	0.020	0.018	122	39	7	12	0.7
Austria	L	1.2	T1	CS	NO	0.001	0.020	0.013	97	47	13	10	0.5
Belarus	L	2.0	T1	D	NO	0.001	0.020	NO	77	36	16	10	0.6
Belgium	L	0.6	T1	D	NO	0.001	0.020	0.001	115	54	8	10	0.6
Bulgaria	L, T	0.7	D	D	0.001	0.001	0.020	0.001			15	20	0.6
Canada	L	0.6	T1	D	NE	0.001	0.020	0.003	103	44	4	11	0.4
Croatia	L, T	0.7	T1	D	0.001	0.001	0.020	0.005	70	50	16	20	0.6
Czech Republic		0.2	T1	D	NO	0.001	0.020	0.005	100	70	20	20	0.6
Denmark	L, T	0.7	CS, D, T1, T2	CS, D	NO	0.001	0.020	0.016	138	48	15	8	0.5
Estonia		0.7	T1	D	0.001	0.001	0.020	0.011	102	44	16	13	0.6
European Union (27)	L	0.7	CR, CS, D, T1, T2, T3	CS, D	0.001	0.002	0.019	0.008	106	50	9	11	0.5
Finland	L	0.6	D	D	NO	0.001	0.016	0.020	127	50	10	IE	0.6
France	L	1.2	CR, T1	CS, D	NA	0.001	0.020	NA	100	58	18	16	0.6
Germany		0.2	T1, T2	D	NO	0.003	0.005	NO	132	41	7	12	0.8
Greece		0.2	D	D	NA	0.001	0.020	0.005	100	45	11	16	0.6
Hungary	L	1.4	T1	CS, D	NO	0.001	0.020	NO	114	48	20	8	0.6
Iceland		0.6	T1	D	NO	0.001	0.021	NO	101	33	6	6	0.4
Ireland		0.6	T1	D	NO	0.001	0.020	NO	85	49	6	9	0.3
Italy	L	0.8	T2	CS, D	NO	0.001	0.020	0.020	116	49	16	12	0.5
Japan		0.4	CS, D	CS, D	NO	0.001	0.020	0.016	85	51	12	13	1.0
Kazakhstan	L, T	1.4	T1	D	NA	0.001	0.020	NA	70	50	16	20	0.6
Latvia	L, T	1.5	T1	CS, D	NA	0.001	0.020	NO	70	50	13	10	0.6
Liechtenstein		0.7	CS	D	NO	0.001	0.019	NO	113	80	9	10	0.3
Lithuania	L	1.4	T1	D	NA	0.001	0.020	0.004	99	58	16	12	0.6
Luxembourg		0.2	T1	D	NO	0.001	0.020	0.001	102	68	17	12	0.7
Malta		0.2	CS	CS	NO	NE, NO	NE, NO	NO	NE	NE	NE	NE	NE
Monaco	-	-	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	L	0.5	T2	D	NO	0.001	0.018	NO	127	83	7	9	0.7
New Zealand		0.1	T1	D	0.001	NO	0.020	0.005	115	72	15	16	0.6
Norway		0.2	CS, T1	D	NA	0.001	0.018	NA	82	35	10	6	0.2
Poland	L	1.3	T2	CS, D	NO	0.001	0.020	NO	87	58	7	14	0.3
Portugal	T	0.4	D	D	0.001	0.001	0.020	NO	115	51	7	9	0.6
Romania		1.2	T1	D	0.001	0.001	0.020	0.004	70	50	16	20	0.6
Russian Federation	L, T	0.9	T1	CS, D	NO	0.001	0.020	NO	94	59	16	22	0.8
Slovakia	L, T	0.9	T2	D	NO	0.001	0.020	NO	100	60	16	15.822079	0.7
Slovenia	L, T	0.8	D	CS, D	0.001	0.001	0.020	0.002	111	42	20	12	0.6
Spain	L	0.7	CS, D, T3	D	NO	0.001	0.020	0.006	68	53	5	9	0.5
Sweden	L, T	0.7	T2	D	NO	0.001	0.020	0.020	126	42	6	9	0.4
Switzerland	L, T	0.6	CS	D	NO	0.001	0.020	NO	110	80	8	9	0.5
Turkey	T	0.599060752	T1	D	NA	NA, NO	NA	NA	83	45	14	7	NE
Ukraine	L	0.9	T2	D	0.001	0.001	0.020	0.005	75	68	16	13	0.3
United Kingdom		0.4	T1	D	NO	0.001	0.025	0.020	110	55	5	11	0.6
United States		0.3	M, T1, T2	D	0.005	0.007	0.019	0.004	124	51	11	10	0.4

Note: Bulgaria, Croatia, Estonia, Liechtenstein, Luxembourg, Netherlands, Norway Switzerland and Ukraine are using Option B to report livestock types and emissions within the category 4.B Manure management.

^a Information on methods and emission factors in this table is a 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 N2O from 4.B Manure management.

^b Source of default emission factors: IPCC good practice guidance, tables 4.12 (page 4.43).

^c Source of default emission factors: IPCC Guidelines, volume 3, table 4-22 (pages 4.104).

^d Source of default N excretion rates: IPCC Guidelines, volume 3, table 4-20 (pages 4.99). Default values are provided by regions as shown below.

IPCC defaults:

	North America	Western Europe	Eastern Europe	Oceania	Asia
Dairy cattle	100		70	80	60
Non-dairy cattle	70		50	60	40
Sheep	16	20	16	20	12
Swine		20			16
Poultry		0.6			

Table 4.7a

CH₄ emissions from manure management - trend information

CH ₄ emissions (Gg)	Relative change (%)																			
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	73	83	0.1	2.0	1.0	4.3	4.2	2.7	1.6	2.9	1.5	-0.9	-2.0	-0.2	-1.0	-4.0	-4.3	-3.8	13.7	
Austria	21	15	-1.7	0.1	-2.5	-1.6	-0.8	-4.3	-3.0	-0.9	-3.3	-2.2	-2.3	-0.9	-1.4	0.3	-2.5	1.8	-25.7	
Belarus	52	33	-4.3	-6.0	-4.7	-2.1	-0.4	-3.0	-4.3	-2.7	-1.8	-1.3	0.3	2.6	2.3	0.4	1.7	1.5	-35.8	
Belgium	82	77	-2.1	2.4	-0.4	0.7	3.4	0.7	-9.0	-3.4	-2.2	-2.7	-2.0	-0.9	0.2	2.1	0.4	1.0	-6.2	
Bulgaria	106	36	-6.6	-11.0	-8.8	-7.5	-10.1	4.3	-0.8	-14.5	2.3	12.5	0.0	-4.3	1.7	-3.9	-5.8	-4.4	-65.8	
Canada	121	128	-0.1	5.1	1.2	0.1	1.5	-0.9	3.0	3.2	3.1	0.0	0.9	1.4	-1.6	-3.9	-6.1	-4.1	5.3	
Croatia	11	8	-1.8	-10.0	-1.4	-1.8	-1.5	10.8	-7.1	0.5	1.5	4.8	7.8	-12.9	15.6	-7.5	-4.2	8.1	-24.6	
Czech Republic	48	21	-4.0	-5.2	0.5	-3.0	-4.9	-0.8	-5.5	-0.6	-4.0	-3.0	-4.7	-3.8	-1.3	0.0	-3.8	-7.8	-56.9	
Denmark	47	59	2.0	0.2	1.3	0.0	3.3	-1.9	3.1	4.8	1.4	0.4	1.7	-2.4	-2.1	6.7	-2.2	0.8	25.8	
Estonia	7	3	-6.8	-8.1	-16.3	1.2	0.4	-11.5	-1.3	9.0	-3.7	0.2	-0.2	-0.1	-0.5	3.4	-1.9	-0.8	-59.9	
European Union (27)	2,748	2,407	-2.4	0.1	-0.3	-0.4	0.7	-0.8	-1.6	-0.1	0.5	-0.8	-0.9	0.2	0.4	0.7	-1.6	-1.2	-12.4	
Finland	12	14	-2.5	3.7	0.5	6.1	-1.9	-1.6	2.0	-3.1	4.2	3.4	-0.1	3.0	-0.1	-0.2	1.4	-4.0	20.1	
France	663	664	-1.0	0.6	0.8	-0.4	0.4	0.1	1.2	1.2	-0.4	-1.5	0.1	0.2	0.0	2.0	0.1	-2.3	0.1	
Germany	315	287	-10.4	-0.8	0.9	-1.3	2.1	-0.9	-2.1	1.1	-1.7	-0.1	-2.4	1.4	-2.2	1.5	1.3	1.0	-8.9	
Greece	16	16	-0.4	-0.5	0.2	0.1	0.2	-0.2	-1.2	-0.7	-0.7	0.4	0.6	0.3	-0.4	-0.9	0.1	-0.3	-3.2	
Hungary	116	46	-13.4	2.6	6.6	-8.1	6.8	2.8	-6.0	-3.9	4.3	-0.4	-10.9	-8.0	-1.9	1.5	-7.4	-9.8	-60.4	
Iceland	1	1	-1.2	-0.2	1.3	-2.6	1.4	-0.7	-2.1	-0.2	-4.1	-1.9	-2.5	1.9	3.5	1.9	0.8	0.2	-5.7	
Ireland	111	102	0.9	-0.4	3.4	2.4	1.4	-3.8	-5.0	-0.1	0.0	-1.6	-0.6	-0.2	-0.8	-3.4	-0.2	-0.9	-8.3	
Italy	165	137	0.0	2.0	0.3	-0.4	1.1	1.0	-2.1	2.0	-2.4	-0.3	-3.1	-0.1	-3.8	0.9	-3.0	-2.5	-16.7	
Japan	147	110	-0.2	-1.7	-1.2	-1.5	-1.6	-1.9	-1.5	-1.0	-0.8	-1.3	-1.7	-1.8	-2.6	-2.6	-2.3	-0.9	-25.7	
Kazakhstan	82	48	-2.3	-16.0	-23.4	-18.8	-6.2	2.4	4.0	4.4	6.8	7.2	4.3	3.7	4.1	3.3	2.4	1.9	-41.1	
Latvia	13	4	-7.0	3.9	-10.1	-4.1	-5.8	-8.6	-2.1	7.7	2.7	-1.6	-1.6	1.1	-0.3	2.8	2.5	6.0	-65.7	
Liechtenstein	0	0	0.2	-1.7	0.3	-2.3	-0.6	-1.1	-5.1	8.1	-1.7	0.0	-4.9	4.3	4.1	1.0	0.0	0.0	-8.3	
Lithuania	63	27	-8.7	-1.2	-7.4	3.6	-4.4	-14.7	-8.6	12.0	4.5	1.3	0.6	3.0	1.8	0.0	-5.3	-3.2	-58.1	
Luxembourg	4	4	7.9	4.9	0.7	2.7	3.4	9.3	-4.2	-1.8	-2.5	-2.6	-2.4	3.8	-1.7	-6.1	1.8	1.5	18.6	
Malta	1	1	-5.9	-2.1	4.2	3.3	-4.1	1.7	17.9	-0.2	-2.5	-6.2	5.0	-4.6	-0.9	4.0	-10.3	-2.5	-4.4	
Monaco	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Netherlands	143	137	0.7	8.3	-1.3	-1.8	-3.0	-1.9	-1.6	-2.5	-3.6	-4.7	2.2	-0.1	-0.1	0.9	2.4	7.7	-3.7	
New Zealand	28	35	2.0	3.4	1.5	1.9	-1.5	-1.0	4.6	1.9	1.0	3.7	0.5	-2.0	0.9	0.0	-1.7	1.7	25.4	
Norway	14	15	2.7	1.7	1.8	0.2	1.3	-0.8	-0.9	-2.5	-2.0	1.1	0.7	1.4	-2.7	2.4	0.6	-0.2	5.7	
Poland	163	148	9.1	4.4	-6.3	-0.1	4.1	2.9	-6.5	-0.6	14.2	-2.7	-7.4	4.8	4.4	-2.4	-10.1	-5.3	-9.1	
Portugal	56	60	4.6	-0.8	-3.1	-0.3	0.8	1.2	0.6	0.7	0.7	-0.9	0.8	0.3	1.4	0.1	0.1	0.0	7.1	
Romania	203	96	-5.5	-9.6	1.4	0.6	-9.5	-10.7	-10.0	-4.0	6.6	1.1	8.7	2.0	2.4	-3.4	5.0	-5.3	-52.8	
Russian Federation	655	218	-2.8	-12.1	-12.4	-12.8	-9.7	-8.5	-1.7	-2.3	-1.3	0.9	-6.2	-12.7	-0.9	7.5	2.5	-3.6	-66.7	
Slovakia	18	6	-7.0	2.7	-4.9	-8.2	-11.7	-3.3	-3.5	1.2	1.1	-4.9	-15.3	-2.3	-2.2	-8.6	-14.5	1.5	-66.1	
Slovenia	22	20	-7.4	-9.1	-5.0	2.3	3.9	-10.1	11.1	0.3	8.3	-3.2	-6.0	0.9	2.0	3.2	-6.6	1.6	-8.2	
Spain	194	266	-0.1	0.4	-1.5	4.0	6.1	2.0	5.7	1.4	-0.4	2.1	1.6	-1.3	5.4	2.0	-5.0	0.3	37.3	
Sweden	17	22	-2.1	2.4	1.4	-2.2	-1.1	-0.2	-4.1	10.1	-0.6	5.1	0.1	7.5	-1.9	-0.2	-1.7	0.0	33.1	
Switzerland	32	31	-0.9	-1.4	-1.4	-1.2	1.5	-2.6	-0.2	1.4	-0.1	-0.7	0.3	2.2	1.1	0.4	1.7	-0.8	-4.6	
Turkey	68	56	1.9	-9.0	-1.4	-8.6	12.3	8.0	-16.4	9.8	-20.2	6.2	-13.2	7.4	-0.5	9.5	-8.1	4.0	-17.4	
Ukraine	840	63	-4.8	-28.6	-32.3	-31.5	-33.2	-19.6	-25.6	-9.9	7.6	-5.1	-15.1	4.3	17.1	3.6	2.0	5.0	-92.5	
United Kingdom	172	134	-0.7	-2.2	0.7	-1.6	0.5	-2.8	-5.7	-4.9	-1.9	-2.1	0.6	1.2	-1.2	-1.6	-2.4	-1.4	-21.9	
United States	1,511	2,356	4.5	3.1	-1.6	4.9	9.0	1.2	1.3	4.3	2.8	-7.4	5.2	5.1	0.4	8.6	-2.6	0.1	55.9	

Note: Bulgaria, Croatia, Estonia, Liechtenstein, Luxembourg, Netherlands, Norway Switzerland and Ukraine have used Option B to report livestock types and emissions within the category 4.B Manure management.

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 4.7b

N₂O emissions from manure management - trend information

N ₂ O emissions (Gg)	Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	1.7	5.0	10.8	7.3	0.3	11.2	8.5	14.2	5.9	0.3	-0.1	1.3	7.0	8.0	4.4	-1.5	-1.5	-0.2	198.4
Austria	3.0	3.0	0.0	3.2	-1.2	-0.1	0.1	-0.6	-1.5	-0.3	-1.5	0.2	0.2	-0.9	0.1	0.8	0.0	1.3	-1.3
Belarus	9.7	5.7	-3.3	-5.9	-4.8	-2.6	-2.0	-4.2	-4.3	-3.1	-3.4	-2.7	-1.1	0.7	0.4	-0.3	1.5	2.1	-40.8
Belgium	3.1	2.5	-0.3	1.7	-0.6	-0.3	-0.8	0.5	-9.4	-0.6	-3.4	-4.9	-0.2	-1.9	-2.0	-0.7	-0.2	0.5	-19.4
Bulgaria	4.9	1.4	-3.5	-11.7	-3.5	-5.5	-7.3	2.0	-11.7	-17.7	1.8	4.1	-0.8	-2.3	-1.4	-2.8	-6.3	-5.2	-71.1
Canada	10.1	12.5	1.9	4.7	0.7	0.4	1.5	0.9	3.5	3.2	0.8	0.4	1.5	1.8	-2.3	-1.8	-2.1	-4.1	24.3
Croatia	1.2	0.7	-7.0	-6.0	-6.0	-1.7	-2.6	2.2	-3.0	1.0	-2.5	4.7	2.2	-1.6	3.5	-4.2	-5.6	1.2	-44.4
Czech Republic	2.3	1.0	-3.8	-5.2	0.8	-2.5	-4.3	-0.5	-5.5	-0.8	-4.0	-2.9	-5.0	-3.9	-1.2	-0.2	-4.5	-8.6	-55.9
Denmark	2.0	1.4	-0.9	-2.7	0.1	0.8	2.1	-2.2	-5.2	1.5	-2.0	-3.1	1.7	1.2	-4.7	-7.3	-5.5	-5.1	-29.3
Estonia	0.9	0.4	-6.4	-8.1	-13.2	1.4	1.2	-14.8	3.2	5.5	-7.1	-1.3	4.5	-0.7	-0.5	1.5	-0.9	-1.5	-57.8
European Union (27)	136.1	100.1	-2.8	-1.0	-1.1	0.1	0.0	-1.6	-3.5	-0.4	-1.1	-1.7	-1.7	-0.2	-0.5	0.5	-1.6	-2.3	-26.5
Finland	1.6	1.3	-7.1	-2.4	2.0	2.7	-2.4	-3.0	-0.4	-5.4	3.0	1.1	-2.3	0.3	-1.3	-0.7	1.4	-4.6	-18.1
France	22.2	19.5	-1.7	0.2	0.2	-1.0	-0.6	-0.8	0.5	0.7	-1.7	-2.6	-2.5	-0.9	-0.6	-0.2	0.4	-0.3	-12.4
Germany	8.9	7.2	-10.2	0.0	0.8	-2.0	-0.8	-1.1	-1.9	1.0	-2.9	-0.9	-2.5	0.2	-2.2	1.0	0.9	0.1	-19.6
Greece	1.1	1.0	-1.7	-2.4	2.9	-0.9	-0.2	-0.7	-1.1	-1.1	0.9	1.9	1.7	1.3	0.2	-1.2	-0.6	-0.6	-11.6
Hungary	6.1	2.9	-7.1	-1.0	-4.6	-0.6	1.8	-1.6	4.5	-1.3	-1.8	1.6	-3.6	-2.3	-3.3	-1.4	-1.3	-1.7	-52.2
Iceland	0.1	0.1	-3.2	-5.6	3.9	-0.2	1.0	0.1	-5.5	-1.0	-2.6	-1.7	-1.1	0.2	2.2	0.9	-0.9	3.1	-9.8
Ireland	1.1	1.2	4.0	1.4	1.6	3.6	4.0	0.5	-4.9	-2.7	2.0	-0.9	-0.7	-0.6	-2.1	-3.1	-2.0	0.1	4.8
Italy	12.6	12.1	-0.2	2.2	1.1	0.9	2.1	1.5	-3.3	3.6	-3.8	-0.8	-2.8	-0.2	-2.9	5.0	-0.1	-0.3	-4.1
Japan	17.8	15.4	-0.6	-1.9	-1.2	-1.1	-0.9	-1.1	-1.0	-0.9	-0.6	-0.6	-0.6	0.0	0.1	0.4	-0.2	0.0	-13.9
Kazakhstan	2.4	13.2	124.1	5.2	-19.9	-18.4	-6.8	1.6	2.1	5.3	6.7	7.1	6.3	4.9	4.1	3.8	2.8	1.9	448.7
Latvia	1.8	0.5	-4.0	-0.8	-7.3	-6.3	-8.0	-11.2	-2.4	5.7	1.4	-3.2	-2.9	2.3	-0.8	3.0	-4.2	-1.1	-71.8
Liechtenstein	0.0	0.0	0.4	1.5	2.2	0.1	1.0	-0.8	-4.6	3.4	-4.6	4.8	2.1	1.9	4.0	3.6	0.1	0.4	10.0
Lithuania	2.6	1.0	-5.2	-5.6	-0.4	-2.0	-6.8	-3.2	-10.0	6.7	5.4	5.4	-0.1	3.5	6.3	-14.7	0.0	-5.0	-61.7
Luxembourg	0.1	0.1	-13.9	3.2	1.3	-5.7	-5.2	-15.6	-2.3	-0.1	-4.8	1.7	-0.5	-2.8	-4.6	22.6	-0.9	-1.3	-38.9
Malta	0.0	0.0	-4.2	-1.7	3.0	2.3	-2.9	1.2	22.2	-4.0	-3.0	-6.3	5.8	-2.6	-0.3	4.0	-9.2	-3.9	-1.8
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	3.8	3.2	6.6	-0.6	-4.5	-2.4	-1.6	1.2	-6.4	-2.4	-0.7	-13.9	5.2	4.7	-3.5	7.6	3.1	1.2	-15.0
New Zealand	0.1	0.2	0.9	7.8	0.3	4.1	3.4	0.9	5.6	4.1	3.8	1.1	-1.3	-5.4	-3.5	7.0	-1.9	-2.3	46.1
Norway	0.4	0.4	6.5	0.9	0.7	-2.9	-0.2	-0.2	2.0	-0.6	-2.7	-10.9	-2.3	0.8	-2.8	3.4	1.1	1.1	-5.1
Poland	25.5	16.3	-5.1	-1.5	-5.0	2.6	3.4	-5.7	-6.8	-2.2	0.8	-1.7	-4.8	2.6	3.3	0.2	-4.6	-3.8	-36.3
Portugal	1.7	1.0	-1.0	-1.8	-2.3	-2.3	0.0	3.1	-0.3	-3.3	-4.0	-6.5	-4.2	-2.8	-4.4	-5.9	-3.7	-3.0	-39.0
Romania	10.2	5.0	-1.8	-8.3	1.1	-0.3	-8.6	-9.1	-6.6	-2.9	5.0	1.0	6.2	2.5	1.7	-3.1	-4.7	-4.6	-50.7
Russian Federation	139.9	63.5	-2.4	-11.5	-12.0	-10.1	-9.0	-10.3	-4.4	2.2	1.3	-1.1	-2.5	-4.0	-2.7	3.6	3.4	0.2	-54.6
Slovakia	3.5	1.2	-9.3	5.4	-7.8	-8.4	-11.9	-4.7	-2.1	-3.3	-1.1	-2.9	-6.8	-3.4	-2.2	-1.9	-3.5	-1.9	-64.9
Slovenia	0.9	0.5	-5.0	2.5	-2.3	-1.0	-1.6	-0.5	0.0	-3.5	1.2	-9.1	-7.0	0.4	-4.2	4.0	-7.0	-1.3	-45.5
Spain	7.3	8.0	2.8	1.6	2.1	3.2	2.0	0.9	-0.6	4.3	0.7	-0.3	2.0	-1.7	-1.9	3.7	-5.9	-5.8	9.4
Sweden	2.3	1.4	-2.8	-5.0	-0.2	2.1	0.1	-6.4	-2.1	-7.2	-0.1	-5.5	1.2	-7.0	-0.4	-1.9	-0.4	-7.3	-39.3
Switzerland	1.5	1.0	-1.5	-2.3	-1.8	-5.2	-3.7	-4.1	-4.0	-2.7	-3.6	-1.0	-1.2	0.6	-0.6	0.3	2.3	0.2	-29.6
Turkey	8.1	7.1	5.0	-3.0	0.9	-5.5	-0.2	-0.2	-2.7	-3.1	-6.2	1.4	1.2	4.2	3.5	-1.1	-2.6	-1.9	-11.3
Ukraine	28.3	10.3	-1.9	-3.9	-10.8	-14.2	-8.0	-4.5	-8.3	-4.4	2.7	-6.0	-10.5	-4.9	-0.3	-4.3	-6.3	-0.9	-63.5
United Kingdom	8.7	6.4	-0.1	-2.2	-0.2	0.9	2.8	3.6	-8.2	-2.6	-3.9	-1.6	-2.0	-2.8	-1.3	-1.1	-2.8	-3.0	-25.8
United States	46.8	57.6	1.6	2.6	-0.4	1.2	1.5	3.8	2.6	-0.6	2.3	-2.8	0.2	2.0	4.5	0.5	-1.1	-0.3	23.2

Note: Bulgaria, Croatia, Estonia, Liechtenstein, Luxembourg, Netherlands, Norway Switzerland and Ukraine have used Option B to report livestock types and emissions within the category 4.B Manure management.

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economic in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 4.8
Agricultural soils - N₂O (2009)

Methods and EF used ^a		Key category	Share of national total	Direct soil emissions					Pasture, range and paddock manure			Indirect soil emissions							
				Methods	EF	Synthetic fertilizers		Animal manure	N-fixing crops	Crop residue	Cultivation of histosols	Key category	Share of national total	N ₂ O IEF	Atmospheric deposition		Nitrogen leaching and run-off		
Activity data	N ₂ O IEF	Key category	Share of national total			Activity data	N ₂ O IEF								Activity data	N ₂ O IEF			
				Use of synthetic fertilizers	N ₂ O IEF			N ₂ O IEF											
		(%)	(kg N/year)	(kg N ₂ O-N / kg N)			(kg N ₂ O-N / ha)												
IPCC default EF				0.0125 (0.0025-0.0225) ^b	0.0125 ^b			8, 16 (2-15) ^c				0.02 (0.005-0.03) ^d		0.01 (0.002-0.2) ^e	0.025 (0.002-0.12) ^f				
Australia	CS, T1, T2	CS, D	L, T	0.9	844,862,779	0.0063	0.0100	0.0125	0.0125	8.00	L, T	0.7	0.004	L, T	1.1	716,595,259	0.010	388,335,892	0.012
Austria	T1	D	L, T	2.3	105,994,030	0.0125	0.0125	0.0125	0.0125	NO	L, T	0.1	0.020	L, T	1.5	50,212,975	0.010	76,821,212	0.025
Belarus	T1, T1a, T1b	D	L, T	10.9	498,240,000	0.0125	0.0125	0.0125	0.0125	8.00	L, T	0.8	0.020	L, T	4.1	110,553,605	0.010	248,870,407	0.025
Belgium	T1a	CS, D	L, T	1.6	129,399,030	0.0125	0.0125	0.0125	0.0125	8.00	L, T	0.6	0.020	L, T	0.7	53,538,873	0.010	48,978,873	0.025
Bulgaria	T1, T1a, T1b	D	L, T	3.3	159,797,700	0.0125	0.0125	0.0125	0.0125	NO	T	0.5	0.020	L, T	2.0	37,427,404	0.010	82,774,056	0.025
Canada	CS, T1, T2	CS, D	L, T	2.3	1,878,000,000	0.0094	0.0114	NO	0.0094	8.00	L, T	0.4	0.019	L, T	1.6	534,021,266	0.010	681,254,416	0.025
Croatia	T1, T1b	D	L, T	4.1	100,928,261	0.0125	0.0125	0.0125	0.0125	8.00	L, T	0.6	0.020	L, T	2.6	21,497,618	0.010	53,684,649	0.025
Czech Republic	T1	D	L, T	2.0	199,501,200	0.0125	0.0125	0.0125	0.0125	NO	T	0.3	0.020	L, T	1.3	56,628,720	0.010	118,193,280	0.025
Denmark	CS, D, T1a, T1b	CS, D	L, T	5.1	196,521,793	0.0125	0.0125	0.0125	0.0125	8.00	L, T	0.4	0.020	L, T	2.7	60,822,781	0.010	155,081,667	0.019
Estonia	T1, T1b	D	L, T	2.6	27,328,000	0.0112	0.0125	0.0125	0.0125	8.00	L, T	0.2	0.020	L, T	1.3	7,076,720	0.010	14,764,088	0.025
European Union (27)	CR, CS, D, T1, T1a, T1b, T2, T3	CR, CS, D	L, T	2.8	9,246,450,189	0.0123	0.0122	0.0125	0.0125	7.79	L, T	0.6	0.020	L, T	1.7	2,887,224,742	0.010	5,479,329,578	0.025
Finland	D, T1	CS, D	L, T	4.1	133,761,838	0.0125	0.0125	0.0125	0.0125	8.28	L, T	0.9	0.020	L, T	0.9	28,486,976	0.010	35,955,838	0.025
France	CR, T1	CS, D	L, T	4.2	1,917,417,497	0.0125	0.0125	0.0125	0.0125	NO	L, T	1.4	0.020	L, T	3.3	581,711,827	0.010	1,195,261,161	0.025
Germany	CR, D, T1, T2	CR, D	L, T	3.0	1,467,335,387	0.0125	0.0125	0.0125	0.0125	8.00	L, T	0.2	0.020	L, T	1.6	512,768,435	0.010	1,006,080,000	0.025
Greece	D, T1, T1a, T1b	CS, D	L, T	1.1	153,000,000	0.0125	0.0125	0.0125	0.0125	8.00	L, T	1.5	0.020	L, T	1.4	63,276,533	0.010	120,414,799	0.025
Hungary	T1	D	L, T	4.3	247,500,000	0.0125	0.0125	0.0125	0.0125	NO	L, T	0.3	0.020	L, T	2.7	55,024,738	0.010	123,787,107	0.025
Iceland	T1, T1b	CS, D	L, T	2.5	10,195,200	0.0125	0.0125	NO	0.0125	0.99	L, T	1.0	0.020	L, T	2.1	3,219,297	0.010	6,528,146	0.025
Ireland	T1a, T1b	CS, D	L, T	3.8	301,367,401	0.0125	0.0125	0.0125	0.0125	NO	L, T	4.4	0.020	L, T	2.0	87,148,580	0.010	65,827,238	0.025
Italy	D, T1	CS, D	L, T	1.5	469,086,024	0.0125	0.0125	0.0125	0.0125	8.00	L, T	0.3	0.020	L, T	1.3	309,082,108	0.010	415,321,414	0.025
Japan	CS, T1, T1b	CS, D	L, T	0.2	360,056,000	0.0066	0.0062	0.0062	0.0125	1.34	L, T	0.0	NE	L, T	0.2	263,030,242	0.010	255,867,843	0.012
Kazakhstan	T1	R, CS, D, OT	L, T	0.3	26,523,000	0.0125	0.0125	0.0125	0.0125	NO	L, T	1.2	0.020	L, T	0.0	3,664,143	0.010	33,055,714	0.007
Latvia	T1, T1a, T1b	CS, D	L, T	8.3	46,710,000	0.0125	0.0125	0.0125	0.0125	8.00	L, T	1.0	0.020	L, T	3.3	11,305,568	0.010	24,743,352	0.025
Liechtenstein	CS, T1b	D	L, T	2.3	160,982	0.0125	0.0125	0.0125	0.0125	8.00	L, T	0.3	0.020	L, T	1.0	182,266	0.010	138,595	0.025
Lithuania	T1, T1a	D	L, T	6.3	136,000,000	0.0112	0.0100	0.0125	0.0125	8.00	L, T	0.9	0.020	L, T	4.3	28,958,105	0.010	63,837,158	0.025
Luxembourg	T1, T1a, T1b	D	L, T	1.1	12,000,600	0.0125	0.0125	0.0125	0.0125	NO	L, T	0.5	0.020	L, T	1.0	4,005,947	0.010	8,009,020	0.025
Malta	T1, T2	D	L, T	0.4	326,804,62	0.0100	0.0200	NE	NE	NO	L, T	0.2	NE	L, T	0.2	825,073	0.012	443,700	0.0075
Monaco	NA	NA	L, T	-	NO	NO	NO	NO	NO	NO	L, T	-	NO	L, T	-	NO	NO	NO	NO
Netherlands	T1, T1b, T2, T3	CS, D	L, T	1.8	238,112,000	0.0130	0.0093	0.0100	0.0100	4.70	L, T	0.7	0.034	L, T	0.8	102,795,412	0.010	83,912,310	0.025
New Zealand	T1a	CS, D	L, T	2.2	251,614,800	0.0100	0.0100	0.0100	0.0100	8.00	L, T	7.8	0.008	L, T	3.4	180,284,129	0.010	1,802,841,288	0.002
Norway	CS, T1, T1a, T1b	D	L, T	2.4	97,700,004	0.0125	0.0125	0.0125	0.0125	8.00	L, T	0.4	0.020	L, T	0.8	16,772,558	0.010	26,416,342	0.025
Poland	T1, T1b	CS, D	L, T	3.4	985,860,000	0.0125	0.0125	0.0125	0.0125	8.00	L, T	1.1	0.020	L, T	1.3	119,658,918	0.010	342,309,894	0.025
Portugal	T1a	D	L, T	1.3	90,833,891	0.0125	0.0125	0.0125	0.0125	NO	L, T	0.1	0.020	L, T	1.5	36,309,403	0.010	74,726,395	0.025
Romania	T1	D	L, T	7.8	266,449,500	0.0125	0.0125	0.0125	0.0125	8.00	L, T	1.3	0.020	L, T	2.7	131,448,600	0.010	241,581,150	0.025
Russian Federation	CS, T1, T1a, T1b	CS, D	L, T	2.5	1,113,090,300	0.0142	0.0125	IE	0.0125	8.00	L, T	0.2	0.020	L, T	0.8	679,442,960	0.010	1,204,679,489	0.025
Slovakia	T2	CS, D	L, T	2.8	69,352,605	0.0125	0.0125	0.0125	0.0125	NO	L, T	0.2	0.020	L, T	0.8	20,677,614	0.010	49,547,548	0.025
Slovenia	D, T1, T1a, T1b	CS, D	L, T	2.0	25,381,800	0.0125	0.0125	0.0125	0.0125	8.00	L, T	0.3	0.020	L, T	1.6	10,779,773	0.010	20,399,982	0.025
Spain	CS, T1a, T1b	D	L, T	2.3	762,821,000	0.0116	0.0101	0.0125	0.0125	NO	L, T	0.7	0.017	L, T	1.7	180,302,223	0.010	454,243,716	0.025
Sweden	CS, T1, T1a, T1b, T2	CS, D	L, T	4.0	141,064,907	0.0080	0.0250	0.0125	0.0125	8.00	L, T	0.7	0.020	L, T	1.8	34,851,000	0.010	72,420,000	0.025
Switzerland	CS, T1b	D	L, T	2.2	44,371,555	0.0125	0.0125	0.0125	0.0125	8.00	L, T	0.5	0.020	L, T	1.3	49,890,591	0.010	36,553,549	0.025
Turkey	T1, T1a	D	L, T	1.9	1,413,793	6.3636	0.0064	0.0063636	0.636364	NA	L, T	-	NE	L, T	-	NA	NA	NE	NE
Ukraine	CS, T1, T1a, T2	D	L, T	3.7	542,848,050	0.0125	0.0125	IE	0.0125	8.00	L, T	0.5	0.020	L, T	1.0	176,748,821	0.010	223,654,328	0.025
United Kingdom	T1, T1a, T2	CS, D	L, T	2.0	966,322,862	0.0125	0.0125	0.0125	0.0125	8.00	L, T	0.7	0.020	L, T	1.6	303,388,437	0.010	616,136,466	0.025
United States	CS, D, M, T1, T3	CS, D, M	L, T	2.3	11,037,936,792	0.0076	0.0089	IE	0.0051	9.21	L, T	0.1	0.004	L, T	0.7	4,999,783,234	0.008	11,315,950,412	0.005

^a Information on methods and emission factors is included in this table as reported by Parties in table Summary 3 of the CRF. It may therefore not reflect the actual method or type of emission factor used for all subcategories within the category 4.D Agricultural soils_{GN}.

^b Source of default emission factors: IPCC good practice guidance, table 4-17, page 4.60 (see also IPCC Guidelines, volume 3; table 4-18, page 4.89). IEFs for N-fixing crops and crop residues are shown in the unit kg_N-N/kg N. The unit of the IPCC default emission factor is also kg_NO-N/kg N.

^c For cultivation of histosols the two default values refer to temperate and tropical, respectively. It should be noted that default emission factors for histosols have been updated from 5 to 8 and from 10 to 16 for temperate and tropical, respectively (table 4.17, page 4.60 of IPCC good practice guidance). The values in parenthesis indicate the range as presented in the IPCC Guidelines, volume 3; table 4-18, page 4.89.

^d Source of default emission factor: IPCC Guidelines, volume 3, table 4-22, page 4.104 (Pasture range and paddock). See also IPCC good practice guidance, table 4.12, page 4.43.

^e Source of default emission factor: IPCC Guidelines, volume 3, table 4-23, page 4.105 (default emission factors for indirect emissions). See also IPCC good practice guidance, table 4.12, page 4.43.

Table 4.9

N₂O emissions from agricultural soils - trend information

N ₂ O emissions (Gg)			Relative change (%)																	
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	43	46	0.7	2.4	2.0	3.9	2.1	4.1	4.8	3.2	-2.3	-2.3	-0.4	-0.4	-3.1	-4.4	-2.4	-1.9	5.6	
Austria	11	10	7.3	1.8	-10.6	1.4	0.9	-2.1	-4.5	0.1	-0.3	-5.4	-3.3	0.4	1.6	1.4	4.9	-2.4	-9.7	
Belarus	54	45	-2.0	-10.0	9.6	4.2	0.7	-4.0	0.7	-7.2	-4.2	5.1	3.6	4.4	5.8	-2.0	6.9	2.3	-16.5	
Belgium	15	12	-1.2	2.0	-3.4	-0.2	1.0	0.4	-7.7	-2.2	-0.4	-6.3	0.5	-2.8	0.1	-1.0	-3.0	0.2	-22.9	
Bulgaria	35	11	-22.6	-18.8	-5.6	5.4	-19.1	13.0	-7.8	4.8	0.7	-11.5	18.2	-7.8	-3.7	-2.8	8.0	-0.7	-68.1	
Canada	80	97	-2.7	1.6	4.3	-0.7	1.5	1.4	-0.1	-6.3	-2.9	8.4	3.2	-2.1	0.1	3.5	5.9	-4.2	21.2	
Croatia	8	7	-0.8	-4.4	1.9	12.9	-11.8	9.4	-2.1	8.2	-0.9	-6.3	9.4	1.1	-1.2	-0.3	-0.9	-5.5	-16.2	
Czech Republic	30	15	-15.3	1.2	-6.8	1.2	-3.7	-0.8	-1.4	4.2	-3.0	-10.0	10.1	-5.2	-1.5	3.3	4.1	-6.4	-48.9	
Denmark	24	16	-2.5	-4.3	-8.1	-0.6	3.6	-4.6	-4.1	-3.3	-1.3	-7.2	3.6	-1.5	-2.5	2.5	1.9	-4.5	-32.5	
Estonia	5	2	-3.0	-14.1	-9.2	8.9	7.3	-13.9	8.3	-8.0	-8.6	14.5	3.2	-5.0	4.7	7.1	15.6	-9.8	-54.2	
European Union (27)	1,029	781	-6.9	0.4	0.8	1.3	-0.9	-0.4	-1.9	-2.0	-0.7	-1.9	0.7	-1.8	-1.0	-0.9	1.1	-3.2	-24.1	
Finland	13	11	-6.9	5.3	-2.8	-1.2	-1.8	-1.2	2.4	-0.6	0.4	0.3	-1.0	0.4	0.3	1.0	3.9	-5.1	-13.6	
France	181	150	-3.7	0.9	1.4	2.9	-0.1	-1.3	0.8	-4.8	1.0	-4.3	1.1	-1.1	-3.0	0.0	4.1	-5.8	-17.1	
Germany	161	140	-6.9	5.4	1.3	0.2	0.6	2.0	1.3	-2.5	-3.0	-2.8	5.5	-1.5	-2.2	-1.2	6.2	-4.1	-13.1	
Greece	24	16	-1.8	4.7	1.4	-2.3	0.1	-2.2	-3.5	-1.6	-1.2	-1.3	1.2	-5.3	-2.8	5.1	-11.9	-0.6	-34.0	
Hungary	31	16	-29.4	-5.9	2.6	-0.2	9.7	3.1	-4.6	7.9	2.5	-4.3	7.1	-7.3	3.1	1.0	0.0	-7.2	-50.2	
Iceland	1	1	-1.7	-3.0	5.2	-2.2	0.9	4.3	-0.7	-1.4	-6.1	-4.4	-2.9	-0.4	11.7	7.4	4.7	-10.5	0.2	
Ireland	23	20	0.0	2.4	0.3	-2.4	6.7	0.2	-5.8	-5.1	-1.2	2.9	-2.5	-1.9	-2.3	-4.5	-1.8	-0.4	-11.0	
Italy	63	50	3.1	-3.1	-1.7	5.3	-3.4	0.9	-1.3	-1.6	-1.1	-0.9	0.3	-3.2	-0.9	-0.2	-5.8	-8.4	-20.6	
Japan	25	19	-2.0	-2.9	-2.9	-1.9	-1.4	-0.6	-0.5	-0.6	-0.4	-0.6	-0.6	-1.4	0.0	-3.1	-3.0	-3.9	-26.0	
Kazakhstan	55	14	-11.6	-34.2	-26.6	-21.4	-10.4	4.8	1.7	7.2	7.2	7.8	6.1	4.5	8.8	7.5	-4.1	10.6	-74.2	
Latvia	10	4	-7.9	-14.0	0.0	1.8	-2.9	-5.1	3.1	9.2	-2.9	7.1	-1.9	5.7	0.5	4.1	0.1	2.9	-54.4	
Liechtenstein	0.03	0.03	1.0	0.4	-2.3	0.0	-2.3	-0.3	-2.2	3.1	-1.5	1.1	0.4	1.0	1.8	2.1	-0.6	-0.2	-3.8	
Lithuania	15	8	-10.6	-1.6	28.1	1.6	-2.3	-0.3	0.3	4.7	6.9	4.8	0.1	-1.1	18.9	-10.5	-4.3	5.5	-45.6	
Luxembourg	1	1	2.3	1.8	1.6	-2.2	-1.3	1.5	-1.7	-7.6	1.3	-9.4	12.0	-6.9	-1.1	-1.0	2.2	0.4	-15.2	
Malta	0	0	-0.6	27.2	-14.7	3.0	19.3	-16.1	12.0	-7.4	-5.4	-9.6	1.7	-2.6	19.4	-9.2	-11.6	-1.9	-6.2	
Monaco	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	34	20	1.4	2.4	-0.3	-1.9	-7.1	-3.0	-8.1	-4.5	-6.9	-1.9	-1.9	-2.0	0.2	-5.0	-2.7	-3.3	-40.5	
New Zealand	25	31	0.7	2.9	1.0	1.4	-0.9	1.8	4.2	4.5	3.2	2.7	0.8	0.8	-1.1	-3.3	-1.3	-2.4	22.4	
Norway	7	6	0.3	1.6	0.7	0.1	-0.1	-2.9	0.5	-3.7	-1.0	1.6	0.1	0.2	-2.6	2.1	-1.8	-2.3	-8.6	
Poland	78	58	-24.9	4.6	-0.8	1.9	1.3	-3.6	-2.5	1.1	-1.9	-2.8	3.8	-0.2	6.0	4.5	3.1	-2.7	-24.6	
Portugal	11	9	0.3	-2.6	7.0	-0.6	-3.3	1.4	6.2	-3.8	1.2	-15.3	5.0	-7.4	-3.7	7.6	-4.6	-0.4	-15.0	
Romania	97	50	-13.2	-1.1	-4.2	4.3	-8.4	-0.5	-18.6	13.9	4.0	1.9	-10.4	10.8	-1.3	-14.5	13.7	-0.1	-48.5	
Russian Federation	516	249	-6.2	-9.6	-6.3	-3.9	-12.2	-4.9	4.5	-0.1	0.3	-3.5	-1.4	-2.6	-0.7	2.8	5.5	-0.7	-51.7	
Slovakia	12	5	-21.9	1.5	0.3	3.1	-7.1	-10.0	4.1	-0.2	6.8	-4.1	-2.6	-0.2	-1.3	8.0	-2.9	-5.1	-54.5	
Slovenia	3	2	-7.0	-0.6	-1.8	3.6	2.5	0.0	2.3	-1.0	2.3	-3.3	-5.7	-0.1	1.8	0.6	-7.5	4.5	-6.5	
Spain	61	56	-1.5	-5.2	17.7	-5.6	6.9	3.6	5.1	-5.8	-4.9	9.1	-6.0	-8.8	3.1	3.0	-13.5	2.1	-8.3	
Sweden	16	15	-2.4	-1.6	-0.3	1.3	-1.6	-4.6	0.2	0.2	-1.0	-0.5	0.0	-1.9	0.4	-0.8	0.7	-0.9	-10.1	
Switzerland	8	7	-0.2	-1.2	0.2	-4.0	0.0	-0.3	0.4	1.3	0.0	-2.6	0.0	0.0	-0.1	1.6	-0.1	-1.4	-9.5	
Turkey	21	23	-2.9	1.9	6.6	0.5	13.0	1.1	-3.7	-13.9	2.9	7.4	0.6	2.1	1.5	-4.6	-10.4	16.7	6.8	
Ukraine	132	61	-7.4	-7.3	-16.9	-0.3	-10.5	-7.5	-7.7	4.0	-0.1	-7.2	7.2	-1.9	3.2	0.3	16.9	-6.8	-53.8	
United Kingdom	104	80	-0.5	0.6	0.6	3.2	-3.1	-2.2	-3.7	-6.0	2.2	-2.3	-0.3	-1.2	-4.5	-2.6	0.1	-0.5	-22.4	
United States	638	660	5.0	2.0	5.6	-4.3	3.8	-6.6	1.8	6.6	-5.2	-3.1	4.7	-0.2	-1.1	0.2	0.7	-2.9	3.4	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 4.10

Agricultural soils: parameters (fractions) used to estimate N₂O emissions in the agricultural soils category (2009)

	Frac _{BURN} (kg N / kg crop-N)	Frac _{FUEL} (kg N / kg N excreted)	Frac _{GRAZ}	Frac _{NCRBF} (kg N / kg of dry biomass)	Frac _{NCRO} (kg N / kg of dry biomass)	Frac _R (kg N / kg crop-N)	Frac _{GASF} (NH ₃ -N + NO _x -N / kg of synth. fert. N applied)	Frac _{GASM} (NH ₃ -N + NO _x -N / kg N excreted)	Frac _{LEACH} (kg N / kg of fertilizer or manure N)
IPCC default EF	0.1 ^a	no default ^b	no default ^b	0.03 ^a	0.015 ^a	0.45 ^a	0.1 ^a	0.2 ^a	0.3 (0.1-0.8) ^a
Australia	NA	NO	NA	NA	NA	NA	0.10	0	0.30
Austria	0.00	0	0.06	0.03	0.009	0.34	0.04	0.27	0.30
Belarus	NO	NO	0.27	NA	NA	NA	0.10	0.20	0.30
Belgium	NO	NO	0.31	0.03	0.015	0.48929606	0.03	0.31	0.12
Bulgaria	0.10	0	0.30	0.03	0.015	0.45	0.10	0.20	0.30
Canada	IE	NO	0.35	0.01	0.006	0.46	0.10	0.30	0.18
Croatia	NO	NO	0.26	0.03	0.017	0.45	0.07	0.20	0.30
Czech Republic	NO	NO	0.212303273	0.03	0.015	0.45	0.10	0.20	0.30
Denmark	0	NE	0	0	0	0	0	0	0
Estonia	0.10	NO	0.16	0.03	0.015	0.45	0.10	0.20	0.30
European Union (27)	NA	NA	0.28	0.03	0.014	0.50	0.08	0.21	0.27
Finland	0.00	NA	0.18	0.04	0.006	0.45	0.02	0.25	0.15
France	NA	NO	0.41	0.03	0.009	NA	0.10	0.20	0.30
Germany	NO	NO	0.12	0.04	0.020	0.55	0.05	0.30	0.30
Greece	0.10	0	0.79	0.01	0.005	0.53	0.10	0.20	0.30
Hungary	NO	NO	0.13	0.02	0.010	NO	0.10	0.20	0.30
Iceland	NO	NO	0	NO	0	0	0	0	0
Ireland	NO	NO	0.66	NO	NO	NO	0.02	0.19	0.10
Italy	0.10	NO	0.19	0.03	0.015	0.45	0.10	0.29	0.30
Japan	0.10	NA	NA	NA	NA	NA	0.10	0.20	0.30
Kazakhstan	0	0	0.66	0.01	0.850	1.30	0.05	0.10	0.06
Latvia	NO	NO	0.34	0.02	0.030	0.45	0.10	0.20	0.30
Liechtenstein	NO	NO	0	0	0.018173434	0	0	0	0.2
Lithuania	NO	NO	0.27	0.03	0.015	0.45	0.10	0.20	0.30
Luxembourg	NO	NO	0.45	0.03	0.015	0.45	0.1	0.2	0.3
Malta	NE	NE	NE	NE	NE	NE	NE	NE	NE
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NO	NO	0.16	NE	NE	NE	0.05	0.10	0.12
New Zealand	0.30	NO	IE	0.03	0.02	0.45	0.10	0.10	0.07
Norway	0.08	NO	0.27	0.01	0.012	0.67	0.02	0.21	0.18
Poland	0.03	NO	0.07	0.03	0.014	0.44	0.10	0.20	0.30
Portugal	0.05	NO	0.53	0.02	0.013	0.71	0.06	0.19	0.33
Romania	NA	NA	0.34	0.03	0.015	0.50	0.10	0.20	0.30
Russian Federation	NO	NO	0.17	NE	NE	NE	0.10	0.20	0.30
Slovakia	NO	NO	0.15	0.07	0.145	NE	0.10	0.24	0.14
Slovenia	NO	NO	0.14	0.02	0.007	0.47	0.10	0.20	0.30
Spain	0.15	NO	0.39	0.02	0.005	NA	0.07	0.19	0.30
Sweden	NO	NO	0.32	NE	0.005	0.63	0.01	0.33	0.30
Switzerland	NO	NO	0.19	0.02	0.016	0.70	0.04	0.33	0.20
Turkey	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ukraine	NO	NO	0.35	NE	NE	NE	0.15	0.20	0.21
United Kingdom	0	0.35	0.52	0.03	0.015	0.45	0.10	0.20	0.30
United States	NA	NA	NA	NA	NA	NA	NA	NA	NA

Abbreviations of fractions:

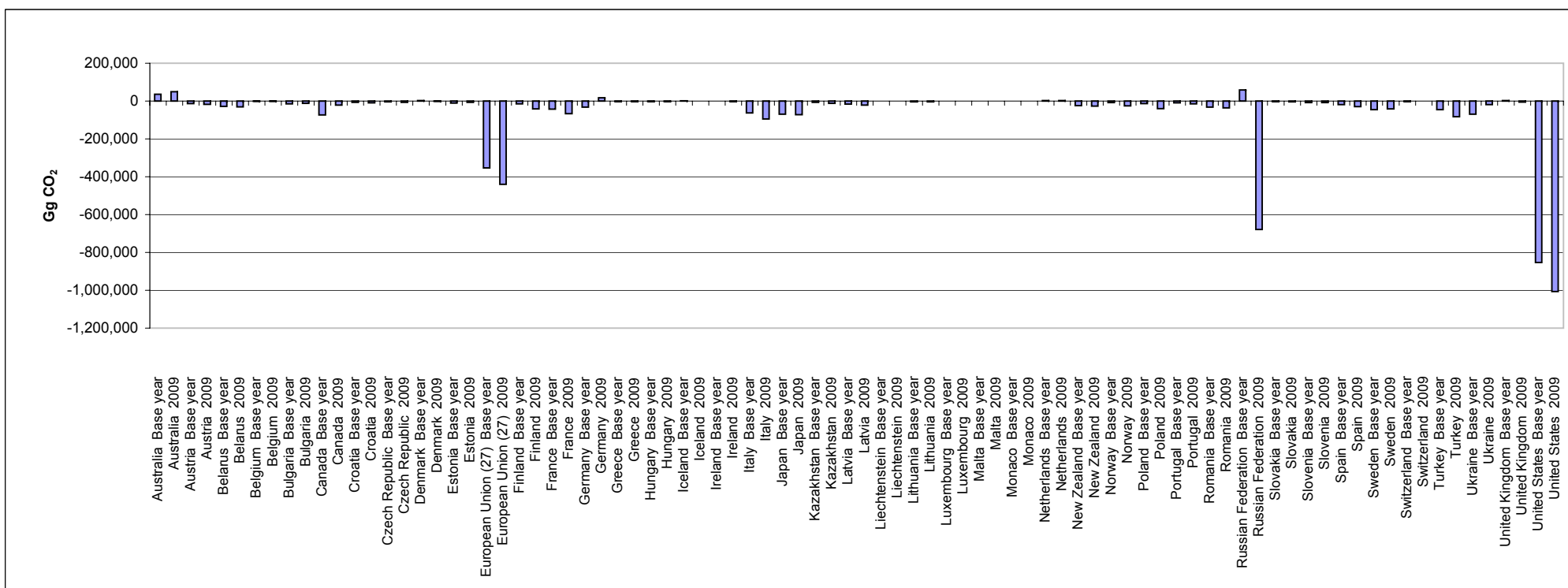
Frac _{FUEL}	Fraction of livestock N excretion in excrements burned for fuel	Frac _{BURN}	Fraction of crop residue burned
Frac _{GRAZ}	Fraction of livestock N excreted and deposited onto soil during grazing	Frac _{GASF}	Fraction of synthetic fertilizer N applied to soils that volatilises as NH ₃ and NO _x
Frac _{NCRBF}	Fraction of N in N-fixing crop	Frac _{GASM}	Fraction of livestock N excretion that volatilises as NH ₃ and NO _x
Frac _{NCRO}	Fraction of N in non-N-fixing crop	Frac _{LEACH}	Fraction of N input to soils that is lost through leaching and run-off
Frac _R	Fraction of total above-ground crop biomass that is removed from the field as a crop product		

^a Source of IPCC default fractions: IPCC Guidelines, volume 3, tables 4.19 and 4.24 (pages 4.94 and 4.106). (See also IPCC good practice guidance, table 4.19, page 4.74).

^b Countries are recommended to obtain country-specific data.

Figure 5.1

Net CO₂ emissions/removals from LULUCF^a



Note: The presentations of national totals without emissions and removals from the LULUCF sector exclude emissions and removals associated with carbon stock changes and other emission sources covered in the LULUCF sector.

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.1

Net CO₂ emissions/removals from LULUCF - trend information

CO ₂ emissions/removals (Gg)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	36309	49533	334.0	-504.7	-106.7	106.3	-980.7	-94.7	-374.2	171.2	-779.6	-53.3	-231.1	-119.6	10.3	674.6	-80.7	-23.3	36.4
Austria	-13780	-17574	42.6	-4.0	-29.4	75.5	-9.8	23.6	-23.2	15.1	-18.6	8.7	-0.3	-0.4	0.0	-0.3	-0.1	-0.3	27.5
Belarus	-28599	-30076	7.0	-1.6	-6.1	-9.9	-7.4	28.3	-1.5	-6.3	-11.1	-13.3	2.6	14.5	8.5	-3.1	-1.5	10.7	5.2
Belgium	-1557	-1600	-39.6	-11.7	6.1	3.3	-6.9	4.5	-1.1	55.6	-9.7	4.6	-5.4	2.4	-0.8	-1.5	-3.5	2.8	2.8
Bulgaria	-14305	-11953	-1.0	3.3	-7.7	0.5	0.1	0.1	-12.3	1.8	4.2	0.1	2.7	-0.9	0.7	-8.7	11.1	1.7	-16.4
Canada	-72853	-21509	-31.6	-567.2	-123.9	100.7	-222.9	-102.6	2559.6	-3.1	-209.9	-58.2	181.7	-45.4	21.1	-25.3	-159.7	-10.1	-70.5
Croatia	-6934	-8712	-1.4	-0.1	-5.7	3.3	2.6	2.5	2.7	2.4	2.3	2.6	2.4	2.1	1.4	3.5	1.6	0.8	25.7
Czech Republic	-3761	-7003	143.2	0.8	6.0	-12.3	4.7	2.1	5.2	4.6	-3.0	-24.1	7.3	7.8	-46.7	-74.2	427.5	41.7	86.2
Denmark	3136	-1131	-38.5	-28.6	-70.2	242.5	-60.5	313.9	4.3	-4.4	31.3	-20.5	-20.8	56.5	-18.9	-103.5	2018.6	-46.8	-136.1
Estonia	-10422	-7041	-18.6	0.7	-3.1	3.8	-7.4	-47.9	-186.7	6.5	-40.7	-58.5	-649.4	51.2	-80.0	693.3	-95.8	1123.7	-32.4
European Union (27)	-352793	-439987	11.3	-0.5	4.7	-1.3	-0.7	2.2	-5.7	8.0	-9.8	-2.6	5.4	2.6	5.5	-5.1	7.1	5.5	24.7
Finland	-15161	-40704	92.5	-1.1	70.1	-16.9	-10.0	16.6	6.0	16.2	1.2	1.4	-0.2	10.9	12.8	-25.1	15.7	49.8	168.5
France	-42554	-67126	-9.6	-1.5	3.0	8.0	1.2	4.8	-14.8	10.3	9.6	3.4	1.9	1.5	6.5	-1.2	0.6	-6.9	57.7
Germany	-31949	17155	0.6	-0.1	0.6	0.4	0.1	0.5	0.1	1.6	-147.1	-2.3	-1.3	-1.9	-10.4	5.8	1.6	18.8	-153.7
Greece	-2524	-3043	3.3	11.8	-13.0	2.2	11.1	4.9	-12.0	6.3	3.3	-9.8	5.9	-0.8	3.0	-1.3	-0.3	-1.8	20.6
Hungary	-2199	-3072	15.1	0.6	-67.2	9.0	49.5	-52.4	-71.1	313.2	-45.3	223.4	-30.1	96.3	-45.4	17.5	44.8	-23.0	39.7
Iceland	1029	596	-0.2	-1.9	-1.1	-1.7	-2.1	-2.0	-6.8	-2.0	-2.6	-3.2	-3.8	-4.2	-4.4	-4.2	-4.5	-5.8	-42.0
Ireland	-580	-2216	0.8	-19.6	-7.1	8.7	41.8	-4.1	-26.7	13.2	21.3	7.4	-2.4	19.6	3.0	32.3	26.1	-7.7	281.8
Italy	-62077	-94731	22.9	5.9	10.3	-14.8	-2.6	8.6	-0.6	10.1	6.8	-9.9	5.2	2.9	7.1	-24.2	26.3	2.0	52.6
Japan	-69676	-71541	10.4	0.5	5.8	0.4	-0.2	0.3	0.8	0.2	1.4	10.3	-0.5	-7.2	-6.4	-0.9	-6.5	-8.7	2.7
Kazakhstan	-6881	-11340	-30.5	6.2	55.0	11.0	9.9	35.2	6.7	12.6	3.0	2.9	-24.9	8.0	0.2	-0.4	-25.6	36.1	64.8
Latvia	-15435	-20681	10.8	-4.0	8.6	-14.4	-6.8	-3.5	5.4	1.3	-6.6	10.8	7.6	5.9	18.0	6.9	4.8	-9.9	34.0
Liechtenstein	-8	-6	0.4	0.4	0.4	-58.9	-0.3	-0.3	-0.3	-0.3	-0.3	76.3	0.3	0.3	0.3	0.3	0.4	0.4	-25.2
Lithuania	-4351	-3780	7.8	0.3	0.3	0.4	-12.8	-0.1	-0.2	4.7	4.7	-18.7	3.4	-13.8	5.0	15.2	0.0	-5.1	-13.1
Luxembourg	345	-299	-50.8	73.6	71.6	9.8	-56.3	62.2	20.7	17.0	-0.1	1.9	-9.8	-6.9	-28.3	-0.9	-0.3	8.8	-186.7
Malta	-57	-61	0	0	2.6	0	0	-1.1	0	0	0	1.9	2.0	-1.8	3.0	0.0	0	0.0	6.7
Monaco	0	0	1.4	1.4	0.3	0.3	0	0.5	0.0	0.2	0.3	-1.2	-0.8	0.5	-0.5	2.8	-2.2	3.3	13.7
Netherlands	2692	2475	-13.4	6.3	-6.6	11.5	-3.5	1.4	-0.5	-11.7	-1.4	15.7	-1.4	5.1	-0.4	-6.3	6.4	-7.2	-8.1
New Zealand	-23511	-26745	2.7	-3.8	1.0	6.7	9.7	3.3	-0.6	-2.5	-9.5	7.2	4.8	-3.6	-7.1	-9.5	36.6	-9.0	13.8
Norway	-8572	-25344	6.5	3.3	7.1	4.6	5.7	4.3	33.8	10.1	22.9	11.1	-2.4	8.9	-18.1	16.6	21.3	-26.2	195.7
Poland	-12870	-39517	4.4	-10.5	20.5	-8.9	0.7	15.8	-3.4	21.4	4.1	8.0	15.5	22.7	10.7	-8.7	27.0	6.2	207.1
Portugal	-9412	-14155	-13.8	-12.5	25.2	3.9	-7.4	6.0	-1.9	1.6	-1.6	-42.0	47.8	-45.9	89.4	5.4	7.1	4.8	50.4
Romania	-32433	-36536	4.1	-1.9	-2.5	1.0	5.4	-3.1	-3.1	2.6	-6.3	-1.0	-1.9	4.8	0.1	-2.9	0.8	0.3	12.6
Russian Federation	58901	-678503	-3.1	19.7	29.8	30.1	1.3	5.9	9.7	15.5	5.7	-1.1	-3.6	-0.6	-0.7	5.1	5.8	10.6	-1251.9
Slovakia	-2981	-3477	28.3	-11.7	-6.6	-21.8	18.0	-6.9	15.7	102.3	3.3	-10.6	-12.1	-71.6	185.0	-4.0	-19.7	8.7	16.6
Slovenia	-7690	-8465	-0.2	-0.6	-0.2	-0.5	-1.6	1.4	0.2	17.0	0.0	-3.4	3.6	-0.3	-2.2	2.4	0.0	-0.3	10.1
Spain	-19249	-28696	-0.4	-1.0	2.7	8.5	4.0	1.5	2.9	-0.8	0.9	-3.3	7.4	1.9	13.5	5.2	-1.9	-1.5	49.1
Sweden	-44804	-41769	2.3	-1.5	2.0	4.5	-1.7	-4.5	4.3	-5.5	5.9	-3.1	-8.4	-0.4	-3.4	-2.3	-0.9	22.8	-6.8
Switzerland	-2745	84	-5.4	-23.7	-4.8	-39.0	-5.9	-62.6	-302.3	31.5	-14.0	-172.6	-61.1	-17.6	-350.1	-40.7	1.4	-85.3	-103.1
Turkey	-44871	-82528	25.5	-0.6	1.0	3.1	2.0	1.2	1.7	6.8	-4.6	-1.8	11.2	-7.4	9.2	0.4	5.6	2.4	83.9
Ukraine	-69941	-19273	11.2	-21.7	11.4	-37.2	43.4	27.4	-21.1	-22.8	-0.1	52.1	-33.3	-5.1	7.9	30.7	-66.2	11.4	-72.4
United Kingdom	3102	-4746	-1.0	28.3	-14.0	-21.3	-51.5	-46.8	-235.7	130.3	98.1	19.6	50.7	15.9	5.3	9.2	10.1	2.1	-253.0
United States	-853417	-1006152	-3.4	-7.0	-12.6	4.3	-17.0	-13.7	8.1	15.0	31.0	16.5	4.7	0.4	0.8	-0.4	-2.0	-2.4	17.9

Note: The presentations of national totals without emissions and removals from the LULUCF sector exclude emissions and removals associated with carbon stock changes and other emission sources covered in the LULUCF sector.

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.2a
Methods and emission factors used (2009)

	Forest Land								Cropland						Grassland					
	CO ₂		CH ₄		N ₂ O		CO ₂		CH ₄		N ₂ O		CO ₂		CH ₄		N ₂ O			
	Method ^a	EF ^a	Method ^a	EF ^a	Method ^a	EF ^a	Method ^a	EF ^a	Method ^a	EF ^a	Method ^a	EF ^a	Method ^a	EF ^a	Method ^a	EF ^a	Method ^a	EF ^a		
Australia	T1, T2, T3	CS, M	CS	CS	CS	CS	CS	T3	M	CS	CS	CS	CS	T2, T3	CS, M	CS	CS	CS	CS	
Austria	T1, T2, T3	CS	T1	CS, D	T1	CS, D	T1	T2	CS, D	NA	NA	T1, T2	CS, D	T2	CS	NA	NA	NA	NA	
Belarus	T1	CS, D	T1	D	T1	D	T1	T1	D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Belgium	CS, T1, T2	CS	NA	NA	NA	NA	NA	CS, T1, T2	CS	NA	NA	NA	NA	CS, T1, T2	CS	NA	NA	NA	NA	
Bulgaria	T1, T2	CS, D	T1	D	T1	D	T1, T2	CS, D	NA	NA	T2	CS	T1	CS	NA	NA	NA	NA	NA	
Canada	T3	CS	T2	CS	T2	CS	CS, T1, T2, T3	CS, D	T2	CS	T2	CS	NA	NA	NA	NA	NA	NA	NA	
Croatia	T1, T2	D	T1	D	T1	D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Czech Republic	CS, T1, T2	CS, D	CS, T1	CS, D	CS, T1	CS, D	CS, T1, T2	CS, D	NA	NA	T1, T2	CS, D	CS, T1, T2	CS, D	NA	NA	NA	NA	NA	
Denmark			NA	NA	CS	CS	CS	CS	NA	NA	T1	CS	T2	D	NA	NA	NA	NA	NA	
Estonia	T1, T2	D	T1	D	T1	D	T1	T1	D	NA	NA	NA	NA	T1, T2	D	T1	D	T1	D	
European Union (27)	CR, CS, D, T1, T2, T3	CS, D, PS	CS, D, T1, T2	CS, D, PS	CR, CS, D, T1, T2	CS, D, PS	CS, D, T1, T2, T3	CS, D	CS, D, T1, T2	CS, D	CR, CS, D, T1, T2	CS, D	CS, D, T1, T2, T3	CS, D	CS, D, T1, T2	CS, D	CR, D, T1, T2	CS, D	CS, D	
Finland	T2, T3	CS, D	T2	D	D, T1, T2	CS, D	D, T1, T3	CS, D	NA	NA	T1	CS, D	CS, T1, T3	CS, D	NA	NA	NA	NA	NA	
France	CR, CS, T2	CS	CS, T2	CS	CR, T2	CS	CS, T2	CS	CS, T2	CS	CR, T2	CS	CS, T2	CS	CS, T2	CS	CR, T2	CS	CS	
Germany	CS, T1, T2	CS, D	T1	D	T1	CS, D	CS, D, T2	CS	NA	NA	CS, T1	D	CS	CS	NA	NA	NA	NA	NA	
Greece	T1, T2	CS, D	T1	D	T1	D	T1, T2	CS, D	NA	NA	NA	NA	NA	NA	NA	T1	D	T1	D	
Hungary	T1, T2	CS, D	T1	D	T1	D	T1	D	T1	D	T1	D	T1, T2	CS, D	T1	D	T1	D	D	
Iceland	T2, T3	CS	NA	NA	T1	D	T1, T2	CS, D	NA	NA	NA	NA	T1, T2, T3	CS, D	NA	NA	NA	NA	NA	
Ireland	D, T1, T3	CS, D	D, T1	D	D, T1	D	T1	D	NA	NA	D, T1	D	T1	D	NA	NA	NA	NA	NA	
Italy	T1, T2, T3	CS, D	T1	D	T1	D	T1, T2, T3	CS, D	NA	NA	NA	NA	T1, T2, T3	CS, D	NA	NA	NA	NA	NA	
Japan	T1, T2, T3	CS, D	T1	D	T1	D	T1, T2	CS, D	NA	NA	T1	D	T1, T2	CS, D	NA	NA	NA	NA	NA	
Kazakhstan	T2	CS	T1	D	T1	D	T1	D	NA	NA	NA	NA	T1	D	NA	NA	NA	NA	NA	
Latvia	T1, T2	CS, D	T1, T2	CS, D	T1, T2	CS, D	D, T1, T2	CS, D	NA	NA	T1	CS, D	T1	D	T1	D	T1	D	D	
Liechtenstein	T2	CS	NA	NA	NA	NA	T2	CS	NA	NA	T2	CS	T2	CS	NA	NA	NA	NA	NA	
Lithuania	T1, T2	CS, D	T1	D	T1	D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Luxembourg	T1, T2	CS, D	NA	NA	NA	NA	T1	CS, D	NA	NA	T1	D	T1	CS, D	NA	NA	NA	NA	NA	
Malta	CS	D	NA	NA	NA	NA	CS	D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Monaco	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Netherlands	CS	CS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
New Zealand	T1, T2	CS, D	T1, T2	CS, D	T1, T2	CS, D	T1, T2	CS, D	NA	NA	T1, T2	CS, D	T1, T2	CS, D	T1, T2	CS, D	T1, T2	CS, D	T1, T2	
Norway	T1, T3	CS, D	T1	D	T1	D	T1, T2, T3	CS, D	NA	NA	T1	D	T1	CS	NA	NA	NA	NA	NA	
Poland	T2	CS	D, T1, T2	CS, D	D, T1, T2	CS, D	D, T2	CS, D	NA	NA	NA	NA	T2	D	D, T2	D	D, T2	CS, D	CS, D	
Portugal	CS, T2	CS, D	D	D	D	D	T2	CS, D	NA	NA			T2	CS, D	NA	NA	NA	NA	NA	
Romania	T1, T2	CS, D	T1	D	T1	D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Russian Federation	CS, T2	CS	OTH, T1, T2	CS, D, OTH	OTH, T1, T2	CS, D, OTH	T1	D	NA	NA	NA	NA	CS, T1, T3	CS, D	T1	D	T1	D	D	
Slovakia	T2	CS	T2	PS	T2	PS	T1, T2	CS, D	NA	NA	NA	NA	T2	CS	NA	NA	NA	NA	NA	
Slovenia	CS, D, T1, T2, T3	CS, D, PS	D, T1	D	D, T1	D	D, T1, T2	CS, D	NA	NA	D, T1	D	D, T1, T2	CS, D	NA	NA	NA	NA	NA	
Spain	CS, T1, T2	CS, D	CS	D	CS	D	T2	CS, D	NA	NA	NA	NA	T2	CS, D	NA	NA	NA	NA	NA	
Sweden	T1, T2, T3	CS	T1	CS	T1	CS, D	T1, T2, T3	CS	NA	NA	CS, T1	CS, D	T1, T2, T3	CS	T1	CS	T1	CS	CS	
Switzerland	T2	CS	T1	CS	T1	D	T2	CS	NA	NA	T1	D	T2	CS	NA	NA	NA	NA	NA	
Turkey	T1, T2	CS, D	T1, T2	CS, D	T1	CS, D	T1	CS, D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Ukraine	T1, T2	CS, D	T1	D	T1	D	CS, T1, T2	CS, D	NA	NA	NA	NA	CS, T2	CS, D	NA	NA	NA	NA	NA	
United Kingdom	CS, D, T3	CS	D	CS	D, T1	CS	CS, D, T3	CS	D	CS	D	CS	CS, D	CS	D	CS	D	CS	CS	
United States	T3	CS	T2	D	D, T2	D	T1, T2, T3	CS, D	NA	NA	NA	NA	T2, T3	CS	NA	NA	NA	NA	NA	

^a Information on methods and emission factors in this table is presented as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method used or type of emission factor for all subcategories within each category.

Table 5.2b

Methods and emission factors used (2009)

	Wetlands						Settlements						Other Land					
	CO ₂		CH ₄		N ₂ O		CO ₂		CH ₄		N ₂ O		CO ₂		CH ₄		N ₂ O	
	Method ^a	EF ^a	Method ^a	EF ^a	Method ^a	EF ^a	Method ^a	EF ^a	Method ^a	EF ^a	Method ^a	EF ^a	Method ^a	EF ^a	Method ^a	EF ^a	Method ^a	EF ^a
Australia	NA	NA	NA	NA														
Austria	T2	CS	NA	NA	NA	NA	T2	CS	NA	NA	NA	NA	T2	CS	NA	NA	NA	NA
Belarus	T2	CS	NA	NA	T1	D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	CS, T1	CS	NA	NA	NA	NA	CS, T1	CS	NA	NA	NA	NA	CS, T1	CS	NA	NA	NA	NA
Bulgaria	T1	CS	NA	NA	NA	NA	T1	CS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Canada	T2, T3	CS	NA	NA	NA	NA	T1, T2, T3	CS	T2	CS	T2	CS	NA	NA	NA	NA	NA	NA
Croatia	NA	NA	NA	NA	NA	NA	T1	D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Czech Republic	T1	CS, D	NA	NA	NA	NA	T1	CS, D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark			NA	NA	CS	CS			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estonia	T1	D	NA	NA	T1	D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (27)	CS, D, T1, T2, T3	CS, D	CS, D, T1, T2	CS, D	CR, CS, D, T1, T2	CS, D	CS, D, T1, T2, T3	CS, D	CS, D, T2	CS	CR, D, T2	CS	CS, D, T1, T2	CS, D	CS, T2	CS	CR, T2	CS
Finland	T2	CS	D	CS	D	CS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
France	CS, T2	CS	CS, T2	CS	CR, T2	CS	CS, T2	CS	CS, T2	CS	CR, T2	CS	CS, T2	CS	CS, T2	CS	CR, T2	CS
Germany	CS, T1	D	NA	NA	T1	CS	CS, T1	CS, D	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
Hungary	NA	NA	NA	NA	NA	NA	T1, T2	CS, D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	RA, T2	CS	RA, T2	CS			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	T1	D	NA	NA	D, T1	D	T1, T2	CS, D	NA	NA	NA	NA	D, T1	CS, D	NA	NA	NA	NA
Italy	NA	NA	NA	NA	NA	NA	T1	CS, D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Japan	T2	CS, D	NA	NA	NA	NA	T1a, T1b, T2	CS, D	NA	NA	NA	NA	T2	CS, D	NA	NA	NA	NA
Kazakhstan	NA	NA	NA	NA	NA	NA	T1	D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Latvia	T1	D	NA	NA	T1	D	T2	CS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein	T2	CS	NA	NA	NA	NA	T2	CS	NA	NA	NA	NA	T2	CS	NA	NA	NA	NA
Lithuania			NA	NA	NA	NA	T1	D	NA	NA	NA	NA	T1	D	NA	NA	NA	NA
Luxembourg	T1	CS, D	NA	NA	NA	NA	T1	CS, D	NA	NA	NA	NA	T1	CS, D	NA	NA	NA	NA
Malta	NA	NA	NA	NA	NA	NA			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Monaco	NA	NA	NA	NA	NA	NA	T1a	D	NA	NA	T1	D	NA	NA	NA	NA	NA	NA
Netherlands			NA	NA	NA	NA			NA	NA	NA	NA			NA	NA	NA	NA
New Zealand	NA	NA	NA	NA	NA	NA	T1, T2	CS, D	NA	NA	NA	NA	T1, T2	CS, D	NA	NA	NA	NA
Norway	T1	CS	NA	NA	T1	D	T3	CS	NA	NA	NA	NA	T3	CS	NA	NA	NA	NA
Poland	D, T1	CS, D	D, T1	CS, D	D, T1	CS, D	T1	D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	D, T2	CS, D	NA	NA	NA	NA	D, T2	CS, D	NA	NA	NA	NA	D, T2	CS, D	NA	NA	NA	NA
Romania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Russian Federation	T1	D	NA	NA	T1	D	CS	CS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	T2	CS	NA	NA	NA	NA	T2	CS	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA	NA	NA	T1, T2	CS, D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	NA	NA	NA	NA	NA	NA	T1	CS, D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sweden	T3	CS	NA	NA	NA	NA	T2, T3	CS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland	T2	CS	NA	NA	NA	NA	T2	CS	NA	NA	NA	NA	T2	CS	NA	NA	NA	NA
Turkey																		
Ukraine	T1, T2	CS, D	NA	NA	NA	NA	T2	CS	NA	NA	NA	NA	T2	CS	NA	NA	NA	NA
United Kingdom	D	CS	NA	NA	D	CS	CS, D, T3	CS	D	CS	D	CS	NA	NA	NA	NA	NA	NA
United States	T1	D	NA	NA	T1	D	T2, T3	CS	NA	NA	D	D	NA	NA	NA	NA	NA	NA

^a Information on methods and emission factors in this table is presented as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method used or type of emission factor for all subcategories within each category.

Table 5.3a**Forest land remaining forest land - AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)^a**

	Activity data		IEF (Mg C/ha)						
	Total area (kha)	Area of organic soil (kha)	CSC ^b in living biomass/area			Net CSC ^b in DOM ^c /area	Net CSC ^b in soils/area		
			Increase	Decrease	Net Change		Mineral soils	Organic soils	
Australia	105,389.73	NA, NO	0.11	-0.01	0.09	0.01	0.00	NA, NO	
Austria	3,779.08	NA, NO	2.76	-1.59	1.17	0.04	NO	NO	
Belarus	7,964.60	NE	1.54	-0.51	1.03	NE	NE	NE	
Belgium	692.42	NO	0.75	-0.16	0.59	0.06	0.58	NO	
Bulgaria	3,504.23	NO	0.95	IE, NO	0.95	NO	NO	NO	
Canada	229,354.69	IE	3.49	-3.52	-0.03	0.11	0.03	IE	
Croatia	1,874.86	NE	2.37	-1.11	1.26	NE	NE	NE	
Czech Republic	2,562.08	18.67	3.03	-2.19	0.84	NO	NO	NA, NO	
Denmark	533.18	26.68	0.99	IE, NA	0.99	0.35	NA	-0.34	
Estonia	2,154.76	490.34	0.70	IE	0.70	0.03	NO	-0.16	
European Union (27)	154,843.59	12,605.79	1.43	-0.75	0.69	0.06	0.13	-0.41	
Finland	21,849.25	5,904.42	1.61	-1.00	0.61	IE	0.11	-0.37	
France	22,272.11	NO	1.95	-1.18	0.77	0.13	0	NO	
Germany	10,866.34	239.73	0.44	IE	0.44	0.09	NO	-0.68	
Greece	3,356.03	NO	0.16	IE	0.16	0	NO	NO	
Hungary	1,988.03	NO	0.42	IE	0.42	NE	NE	NE	
Iceland	56.55	NE, NO	0.60	-0.11	0.48	NE	NE	NA, NE	
Ireland	446.58	214.67	1.55	IE	1.55	0.04	NO	0.49	
Italy	8,916.18	NO	2.63	-1.62	1.01	0.16	0.82	NO	
Japan	24,919.83	IE	0.78	-0.01	0.77	0.00	0.03	IE, NA	
Kazakhstan	12,694.30	NO	0.02	NO	0.02	0.01	NE	NO	
Latvia	3,130.69	428.15	3.40	-1.47	1.93	NO	NO	-0.68	
Liechtenstein	6.16	NE	3.12	-2.31	0.81	0.00	0.00	IE	
Lithuania	1,914.56	339.12	0.49	NA	0.49	0.20	0.00	-0.34	
Luxembourg	85.75	NO	3.07	-1.82	1.25	NO	NO	NO	
Malta	0.82	NO	16.15	NE	16.15	NE	NE	NE	
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	
Netherlands	336.97	9	2.67	-0.97	1.70	0.03	NE	NE	
New Zealand	9,149.31	34.20	0.80	-1.01	-0.21	0.15	0.00	-0.07	
Norway	11,681.04	613.67	0.96	-0.44	0.52	0.02	0.11	-0.06	
Poland	8,851.55	233.27	2.58	-1.73	0.85	NO	0.53	NO	
Portugal	3,758.20	NO	2.06	-0.90	1.15	-0.01	-0.22	NO	
Romania	6,728.43	NE	2.35	-0.87	1.48	NE	NE	NE	
Russian Federation	777,715.64	1,950.20	0.30	-0.12	0.18	0.03	0.03	-0.16	
Slovakia	1,975.50	NO	2.22	-1.87	0.35	NO	NO	NO	
Slovenia	1,238.58	NA	2.27	NA	2.27	0.11	NA	NA	
Spain	12,576.92	NO	0.40	IE	0.40	NE	NE	NO	
Sweden	28,639.09	4,473.77	0.28	IE	0.28	0.08	0.17	-0.58	
Switzerland	1,217.08	1.09	2.80	-2.70	0.10	0.15	IE, NO	IE, NO	
Turkey	20,724.95	NO	0.89	-0.28	0.61	0.11	NE	NO	
Ukraine	10,373.12	192.20	1.75	-0.44	1.31	0.16	NO	-0.68	
United Kingdom	2,516.85	227.97	3.79	-3.27	0.52	0.19	0.27	0.58	
United States	279,939.08	NA	0.52	IE	0.52	0.07	NE	NA	

^a Changes introduced by the LULUCF tables included in decision 14/CP.11 have been incorporated in this S&A report, part I. The main changes introduced include splitting of soils into mineral and organic components, and the inclusion of a 'Net CO₂' column.

^b CSC = carbon stock change.

^c DOM = dead organic matter.

Table 5.3b**Forest land remaining forest land - AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)^a**

	Emissions/Removals (Gg C)						Net CO ₂ (Gg)
	CSC ^b in living biomass			Net CSC ^b in DOM ^c	Net CSC ^b in soils		
	Gains	Losses	Net Change		Mineral soils	Organic soils	
Australia	11,175.46	-1,218.25	9,957.21	1,273.22	294.54	NA, NO	-42,258.24
Austria	10,433.37	-6,027.41	4,405.97	163.95	NO	NO	-16,756.36
Belarus	12,263.96	-4,058.24	8,205.72	NE	NE	NE	-30,087.64
Belgium	519.53	-107.83	411.70	40.76	400.64	NO	-3,128.06
Bulgaria	3,330.56	IE, NO	3,330.56	NO	NO	NO	-12,212.05
Canada	800,710.02	-806,518.25	-5,808.23	24,787.36	7,489.52	IE	-97,051.73
Croatia	4,442.92	-2,086.02	2,356.90	NE	NE	NE	-8,641.96
Czech Republic	7,770.20	-5,615.60	2,154.61	NO	NO	NA, NO	-7,900.23
Denmark	530.32	IE, NA	530.32	185.42	NA	-9.06	-2,591.16
Estonia	1,500.81	IE	1,500.81	71.54	NO	-78.45	-5,477.59
European Union (27)	221,991.72	-115,845.43	106,146.29	9,204.71	18,048.29	-5,207.25	-470,037.48
Finland	35,110.43	-21,778.36	13,332.08	IE	1,795.92	-2,197.21	-47,412.86
France	43,469.58	-26,363.63	17,105.96	2,883.52	0	0	-73,294.75
Germany	4,774.07	IE	4,774.07	1,018.70	NO	-163.02	-20,642.40
Greece	533.33	IE	533.33	0	NO	NO	-1,955.56
Hungary	839.14	IE	839.14	NE	NE	NE	-3,076.86
Iceland	33.70	-6.29	27.41	NE	NE	NA, NE	-100.49
Ireland	691.95	IE	691.95	18.38	NO	105.91	-2,992.89
Italy	23,462.11	-14,426.14	9,035.97	1,434.19	7,268.06	NO	-65,040.14
Japan	19,433.64	-163.37	19,270.27	-53.40	782.66	IE, NA	-73,331.60
Kazakhstan	300.39	NO	300.39	183.91	NE	NO	-1,775.74
Latvia	10,638.42	-4,602.27	6,036.15	NO	NO	-291.14	-21,065.03
Liechtenstein	19.19	-14.23	4.96	0.01	0.03	IE	-18.32
Lithuania	937.30	NA	937.30	381.62	0.57	-115.90	-4,413.14
Luxembourg	263.16	-155.94	107.22	NO	NO	NO	-393.14
Malta	13.28	NE	13.28	NE	NE	NE	-48.69
Monaco	NO	NO	NO	NO	NO	NO	NO
Netherlands	899.83	-325.34	574.50	10.16	NE	NE	-2,143.76
New Zealand	7,363.05	-9,242.82	-1,879.77	1,335.26	-2.90	-2.42	2,016.01
Norway	11,216.24	-5,169.26	6,046.98	273.19	1,250.13	-39.25	-27,613.85
Poland	22,838.29	-15,281.55	7,556.74	NO	4,608.17	NO	-44,604.70
Portugal	7,729.11	-3,396.20	4,332.91	-19.88	-837.26	NO	-12,744.45
Romania	15,827.21	-5,856.31	9,970.90	NE	NE	NE	-36,559.95
Russian Federation	236,006.77	-92,531.90	143,474.87	24,064.11	22,407.52	-312.03	-695,326.35
Slovakia	4,380.85	-3,694.60	686.25	NO	NO	NO	-2,516.26
Slovenia	2,809.63	NA	2,809.63	132.83	NA	NA	-10,789.03
Spain	5,080.69	IE	5,080.69	NE	NE	NO	-18,629.21
Sweden	8,026.69	IE	8,026.69	2,394.99	4,190.85	-2,589.72	-44,083.64
Switzerland	3,404.40	-3,281.52	122.88	178.04	IE, NO	IE, NO	-1,103.39
Turkey	18,496.81	-5,828.04	12,668.76	2,376.58	NE	NO	-55,166.24
Ukraine	18,142.93	-4,556.76	13,586.16	1,636.22	NO	-130.70	-55,336.18
United Kingdom	9,542.78	-8,221.99	1,320.78	487.56	619.08	131.35	-9,382.16
United States	146,252.92	IE	146,252.92	20,567.23	NE	53,784.64	-808,884.23

^a Changes introduced by the LULUCF tables included in decision 14/CP.11 have been incorporated in this S&A report, part I. The main changes introduced include splitting of soils into mineral and organic components, and the inclusion of a 'Net CO₂' column.

^b CSC = carbon stock change.

^c DOM = dead organic matter.

Table 5.4
Net CO₂ emissions/removals from forest land remaining forest land - trend information

	CO ₂ emissions/removals ^b (Gg)		Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	-43896	-42258	-158.1	3.9	-18.8	-14.5	-13.4	44.1	-29.4	48.9	-131.1	759.2	-170.9	-34.4	13.3	-110.7	-1124.9	-52.3	-3.7
Austria	-11401	-16756	50.8	-4.7	-32.6	95.1	-9.5	26.6	-24.6	17.3	-19.3	10.3	0.0	0.0	0.0	0.0	0.0	0.1	47.0
Belarus	-29936	-30088	5.4	-0.8	-6.0	-8.1	7.6	7.3	-1.1	-6.1	-10.9	-11.9	1.9	15.1	6.8	-2.8	-2.3	10.8	0.5
Belgium	-3248	-3128	-15.0	-5.3	1.8	0.8	-3.4	1.2	-1.0	22.1	-5.6	1.8	-3.3	0.6	-1.0	-1.4	-2.4	1.3	-3.7
Bulgaria	-13761	-12212	0	0	-6.2	0	0	0	0	-5.3	0	0	0	0	0	0	0	0	-11.3
Canada	-134954	-97052	1.9	-17.8	7.0	0.6	4.0	-18.0	-1.0	17.8	-20.8	4.4	-45.3	-32.8	13.7	42.3	52.0	20.2	-28.1
Croatia	-7059	-8642	-2.1	-1.2	-5.9	3.2	2.6	2.5	2.8	2.5	2.1	2.4	3.2	1.6	1.2	3.3	2.0	0.6	22.4
Czech Republic	-5869	-7900	70.8	-0.5	6.8	-8.0	5.4	-1.8	1.9	4.3	-2.2	-17.8	3.7	5.6	-38.4	-47.4	145.0	29.0	34.6
Denmark	-725	-2591	19.1	19.5	-6.0	6.6	0.1	-38.5	-244.9	-2.0	-22.4	18.0	-5.2	-10.1	-138.3	1023.2	67.8	-46.3	257.4
Estonia	-10295	-5478	-19.0	0.0	-2.9	3.0	-8.7	-49.4	-211.6	8.3	-13.7	-10.3	-133.3	367.8	-106.2	-2832.3	-110.1	-627.3	-46.8
European Union (27)	-418575	-470037	10.3	-0.7	1.8	-1.2	-1.0	2.1	-6.3	7.7	-9.2	-0.6	2.0	4.0	0.7	-5.3	6.8	5.8	12.3
Finland	-21804	-47413	67.1	-0.1	47.1	-16.9	-6.3	11.2	7.4	16.5	0.6	-0.6	0.5	10.5	10.6	-23.2	18.6	35.0	117.5
France	-48134	-73295	-12.6	-3.3	4.5	7.2	0.6	6.1	-17.6	12.8	9.8	2.2	2.2	2.7	7.7	0.8	-0.1	-6.8	52.3
Germany	-70988	-20642	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-70.6	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-70.9
Greece	-1327	-1956	2.5	13.4	-3.4	-5.3	12.8	-3.5	0.5	5.2	0.2	0.4	-0.1	-0.3	0.0	0	0	0	47.3
Hungary	-2964	-3077	10.1	0.4	-66.9	12.9	44.4	-51.8	-65.9	273.4	-27.2	150.9	-27.6	81.7	-42.3	9.2	37.8	-23.8	3.8
Iceland	-1	-100	7.7	23.2	8.8	13.3	14.0	8.5	820.3	10.7	11.1	11.2	10.7	11.5	11.4	11.1	11.0	11.1	6865.7
Ireland	-1177	-2993	14.2	-19.7	-7.5	-14.9	52.9	8.2	-51.6	-20.5	105.8	124.0	-28.3	12.7	-2.5	52.6	48.8	8.9	154.2
Italy	-40919	-65040	41.4	7.6	-0.9	-17.5	-3.8	15.0	-2.8	15.0	8.2	-12.7	10.7	1.9	0.7	-32.2	38.2	5.4	58.9
Japan	-76762	-73332	10.0	0.5	4.7	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	9.8	-0.5	-6.7	-6.1	-1.4	-6.2	-7.8	-4.5
Kazakhstan	-3241	-1776	0.0	0.0	0.0	0.0	0.0	99.8	0.0	0.0	0.0	0	-54.9	0.0	0.0	0	0.0	-5.0	-45.2
Latvia	-16931	-21065	9.8	-3.7	4.9	-13.9	-6.6	-3.3	4.8	1.8	-6.0	9.7	6.6	5.2	17.6	5.9	4.4	-10.4	24.4
Liechtenstein	-19	-18	0.1	0.1	0.1	4.6	-0.1	-0.1	-0.1	-0.1	-0.1	-6.4	0.0	0.0	0.0	0.0	0.0	0.1	-1.7
Lithuania	-5069	-4413	0.8	0.0	0.0	0.0	-1.5	-0.1	-0.1	3.9	0.4	-2.1	0.2	-1.4	-13.6	1.5	0.0	-0.6	-12.9
Luxembourg	239	-393	-73.3	41.5	49.7	7.9	-45.5	40.1	0.7	16.7	1.1	2.7	-7.7	-4.5	-22.9	0.9	1.2	8.5	-264.3
Malta	-49	-49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	-2434	-2144	13.6	-5.6	7.0	-10.3	3.1	-2.7	-1.9	11.0	0.5	-14.2	-0.3	-7.6	-1.2	5.4	-8.7	7.0	-11.9
New Zealand	-4447	2016	2.5	-104.6	1265.3	58.9	12.4	81.4	36.0	38.4	40.9	-28.0	-46.2	-86.4	-213.4	475.4	-125.1	93.6	-145.3
Norway	-11375	-27614	4.8	3.0	5.7	3.8	4.5	6.7	25.3	9.4	19.9	9.6	-1.7	8.2	-17.0	11.5	20.9	-25.2	142.8
Poland	-28481	-44605	0.6	-4.5	5.8	-3.9	-1.4	4.7	-3.1	10.4	0.8	3.2	6.8	14.9	8.4	-10.3	23.4	4.7	56.6
Portugal	-6575	-12744	7.2	9.8	6.8	2.4	6.9	-3.0	4.9	-1.0	2.9	-8.2	-11.2	2.1	3.0	3.2	10.0	10.7	93.8
Romania	-32435	-36560	4.1	-1.9	-2.5	1.0	5.5	-3.1	-2.9	2.5	-6.2	-1.2	-1.9	4.8	0.1	-2.8	0.7	0.3	12.7
Russian Federation	-231447	-695326	1.5	19.6	16.4	14.2	12.5	0.6	7.4	3.2	0.9	1.3	-1.7	-0.8	2.2	0.1	2.8	10.2	200.4
Slovakia	-1085	-2516	78.5	-28.1	-1.4	-57.1	92.7	-31.3	60.8	279.2	0.4	-10.8	-16.5	-94.9	1472.1	0.2	-27.7	23.8	131.8
Slovenia	-9160	-10789	0.1	0.1	0.1	0.1	0.1	0.1	0.1	16.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	17.8
Spain	-18665	-18629	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2
Sweden	-47607	-44084	7.6	-5.3	8.6	2.2	-4.5	-2.9	-0.3	-2.1	4.1	1.1	-10.3	-1.0	-10.0	-4.2	1.3	25.5	-7.4
Switzerland	-3771	-1103	-3.9	-18.4	-3.6	-27.5	-4.3	-38.0	-113.4	178.5	-38.0	-635.7	-30.2	9.2	-74.4	63.1	-16.0	75.4	-70.7
Turkey	-44319	-55166	2.4	-1.0	0.5	3.8	1.8	1.4	-0.4	3.4	-1.0	1.7	-0.5	-6.3	5.2	-1.1	8.4	-0.2	24.5
Ukraine	-56702	-55336	4.3	0.5	-3.9	0.7	3.4	0.7	-2.2	-1.1	-2.1	-2.2	-2.5	0.0	-1.1	-2.6	2.2	3.1	-2.4
United Kingdom	-6346	-9382	8.8	-0.2	0.9	-0.9	-0.2	1.6	3.5	7.0	7.1	6.0	5.8	-3.8	-3.8	-6.9	-3.6	-6.0	47.8
United States	-549282	-808884	1.0	0.9	-12.2	-1.2	-20.1	-25.2	-5.9	56.2	43.6	29.6	4.4	0.1	0.3	0.0	0.0	0.0	47.3

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

^b Only net CO₂ emissions from carbon stock change are included in this table.

Table 5.5

Area of forest land remaining forest land - trend information

Area (kha)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	111,930.70	105,389.73	0.1	0.0	-0.1	-0.1	-0.1	0.1	0.1	-0.7	-0.7	-0.9	-0.9	-1.3	-0.8	-0.9	-0.1	0.4	-5.8
Austria	3,504.74	3,779.08	-0.1	0.9	0.9	0.9	0.9	0.4	0.4	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.3	7.8
Belarus	7,027.70	7,964.60	0.6	1.0	1.0	1.0	1.0	1.0	1.0	-1.2	-1.4	0.4	0.3	0.6	0.5	1.6	-0.4	3.6	13.3
Belgium	710.53	692.42	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	-2.5
Bulgaria	3,369.94	3,504.23	0.2	-0.4	0.1	-0.1	0.6	0.4	0.3	1.2	0.2	-0.1	0.8	0.0	-0.1	-0.2	-0.2	0.1	4.0
Canada	230,086.76	229,354.69	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.3
Croatia	1,793.17	1,874.86	-0.5	-0.5	-0.5	0.7	0.7	0.7	0.8	0.8	0.7	0.7	0.8	0.7	0.7	0.0	0.1	0.0	4.6
Czech Republic	2,524.29	2,562.08	0.0	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	1.5
Denmark	539.11	533.18	-0.1	0.0	0.0	0.0	0.0	-0.2	-0.1	-0.1	0.0	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	-1.1
Estonia	2,185.85	2,154.76	-0.1	0	0.0	0	-0.1	0	0	0	0	-0.3	0.0	-0.2	-0.3	-0.3	0	-0.1	-1.4
European Union (27)	150,459.62	154,843.59	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.2	0.1	0.0	0.0	0.2	0.7	2.9
Finland	21,925.27	21,849.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	-0.3
France	21,917.78	22,272.11	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	1.6
Germany	10,998.90	10,866.34	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-1.2
Greece	3,359.09	3,356.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	-0.1
Hungary	1,726.81	1,988.03	0.6	0.7	0.6	0.5	0.4	0.6	0.7	0.6	0.7	0.5	0.7	0.2	0.7	0.8	0.5	0.5	15.1
Iceland	56.18	56.55	0	0	0	0	0	0	0.2	0	0	0	0.0	0.2	0	0	0.2	0	0.7
Ireland	321.74	446.58	2.7	0.7	-0.6	1.8	2.8	3.0	0.4	0.1	0.3	3.6	0.8	0.8	-0.1	1.3	3.3	3.6	38.8
Italy	7,449.84	8,916.18	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	19.7
Japan	24,807.36	24,919.83	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0	-0.1	0.5
Kazakhstan	12,802.40	12,694.30	-0.1	-0.1	0.2	0	0	0	0	0.0	0.0	0.0	-0.2	0	0	0	-0.6	0	-0.8
Latvia	3,163.42	3,130.69	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	-1.0
Liechtenstein	6.04	6.16	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2.0
Lithuania	1,731.01	1,914.56	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	10.6
Luxembourg	79.30	85.75	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	8.1
Malta	0.82	0.82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	380.61	336.97	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-11.5
New Zealand	8,734.20	9,149.31	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.6	0.6	0.5	0.5	0.5	0.6	0.6	4.8
Norway	11,777.93	11,681.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	-0.1	0.0	-0.1	0.0	0.0	-0.1	-0.1	-0.8
Poland	8,864.50	8,851.55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1
Portugal	3,563.30	3,758.20	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	5.5
Romania	6,542.00	6,728.43	1.9	0.0	0.0	0.1	-0.2	0.0	-3.2	0.0	2.9	0.1	1.4	-0.1	0.0	-0.1	0.0	0.0	2.8
Russian Federation	778,478.78	777,715.64	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1
Slovakia	1,805.46	1,975.50	0.3	1.4	0.4	0.3	0.5	0.3	2.1	0.4	0.1	0.1	0.2	0.2	0.9	0.1	0.2	0.5	9.4
Slovenia	1,219.21	1,238.58	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.6
Spain	12,587.19	12,576.92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1
Sweden	27,736.54	28,639.09	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.4	-0.3	0.5	2.9	3.3
Switzerland	1,183.89	1,217.08	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2.8
Turkey	20,570.33	20,724.95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.1	0.8
Ukraine	10,211.94	10,373.12	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	-0.1	-0.1	-0.2	1.6
United Kingdom	2,003.24	2,516.85	1.9	1.7	1.9	1.3	1.1	1.0	0.9	0.1	0.8	0.8	0.9	0.9	0.8	0.9	0.9	1.0	25.6
United States	269,137.36	279,939.08	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	4.0

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.6a**Land converted to forest land - AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)^a**

	Activity data		IEF (Mg C/ha)						
	Total area (kha)	Area of organic soil ^b (kha)	CSC ^b in living biomass/area			Net CSC ^b in DOM ^c /area	Net CSC ^b in soils/area		
			Increase	Decrease	Net Change		Mineral soils	Organic soils	
Australia	1122.10	NO	2.97	IE, NO	2.97	0.92	-0.24	NO	
Austria	219.78	NO	1.18	-0.20	0.97	0.75	1.35	NO	
Belarus	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	
Belgium	19.56	NO	2.30	NO	2.30	NO	0.80	NO	
Bulgaria	304.21	NO	2.28	-0.55	1.73	0.27	-0.49	NO	
Canada	98.02	IE, NO	3.10	-1.13	1.96	0.45	-0.20	IE, NO	
Croatia	18.01	NE, NO	2.19	NE, NO	2.19	NE, NO	NE, NO	NE, NO	
Czech Republic	40.03	NA, NO	1.85	NA, NO	1.85	NA, NO	0.16	NA, NO	
Denmark	43.45	1.70	0.99	-0.40	0.59	0.49	-0.16	-0.34	
Estonia	54.43	6.93	3.50	IE	3.50	IE, NO	NO	-0.16	
European Union (27)	6437.97	371.29	1.66	-0.33	1.33	0.18	0.33	-0.23	
Finland	165.28	58.79	0.44	IE, NO	0.44	IE, NO	-0.07	-1.98	
France	1228.87	NO	1.24	-0.01	1.23	0.33	0.06	NO	
Germany	357.01	23.28	4.15	-1.01	3.13	0.50	0.07	-0.68	
Greece	33.25	NO	2.88	NE, NO	2.88	NE, NO	0	NO	
Hungary	51.31	NO	0.74	IE, NO	0.74	NE, NO	NE, NO	NO	
Iceland	33.09	2.91	0.82	-0.01	0.81	0.14	0.40	-0.16	
Ireland	272.10	105.21	NO	-0.38	-0.38	0.01	-0.48	0.99	
Italy	78.48	NO	2.61	-1.61	0.99	0.16	3.68	NO	
Japan	28.07	IE	2.80	IE	2.80	0.93	-0.37	IE	
Kazakhstan	1416.60	NO	NO	NO	NO	NE, NO	NE, NO	NO	
Latvia	218.72	5.33	0.65	NO	0.65	NE, NO	NE, NO	-0.68	
Liechtenstein	0.01	IE, NO	1.35	NO	1.35	NO	NO	NO	
Lithuania	245.44	NA, NE	0.00	NA	0.00	NA	NA	NA, NE	
Luxembourg	8.77	NO	1.65	-0.16	1.49	NO	0.93	NO	
Malta	NA	NA	NA	NA	NA	NA	NA	NA	
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	
Netherlands	59.28	4.70	3.25	NE	3.25	NE	NE	NE	
New Zealand	983.41	1.14	9.17	-0.07	9.10	0.11	-0.45	-0.68	
Norway	496.31	105.63	0.20	NE, NO	0.20	IE, NA, NE	-0.05	NE	
Poland	444.45	11.65	2.58	NO	2.58	0	1.98	NO	
Portugal	359.47	NO	1.83	-0.72	1.12	0.08	0.88	NO	
Romania	24.47	NE	NA, NE	NA, NE	NA, NE	NA, NE	NE	NE	
Russian Federation	119618.36	IE, NO	0.01	0.00	0.01	0.00	0.00	NE, NO	
Slovakia	33.35	NO	0.05	NO	0.05	NO	2.55	NO	
Slovenia	4.84	NA, NO	5.29	NA	5.29	NA	9.85	NA, NO	
Spain	1091.91	NO	1.49	IE, NO	1.49	NE, NO	0.15	NO	
Sweden	749.12	117.02	0.43	IE	0.43	0.32	0.04	-0.57	
Switzerland	42.13	0.02	1.33	-1.13	0.20	0.10	NO	NO	
Turkey	664.84	NO	0.97	-0.17	0.79	0.11	NE, NO	NO	
Ukraine	218.78	NO	1.36	-0.03	1.33	0.43	1.14	NO	
United Kingdom	330.50	36.69	5.56	-3.02	2.54	0.09	0.14	0.45	
United States	NA	NA	IE	IE	IE	IE	IE	IE	

^a Changes introduced by the LULUCF tables included in decision 14/CP.11 have been incorporated in this S&A report, part I. The main changes introduced include splitting of soils into mineral and organic components, and the inclusion of a 'Net CO₂' column.

^b CSC = carbon stock change.

^c DOM = dead organic matter.

Table 5.6b**Land converted to forest land - AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)^a**

	Emissions/Removals (Gg C)						Net CO ₂ (Gg)
	CSC ^b in living biomass			Net CSC ^b in DOM ^c	Net CSC ^b in soils		
	Gains	Losses	Net Change		Mineral soils	Organic soils	
Australia	3,330.99	IE, NO	3,330.99	1,034.37	-271.26	NO	-15,011.72
Austria	258.46	-44.56	213.90	164.83	297.30	NO	-2,478.81
Belarus	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
Belgium	44.95	NO	44.95	NO	15.73	NO	-222.52
Bulgaria	693.66	-168.75	524.91	81.83	-150.53	NO	-1,672.81
Canada	303.40	-111.06	192.34	44.31	-19.38	IE, NO	-796.66
Croatia	39.44	NE, NO	39.44	NE, NO	NE, NO	NE, NO	-144.61
Czech Republic	74.13	NA, NO	74.13	NA, NO	6.24	NA, NO	-294.68
Denmark	43.05	-17.57	25.48	21.21	-6.48	-0.58	-145.31
Estonia	190.34	IE	190.34	IE, NO	NO	-1.11	-693.86
European Union (27)	10,687.71	-2,094.22	8,593.48	1,171.29	1,999.29	-84.28	-42,825.87
Finland	72.26	IE, NO	72.26	IE, NO	-7.13	-116.49	188.33
France	1,523.71	-14.84	1,508.86	408.22	76.79	0	-7,310.85
Germany	1,480.97	-362.24	1,118.73	178.51	22.01	-15.83	-4,779.19
Greece	95.63	NE, NO	95.63	NE, NO	0	0	-350.63
Hungary	37.88	IE, NO	37.88	NE, NO	NE, NO	NO	-138.88
Iceland	27.15	-0.36	26.79	4.67	12.22	-0.47	-158.41
Ireland	NO	-104.07	-104.07	1.38	-79.35	103.64	287.45
Italy	204.63	-126.69	77.94	12.34	288.73	NO	-1,389.69
Japan	78.60	IE	78.60	26.18	-10.33	IE	-346.33
Kazakhstan	NO	NO	NO	NE, NO	NE, NO	NO	NE, NO
Latvia	141.68	NO	141.68	NE, NO	NE, NO	-3.62	-506.22
Liechtenstein	0.02	NO	0.02	NO	NO	NO	-0.07
Lithuania	0.00	NA	0.00	NA	NA	NA, NE	-0.01
Luxembourg	14.47	-1.37	13.10	NO	8.17	NO	-78.00
Malta	NA	NA	NA	NA	NA	NA	NA
Monaco	NO	NO	NO	NO	NO	NO	NO
Netherlands	192.53	NE	192.53	NE	NE	NE	-705.93
New Zealand	9,017.65	-66.24	8,951.41	103.97	-437.97	-0.77	-31,594.35
Norway	99.58	NE, NO	99.58	IE, NA, NE	-19.34	NE	-294.20
Poland	1,146.76	NO	1,146.76	0	854.83	NO	-7,339.17
Portugal	659.12	-257.74	401.38	30.40	317.00	NO	-2,745.53
Romania	NA, NE	NA, NE	NA, NE	NA, NE	NE	NE	NA, NE
Russian Federation	1,092.71	-360.59	732.11	216.73	232.84	NE, NO	-4,332.85
Slovakia	1.60	NO	1.60	NO	85.10	NO	-317.89
Slovenia	25.63	NA	25.63	NA	47.71	NA, NO	-268.89
Spain	1,626.30	IE, NO	1,626.30	NE, NO	158.76	NO	-6,545.24
Sweden	322.62	IE	322.62	242.14	23.85	-66.70	-1,913.64
Switzerland	56.01	-47.59	8.42	4.28	NO	NO	-46.58
Turkey	643.37	-116.29	527.08	72.51	NE, NO	NO	-2,198.52
Ukraine	296.66	-6.37	290.29	94.20	248.72	NO	-2,321.76
United Kingdom	1,837.33	-996.58	840.75	30.42	40.51	16.40	-3,402.95
United States	IE	IE	IE	IE	IE	IE	IE

^a Changes introduced by the LULUCF tables included in decision 14/CP.11 have been incorporated in this S&A report, part I. The main changes introduced include splitting of soils into mineral and organic components, and the inclusion of a 'Net CO₂' column.

^b CSC = carbon stock change.

^c DOM = dead organic matter.

Table 5.7

Net CO₂ emissions/removals from land converted to forest land - trend information

CO ₂ emissions/removals ^b (Gg)	Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	-163	-15012	235.8	67.5	44.5	17.3	26.1	26.5	17.1	18.2	-15.4	25.3	2.3	10.7	-13.6	29.4	-2.9	-10.5	9100.7
Austria	-4402	-2479	3.1	-5.2	-7.4	-8.0	-8.7	-3.9	-4.0	-4.2	-4.4	-4.6	-1.3	-1.3	-1.3	-1.3	-1.3	-2.3	-43.7
Belarus	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	NO	-223	*	27.2	22.1	18.7	16.2	14.4	12.9	11.8	10.8	10.0	9.3	8.8	8.2	7.8	7.4	1.8	*
Bulgaria	-1036	-1673	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-34.3	17.8	15.1	13.1	11.6	10.4	9.4	8.5	7.8	61.5
Canada	-1018	-797	0.3	-0.2	-0.7	-0.8	-0.4	-1.0	-0.3	-1.3	-0.2	-1.7	-1.8	-1.1	-3.3	-3.4	-3.5	-4.8	-21.7
Croatia	-11	-145	50.6	19.2	9.8	13.9	9.6	10.1	5.7	1.7	6.6	6.8	2.0	3.7	2.7	2.6	2.4	3.0	1210.7
Czech Republic	-280	-295	-0.7	-5.2	0.9	-1.2	2.4	-7.8	2.8	-1.4	15.1	5.3	4.5	4.1	2.8	-2.0	1.4	4.1	5.3
Denmark	11	-145	-30.7	-3.9	-248.4	-109.3	-4039.3	-98.3	29849.3	6.7	19.0	7.5	46.8	4.9	-71.4	80.2	-88.1	222.4	-1483.2
Estonia	-47	-694	30.6	16.6	5.5	7.9	19.4	8.5	25.5	2.7	5.2	5.6	20.7	13.1	4.6	7.3	3.6	5.2	1369.2
European Union (27)	-20484	-42826	-7.3	13.2	-5.6	5.8	11.7	4.3	8.0	3.3	4.9	-2.1	11.3	2.5	9.0	5.6	2.4	-5.7	109.1
Finland	579	188	-0.2	-1.5	0.2	-0.3	0.3	-5.1	-4.8	-6.4	-10.1	-9.9	-12.4	-12.7	-13.6	-9.2	0.5	-19.7	-67.5
France	-4017	-7311	9.0	5.3	4.7	3.8	3.3	3.3	1.8	2.2	2.0	0.6	0.4	2.2	2.8	2.0	-2.3	-3.4	82.0
Germany	934	-4779	-32.7	106.3	51.5	34.0	25.4	20.2	16.8	14.4	12.6	11.2	10.1	9.1	9.1	10.8	1.6	6.8	-611.6
Greece	NE, NO	-351	*	133.3	53.6	69.8	12.3	24.4	11.7	5.2	9.6	5.9	6.6	7.8	5.1	0	0	0	*
Hungary	25	-139	-222.2	-46.6	-21.5	-72.0	-42.5	21.2	77.8	-491.8	26.0	-17.6	9.2	22.6	-31.2	102.2	7.2	30.6	-655.7
Iceland	-22	-158	7.1	23.7	8.0	13.0	12.6	7.8	15.9	6.4	9.7	10.6	6.3	10.8	9.5	8.2	7.4	7.8	605.5
Ireland	16	287	656.0	66.4	15.6	33.0	-16.4	-4.3	44.2	24.8	-14.3	-52.7	17.9	0.4	11.7	-16.0	-43.7	-187.4	1740.3
Italy	-782	-1390	22.0	6.5	2.2	-6.7	-0.6	7.7	0.2	8.3	6.2	-3.6	6.3	3.1	3.2	-11.6	12.8	3.8	77.7
Japan	-1874	-346	-16.3	-9.9	-8.1	-6.0	-6.7	-6.4	-6.2	-6.4	-5.7	-5.7	-5.6	-5.8	-5.5	-5.4	-5.5	-13.2	-81.5
Kazakhstan	-418	NE, NO	0	0	0	0	0.0	64.4	0	0	0	0.0	-32.4	0.0	35.7	-17.2	0.0	*	*
Latvia	1	-506	-49.4	55.1	55.8	48.8	38.6	36.6	30.3	25.7	23.8	21.2	20.5	18.5	17.2	17.0	15.0	14.9	-80438.5
Liechtenstein	0	0	0	0	0	-21.4	0	0	0	0	0	-18.6	0	0	0	0	0	0	-36.1
Lithuania	0	0	0	0.0	0.0	0.0	-182.4	0.0	0.0	0.1	-71.4	1080.7	-14.1	65.6	-74.4	-154.4	0.0	-106.4	-103.6
Luxembourg	-113	-78	0	0	0	0	0	0	11.5	-4.2	-4.4	-4.6	-4.9	-5.1	-5.4	-5.7	-6.0	-6.4	-31.0
Malta	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	-3	-706	200.0	40.0	33.3	28.6	25.0	22.2	43.0	18.2	16.7	15.4	14.3	13.3	12.5	11.8	11.1	10.5	24930.1
New Zealand	-20911	-31594	3.0	6.9	6.6	9.4	9.5	9.7	7.9	4.8	2.5	-0.8	-1.9	-2.7	-3.7	-4.7	-4.3	-5.0	51.1
Norway	25	-294	15.6	9.9	8.1	6.5	6.0	14.0	-36.2	49.9	63.3	25.0	-21.5	5.2	-92.0	-1125.3	80.5	56.6	-1289.0
Poland	51	-7339	60.4	12.8	33.6	24.2	12.8	28.8	8.4	16.2	14.7	14.0	16.0	12.3	12.1	9.0	6.0	7.9	-14474.1
Portugal	-3182	-2746	-0.8	-0.8	-0.8	-0.8	-0.8	-0.9	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.4	-13.7
Romania	NA, NE	NA, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Russian Federation	-128	-4333	158.4	22.3	18.1	12.8	14.2	7.5	10.2	5.0	8.2	6.2	3.7	4.2	1.7	3.6	3.4	0.2	3278.2
Slovakia	-1950	-318	-3.2	-17.8	-1.2	0.3	-7.0	-4.0	-38.7	1.8	-1.0	-2.1	-7.6	-4.0	-27.2	-4.1	-7.1	-24.5	-83.7
Slovenia	-269	-269	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spain	-97	-6545	133.8	46.5	37.7	23.6	29.0	12.8	14.8	10.8	7.4	7.6	11.3	5.1	5.2	3.5	2.3	2.2	6616.9
Sweden	198	-1914	1297.9	-90.0	1003.1	-10.5	-86.5	32.7	-224.7	-33.7	89.1	-205.7	-230.9	-68.3	817.0	36.6	29.3	-59.5	-1065.2
Switzerland	-105	-47	-22.7	-5.3	-4.8	-28.2	-14.5	-37.2	4.7	-3.2	5.6	28.1	-33.9	26.4	-35.0	30.4	-11.2	-4.7	-55.4
Turkey	-551	-2199	16.7	10.0	9.1	8.3	7.7	7.1	6.7	6.2	5.9	5.6	5.3	22.9	-5.2	9.1	-0.8	-5.2	298.8
Ukraine	-48	-2322	51.3	34.6	33.5	23.9	18.9	23.1	23.9	20.6	19.5	16.1	15.8	14.7	18.7	16.4	11.9	15.0	4772.5
United Kingdom	-5819	-3403	-0.9	-4.5	-6.3	-2.9	-2.0	-1.1	-0.5	-2.9	-0.9	-1.5	-0.5	-2.6	-1.5	-3.1	-4.6	-6.6	-41.5
United States	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

^b Only net CO₂ emissions from carbon stock change are included in this table.

Table 5.8**Area of land converted to forest land - trend information**

Area (kha)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	52.89	1,122.10	93.1	13.7	12.8	10.4	11.8	11.3	15.8	15.5	12.5	11.7	10.2	6.6	5.5	6.6	6.0	3.6	2021.4
Austria	386.59	219.78	2.9	-6.6	-7.1	-7.7	-8.3	-3.7	-3.8	-4.0	-4.1	-4.3	-1.2	-1.2	-1.2	-1.2	-1.3	-2.2	-43.1
Belarus	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	NO	19.56	*	25.0	20.0	16.7	14.3	12.5	11.1	10.0	9.1	8.3	7.7	7.1	6.7	6.2	5.9	1.9	*
Bulgaria	130.05	304.21	0	0	0	0	0	0	0	14.9	13.0	11.5	10.3	9.3	8.5	7.9	7.3	6.8	133.9
Canada	174.33	98.02	-0.3	-0.9	-1.2	-1.3	-1.5	-2.4	-1.8	-2.1	-3.3	-5.8	-4.3	-2.9	-6.4	-6.5	-6.4	-8.1	-43.8
Croatia	1.37	18.01	50.6	19.2	9.8	13.9	9.6	10.1	5.7	1.7	6.6	6.8	2.0	3.7	2.7	2.6	2.4	3.0	1210.7
Czech Republic	52.60	40.03	-1.3	-8.1	-2.6	-3.7	-3.2	-10.1	-2.1	-5.4	12.8	2.2	3.4	1.9	1.8	1.5	1.0	3.0	-23.9
Denmark	0.71	43.45	136.0	30.1	14.7	19.6	10.2	27.8	14.2	11.0	5.5	5.9	5.2	11.6	9.6	6.4	9.4	8.5	6013.4
Estonia	7.18	54.43	20.8	12.9	1.5	5.9	11.8	4.2	16.9	0.0	1.7	1.7	8.3	5.8	1.9	2.1	0.7	1.4	658.3
European Union (27)	4,243.45	6,437.97	-1.5	2.3	3.3	2.6	3.2	5.2	-0.7	6.1	-1.0	3.2	1.4	2.2	3.3	4.2	3.5	-1.2	51.7
Finland	212.80	165.28	3.2	2.2	3.1	2.6	2.8	-2.8	-2.7	-3.2	-4.0	-3.6	-4.2	-3.9	-3.8	-1.7	-5.6	-11.2	-22.3
France	1,061.30	1,228.87	3.7	1.5	1.1	0.7	0.4	0.4	-0.8	0.1	0.2	-1.4	-1.4	0.0	1.1	2.6	-1.7	-3.1	15.8
Germany	17.85	357.01	100.0	20.0	16.7	14.3	12.5	11.1	10.0	9.1	8.3	7.7	7.1	6.7	6.3	5.9	5.6	5.3	1900.0
Greece	NE, NO	33.25	*	133.3	53.6	69.8	12.3	24.4	11.7	5.2	9.6	5.9	6.6	7.8	4.1	0	0	0	*
Hungary	39.24	51.31	0.6	-9.6	-1.0	8.4	8.7	7.9	1.4	16.2	16.1	4.7	-0.2	-2.8	3.6	13.1	3.2	-1.3	30.8
Iceland	5.67	33.09	9.2	23.7	6.7	11.5	12.1	6.6	14.6	5.2	9.1	9.7	5.7	7.8	5.7	4.5	4.4	5.7	483.9
Ireland	175.43	272.10	5.2	7.0	5.6	1.3	2.0	2.0	3.8	3.5	3.2	1.1	1.5	1.7	0.4	-0.4	-1.9	-3.0	55.1
Italy	77.65	78.48	0.1	0.0	0.0	0	0	0	0.0	0.0	0	0	0.0	0	1.0	0	0	0	1.1
Japan	142.91	28.07	-15.8	-9.5	-7.7	-6.0	-6.5	-5.9	-5.9	-6.0	-5.5	-5.4	-5.4	-5.6	-5.3	-5.1	-5.3	-13.7	-80.4
Kazakhstan	1,224.30	1,416.60	0	0	0	1.9	1.9	1.8	1.8	0.2	0.2	0.2	0.2	0.8	0.5	2.7	2.6	0	15.7
Latvia	5.14	218.72	173.3	25.2	23.1	18.6	12.6	14.9	11.1	13.3	8.6	8.5	9.2	8.6	8.2	7.8	7.4	7.1	4153.6
Liechtenstein	0.02	0.01	0	0	0	-17.2	0	0	0	0	0	-3.6	0	0	0	0	0	0	-20.2
Lithuania	214.09	245.44	-2.6	-2.9	-3.0	-3.1	2.6	2.6	2.5	2.4	0.7	8.0	6.3	9.9	2.3	-1.2	-1.2	0.1	14.6
Luxembourg	14.00	8.77	0	0	0	0	0	0	-3.7	-3.9	-4.0	-4.2	-4.4	-4.6	-4.8	-5.1	-5.3	-5.6	-37.4
Malta	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	2.96	59.28	100.0	20.0	16.7	14.3	12.5	11.1	10.0	9.1	8.3	7.7	7.1	6.7	6.3	5.9	5.6	5.3	1900.0
New Zealand	902.63	983.41	0.6	5.7	6.0	4.1	3.0	2.1	1.3	0.5	-0.5	-2.8	-3.8	-4.1	-4.5	-5.4	-4.8	-4.9	9.0
Norway	7.24	496.31	100.0	20.0	16.7	14.3	12.5	173.6	9.1	8.1	13.8	11.0	7.0	13.6	10.7	12.3	11.8	10.7	6755.2
Poland	1.32	444.45	46.8	12.2	30.5	21.7	10.5	24.6	6.7	14.6	11.0	10.4	11.5	9.3	8.6	7.1	4.6	5.6	33596.3
Portugal	359.47	359.47	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0	0
Romania	16.20	24.47	-98.7	-48.3	653.3	-81.4	-90.5	60250.0	-99.2	19460.0	-91.7	519.1	-68.2	-87.9	260.5	-29.3	-96.6	7117.1	51.0
Russian Federation	58.72	119,618.36	13561.2	25.0	20.0	16.6	14.3	12.5	11.2	9.9	9.1	8.3	7.7	7.1	0.1	0.0	0.0	0.0	203620.2
Slovakia	183.53	33.35	-2.4	-16.0	-4.6	-1.4	-6.1	-3.8	-33.1	-8.4	-1.3	-1.9	-5.7	-4.1	-24.4	-3.5	-5.8	-20.5	-81.8
Slovenia	4.84	4.84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spain	23.31	1,091.91	128.0	52.5	41.3	26.4	23.4	11.0	11.1	6.2	4.9	4.8	7.1	3.7	3.7	2.4	0.9	0.6	4584.2
Sweden	513.95	749.12	-9.2	-0.2	-3.6	-5.0	0.2	1.0	1.3	-0.3	2.6	-1.3	4.4	6.8	18.0	27.6	33.2	-10.7	45.8
Switzerland	56.05	42.13	-0.1	-1.9	-1.7	-1.9	-1.8	-1.8	-1.8	-1.9	-1.9	-1.9	-2.0	-0.7	-0.8	-1.4	-2.1	-2.1	-24.8
Turkey	185.52	664.84	16.7	10.0	9.1	8.3	7.7	7.1	6.7	6.3	5.9	5.6	5.3	4.7	-4.8	8.9	-0.3	-0.7	258.4
Ukraine	9.55	218.78	81.6	20.0	20.0	13.7	7.1	6.4	7.1	6.7	8.5	5.9	8.1	7.7	19.2	19.3	18.5	20.9	2189.7
United Kingdom	611.63	330.50	-3.2	-3.7	-4.6	-2.3	-1.6	-1.1	-0.7	-1.5	-1.6	-2.6	-2.4	-3.5	-3.5	-3.6	-4.9	-6.7	-46.0
United States	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.9a**Cropland remaining cropland - AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)^a**

	Activity data		IEF (Mg C/ha)					
	Total area (kha)	Area of organic soil (kha)	CSC ^b in living biomass/area			Net CSC ^b in DOM ^c /area	Net CSC ^b in soils/area	
			Increase	Decrease	Net Change		Mineral soils	Organic soils
Australia	21,691.76	NO	0.24	IE	0.24	0.05	0.03	NO
Austria	1,341.10	NO	0.12	-0.16	-0.04	NO	0.04	NO
Belarus	120.30	NE	2.10	NO	2.10	NE	NE	NE
Belgium	887.16	NO	NE	NO	NE, NO	NO	-0.29	NO
Bulgaria	3,440.19	NO	0.14	-0.22	-0.09	NO	0.00	NO
Canada	47,041.69	16.15	0.00	0.00	0.00	-0.01	0.09	-5.00
Croatia	NE	NE	NE	NE	NE	NE	NE	NE
Czech Republic	3,210.36	NO	0.00	NO	0.00	NO	0.00	NO
Denmark	2,783.68	41.96	0.09	-0.09	-0.01	NA	0.02	-8.33
Estonia	1,096.40	27.27	NE	NE	NE	NE	NE	-1.00
European Union (27)	121,643.12	1,895.61	0.09	-0.06	0.03	0.00	0.00	-5.20
Finland	2,336.31	279.80	0.00	0.00	0.00	NE	0.08	-5
France	14,743.58	0	0.12	-0.12	0	NO	0	0
Germany	13,157.21	579.94	0.01	-0.01	0.01	IE	0.00	-11.00
Greece	3,732.40	6.66	0.06	-0.01	0.06	NO	0.02	-10.00
Hungary	5,131.96	NO	0.07	-0.09	-0.01	NO	0.04	NO
Iceland	114.13	NA	NA	NA	NA	NA	NA	NA
Ireland	302.29	NO	NO	NO	NO	NO	0.05	NO
Italy	9,212.88	9.00	0.67	-0.31	0.35	0.00	0.02	-10.00
Japan	3,907.58	179.17	NA	NA	NA	NA	NE	NE
Kazakhstan	14,152.20	NO	0.05	NO	0.05	NE	0.03	NO
Latvia	1,142.22	59.22	NO	NO	NO	NO	NO	-1.00
Liechtenstein	1.87	IE	NO	NO	NO	NO	-0.65	IE
Lithuania	2,987.70	NE	NE	NE	NE	NA	NE	NE
Luxembourg	44.02	NO	0.16	-0.18	-0.02	NO	NO	NO
Malta	1.32	NE	2.10	NE	2.10	NE	NE	NE
Monaco	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	891.13	26.49	NE	NE	NE	NE	NE	IE
New Zealand	402.93	8.58	0.01	0.00	0.01	NE, NO	0.01	-9.88
Norway	918.98	8.50	0.01	NA, NO	0.01	NA	0.05	-6.67
Poland	12,940.00	558.29	0.00	-0.03	-0.02	0	-0.13	-1.00
Portugal	1,832.96	NO	0.00	-0.02	-0.02	NO	0.08	NO
Romania	9,821.75	NE	NE	NE	NE	NE	NE	NE
Russian Federation	92,371.78	1,385.58	0.01	0.00	0.01	NE	-0.22	-1.00
Slovakia	1,512.50	NO	0.16	NO	0.16	NO	NO	NO
Slovenia	216.26	6.88439	IE	-0.12	-0.12	NA	-0.02	-10
Spain	19,838.16	NO	0.035537879	-0.040373837	-0.004835958	NE	0.04842665	NO
Sweden	3,067.81	150.09	0.05	IE	0.05	0.00	-0.01	-3.73
Switzerland	413.71	10.02	NO	NO	NO	NO	NO	-9.52
Turkey	NA	0	NA	NA	NA	NA	NA	NA
Ukraine	34,734.45	119.60	0.04	NO, NO	0.04	NO	-0.24	-10.00
United Kingdom	5,976.21	154.47	0.03	NA, NO	0.03	IE, NO	NO	-1.95
United States	161,451.62	732.20	NE	NE	NE	NE	0.08	-10.31

^a Changes introduced by the LULUCF tables included in decision 14/CP.11 have been incorporated in this S&A report, part I. The main changes introduced include splitting of soils into mineral and organic components, and the inclusion of a 'Net CO₂' column.

^b CSC = carbon stock change.

^c DOM = dead organic matter.

Table 5.9b**Cropland remaining cropland - AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)^a**

	Emissions/Removals (Gg C)							Net CO ₂ (Gg)
	CSC ^b in living biomass			Net CSC ^b in DOM ^c	Net CSC ^b in soils			
	Gains	Losses	Net Change		Mineral soils	Organic soils		
Australia	5,131.93	IE	5,131.93	1,156.41	741.83	NO	-25,777.28	
Austria	155.05	-207.97	-52.91	NO	57.53	NO	-16.91	
Belarus	252.63	NO	252.63	NE	NE	NE	-926.31	
Belgium	NE	NO	NE, NO	NO	-253.27	NO	928.65	
Bulgaria	465.20	-764.72	-299.52	NO	12.39	NO	1,052.81	
Canada	28.67	-30.15	-1.48	-454.17	4,000.61	-80.76	-12,702.04	
Croatia	NE	NE	NE	NE	NE	NE	NE	
Czech Republic	1.42	NO	1.42	NO	4.36	NO	-21.17	
Denmark	243.09	-263.03	-19.94	NA	52.30	-349.55	1,163.04	
Estonia	NE	NE	NE	NE	NE	NE	99.99	
European Union (27)	10,907.94	-7,696.19	3,211.76	7.40	36.29	-9,850.35	24,181.31	
Finland	0.98	-0.37	0.61	NE	168.49	-1,395.81	4,497.94	
France	1,776.11	-1,776.11	0	NO	0	0	NO	
Germany	167.88	-66.99	100.89	IE	6.11	-6,379.31	22,998.46	
Greece	239.14	-32.44	206.69	NO	61.01	-66.65	-737.22	
Hungary	373.89	-443.02	-69.12	NO	206.43	NO	-503.45	
Iceland	NA	NA	NA	NA	NA	NA	NA	
Ireland	NO	NO	NO	NO	16.56	NO	-60.72	
Italy	6,144.72	-2,885.56	3,259.16	8.82	180.98	-90.00	-12,316.18	
Japan	NA	NA	NA	NA	NE	NE	NA, NE	
Kazakhstan	684.18	NO	684.18	NE	369.87	NO	-3,864.85	
Latvia	NO	NO	NO	NO	NO	-59.22	217.14	
Liechtenstein	NO	NO	NO	NO	-1.22	IE	4.46	
Lithuania	NE	NE	NE	NA	NE	NE	NA, NE	
Luxembourg	7.01	-8.03	-1.02	NO	NO	NO	3.73	
Malta	2.77	NE	2.77	NE	NE	NE	-10.16	
Monaco	NO	NO	NO	NO	NO	NO	NO	
Netherlands	NE	NE	NE	NE	NE	IE	IE, NE	
New Zealand	3.17	-1.11	2.06	NE, NO	2.26	-84.76	294.94	
Norway	5.02	NA, NO	5.02	NA	48.85	-56.73	10.48	
Poland	53.81	-375.81	-322.00	0	-1,551.20	-558.29	8,915.46	
Portugal	0.83	-44.23	-43.40	NO	141.28	NO	-358.91	
Romania	NE	NE	NE	NE	NE	NE	NE	
Russian Federation	1,248.12	-343.79	904.33	NE	-20,281.31	-1,385.60	76,129.46	
Slovakia	235.69	NO	235.69	NO	NO	NO	-864.19	
Slovenia	IE	-26.97	-26.97	NA	-4.52	-68.84	367.87	
Spain	705.01	-800.94	-95.94	NE	960.70	NO	-3,170.78	
Sweden	160.69	IE	160.69	-1.42	-22.86	-559.41	1,550.98	
Switzerland	NO	NO	NO	NO	NO	-95.38	349.72	
Turkey	4,884.27	NA	4,884.27	NA	169.14	NA	-18,529.14	
Ukraine	1,524.39	-113.40	1,410.99	NO	-8,204.46	-1,195.99	29,294.68	
United Kingdom	174.65	NA, NO	174.65	IE, NO	NO	-300.47	461.32	
United States	NE	NE	NE	NE	12,288.64	-7,545.77	-17,390.52	

^a Changes introduced by the LULUCF tables included in decision 14/CP.11 have been incorporated in this S&A report, part I. The main changes introduced include splitting of soils into mineral and organic components, and the inclusion of a 'Net CO₂' column.

^b CSC = carbon stock change.

^c DOM = dead organic matter.

Table 5.10

Net CO₂ emissions/removals from cropland remaining cropland - trend information

CO ₂ emissions/removals ^b (Gg)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	-22877	-25777	3.2	-72.3	-56.2	299.9	-147.1	-170.1	170.0	48.5	-260.9	-170.2	35.9	38.0	-118.8	88.4	-204.1	37.3	12.7
Austria	-242	-17	0.3	-19.3	-11.1	-12.9	-9.6	-3.6	-9.6	-9.0	-9.8	-14.5	-32.7	3.9	-11.4	-28.5	22.4	-53.9	-93.0
Belarus	-1179	-926	7.3	-12.6	-2.9	-35.3	-667.2	-127.2	-22.4	-0.9	5.5	-34.5	39.5	-7.7	42.7	-15.3	17.5	-0.4	-21.4
Belgium	1033	929	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	0	-10.1
Bulgaria	168	1053	31.4	8.5	7.2	-1.2	-13.4	-4.3	-1.2	-16.2	3.7	13.2	-6.8	9.6	-6.0	-15.0	-4.2	10.2	524.9
Canada	-1698	-12702	3.1	15.5	13.1	12.8	12.3	10.9	9.3	8.3	8.8	7.6	6.9	6.4	6.0	5.5	5.1	4.8	648.2
Croatia	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	-19	-21	-19.4	-4.2	14.9	0.1	18.6	-24.1	1.6	-16.9	0.7	17.0	60.1	-35.6	-6.3	7.1	-13.0	35.0	13.6
Denmark	2551	1163	-26.3	-21.0	-63.6	183.1	-37.8	112.4	-34.6	-1.2	81.9	-32.2	-12.1	81.8	-8.1	-6.5	-15.8	-48.8	-54.4
Estonia	110	100	0	-3.2	-3.3	0	-0.4	0	0	0	0	0	0	0	0	0	0	0	-9.5
European Union (27)	20275	24181	21.0	7.2	-7.8	4.8	-4.4	14.0	-12.4	8.5	2.6	3.4	3.0	-0.9	-12.0	-8.8	7.7	2.0	19.3
Finland	4535	4498	-9.9	8.6	-1.3	-0.5	0.7	-2.4	-1.1	-2.0	-0.5	-0.9	1.1	0.8	1.6	3.3	2.8	3.1	-0.8
France	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Germany	21565	22998	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.7	-2.7	4.1	-0.9	6.6
Greece	-1205	-737	3.8	7.0	-28.8	9.5	7.7	17.5	-33.4	9.5	6.3	-33.6	23.0	-5.6	10.5	-3.1	-3.6	-8.0	-38.8
Hungary	517	-503	51.0	8.2	7.6	-7.1	6.8	3.4	9.2	-18.4	-53.8	30.7	23.3	-21.0	21.0	10.5	25.2	5.6	-197.3
Iceland	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	-17	-61	-32.1	-1.6	-33.3	-14.6	9.5	45.2	-41.9	15.5	-6.2	21.9	-32.8	-48.8	193.2	-15.5	-24.8	20.7	264.6
Italy	-19977	-12316	-25.9	-6.8	9.3	-10.9	4.0	-15.0	13.4	-3.4	3.4	-2.4	-16.6	10.2	1.6	2.6	-1.7	-4.9	-38.3
Japan	NA, NE	NA, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Kazakhstan	-3299	-3865	2.3	1.3	3.8	4.2	4.0	3.9	3.7	-0.7	-1.2	-1.3	-1.6	-1.4	-2.1	0.1	-2.7	0	17.2
Latvia	333	217	-1.8	-2.0	-2.0	-2.1	-2.1	-2.1	-2.2	-2.3	-2.3	-2.3	-2.4	-2.5	-2.5	-2.6	-2.7	-2.7	-34.8
Liechtenstein	4	4	-0.1	-0.1	-0.1	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3.0
Lithuania	NA, NE	NA, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	-7	4	0.0	0.0	0.0	0.0	0.0	0.0	-320.3	-8.2	-9.0	-9.9	-11.0	-12.3	-14.0	-16.3	-19.5	-24.2	-156.8
Malta	-8	-10	0	0	0	0	0	-8.0	0	0	0	15.2	14.0	-11.5	21.3	-0.1	0	-0.1	29.4
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	IE, NE	IE, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
New Zealand	312	295	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-5.4
Norway	190	10	-8.6	6.3	-3.5	-3.9	-5.1	-5.7	-61.2	-26.2	150.6	-18.0	-11.0	25.2	-28.1	-42.7	-45.2	-26.9	-94.5
Poland	10111	8915	-1.8	0.8	-1.7	-0.4	-1.4	-1.3	-0.4	-1.2	-0.2	-1.6	0.3	-6.9	9.2	-2.0	3.1	2.5	-11.8
Portugal	-169	-359	30.0	13.9	12.2	10.8	9.6	8.6	-2.6	-4.0	-4.2	-4.3	-4.5	-4.7	-4.9	-5.1	-14.9	-5.3	112.5
Romania	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Russian Federation	256493	76129	4.7	37.4	4.2	-20.1	58.0	-11.6	-15.0	-16.5	-3.4	2.7	-2.7	-7.5	4.1	-17.3	-23.1	-2.4	-70.3
Slovakia	-949	-864	-6.7	9.9	1.7	2.8	-6.4	-12.2	20.6	-20.5	14.9	11.4	0.0	-9.0	5.8	-4.5	1.5	0.0	-9.0
Slovenia	80	368	14.7	10.0	7.2	5.4	9.5	6.1	4.7	2.5	12.5	-0.2	4.1	4.4	3.3	3.5	3.5	3.3	360.0
Spain	-929	-3171	-26.6	-231.7	6.9	-295.3	18.7	-9.1	15.0	-65.0	-36.5	-522.9	-114.1	149.0	944.7	30.6	-16.4	-16.0	241.2
Sweden	2206	1551	-5.8	5.3	12.6	-22.5	43.6	4.7	-40.2	68.3	-22.4	5.4	-2.7	-10.1	-21.0	17.8	-5.1	4.1	-29.7
Switzerland	362	350	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	-3.5
Turkey	NA	-18529	*	0.3	0.6	0.3	2.8	-0.4	2.2	22.4	-18.1	-16.3	29.9	4.0	6.9	4.0	0.3	2.3	*
Ukraine	-16357	29295	26.4	-263.7	-81.0	1251.8	-61.6	-146.8	-290.4	133.6	-4.9	-122.7	-444.9	14.8	-24.2	-127.3	-1072.1	-5.4	-279.1
United Kingdom	1022	461	-3.6	-4.2	-4.4	-4.6	-4.8	-5.0	-5.6	-3.4	-3.5	-3.6	-3.3	-3.3	-4.0	-4.2	-4.4	-4.6	-54.9
United States	-29410	-17391	7.9	-39.2	32.3	-3.0	-33.1	-74.2	494.6	-57.2	-11.0	53.8	2.5	0.8	4.5	3.0	-8.1	-3.7	-40.9

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

^b Only net CO₂ emissions from carbon stock change are included in this table.

Table 5.11

Area of cropland remaining cropland - trend information

Area (kha)	Base year ^a		Relative change (%)																
	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009		
Australia	21,691.76	21,691.76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Austria	1,424.65	1,341.10	1.4	-0.6	0.1	-0.6	-0.7	0.0	-0.5	-0.1	0.0	0.1	-0.3	0.1	-0.5	-0.7	-1.3	-0.7	-5.9
Belarus	153.10	120.30	0	2.0	-0.4	-0.5	-1.4	-13.5	0.1	-0.7	-0.7	-0.6	-1.5	-0.7	-0.9	2.8	-0.5	-0.4	-21.4
Belgium	978.86	887.16	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	0	0	-9.4
Bulgaria	3,610.22	3,440.19	0.0	1.4	0.0	3.1	0.0	0.0	0	0.0	-0.8	-1.3	-0.3	-4.3	0.3	-0.3	-0.1	-2.0	-4.7
Canada	47,488.70	47,041.69	-0.3	-0.1	-0.1	0.1	0.1	0.1	0.1	0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.9
Croatia	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	3,336.00	3,210.36	-0.9	-0.2	-1.0	0.1	0.0	0.0	-0.4	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-3.8
Denmark	2,917.36	2,783.68	-0.2	-0.3	-0.2	-0.2	-0.2	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-4.6
Estonia	1,135.72	1,096.40	-2.8	-2.8	-2.9	-3.0	-3.1	-6.5	3.3	4.3	4.8	5.7	4.1	0.3	1.2	1.9	1.6	-0.5	-3.5
European Union (27)	129,383.98	121,643.12	0.2	-0.1	-0.6	-0.4	-0.4	-0.4	-0.4	-0.3	-0.2	-0.6	-0.2	-0.4	-0.5	-0.3	-0.3	-0.1	-6.0
Finland	2,411.31	2,336.31	-0.1	-0.1	-0.3	-0.3	-0.1	-0.3	-0.4	0.0	-0.1	0.0	-0.1	-0.3	-0.2	0.0	-0.1	-0.2	-3.1
France	13,903.61	14,743.58	-0.2	0.1	0.1	0.3	0.3	0.6	0.7	0.5	0.6	0.6	0.6	0.4	0.3	0.2	0.4	0.6	6.0
Germany	14,249.39	13,157.21	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.5	-0.7	-0.4	0.1	-7.7
Greece	3,944.20	3,732.40	0	-0.2	-0.2	-0.4	-0.4	-0.3	-0.2	-0.2	-0.2	-0.6	-0.1	-0.2	-1.1	-1.0	-0.3	0.6	-5.4
Hungary	5,462.34	5,131.96	-0.5	-0.3	-0.3	-0.3	-0.3	-0.4	-0.4	-0.3	-0.4	-0.3	-0.3	0.0	-0.2	-0.3	-0.1	-0.1	-6.0
Iceland	114.13	114.13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ireland	404.56	302.29	-0.7	-0.3	-0.1	-0.6	-1.5	-1.8	-0.2	-0.1	-0.1	-0.1	-3.4	-10.7	-1.5	-0.5	-0.1	-5.4	-25.3
Italy	11,170.15	9,212.88	0.0	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.1	-1.2	-1.2	-1.2	-1.2	-2.0	-2.0	-2.1	-2.1	-17.5
Japan	4,063.83	3,907.58	0.1	-0.2	-0.1	-0.2	-0.4	-0.3	-0.2	-0.3	-0.3	-0.1	-0.1	-0.2	-0.1	-0.1	-0.2	-0.1	-3.8
Kazakhstan	13,618.57	14,152.20	3.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	-0.1	0.1	0.0	0.3	0	3.9
Latvia	1,751.41	1,142.22	-1.8	-2.0	-2.0	-2.1	-2.1	-2.1	-2.2	-2.2	-2.3	-2.3	-2.4	-2.5	-2.5	-2.6	-2.7	-2.7	-34.8
Liechtenstein	1.95	1.87	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-4.3
Lithuania	2,314.00	2,987.70	30.6	10.6	0.0	0.4	0.4	-0.3	-0.2	2.3	0.0	-0.1	0.0	-0.1	0.1	0.0	0.1	-0.1	29.1
Luxembourg	37.18	44.02	-0.4	-0.5	-0.5	-0.5	-0.5	-0.5	2.3	2.3	2.2	2.2	2.1	2.1	2.0	2.0	2.0	1.9	18.4
Malta	1.02	1.32	0	0	0	0	0	-8.0	0	0	0	15.2	14.0	-11.5	21.3	-0.1	0	0.1	29.6
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	999.34	891.13	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-10.8
New Zealand	380.44	402.93	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	5.9
Norway	1,073.14	918.98	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.9	-0.6	-0.4	-0.4	-0.8	-0.6	-0.9	-1.3	-2.2	-2.1	-14.4
Poland	14,231.34	12,940.00	-0.2	-0.1	-1.6	-1.0	-0.4	-0.7	-1.3	-0.9	0.4	-3.3	0.5	0	-1.7	1.3	0.5	-0.2	-9.1
Portugal	3,131.10	1,832.96	-2.5	-2.7	-2.8	-2.9	-3.0	-3.1	-2.5	-2.5	-2.6	-2.7	-2.8	-2.8	-2.9	-3.0	-3.1	-3.2	-41.5
Romania	10,054.60	9,821.75	-0.2	-0.2	-0.1	0.0	0.0	-0.1	0.1	0.1	-0.1	-0.3	-0.1	0.1	-0.1	-0.1	-0.1	-0.2	-2.3
Russian Federation	133,700.10	92,371.78	-1.9	-1.9	-2.1	-2.6	-3.6	-3.9	-2.4	-1.2	-1.3	-6.2	-1.4	-2.8	-1.8	-0.9	2.6	1.2	-30.9
Slovakia	1,487.20	1,512.50	0.2	0.1	1.1	0.2	0.4	0.0	-0.8	0.7	0.0	0.0	0.2	0.1	0.2	0.2	-0.1	-0.1	1.7
Slovenia	341.87	216.26	-1.7	-1.8	-1.8	-1.9	-2.0	-2.0	-2.0	-2.1	-2.1	-2.2	-2.2	-2.3	-2.3	-2.3	-2.4	-2.5	-36.7
Spain	21,175.15	19,838.16	-0.2	-0.5	-0.6	-0.6	-0.6	-0.4	-0.5	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-6.3
Sweden	3,070.59	3,067.81	-0.5	-0.3	-0.3	-0.3	-0.4	-0.5	-0.3	-0.4	-0.4	-0.3	-0.6	-0.7	1.2	-1.5	-2.4	9.1	-0.1
Switzerland	437.15	413.71	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-5.4
Turkey	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	35,847.26	34,734.45	-0.3	-0.1	-0.4	-0.4	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	-0.1	-3.1
United Kingdom	5,975.08	5,976.21	0	0	0	0	0	0	0.0	0	0	0	0.0	0.0	0	0	0	0	0.0
United States	167,078.08	161,451.62	-0.1	-0.2	-0.2	-0.2	-1.8	0.2	0.1	0.0	0.4	0.7	0	0	0	0	0	0	-3.4

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.12a**Land converted to cropland - AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)^a**

	Activity data		IEF (Mg C/ha)					
	Total area (kha)	Area of organic soil (kha)	CSC ^b in living biomass/area			Net CSC ^b in DOM ^c /area	Net CSC ^b in soils/area	
			Increase	Decrease	Net Change		Mineral soils	Organic soils
Australia	4408.35	NO	0.19	-0.27	-0.09	-0.09	0.19	NO
Austria	96.09	NO	0.43	-0.39	0.04	-0.04	-1.06	NO
Belarus	1258.90	NE	NE, NO	NE, NO	NE, NO	NE, NO	NE	NE
Belgium	91.88	NO	NO	-0.09	-0.09	NO	-1.83	NO
Bulgaria	312.15	NO	0.39	-0.32	0.07	NO	-0.95	NO
Canada	476.40	IE, NE, NO	NE, NO	-1.95	-1.95	-0.24	-0.13	IE, NE, NO
Croatia	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
Czech Republic	45.83	NO	0.01	-0.10	-0.09	0.00	-0.35	NA, NO
Denmark	10.24	0.51	0.28	-0.35	-0.07	-0.03	0.18	-0.02
Estonia	12.27	1.07	NO	NO	NO	NO	NE, NO	-1.00
European Union (27)	10281.79	61.08	0.06	-0.14	-0.08	-0.01	-0.83	-4.89
Finland	111.73	52.69	0.00	IE, NE	0.00	IE, NE	-3.62	-4.90
France	3815.98	0	NO	-0.17	-0.17	-0.02	-0.84	0
Germany	35.51	2.26	10.92	-9.22	1.70	IE	-20.94	-11.00
Greece	0.06	NO	IE, NO	NO	IE, NO	NO	NO	NO
Hungary	102.03	NO	0.14	-0.10	0.04	0.00	-0.66	NO
Iceland	55.18	54.07	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	-5.00
Ireland	97.21	NO	NO	NO	NO	NO	-0.60	NO
Italy	NO	NO	NO	NO	NO	NO	NO	NO
Japan	65.30	IE	IE, NA	-0.65	-0.65	-0.21	-0.22	IE, NE
Kazakhstan	294.40	NO	0.07	NO	0.07	NE, NO	-0.18	NO
Latvia	21.31	IE, NO	NO	IE, NO	IE, NO	-0.51	-1.73	IE, NO
Liechtenstein	0.00	IE, NO	5.66	-6.89	-1.22	NO	-2.42	IE, NO
Lithuania	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NE	NE
Luxembourg	7.25	NO	0.48	-0.58	-0.10	0.00	-0.57	NO
Malta	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	14.32	0.59	NE	-0.70	-0.70	-0.23	NE	NE
New Zealand	33.66	0.14	0.48	-0.22	0.25	0.00	-0.18	-10.00
Norway	37.31	0.90	0.01	NA, NO	0.01	IE, NA	-0.21	NA, NO
Poland	NA, NE, NO	NA, NE	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO
Portugal	79.71	NO	0.51	-1.13	-0.61	-0.08	-1.68	NO
Romania	21.35	NE	NA, NE	NA, NE	NA, NE	NA, NE	NE	NE
Russian Federation	NO	NO	NO	NO	NO	NO	NO	NO
Slovakia	26.96	NO	NO	-0.61	-0.61	0.00	-1.04	NO
Slovenia	5.04	NA, NO	NA, NO	-20.67	-20.67	-1.68	-42.66	NA, NO
Spain	NO	NO	NO	NO	NO	NO	NO	NO
Sweden	80.89	3.96	0.03	-0.39	-0.36	-0.09	-0.36	-3.73
Switzerland	17.42	0.24	0.03	-0.10	-0.08	0.00	-0.21	-9.52
Turkey	NA	NA	NA	NA	NA	NA	NA	NA
Ukraine	179.75	NO	NO	-0.76	-0.76	-0.01	0.00	NO
United Kingdom	5297.56	1.52	IE, NO	-0.01	-0.01	IE, NO	-0.60	IE, NO
United States	14897.88	30.39	NE	NE	NE	NE	-0.06	-23.69

^a Changes introduced by the LULUCF tables included in decision 14/CP.11 have been incorporated in this S&A report, part I. The main changes introduced include splitting of soils into mineral and organic components, and the inclusion of a 'Net CO₂' column.

^b CSC = carbon stock change.

^c DOM = dead organic matter.

Table 5.12b**Land converted to cropland - AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)^a**

	Emissions/Removals (Gg C)						Net CO ₂ (Gg)
	CSC ^b in living biomass			Net CSC ^b in DOM ^c	Net CSC ^b in soils		
	Gains	Losses	Net Change		Mineral soils	Organic soils	
Australia	820.86	-1,197.14	-376.28	-412.08	847.33	NO	-216.22
Austria	41.75	-37.71	4.04	-3.87	-101.55	NO	371.72
Belarus	NE, NO	NE, NO	NE, NO	NE, NO	NE	NE	NE, NO
Belgium	NO	-8.33	-8.33	NO	-168.54	NO	648.54
Bulgaria	120.86	-99.89	20.98	NO	-296.84	NO	1,011.50
Canada	NE, NO	-927.18	-927.18	-112.55	-63.03	IE, NE, NO	4,043.44
Croatia	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
Czech Republic	0.24	-4.40	-4.16	-0.08	-16.05	NA, NO	74.37
Denmark	2.92	-3.63	-0.71	-0.36	1.70	-0.01	-2.30
Estonia	NO	NO	NO	NO	NE, NO	-1.07	3.92
European Union (27)	614.38	-1,428.13	-813.74	-97.88	-8,444.44	-298.87	35,401.42
Finland	0.03	IE, NE	0.03	IE, NE	-213.92	-258.17	1,730.88
France	NO	-643.15	-643.15	-57.46	-3,218.97	0	14,371.79
Germany	387.80	-327.28	60.52	IE	-696.32	-24.88	2,422.49
Greece	IE, NO	NO	IE, NO	NO	NO	NO	IE, NO
Hungary	14.19	-10.57	3.62	-0.35	-67.01	NO	233.75
Iceland	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	-270.36	991.33
Ireland	NO	NO	NO	NO	-58.25	NO	213.58
Italy	NO	NO	NO	NO	NO	NO	NO
Japan	IE, NA	-42.20	-42.20	-13.93	-14.11	IE, NE	257.51
Kazakhstan	19.53	NO	19.53	NE, NO	-52.37	NO	120.40
Latvia	NO	IE, NO	IE, NO	-10.87	-36.80	IE, NO	174.80
Liechtenstein	0.02	-0.02	0.00	NO	-0.01	IE, NO	0.04
Lithuania	NA, NE	NA, NE	NA, NE	NA, NE	NE	NE	NA, NE
Luxembourg	3.51	-4.21	-0.70	-0.03	-4.14	NO	17.85
Malta	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO
Netherlands	NE	-10.09	-10.09	-3.27	NE	NE	48.98
New Zealand	16.03	-7.48	8.55	-0.06	-6.07	-1.41	-3.72
Norway	0.51	NA, NO	0.51	IE, NA	-7.68	NA, NO	26.29
Poland	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO
Portugal	40.96	-89.86	-48.90	-6.05	-134.17	NO	693.41
Romania	NA, NE	NA, NE	NA, NE	NA, NE	NE	NE	NA, NE
Russian Federation	NO	NO	NO	NO	NO	NO	NO
Slovakia	NO	-16.48	-16.48	-0.07	-28.10	NO	163.71
Slovenia	NA, NO	-104.13	-104.13	-8.47	-214.89	NA, NO	1,200.78
Spain	NO	NO	NO	NO	NO	NO	NO
Sweden	2.13	-31.44	-29.31	-7.37	-27.78	-14.76	290.49
Switzerland	0.49	-1.81	-1.32	-0.02	-3.65	-2.31	26.75
Turkey	NA	NA	NA	0	0	0	NA
Ukraine	NO	-136.71	-136.71	-2.63	-0.63	NO	513.23
United Kingdom	IE, NO	-40.42	-40.42	IE, NO	-3,163.70	IE, NO	11,748.44
United States	NE	NE	NE	NE	-902.00	-720.00	5,947.33

^a Changes introduced by the LULUCF tables included in decision 14/CP.11 have been incorporated in this S&A report, part I. The main changes introduced include splitting of soils into mineral and organic components, and the inclusion of a 'Net CO₂' column.

^b CSC = carbon stock change.

^c DOM = dead organic matter.

Table 5.13

Net CO₂ emissions/removals from land converted to cropland - trend information

Country	CO ₂ emissions/removals ^b (Gg)		Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	21882	-216	-16.8	-25.4	13.8	-18.9	37.8	-24.5	-37.2	15.6	143.8	-70.3	-34.0	-20.9	404.0	6.7	-65.1	-105.6	-101.0
Austria	375	372	0.3	-5.0	-2.6	-2.5	-2.6	-1.4	-1.3	-1.3	-1.4	-1.4	-0.9	-1.7	0.8	5.7	8.7	8.4	-1.0
Belarus	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	NO	649	*	20.8	17.2	14.7	12.8	11.4	10.2	9.2	8.5	7.8	7.2	6.7	6.3	5.9	5.6	1.5	*
Bulgaria	1012	1012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canada	9123	4043	-1.9	-7.6	-4.7	-4.0	-3.6	-4.0	-6.8	-2.9	-1.8	-5.8	-2.0	-5.1	-0.4	-0.7	-3.7	-1.7	-55.7
Croatia	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	226	74	19.8	-1.8	-2.5	-0.9	70.5	-55.8	-3.7	-18.3	-17.3	21.2	-3.1	-0.9	-18.2	-14.0	32.3	-22.4	-67.1
Denmark	26	-2	-64.2	-137.3	-130.2	-466.2	4.5	-736.1	-48.6	-11.5	-131.8	-254.8	-58.2	-253.1	-67.3	15.2	7.3	3.0	-108.8
Estonia	NO	4	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
European Union (27)	41846	35401	-2.2	-0.9	0.0	-0.6	1.0	-0.6	-3.1	0.7	-2.0	-0.2	-0.6	-0.5	-3.6	6.2	-1.6	-8.2	-15.4
Finland	292	1731	2.1	-0.2	15.5	10.0	5.0	18.2	13.6	19.8	13.0	20.8	13.5	12.5	12.1	9.8	11.1	8.5	492.5
France	14896	14372	-0.4	-2.0	2.5	-1.7	1.8	-0.3	-5.9	1.8	-3.4	0.0	-0.3	-0.7	2.8	3.0	3.0	-2.8	-3.5
Germany	5915	2422	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	-26.7	44.4	-20.9	-51.1	-59.0
Greece	0	IE, NO	385.3	155.4	1.8	-80.0	135.6	-40.3	40.3	*	*	287.9	55.5	-98.5	*	*	-94.7	*	*
Hungary	5	234	40.5	27.1	21.4	27.2	2.9	6.2	13.4	20.0	5.5	-1.9	5.3	-1.9	-3.1	-5.7	-5.0	-3.4	4400.6
Iceland	991	991	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ireland	NO	214	*	0	163.3	-38.8	0	0	0	196.2	-2.5	34.5	-27.7	0	0	0	184.9	-40.6	*
Italy	1028	NO	-96.6	0.0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Japan	2533	258	-34.8	-6.3	-20.2	-17.7	1.4	-7.0	-30.3	-17.0	-9.5	0.9	-13.0	18.1	6.5	-12.2	-13.4	14.9	-89.8
Kazakhstan	6	120	0	0	0	0	0	0	0	-117.6	666.7	87.0	-632.4	72.5	-11.9	0	-3.7	0	1870.9
Latvia	835	175	0	0	-58.6	0	0	0	0	-12.7	0	0	0	0	0	0	0	-42.0	-79.1
Liechtenstein	0	0	0	0	0	118.0	0	0	0	0	0	-82.7	0	0	0	0	0	0	-62.3
Lithuania	NA, NE	NA, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	40	18	0	0	0	0	0	0	-63.0	2.1	2.1	2.0	2.0	2.0	1.9	1.9	1.9	1.8	-55.9
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	35	49	2.1	2.2	2.0	2.2	1.9	2.0	-0.6	2.3	2.4	2.4	1.7	1.7	1.5	1.5	1.6	1.5	41.2
New Zealand	56	-4	-5.5	-7.0	-7.6	-8.2	-8.9	-9.8	11.9	-10.7	-18.1	8.3	35.4	56.2	14.9	23.8	-100.9	472.0	-106.7
Norway	54	26	2.7	2.5	2.4	2.4	2.3	166.5	-91.4	1525.1	-92.5	837.9	-89.0	638.5	-81.9	-8.1	-28.0	57.7	-51.0
Poland	NA, NE, NO	NA, NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Portugal	1221	693	-2.9	-3.3	-3.1	-3.2	-3.4	-3.5	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-43.2
Romania	NA, NE	NA, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Russian Federation	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovakia	789	164	-2.5	-4.6	-9.5	-8.2	-9.2	-15.1	10.1	-6.4	-31.8	4.9	5.3	-32.0	-19.0	21.0	-21.6	1.0	-79.2
Slovenia	1083	1201	0	0	0	0	0	0	0	4.5	0	0	0	0	0	0	0	0	10.9
Spain	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Sweden	31	290	52.8	-32.9	59.9	1.1	-1.3	-65.5	-117.1	-1137.4	35.1	-39.6	-26.6	170.9	-31.2	7.5	26.0	59.8	822.4
Switzerland	46	27	-1.8	-11.0	-1.7	-4.5	-1.9	-1.9	-2.0	-2.0	-2.1	-2.1	-2.1	7.9	-3.6	-4.4	-6.4	-4.8	-41.9
Turkey	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	2	513	238.6	0.3	7.9	0.4	0	0.0	0.4	1.0	0	2.0	11.8	0.1	8.6	0	0	117.0	33568.0
United Kingdom	13900	11748	0.5	0.3	0.3	0.3	0.3	0.3	-2.9	-2.1	-2.1	-1.9	-2.0	-1.8	-1.8	-1.8	-1.7	-1.6	-15.5
United States	2150	5947	6.0	-150.4	-23.9	15.2	-254.8	-187.2	-31.8	79.1	13.4	23.4	0	0	0	0	0	0	176.6

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

^b Only net CO₂ emissions from carbon stock change are included in this table.

Table 5.14

Area of land converted to cropland - trend information

Area (kha)	Base year ^a		Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	3,139.35	4,408.35	2.8	1.7	2.0	1.8	1.7	1.7	1.6	1.6	1.5	1.5	1.9	1.9	2.0	1.6	1.4	1.2	40.4
Austria	82.88	96.09	-0.4	-1.6	-1.7	-1.5	-1.5	-1.0	-0.9	-0.9	-1.0	-0.8	-1.8	0.8	6.8	10.7	11.0	2.4	15.9
Belarus	1,171.60	1,258.90	2.1	-6.5	7.6	0.4	0.1	0.2	0.2	-4.4	-2.1	-0.9	0.0	0.1	0.3	0.6	0.7	0.2	7.5
Belgium	NO	91.88	*	25.0	20.0	16.7	14.3	12.5	11.1	10.0	9.1	8.3	7.7	7.1	6.7	6.3	5.9	1.5	*
Bulgaria	312.15	312.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canada	1,311.75	476.40	-3.1	-4.1	-4.3	-4.6	-4.9	-5.2	-5.5	-5.9	-6.5	-6.9	-7.0	-6.9	-6.7	-6.1	-5.8	-5.3	-63.7
Croatia	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	118.99	45.83	-2.5	-8.9	-15.2	-14.6	15.6	-7.9	-2.8	-7.8	-6.1	-4.5	-4.1	-2.4	-2.2	-3.4	-2.0	-0.4	-61.5
Denmark	0.58	10.24	89.1	17.5	15.7	12.9	11.4	13.8	10.8	9.8	7.5	7.8	7.0	6.1	5.9	5.6	5.3	5.0	1665.4
Estonia	NO	12.27	*	*	*	*	*	*	*	*	*	*	*	*	171.4	23.6	0	9.6	*
European Union (27)	9,151.35	10,281.79	1.1	0.6	0.8	0.7	0.9	0.3	-0.1	-0.2	-0.2	-0.1	-0.2	0.3	0.7	1.1	1.9	0.7	12.4
Finland	38.26	111.73	0.9	-0.2	1.5	2.9	1.1	12.3	6.9	11.1	9.7	10.9	9.4	9.1	9.2	8.7	9.9	8.2	192.0
France	4,241.00	3,815.98	0.3	-1.1	-0.2	-0.7	-0.6	-1.8	-2.0	-2.1	-1.9	-2.4	-2.5	-0.5	0.0	1.1	3.1	0.9	-10.0
Germany	88.61	35.51	0	0	0	0	0	0	0	0	0	0	0	0	-30.3	53.2	-24.5	-50.3	-59.9
Greece	0.00	0.06	331.4	17.8	7.6	2.4	2.6	1.5	4.6	0	1.6	9.9	24.3	1.4	0	23.0	1.0	0	3759.6
Hungary	10.85	102.03	0.2	14.7	12.9	11.6	10.2	9.2	8.5	2.8	2.8	2.7	2.6	-1.6	-1.7	-3.9	-4.0	-4.2	840.6
Iceland	55.18	55.18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ireland	NO	97.21	*	0	61.2	0	0	0	0	73.5	24.9	29.7	0	0	0	0	69.3	0	*
Italy	13.95	NO	-96.6	0.0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Japan	493.13	65.30	-8.8	-10.0	-11.7	-11.1	-9.8	-9.5	-10.4	-9.7	-9.2	-10.8	-10.0	-10.3	-9.2	-12.1	-13.6	-12.6	-86.8
Kazakhstan	33.60	294.40	0	0	0	0	0	0	0	2.8	2.7	2.6	387.1	49.2	11.0	0	0.2	0	776.2
Latvia	1.91	21.31	100.0	20.0	6.9	6.5	6.1	5.7	5.4	4.5	4.3	4.1	4.0	3.8	3.7	3.5	3.4	1.9	1017.3
Liechtenstein	0.00	0.00	0	0	0	120.0	0	0	0	0	0	-56.8	0	0	0	0	0	0	-5.0
Lithuania	NA, NE	NA, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	8.24	7.25	0	0	0	0	0	0	-1.2	-1.2	-1.2	-1.2	-1.3	-1.3	-1.3	-1.3	-1.3	-1.4	-12.0
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	14.32	14.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
New Zealand	34.23	33.66	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.1	0.1	-0.1	-0.1	-1.7
Norway	0.94	37.31	100.0	20.0	16.7	14.3	12.5	10.6	9.6	28.9	6.8	12.7	1.1	40.8	23.8	8.0	16.9	5.1	3863.8
Poland	NA, NE, NO	NA, NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Portugal	100.22	79.71	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-1.7	-1.8	-1.9	-1.9	-2.0	-2.1	-2.2	-2.3	-2.3	-2.4	-20.5
Romania	NA	21.35	-76.9	33.3	100.0	-75.0	1050.0	243.5	62.0	7.0	-81.8	24.0	241.9	*	*	*	*	*	*
Russian Federation	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovakia	153.15	26.96	-2.7	-4.7	-16.3	-6.7	-9.9	-11.0	2.8	-25.1	-12.9	-5.1	-6.3	-8.2	-12.2	-12.7	-7.6	-11.0	-82.4
Slovenia	5.04	5.04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spain	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Sweden	31.28	80.89	14.4	10.2	6.1	6.2	2.1	1.7	7.9	8.9	5.9	9.6	8.7	1.3	10.6	-10.0	-6.1	-2.0	158.6
Switzerland	22.86	17.42	-0.2	-1.8	-1.7	-2.0	-1.9	-2.0	-2.0	-2.0	-2.1	-2.1	-2.2	0.0	-0.4	-0.9	-1.8	-2.2	-23.8
Turkey	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	0.04	179.75	240.1	0.0	0.2	0.0	0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0	0	0	4.1	446086.6
United Kingdom	3,899.48	5,297.56	2.5	2.3	2.2	2.2	2.1	2.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	35.9
United States	14,081.91	14,897.88	1.6	1.1	2.3	0.8	8.6	-2.0	-1.9	-1.5	-4.4	-7.6	0	0	0	0	0	0	5.8

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economic in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.15a**Forest land converted to cropland - AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)^a**

	Activity data		IEF (Mg C/ha)					
	Total area (kha)	Area of organic soil (kha)	CSC ^b in living biomass/area			Net CSC ^b in DOM ^c /area	Net CSC ^b in soils/area	
			Increase	Decrease	Net Change		Mineral soils	Organic soils
Australia	4,408.35	NO	0.19	-0.27	-0.09	-0.09	0.19	NO
Austria	5.16	NO	IE	-0.93	-0.93	-0.75	-2.19	NO
Belarus	NO	NE	NO	NO	NO	NO	NE	NE
Belgium	2.07	NO	NO	-4.03	-4.03	NO	-1.85	NO
Bulgaria	NO	NO	NO	NO	NO	NO	NO	NO
Canada	472.98	IE, NO	NO	-1.96	-1.96	-0.24	-0.13	IE, NO
Croatia	NE	NE	NE	NE	NE	NE	NE	NE
Czech Republic	2.61	NO	NO	-1.36	-1.36	-0.03	-0.41	NO
Denmark	0.92	0.05	0.16	-1.92	-1.76	-0.39	0.30	IE
Estonia	NO	NO	NO	NO	NO	NO	NO	NO
European Union (27)	367.22	31.32	0.09	-2.37	-2.29	-0.26	-1.05	-4.89
Finland	80.25	31.022	0.00	IE	0.00	IE	-0.43	-4.9
France	123.16	0	NO	-5.22	-5.22	-0.47	-1.07	0
Germany	0.39	0.01	12.94	-55.15	-42.21	IE	-21.22	-11.00
Greece	0.01	NO	NO	NO	NO	NO	NO	NO
Hungary	1.39	NO	IE	-1.24	-1.24	-0.26	-0.47	NO
Iceland	NE	NE	NE	NE	NE	NE	NE	NE
Ireland	NO	NO	NO	NO	NO	NO	NO	NO
Italy	NO	NO	NO	NO	NO	NO	NO	NO
Japan	27.96	IE	NA	-1.51	-1.51	-0.50	-0.44	NE
Kazakhstan	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	21.31	IE	NO	IE	IE, NO	-0.51	-1.73	IE
Liechtenstein	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	NA	NA	NA	NA	NA	NA	NE	NE
Luxembourg	0.93	NO	0.57	-2.45	-1.88	-0.03	-0.81	NO
Malta	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	0.11	0.00	NE	-88.06	-88.06	-28.49	NE	NE
New Zealand	0.27	NO	0.67	NO	0.67	NO	0.61	NO
Norway	11.45	NO	NO	NO	NO	IE	-0.67	NO
Poland	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	50.92	NO	0.48	-1.55	-1.07	-0.10	-1.80	NO
Romania	NA	NE	NA	NA	NA	NA	NE	NE
Russian Federation	NO	NO	NO	NO	NO	NO	NO	NO
Slovakia	0.51	NO	NO	-4.25	-4.25	-0.13	-2.86	NO
Slovenia	0.84	NA	NA	-110.77	-110.77	-10.09	-54.16	NA
Spain	NO	NO	NO	NO	NO	NO	NO	NO
Sweden	4.89	0.24	0.44	IE	0.44	-1.50	0.45	-3.73
Switzerland	0.03	0.00	NO	-3.41	-3.41	-0.61	-0.66	-9.52
Turkey	NA	NA	NA	NA	NA	NA	NA	NA
Ukraine	13.05	NO	NO	-10.47	-10.47	-0.20	-0.05	NO
United Kingdom	71.74	IE	IE, NO	-0.03	-0.03	IE	-0.02	IE
United States	IE	IE	NE	NE	NE	NE	IE	IE

^a Changes introduced by the new LULUCF tables included in decision 14/CP.11 have been used for the first time in this S&A report, part I. The main changes introduced include splitting of soils into mineral and organic components, and the inclusion of a 'Net CO₂' column.

^b CSC = carbon stock change.

^c DOM = dead organic matter.

Table 5.15b**Forest land converted to cropland - AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)^a**

	Emissions/Removals (Gg C)						Net CO ₂ (Gg)
	CSC ^b in living biomass			Net CSC ^b in DOM ^c	Net CSC ^b in soils		
	Gains	Losses	Net Change		Mineral soils	Organic soils	
Australia	820.86	-1,197.14	-376.28	-412.08	847.33	NO	-216.22
Austria	IE	-4.81	-4.81	-3.87	-11.30	NO	73.27
Belarus	NO	NO	NO	NO	NE	NE, NO	
Belgium	NO	-8.33	-8.33	NO	-3.83	NO	44.60
Bulgaria	NO	NO	NO	NO	NO	NO	NO
Canada	NO	-927.18	-927.18	-112.55	-60.74	IE, NO	4,035.05
Croatia	NE	NE	NE	NE	NE	NE	NE
Czech Republic	NO	-3.56	-3.56	-0.08	-1.07	NO	17.23
Denmark	0.15	-1.77	-1.62	-0.36	0.27	IE	6.27
Estonia	NO	NO	NO	NO	NO	NO	NO
European Union (27)	32.39	-872.14	-839.75	-97.01	-353.54	-153.06	5,292.31
Finland	0.02	IE	0.02	IE	-21.41	-152.01	635.79
France	NO	-643.15	-643.15	-57.46	-131.85	0	3,052.35
Germany	5.07	-21.61	-16.54	IE	-8.01	-0.16	90.58
Greece	NO	NO	NO	NO	NO	NO	NO
Hungary	IE	-1.72	-1.72	-0.35	-0.65	NO	9.99
Iceland	NE	NE	NE	NE	NE	NE	NE
Ireland	NO	NO	NO	NO	NO	NO	NO
Italy	NO	NO	NO	NO	NO	NO	NO
Japan	NA	-42.17	-42.17	-13.93	-12.43	NE	251.25
Kazakhstan	NO	NO	NO	NO	NO	NO	NO
Latvia	NO	IE	IE, NO	-10.87	-36.80	IE	174.80
Liechtenstein	NO	NO	NO	NO	NO	NO	NO
Lithuania	NA	NA	NA	NA	NE	NE	NA, NE
Luxembourg	0.53	-2.27	-1.74	-0.03	-0.75	NO	9.27
Malta	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO
Netherlands	NE	-10.09	-10.09	-3.27	NE	NE	48.98
New Zealand	0.18	NO	0.18	NO	0.17	NO	-1.28
Norway	NO	NO	NO	IE	-7.68	NO	28.15
Poland	NA	NA	NA	NA	NA	NA	NA
Portugal	24.49	-78.99	-54.49	-5.21	-91.89	NO	555.85
Romania	NA	NA	NA	NA	NE	NE	NA, NE
Russian Federation	NO	NO	NO	NO	NO	NO	NO
Slovakia	NO	-2.18	-2.18	-0.07	-1.46	NO	13.60
Slovenia	NA	-93.01	-93.01	-8.47	-45.47	NA	538.83
Spain	NO	NO	NO	NO	NO	NO	NO
Sweden	2.13	IE	2.13	-7.33	2.09	-0.89	14.68
Switzerland	NO	-0.10	-0.10	-0.02	-0.02	-0.04	0.65
Turkey	NA	NA	NA	NA	NA	NA	NA
Ukraine	NO	-136.71	-136.71	-2.63	-0.63	NO	513.23
United Kingdom	IE, NO	-2.29	-2.29	IE	-1.40	IE	13.54
United States	NE	NE	NE	NE	IE	IE	IE, NE

^a Changes introduced by the LULUCF tables included in decision 14/CP.11 have been incorporated in this S&A report, part I. The main changes introduced include splitting of soils into mineral and organic components, and the inclusion of a 'Net CO₂' column.

^b CSC = carbon stock change.

^c DOM = dead organic matter.

Table 5.16

Net CO₂ emissions/removals from forest land converted to cropland - trend information

CO ₂ emissions/removals ^b (Gg)	Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	21,882	-216	-16.8	-25.4	13.8	-18.9	37.8	-24.5	-37.2	15.6	143.8	-70.3	-34.0	-20.9	404.0	6.7	-65.1	-105.6	-101.0
Austria	131	73	2.3	-12.0	-5.6	-5.9	-6.3	-2.7	-2.8	-2.9	-3.0	-3.1	-2.5	-2.5	-2.6	-2.7	-2.7	-1.8	-44.1
Belarus	NE,NO	NE,NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	NO	45	*	3.0	2.9	2.8	2.7	2.7	2.6	2.4	2.4	2.3	2.2	2.2	2.2	2.1	2.1	1.5	*
Bulgaria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Canada	9,054	4,035	-1.8	-7.6	-4.6	-4.0	-3.6	-3.9	-6.8	-2.9	-1.8	-5.8	-1.9	-5.1	-0.4	-0.7	-3.7	-1.7	-55.4
Croatia	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	39	17	133.5	25.7	16.0	23.1	69.1	-65.8	-12.9	-29.6	-34.5	75.6	18.3	6.9	-42.3	-48.9	222.2	-54.2	-56.2
Denmark	30	6	-55.6	-101.9	-2029.4	-105.6	0	-11905.9	-41.5	-7.7	-95.3	1274.3	-30.5	-81.8	201.1	-0.2	1.9	3.4	-79.0
Estonia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
European Union (27)	5,716	5,292	-1.6	-4.0	-1.7	-4.7	6.3	2.8	-13.1	11.2	-5.7	4.4	5.0	-0.6	5.9	6.2	1.7	-11.2	-7.4
Finland	238	636	0.2	-0.2	0.0	0.1	0.0	8.9	5.0	5.7	15.6	16.2	9.1	8.6	9.8	6.3	11.6	7.6	167.5
France	2,493	3,052	-4.6	-6.9	19.0	-6.8	14.1	7.3	-22.1	22.7	-9.7	10.6	8.2	-1.5	10.5	9.6	1.5	-14.8	22.5
Germany	95	91	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-3.6	-0.2	-0.2	-0.2	2.7	-8.6	7.1	0.7	-4.8
Greece	NO	NO	*	*	*	*	*	*	*	*	*	318.0	*	*	*	*	*	*	*
Hungary	17	10	-59.5	49.9	34.7	116.4	-48.5	-57.4	86.9	-7.8	59.1	-65.5	108.6	-3.6	-30.7	-46.7	1.3	102.9	-42.5
Iceland	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Italy	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Japan	2,402	251	-36.1	-3.7	-18.3	-15.2	1.9	-7.0	-30.7	-17.3	-9.8	0.7	-13.2	19.2	6.9	-12.4	-13.8	15.3	-89.5
Kazakhstan	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Latvia	835	175	0	0	-58.6	0	0	0	0	-12.7	0	0	0	0	0	0	0	-42.0	-79.1
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	NA	NA,NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	35	9	0	0	0	0	0	0	-71.9	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.8	-0.8	-73.7
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	35	49	2.1	2.2	2.0	2.2	1.9	2.0	-0.6	2.3	2.4	2.4	1.7	1.5	1.5	1.5	1.6	1.5	41.2
New Zealand	NO	-1	*	*	*	*	*	*	*	-4.7	-33.2	121.6	131.3	105.3	25.4	32.4	-101.8	0.0	*
Norway	54	28	2.7	2.5	2.4	2.4	2.3	166.5	-91.8	1609.9	-92.5	837.9	-89.0	638.5	-81.9	7.9	80.4	-42.5	-47.6
Poland	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Portugal	982	556	-2.9	-3.1	-2.8	-2.9	-3.0	-3.1	-2.8	-2.8	-2.9	-2.9	-2.9	-3.0	-2.9	-3.0	-3.0	-3.1	-43.4
Romania	NA,NE	NA,NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Russian Federation	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovakia	276	14	-1.7	-7.8	6.3	-23.5	-19.6	-5.9	-7.6	11.4	-37.0	-31.4	-35.7	9.7	-28.3	101.5	-59.7	-43.3	-95.1
Slovenia	421	539	0	0	0	0	0	0	0	10.5	0	0	0	0	0	0	0	0	28.1
Spain	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Sweden	7	15	79.5	24.5	0.0	-27.9	-19.2	50.5	34.2	0.0	130.6	-133.0	-146.3	-18.2	15.5	143.8	8.0	-31.4	100.6
Switzerland	3	1	-2.0	-36.1	0.2	-25.8	0.3	0.2	0.2	-0.2	-0.2	-0.1	0.2	-19.4	-22.9	-0.7	-0.7	-0.6	-79.2
Turkey	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	2	513	238.6	0.3	7.9	0.4	0	0.0	0.4	1.0	0	2.0	11.8	0.1	8.6	0	0	117.0	33568.0
United Kingdom	7	14	0.6	4.3	6.1	-10.6	1.2	40.3	29.0	22.0	-1.5	-8.7	-9.0	-17.5	10.9	5.0	19.1	5.1	98.7
United States	IE,NE	IE,NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

^b Only net CO₂ emissions from carbon stock change are included in this table.

Table 5.17

Area of forest land converted to cropland - trend information

Area (kha)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	3,139.35	4,408.35	2.8	1.7	2.0	1.8	1.7	1.7	1.6	1.6	1.5	1.5	1.9	1.9	2.0	1.6	1.4	1.2	40.4
Austria	9.65	5.16	2.8	-6.2	-6.6	-7.1	-7.6	-3.3	-3.5	-3.6	-3.7	-3.9	-3.1	-3.2	-3.3	-3.4	-3.6	-2.3	-46.5
Belarus	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	NO	2.07	*	25.0	20.0	16.7	14.3	12.5	11.1	10.0	9.1	8.3	7.7	7.1	6.7	6.3	5.9	4.7	*
Bulgaria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Canada	1,277.50	472.98	-2.5	-4.2	-4.4	-4.6	-4.9	-5.2	-5.5	-5.8	-6.3	-6.7	-6.7	-6.6	-6.4	-6.1	-5.8	-5.4	-63.0
Croatia	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	6.13	2.61	-2.4	-6.8	-9.2	-14.0	8.3	-1.4	-0.9	-11.5	-6.0	-4.5	-6.1	-4.0	-2.0	-2.4	2.5	-1.0	-57.4
Denmark	0.11	0.92	44.5	0	7.9	0	0	45.3	18.3	14.5	1.0	8.4	5.5	1.3	3.1	3.0	2.9	2.8	704.0
Estonia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
European Union (27)	382.20	367.22	0.0	-0.8	-1.2	-1.3	-0.5	0.6	-0.2	0.2	-1.0	0.0	-0.4	-0.1	-0.1	1.3	0.9	-0.7	-3.9
Finland	35.57	80.25	0.8	-0.2	-0.1	-0.1	0.5	10.3	4.7	7.2	7.9	10.5	6.9	6.6	6.9	6.7	8.7	6.9	125.7
France	153.68	123.16	0.1	-1.2	-0.4	-1.0	-0.3	0.0	-1.8	-0.6	-1.4	-1.1	-1.8	-2.2	-3.3	-1.1	-1.2	-2.5	-19.9
Germany	0.39	0.39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Greece	NO	0.01	*	0	85.4	0	28.3	0	0	0	10.1	47.5	0	0	0	0	0	0	*
Hungary	0.19	1.39	9.2	6.7	9.2	20.6	7.9	2.2	5.5	4.7	8.0	1.7	4.9	-1.5	-3.2	-5.2	0.3	-2.7	633.5
Iceland	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Italy	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Japan	279.31	27.96	-5.2	-6.7	-10.1	-12.5	-8.4	-8.3	-10.2	-10.6	-14.6	-13.1	-17.9	-16.9	-13.0	-13.3	-13.8	-21.2	-90.0
Kazakhstan	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Latvia	1.91	21.31	100.0	20.0	6.9	6.5	6.1	5.7	5.4	4.5	4.3	4.1	4.0	3.8	3.7	3.5	3.4	1.9	1017.3
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	1.49	0.93	0	0	0	0	0	0	-3.8	-3.9	-4.1	-4.3	-4.5	-4.7	-4.9	-5.1	-5.4	-5.7	-37.8
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	0.11	0.11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Zealand	NO	0.27	*	*	*	*	*	*	*	95.9	33.1	54.7	81.5	92.1	60.3	49.9	0	0	*
Norway	0.52	11.45	100.0	20.0	16.7	14.3	12.5	9.6	0	35.1	0	13.0	-9.2	29.1	9.8	8.9	4.1	0	2098.1
Poland	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Portugal	72.40	50.92	-1.0	-1.4	-1.6	-1.7	-1.8	-2.0	-2.0	-2.0	-2.1	-2.1	-2.1	-2.2	-2.2	-2.3	-2.3	-2.4	-29.7
Romania	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Russian Federation	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovakia	25.95	0.51	-6.7	-5.9	-13.5	-12.5	-14.4	-7.7	-6.5	-3.0	-28.8	-34.7	-34.5	-7.5	-9.0	-15.7	-25.6	-71.0	-98.0
Slovenia	0.84	0.84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spain	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Sweden	1.59	4.89	0	0	0	0	41.3	0	40.4	0	-22.5	2.6	-0.2	0	21.0	66.5	-1.9	-33.6	206.7
Switzerland	0.11	0.03	-0.1	-3.2	-3.3	-21.3	-3.9	-4.0	-4.2	-4.4	-4.6	-4.8	-5.1	-18.9	-8.8	-7.0	-7.6	-8.2	-71.5
Turkey	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	0.04	13.05	240.1	0.3	7.5	0.3	0	0.0	0.3	1.0	0	1.9	11.2	0.1	0	0	0	119.2	32300.7
United Kingdom	71.72	71.74	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United States	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.18a**Grassland remaining grassland - AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)^a**

	Activity data		IEF (Mg C/ha)					
	Total area (kha)	Area of organic soil (kha)	CSC ^b in living biomass/area			Net CSC ^b in DOM ^c /area	Net CSC ^b in soils/area	
			Increase	Decrease	Net Change		Mineral soils	Organic soils
Australia	435394.21	NO	0.00	IE	0.00	0.01	-0.07	NO
Austria	1719.13	IE	NO	NO	NO	NO	0.01	IE
Belarus	3263.10	NE	NE	NE	NE	NE	NE	NE
Belgium	608.88	NO	NO	NO	NO	NO	-0.18	NO
Bulgaria	1584.60	NO	NO	NO	NO	NO	NO	NO
Canada	NE	NE	NE	NE	NE	NE	NE	NE
Croatia	NE	NE	NE	NE	NE	NE	NE	NE
Czech Republic	865.97	NO	NO	NO	NO	NO	0.00	NO
Denmark	348.65	34.63	0.00	-0.01	-0.01	NA	NA	-0.98
Estonia	319.94	37.87	0.59	IE	0.59	-0.01	NE	-0.25
European Union (27)	67606.32	1560.59	0.08	-0.07	0.01	0.00	0.02	-3.29
Finland	163.68	54.37	NE	NE	NE	NA	0.32	-3
France	10967.79	0	0.14	-0.14	0	NO	0	0
Germany	6788.67	717.09	0.07	-0.03	0.03	IE	NO	-5.00
Greece	4791.62	NO	NO	NO	NO	NO	NO	NO
Hungary	1091.37	NO	NO	NO	NO	NO	-0.11	NO
Iceland	4739.64	IE, NA	0.00	0.00	0.00	NO	NE, NO	IE, NA
Ireland	3769.22	284.31	NO	NO	NO	NO	NO	-0.25
Italy	9527.08	NO	0.330911173	-0.281465157	0.049446016	0.010499681	0.132707599	NO
Japan	861.02	40.58	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NE
Kazakhstan	193600.80	NO	NO	NO	NO	NO	0.00	NO
Latvia	597.19	65.32	NE	NE	NE	NO	NO	-0.25
Liechtenstein	4.91	IE	0.05	-0.04	0.01	NO	-0.10	IE
Lithuania	475.90	NE	NE	NE	NE	NE	NE	NE
Luxembourg	72.52	NO	NO	NO	NO	NO	NO	NO
Malta	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	1349.85	199.88	NE	NE	NE	NE	NE	-5.79
New Zealand	14432.50	176.53	0.00	0.00	0.00	0.00	0.00	-2.16
Norway	112.45	75.60	NA, NO	NA, NO	NA, NO	NA	NA, NE	-6.75
Poland	3180.00	148.41	NO	NO	NO	0	NO	-0.25
Portugal	1265.44	NO	NO	NO	NO	0.00	0.18	NO
Romania	4835.02	NE	NE	NE	NE	NE	NE	NE
Russian Federation	86335.03	2100.63	NA, NE	NA, NE	NA, NE	NA, NE	0.01	-0.25
Slovakia	761.04	NO	NO	NO	NO	NO	NO	NO
Slovenia	393.72	IE	NA	NA	NA	NA	NA	NA
Spain	4426.68	NO	NE	NE	NE	NE	NE	NO
Sweden	269.43	26.22	0.22	IE	0.22	0.26	0.17	-1.60
Switzerland	1301.06	6.87	0.01	-0.01	0.00	NO	0.00	-8.41
Turkey	NA	0	NA	NA	NA	NA	NA	0
Ukraine	6941.98	388.90	NO	NO	NO	NE, NO	0.04	-2.79
United Kingdom	7674.95	IE, NO	NO	NO	NO	NO	NO	NO
United States	169203.58	477.70	NE	NE	NE	NE	0.02	-2.11

^a Changes introduced by the LULUCF tables included in decision 14/CP.11 have been incorporated in this S&A report, part I. The main changes introduced include splitting of soils into mineral and organic components, and the inclusion of a 'Net CO₂' column.

^b CSC = carbon stock change.

^c DOM = dead organic matter.

Table 5.18b**Grassland remaining grassland - AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)^a**

	Emissions/Removals (Gg C)						Net CO ₂ (Gg)
	CSC ^b in living biomass			Net CSC ^b in DOM ^c	Net CSC ^b in soils		
	Gains	Losses	Net Change		Mineral soils	Organic soils	
Australia	1,243.73	IE	1,243.73	3,550.23	-30,044.64	NO	92,585.81
Austria	NO	NO	NO	NO	23.63	IE	-86.66
Belarus	NE	NE	NE	NE	NE	NE	NE
Belgium	NO	NO	NO	NO	-109.04	NO	399.82
Bulgaria	NO	NO	NO	NO	NO	NO	NO
Canada	NE	NE	NE	NE	NE	NE	NE
Croatia	NE	NE	NE	NE	NE	NE	NE
Czech Republic	NO	NO	NO	NO	0.07	NO	-0.26
Denmark	0.47	-2.33	-1.86	NA	NA	-33.98	131.41
Estonia	188.23	IE	188.23	-4.11	NE	-9.47	-640.38
European Union (27)	5,369.86	-4,438.29	931.57	161.44	1,367.20	-5,127.35	9,779.50
Finland	NE	NE	NE	NA	35.24	-173.99	508.77
France	1,522.38	-1,522.38	0	NO	0	0	NO
Germany	447.72	-232.21	215.52	IE	NO	-3,585.47	12,356.47
Greece	NO	NO	NO	NO	NO	NO	NO
Hungary	NO	NO	NO	NO	-118.91	NO	435.99
Iceland	6.27	-1.34	4.93	NO	NE, NO	IE, NA	-18.07
Ireland	NO	NO	NO	NO	NO	-71.08	260.61
Italy	3,152.62	-2,681.54	471.08	100.03	1,264.32	NO	-6,729.89
Japan	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NE	NA, NE
Kazakhstan	NO	NO	NO	NO	-237.77	NO	871.83
Latvia	NE	NE	NE	NO	NO	-16.33	59.88
Liechtenstein	0.26	-0.21	0.05	NO	-0.50	IE	1.67
Lithuania	NE	NE	NE	NE	NE	NE	NE
Luxembourg	NO	NO	NO	NO	NO	NO	NO
Malta	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO
Netherlands	NE	NE	NE	NE	NE	-1,158.00	4,246.00
New Zealand	39.28	-55.47	-16.19	-8.79	3.89	-382.09	1,478.30
Norway	NA, NO	NA, NO	NA, NO	NA	NA, NE	-510.00	1,870.00
Poland	NO	NO	NO	0	NO	-37.10	136.04
Portugal	NO	NO	NO	-3.39	232.39	NO	-839.67
Romania	NE	NE	NE	NE	NE	NE	NE
Russian Federation	NA, NE	NA, NE	NA, NE	NA, NE	941.18	-525.20	-1,525.26
Slovakia	NO	NO	NO	NO	NO	NO	NO
Slovenia	NA	NA	NA	NA	NA	NA	NA
Spain	NE	NE	NE	NE	NE	NO	NE, NO
Sweden	58.92	IE	58.92	68.91	41.59	-42.01	-467.14
Switzerland	10.24	-6.84	3.40	NO	6.45	-57.82	175.92
Turkey	64.14	NA	64.14	NA	1,566.01	0	-5,977.23
Ukraine	NO	NO	NO	NE, NO	293.08	-1,085.88	2,906.92
United Kingdom	NO	NO	NO	NO	NO	NO	NO
United States	NE	NE	NE	NE	3,277.72	-1,006.68	-8,327.14

^a Changes introduced by the LULUCF tables included in decision 14/CP.11 have been incorporated in this S&A report, part I. The main changes introduced include splitting of soils into mineral and organic components, and the inclusion of a 'Net CO₂' column.

^b CSC = carbon stock change.

^c DOM = dead organic matter.

Table 5.19

Net CO₂ emissions/removals from grassland remaining grassland - trend information

CO ₂ emissions/removals ^b (Gg)			Relative change (%)																	
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	-19,066	92,586	-371.5	-9461.7	-107.6	-28.2	-1542.7	-84.2	-199.7	42.0	-1117.7	-106.6	602.6	-203.8	-49.1	389.5	-46.5	-31.5	-585.6	
Austria	-96	-87	-0.4	0.2	0.5	0.5	-0.1	-0.3	-0.3	-1.5	-1.5	-1.5	-1.6	-0.2	-0.2	-1.3	-1.6	0.0	-9.4	
Belarus	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Belgium	658	400	-2.2	-2.4	-2.4	-2.5	-2.6	-2.6	-2.7	-2.8	-2.9	-2.9	-3.0	-3.1	-3.2	-3.3	-3.5	0	-39.2	
Bulgaria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Canada	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Croatia	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Czech Republic	7	0	-8.9	-3.1	-16.8	-9.5	-5.1	-4.0	-40.3	9.8	-57.8	78.8	-21.7	-51.9	-68.0	-108.7	-971.1	-249.5	-103.9	
Denmark	296	131	-52.0	-4.7	-0.5	-0.2	0.0	1.1	-1.2	-0.6	-1.6	0.3	-0.5	-0.1	-1.1	-0.2	-0.5	-1.2	-55.6	
Estonia	-236	-640	-4.3	7.4	-11.5	21.3	4.4	-45.2	77.7	27.6	234.8	62.1	59.6	-51.4	-21.4	80.2	-72.7	-13.8	170.8	
European Union (27)	10,767	9,780	-13.7	-13.0	0.6	6.3	6.5	-11.7	6.3	-11.9	-17.8	-4.8	-27.0	30.5	11.3	27.5	-3.4	27.0	-9.2	
Finland	319	509	-2.4	-2.8	-6.2	-8.9	-1.2	6.7	-5.5	9.0	14.0	9.6	11.8	3.9	13.0	9.6	8.5	-3.0	59.7	
France	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Germany	10,133	12,356	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	4.5	2.9	-1.5	19.3	21.9	
Greece	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Hungary	9	436	28.6	17.0	9.7	10.4	5.0	2.5	0.8	4.4	1.8	1.7	0.0	-1.7	0.0	-1.3	-0.3	-1.7	4549.5	
Iceland	E, NA, NE, NO	-18	*	*	*	*	*	*	*	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	35.7	*	
Ireland	304	261	-1.0	-2.5	-0.1	-1.7	0.0	0.0	0.0	0.0	-0.2	-0.2	-0.8	0.0	-0.4	0.0	-1.6	0.0	-14.2	
Italy	-3,954	-6,730	32.5	22.3	-0.1	-11.4	-11.4	25.5	-10.1	12.6	5.5	-4.8	6.0	2.0	2.1	-35.3	53.7	-2.6	70.2	
Japan	NA, NE	NA, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Kazakhstan	-54	872	104.1	20.2	-90.2	-915.7	112.3	52.9	34.6	-3.0	-3.1	-3.2	-6.8	8.2	-6.5	4.5	-16.5	0	-1728.9	
Latvia	40	60	3.0	2.5	2.2	2.2	2.4	2.0	2.1	1.8	2.1	2.0	1.8	1.7	1.6	1.6	1.5	1.5	49.1	
Liechtenstein	2	2	-0.5	-0.6	-0.6	-1.2	-1.4	-1.4	-1.5	-1.5	-1.5	-6.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-21.8	
Lithuania	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Luxembourg	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Netherlands	4,246	4,246	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
New Zealand	451	1,478	1.2	16.7	13.8	11.6	10.2	9.3	7.6	6.7	6.2	2.7	2.7	2.4	1.8	1.3	1.0	1.2	227.8	
Norway	1,996	1,870	0	0	0	0	0	-1.3	-1.3	-1.3	-1.3	1.2	-2.5	0	0	0	0	0	-6.3	
Poland	156	136	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-12.6	
Portugal	-198	-840	20.9	14.9	13.9	13.1	12.3	11.7	2.1	1.9	1.8	1.7	1.5	1.4	1.3	1.2	1.4	1.3	324.2	
Romania	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Russian Federation	-11,440	-1,525	5.5	110.6	18.6	-3.9	12.8	3.0	-29.8	-9.9	7.6	6.7	11.5	-77.7	86.0	-71.3	-31.1	-9.2	-86.7	
Slovakia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Slovenia	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Spain	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Sweden	-922	-467	-1.0	-1.0	-9.4	5.7	-0.9	-12.4	-13.2	29.7	-9.4	-46.5	-68.3	439.6	14.1	-20.5	-52.2	58.6	-49.3	
Switzerland	158	176	-0.5	0.5	-0.4	-1.0	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-2.3	2.7	-2.6	-1.2	-2.3	11.1	
Turkey	NA	-5,977	*	*	*	*	*	*	*	-58.0	262.0	43.4	766.3	-86.7	685.6	0.3	0.0	22.2	*	
Ukraine	-104	2,907	-448.9	-16.6	-29.7	68.8	11.5	-4.8	30.2	24.8	-12.7	42.7	43.1	2.6	14.8	2.5	18.4	24.5	-2902.7	
United Kingdom	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
United States	-52,164	-8,327	-51.8	-58.2	-126.1	-354.9	-123.1	-497.3	222.4	-52.8	78.7	-79.3	-1.4	-1.4	-1.6	-1.6	-1.6	-1.7	-84.0	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

^b Only net CO₂ emissions from carbon stock change are included in this table.

Table 5.20

Area of grassland remaining grassland - trend information

Area (kha)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	436,496.36	435,394.21	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0	-0.1	-0.3
Austria	1,875.56	1,719.13	-0.3	0.2	0.5	0.5	-0.1	-0.3	-0.3	-1.3	-1.3	-1.3	-1.4	-0.2	-0.2	-1.2	-1.4	0.0	-8.3
Belarus	3,156.80	3,263.10	-0.3	-0.5	-0.1	1.0	0.3	-0.7	0.7	8.3	1.3	0.3	-0.2	0.3	-0.1	-3.1	2.7	-0.5	3.4
Belgium	754.44	608.88	-1.1	-1.1	-1.1	-1.1	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.3	-1.3	-1.3	-1.3	0	-19.3
Bulgaria	1,759.05	1,584.60	0.0	-1.9	0.2	-4.1	0.2	-0.5	0	-1.1	-1.5	2.1	1.0	5.8	-1.6	-1.9	-0.6	-6.6	-9.9
Canada	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Croatia	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	840.84	865.97	0.0	0.4	-0.2	-0.1	-0.8	0.5	0.2	-0.1	0.0	-0.1	0.2	0.4	0.6	0.5	0.6	0.4	3.0
Denmark	358.67	348.65	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-2.8
Estonia	357.85	319.94	-0.7	-1.0	-0.2	0	-0.1	-0.4	-0.4	-0.7	0	-0.1	-0.2	-0.9	-1.6	-1.9	-1.4	-0.1	-10.6
European Union (27)	71,461.02	67,606.32	-1.3	-0.4	-0.2	-0.4	-0.3	-0.3	-1.3	-0.3	0.4	-0.5	-0.4	0.0	0.3	0.2	-0.5	-0.2	-5.4
Finland	132.63	163.68	-1.8	0.0	-1.1	-0.8	-0.9	3.0	4.5	2.1	6.8	5.6	5.5	6.4	4.4	-1.3	-2.8	0.2	23.4
France	11,916.95	10,967.79	-1.0	-0.4	-0.6	-0.4	-0.4	0.0	0.2	0.2	0.1	0.1	0.4	-0.4	-0.8	-1.1	-0.9	-0.2	-8.0
Germany	5,928.80	6,788.67	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.2	0.5	1.3	14.5
Greece	4,796.73	4,791.62	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	-0.1
Hungary	1,272.03	1,091.37	-0.3	-0.9	-0.9	-0.9	-0.9	-1.0	-1.0	-0.6	-0.6	-0.5	-0.6	0.1	-0.1	-0.6	-0.5	-0.5	-14.2
Iceland	4,772.00	4,739.64	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.7
Ireland	4,122.87	3,769.22	-0.4	-1.0	0.0	-0.7	0	0	0	0	-0.3	-0.3	-1.0	0	-0.5	0	-1.9	0	-8.6
Italy	9,220.28	9,527.08	-0.9	-1.0	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	1.2	1.2	1.2	1.2	3.3
Japan	777.93	861.02	1.1	0.6	0.6	0.2	0.4	0.6	1.7	0.2	-0.6	0.3	1.4	1.1	0.0	0.2	0.2	0.1	10.7
Kazakhstan	187,212.13	193,600.80	-0.1	0.1	0.1	0.5	0.5	0.5	0.5	0.5	0.3	0.3	0.3	-0.1	0.0	-0.1	0.0	0	3.4
Latvia	810.77	597.19	-1.1	-1.3	-1.5	-1.5	-1.2	-1.6	-1.4	-1.9	-1.4	-1.6	-1.9	-1.9	-2.0	-2.1	-2.2	-2.4	-26.3
Liechtenstein	5.31	4.91	-0.5	-0.5	-0.5	-0.3	-0.3	-0.3	-0.3	-0.3	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-7.6
Lithuania	1,111.00	475.90	-63.9	21.3	1.3	-1.4	1.1	1.4	0.8	10.8	0.0	0.1	-0.3	-1.8	-1.5	-0.9	-0.2	0.1	-57.2
Luxembourg	79.10	72.52	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.7	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-8.3
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	1,485.04	1,349.85	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-9.1
New Zealand	14,618.90	14,432.50	0.0	-0.2	-0.3	-0.2	-0.1	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	-1.3
Norway	153.10	112.45	0	0	0.0	0	0	-1.2	0	-0.2	-1.8	-1.6	-0.3	-3.1	-1.9	-3.6	-7.5	-8.8	-26.5
Poland	3,910.66	3,180.00	-0.3	0.0	0	1.4	-2.6	-1.6	0	-0.6	-5.9	-8.2	0	2.9	-4.4	0	-1.0	-0.1	-18.7
Portugal	286.34	1,265.44	7.9	8.0	7.9	7.8	7.7	7.6	12.4	11.0	9.9	9.0	8.3	7.6	7.1	6.6	6.2	5.8	341.9
Romania	4,401.10	4,835.02	0.5	0.4	0.4	0.0	0.1	-1.2	-0.1	2.0	0.1	-1.8	-0.2	0.2	0.2	0.0	0.1	-0.5	9.9
Russian Federation	87,899.50	86,335.03	-1.5	-0.1	0.3	0.2	0.5	0.4	0.0	-0.1	-0.1	0.3	-0.2	-0.3	-0.3	-0.4	-0.7	0.0	-1.8
Slovakia	680.17	761.04	0.5	0.7	3.1	0.7	0.5	0.5	-0.7	1.7	0.4	-0.2	-0.3	-0.3	0.3	0.5	0.1	-0.3	11.9
Slovenia	295.39	393.72	1.4	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1	33.3
Spain	4,719.75	4,426.68	-0.5	-0.3	-0.4	-0.4	-0.4	-0.4	-0.4	-0.2	-0.4	-0.3	-0.2	-0.3	-0.3	-0.2	-0.2	-0.2	-6.2
Sweden	478.02	269.43	-1.2	-1.3	-1.4	-1.2	-0.5	-1.6	-0.9	-1.7	-2.2	-2.2	-2.4	-1.8	-0.8	-4.1	-6.9	-20.4	-43.6
Switzerland	1,343.99	1,301.06	-0.3	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-3.2
Turkey	0	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	7,037.86	6,941.98	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	-0.3	-0.2	-0.1	-0.2	-0.3	-1.4
United Kingdom	9,813.85	7,674.95	-0.2	-2.0	-1.6	-2.8	-1.6	-1.5	-3.8	1.1	-2.3	-0.3	-1.6	-0.5	3.0	-3.1	-0.3	-1.4	-21.8
United States	176,522.91	169,203.58	-0.2	-0.1	-0.1	-0.1	-0.8	-0.1	0.0	-0.1	0.3	0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-4.1

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.21a

Land converted to grassland - AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)^a

	Activity data		IEF (Mg C/ha)					
	Total area (kha)	Area of organic soil (kha)	CSC ^b in living biomass/area			Net CSC ^b in DOM ^c /area	Net CSC ^b in soils/area	
			Increase	Decrease	Net Change		Mineral soils	Organic soils
Australia	12,949.72	NO	0.04	-0.40	-0.36	-0.24	-0.31	IE, NO
Austria	77.04	NO	0.16	-0.86	-0.70	-0.53	0.22	NO
Belarus	IE, NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
Belgium	65.14300967	NO	NO	-0.205082424	-0.205082424	NO	1.44	NO
Bulgaria	249.43	NO	0.32	-0.39	-0.07	NO	0.93	NO
Canada	NO	NO	NE, NO	NE, NO	NE, NO	NE, NO	NO	NO
Croatia	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
Czech Republic	215.59	NO	0.04	-0.05	-0.01	-0.001049266	0.48	NA, NO
Denmark	56.33	2.82	0.20	-0.33	-0.13	-0.01	-0.12	-1.25
Estonia	45.18	6.08	2.01	IE, NO	2.01	IE	NE, NO	-0.25
European Union (27)	11,590.55	43.12	0.10	-0.22	-0.12	-0.02	0.90	-1.88
Finland	61.80	14.495	0.00	IE, NE	0.00	IE, NE	1.04	-3
France	3,378.15	0	NO	-0.11	-0.11	-0.02	0.63	0
Germany	64.54	3.17	12.53	-12.15	0.38	IE	7.13	-5.00
Greece	178.74	NO	NO	NO	NO	NO	NO	NO
Hungary	106.32	NO	0.05	-0.10	-0.05	-0.01	0.54	NO
Iceland	519.36	335.35	0.02	IE, NE, NO	0.02	IE, NE, NO	0.59	-0.25
Ireland	124.62	7.73	0.14	0.00	0.14	IE, NO	0.58	-0.11
Italy	189.10	NO	NO	-2.95	-2.95	NO	21.39	NO
Japan	40.06	IE	0.29	-0.14	0.15	-0.05	1.78	IE, NE
Kazakhstan	7,592.20	NO	NO	NO	NO	NE, NO	0.23	NO
Latvia	662.55	IE, NO	NO	NO	NO	NO	NE, NO	IE, NO
Liechtenstein	0.03	IE, NE	6.58	-24.62	-18.05	-0.59	2.21	IE
Lithuania	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE
Luxembourg	13.99	NO	0.29	-2.05	-1.76	-0.03	1.26	NO
Malta	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	15.52	0.76	NE	-7.25	-7.25	-2.52	NE	NE
New Zealand	169.85	0.65	0.06	-0.82	-0.76	-0.19	0.42	-1.53
Norway	89.76	NO	NA, NO	NA, NO	NA, NO	NA, NE	NA, NO	NA
Poland	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
Portugal	651.68	NO	NO	-0.14	-0.14	-0.01	0.04	NO
Romania	6.79	NE	NA, NE	NA, NE	NA, NE	NA, NE	NE	NE
Russian Federation	34,024.10	NE, NO	NE, NO	NE, NO	NE, NO	NA, NO	0.60	NE, NO
Slovakia	117.43	NO	0.12	-0.07	0.06	0.00	0.93	NO
Slovenia	10.70	NA	IE, NA	-29.96	-29.96	-1.87	23.08	NA
Spain	122.175294	NO	NE, NO	NE, NO	NE, NO	NO	2.085448053	NO
Sweden	82.86	8.06	0.40	IE, NO	0.40	-0.25	0.40	-1.60
Switzerland	57.05	0.40	0.13	-1.07	-0.93	-0.41	0.63	-8.32
Turkey	NA	NA	NA	NA	NA	NA	NA	NA
Ukraine	957.52	NO	NO	-0.10	-0.10	0.00	0.00	NO
United Kingdom	5,103.52	IE, NO	0.01	-0.01	0.00	IE, NO	0.49	IE, NO
United States	13,557.40	60.58	NE	NE	NE	NE	0.49	-3.98

^a Changes introduced by the LULUCF tables included in decision 14/CP.11 have been incorporated in this S&A report, part I. The main changes introduced include splitting of soils into mineral and organic components, and the inclusion of a 'Net CO₂' column.

^b CSC = carbon stock change.

^c DOM = dead organic matter.

Table 5.21b**Land converted to grassland - AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)^a**

	Emissions/Removals (Gg C)						Net CO ₂ (Gg)
	CSC ^b in living biomass			Net CSC ^b in DOM ^c	Net CSC ^b in soils		
	Gains	Losses	Net Change		Mineral soils	Organic soils	
Australia	522.79	-5,240.07	-4,717.28	-3,138.99	-3,982.09	IE, NO	43,407.35
Austria	12.19	-66.33	-54.14	-41.03	16.63	NO	287.95
Belarus	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
Belgium	NO	-13.36	-13.36	NO	93.97	NO	-295.56
Bulgaria	79.82	-97.11	-17.30	NO	231.83	NO	-786.64
Canada	NE, NO	NE, NO	NE, NO	NE, NO	NO	NO	NE, NO
Croatia	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
Czech Republic	8.64	-10.28	-1.64	-0.23	103.85	NA, NO	-373.94
Denmark	11.04	-18.39	-7.35	-0.71	-6.65	-3.52	66.87
Estonia	91.03	IE, NO	91.03	IE	NE, NO	-1.52	-328.22
European Union (27)	1,155.03	-2,565.46	-1,410.43	-182.77	10,428.86	-81.06	-32,100.22
Finland	0.10	IE, NE	0.10	IE, NE	49.21	-46.38	-10.70
France	NO	-378.91	-378.91	-57.13	2,140.26	0	-6,248.79
Germany	808.78	-784.13	24.65	IE	437.30	-15.87	-1,635.63
Greece	NO	NO	NO	NO	NO	NO	NO
Hungary	5.19	-10.49	-5.30	-0.65	57.75	NO	-189.94
Iceland	11.98	IE, NE, NO	11.98	IE, NE, NO	107.85	-83.84	-131.98
Ireland	17.55	-0.16	17.39	IE, NO	67.70	-0.86	-308.86
Italy	NO	-557.84	-557.84	NO	4,045.52	NO	-12,788.14
Japan	11.48	-5.64	5.83	-1.86	71.37	IE, NE	-276.24
Kazakhstan	NO	NO	NO	NE, NO	1,777.88	NO	-6,518.88
Latvia	NO	NO	NO	NO	NE, NO	IE, NO	IE, NE, NO
Liechtenstein	0.18	-0.68	-0.50	-0.02	0.06	IE	1.67
Lithuania	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE
Luxembourg	4.12	-28.69	-24.58	-0.36	17.59	NO	26.92
Malta	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO
Netherlands	NE	-112.60	-112.60	-39.10	NE	NE	556.21
New Zealand	9.74	-139.53	-129.79	-31.88	71.40	-0.99	334.66
Norway	NA, NO	NA, NO	NA, NO	NA, NE	NA, NO	NA	NA, NE, NO
Poland	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO
Portugal	NO	-90.07	-90.07	-3.39	25.96	NO	247.47
Romania	NA, NE	NA, NE	NA, NE	NA, NE	NE	NE	NA, NE
Russian Federation	NE, NO	NE, NO	NE, NO	NA, NO	20,452.03	NE, NO	-74,990.78
Slovakia	14.54	-7.77	6.76	-0.24	109.53	NO	-425.52
Slovenia	IE, NA	-320.46	-320.46	-19.99	246.89	NA	343.04
Spain	NE, NO	NE, NO	NE, NO	NO	254.79	NO	-934.23
Sweden	32.89	IE, NO	32.89	-20.61	29.81	-12.90	-107.07
Switzerland	7.60	-60.92	-53.32	-23.67	35.90	-3.33	162.88
Turkey	179.23	NA	179.23	0	0	0	-657.16
Ukraine	NO	-97.23	-97.23	-3.29	-2.51	NO	377.78
United Kingdom	75.82	-74.78	1.04	IE, NO	2,507.52	IE, NO	-9,198.06
United States	NE	NE	NE	NE	6,674.00	-241.30	-23,586.57

^a Changes introduced by the LULUCF tables included in decision 14/CP.11 have been incorporated in this S&A report, part I. The main changes introduced include splitting of soils into mineral and organic components, and the inclusion of a 'Net CO₂' column.

^b CSC = carbon stock change.

^c DOM = dead organic matter.

Table 5.22

Net CO₂ emissions/removals from land converted to grassland - trend information

	CO ₂ emissions/removals ^b (Gg)		Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	105,304	43,407	-14.1	-19.4	1.5	-1.9	7.2	-4.5	6.5	5.1	-5.1	-14.2	12.2	30.6	-9.9	-7.8	-16.9	-19.2	-58.8
Austria	557	288	1.7	-21.3	-4.5	-4.7	-5.0	-2.1	-2.1	-2.2	-2.2	-2.4	-1.7	-1.5	-2.3	-1.5	-2.5	-8.5	-48.3
Belarus	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	NO	-295,55506	*	61.7	38.2	27.6	21.6	17.8	15.1	13.2	11.6	10.4	9.4	8.6	7.9	7.4	6.9	3.3	*
Bulgaria	-787	-787	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canada	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Croatia	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	-187	-374	67.4	8.3	61.7	-29.7	-25.3	27.1	15.2	-4.4	-1.4	-3.9	3.3	-1.4	1.4	-2.5	0.6	-3.9	100.5
Denmark	178	67	-49.0	-79.6	155.8	-55.1	6.5	773.6	-35.3	-4.7	-71.2	163.7	-18.2	-43.4	1.0	3.2	3.5	3.7	-62.5
Estonia	-12	-328	4.2	45.1	0	132.7	34.5	14.5	0	0	0	0	204.7	10.1	0	34.1	0	2594.4	
European Union (27)	-23,044	-32,100	0.0	3.8	30.3	-2.0	1.0	-1.1	2.6	-1.3	-1.2	1.3	0.8	-1.9	12.9	-0.3	-3.1	-7.6	39.3
Finland	250	-11	-4.9	-5.9	-3.3	-2.6	-4.6	-6.9	-7.2	-2.2	-25.4	-32.5	-39.1	-75.3	-322.8	-25.2	-1.6	-43.1	-104.3
France	-10,230	-6,249	1.2	4.2	-3.1	-2.1	-0.2	-6.7	4.5	-8.4	-3.7	5.9	-9.1	-9.0	-10.0	-10.7	-4.8	9.5	-38.9
Germany	-5,433	-1,636	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	-14.3	7.6	-12.9	-62.7	-69.9
Greece	0	NO	1397.0	511.9	*	*	*	*	*	*	*	10332.0	-82.0	*	*	28.1	-6.3	*	*
Hungary	5	-190	-310.1	9.2	11.3	10.3	18.2	4.6	13.8	16.9	2.5	5.1	-3.9	3.6	-3.4	0.8	3.2	-1.9	-4297.1
Iceland	59	-132	-9.9	-29.1	-34.8	-62.5	-217.8	193.0	55.9	22.6	21.2	26.8	29.4	18.3	14.4	9.9	8.8	7.2	-322.7
Ireland	-128	-309	-80.0	-10.3	-14.7	-52.9	65.7	-8.3	-51.5	35.2	-84.6	22.7	340.8	157.1	-27.9	44.6	-26.8	51.4	142.2
Italy	NO	-12,788	*	*	*	0	0	0	0.0	7.1	0	0	0.0	0.0	70.8	0	0	-5.1	*
Japan	-441	-276	18.3	-5.3	-3.4	-3.8	-5.7	-3.1	-0.6	-2.9	-5.2	-3.9	-3.1	-3.5	0.9	-7.0	-3.9	-8.7	-37.4
Kazakhstan	281	-6,519	795.0	-7.1	-129.3	153.6	60.6	37.7	27.4	36.0	7.2	6.7	-16.6	19.9	0.0	0.2	-46.6	94.4	-2421.8
Latvia	IE, NE, NO	IE, NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Liechtenstein	0	2	0	0	0	34293.6	0	0	0	0	0	-49.5	0	0	0	0	0	0	17275.9
Lithuania	NA, NE	NA, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	31.63760883	26.9162717	0	0	0	0	0	0	-75.7	27.9	21.8	17.9	15.2	13.2	11.6	10.4	9.4	8.6	-14.9
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	394	556	2.1	2.2	2.0	2.1	1.9	1.9	-0.6	2.3	2.4	2.4	1.7	1.7	1.5	1.5	1.6	1.4	41.0
New Zealand	465	335	14.3	3.3	3.2	3.1	3.0	2.9	134.7	-1.6	-5.1	74.4	62.5	75.1	19.7	36.2	-97.4	-12.7	-28.0
Norway	NA, NE, NO	NA, NE, NO	*	0	0	0	*	*	22.7	46.8	-83.2	1053.9	-87.0	100.7	43.4	*	*	*	*
Poland	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	-76.6	*	*	*	*	*
Portugal	-288	247	1.7	-4.6	-6.9	-9.0	-11.6	-15.0	-26.1	-34.8	-52.5	-109.0	1198.0	90.9	47.2	31.5	24.1	19.1	-186.0
Romania	NA, NE	NA, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Russian Federation	-412	-74,991	1098.2	36.2	27.0	1.4	27.2	-3.6	-23.3	49.4	20.6	-10.8	-17.2	9.8	-18.3	16.9	-8.9	-5.9	18084.9
Slovakia	-347	-426	-21.9	64.2	-36.5	11.3	-8.5	83.7	28.8	-9.5	-12.0	-32.2	-1.9	-29.7	14.2	-9.2	2.8	13.2	22.7
Slovenia	64	343	0	0	0	0	0	0	0	54.4	0	0	0	0	0	0	0	0	433.1
Spain	-46,76466703	-934,23084	100.0	20.1	16.8	13.9	13.2	11.0	10.2	9.0	8.2	7.7	7.2	6.5	6.2	5.7	5.5	5.3	1897.7
Sweden	-188	-107	-95.3	-71.2	-102.1	-5054.3	514.2	36.8	-16.9	-22.0	-91.8	68.3	587.2	51.2	12.1	-69.4	30.6	-21.9	-43.1
Switzerland	52	163	2.1	12.9	1.9	4.3	1.4	1.0	1.3	0.7	0.7	0.7	0.7	90.5	-6.6	-16.5	-24.4	-0.4	210.8
Turkey	0	-657,1631	*	*	*	*	*	*	*	0	0	0	0	98.1	*	*	*	*	*
Ukraine	0	378	238.6	1.9	692.0	0.4	25.5	0.3	1.6	0.9	2.3	0	0	0.3	9.4	4.1	0	0	145371.5
United Kingdom	-6,946	-9,198	1.8	1.5	1.5	1.8	1.1	0.0	1.3	1.1	2.2	1.8	2.0	2.3	1.4	1.3	0.7	1.2	32.4
United States	-19,815	-23,587	-3.5	1.5	-13.5	24.4	-10.7	30.9	-3.0	3.4	-4.7	-7.5	-0.8	-0.8	-0.8	-0.8	-0.9	-0.9	19.0

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

^b Only net CO₂ emissions from carbon stock change are included in this table.

Table 5.23

Area of land converted to grassland - trend information

Area (kha)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	7,675.11	12,949.72	4.5	2.8	2.9	2.6	2.8	2.8	2.9	3.0	2.3	2.2	3.0	2.8	2.7	1.9	1.4	1.0	68.7
Austria	117.20	77.04	2.4	-5.5	-5.8	-6.1	-6.5	-2.9	-3.0	-3.1	-3.2	-3.5	-2.8	-2.3	-2.3	-0.4	3.6	0.2	-34.3
Belarus	IE, NE, NO	IE, NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	NO	65.14	*	25.0	20.0	16.7	14.3	12.5	11.1	10.0	9.1	8.3	7.7	7.1	6.7	6.2	5.9	2.7	*
Bulgaria	249.43	249.43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canada	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Croatia	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	89.92	215.59	35.5	7.7	30.2	4.4	0.5	-0.7	4.6	2.5	1.2	1.3	-0.1	-0.6	-1.3	-1.1	-1.5	-0.2	139.8
Denmark	3.19	56.33	89.5	17.6	15.8	12.9	11.5	13.7	10.8	9.6	7.6	7.8	7.0	6.1	5.8	5.5	5.2	4.9	1664.4
Estonia	1.84	45.18	50.0	60.9	10.8	20.6	20.2	6.7	0	0	3.2	0	0	34.2	4.6	0	6.8	0	2351.7
European Union (27)	9,428.16	11,590.55	3.3	1.6	2.8	0.6	1.1	0.9	2.0	-1.0	0.2	0.5	0.7	0.5	1.0	1.8	-1.1	-0.9	22.9
Finland	115.28	61.80	-1.7	-0.3	-0.4	0.3	-0.3	-4.3	-2.4	-5.0	-8.2	-10.1	-9.9	-7.7	-8.3	-0.4	5.4	-0.2	-46.4
France	4,589.68	3,378.15	0.6	-0.6	-0.7	-1.0	-1.3	-1.8	-2.4	-1.9	-2.1	-2.1	-3.4	-2.3	-2.0	-1.5	-3.8	-4.3	-26.4
Germany	157.24	64.54	0	0	0	0	0	0	0	0	0	0	0	0	-0.1	0.3	-8.2	-55.4	-59.0
Greece	0.00	178.74	904.7	11.8	13.5	24.8	33.5	12.2	6.0	10.9	4.9	23.6	0.7	4.2	36.4	26.1	6.1	-11.5	34405407.8
Hungary	9.17	106.32	140.1	12.0	10.8	9.7	8.8	8.2	7.5	2.1	2.0	1.9	2.0	-3.2	-3.3	1.9	1.8	1.8	1059.1
Iceland	445.54	519.36	0.5	0.8	0.7	0.8	1.0	1.1	0.8	0.6	0.7	1.0	1.4	1.1	1.0	0.8	0.8	0.6	16.6
Ireland	26.32	124.62	146.4	8.9	-19.7	-7.0	-6.5	14.5	24.1	-28.5	-29.7	-3.8	-5.9	76.5	2.8	15.2	-26.3	8.8	373.5
Italy	NO	189.10	*	*	*	0	0	0	0.0	7.1	0	0	0.0	0.0	70.8	0	0	0	*
Japan	144.80	40.06	-4.7	-5.3	-6.3	-5.4	-7.0	-7.3	-8.4	-7.2	-6.6	-6.9	-5.8	-6.0	-6.5	-9.2	-9.9	-8.4	-72.3
Kazakhstan	36.50	7,592.20	455.9	23.3	112.2	53.3	34.8	25.8	20.5	12.0	10.8	9.7	0.1	0.1	0	-0.3	1.8	-0.2	20700.5
Latvia	33.97	662.55	100.0	20.0	16.1	13.9	12.2	10.9	9.8	8.9	8.2	7.6	7.0	6.6	6.2	5.8	5.5	5.2	1850.4
Liechtenstein	0.01	0.03	0	0	0	214.4	0	0	0	0	0	16.1	0	0	0	0	0	0	264.9
Lithuania	NA, NE	NA, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	16.24	13.99	0	0	0	0	0	0	-1.4	-1.4	-1.4	-1.4	-1.5	-1.5	-1.5	-1.5	-1.6	-1.6	-13.9
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	15.52	15.52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Zealand	499.36	169.85	-3.6	-9.2	-9.2	-9.6	-10.2	-10.9	-10.4	-10.5	-11.6	-2.0	-0.6	2.7	3.9	7.6	-4.1	-4.2	-66.0
Norway	0.40	89.76	33.6	16.6	16.7	14.3	12.5	455.6	126.0	4.4	9.3	13.6	11.3	9.8	37.7	42.2	25.0	13.7	22573.3
Poland	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	-76.6	*	*	*	*	*
Portugal	560.97	651.68	7.4	4.6	4.2	3.7	3.3	2.9	-2.5	-2.5	-2.6	-2.6	-2.7	-2.7	-2.8	-2.9	-2.9	-3.0	16.2
Romania	303.20	6.79	104.5	-16.2	-97.9	2525.0	21.0	-98.4	59500.0	-97.3	112.5	-82.4	666.7	263.0	-91.8	136.4	-33.2	56.4	-97.8
Russian Federation	1,167.60	34,024.10	104.7	23.3	14.4	17.4	24.7	20.5	9.6	3.4	3.8	21.7	3.1	6.7	3.5	1.4	-6.9	-4.2	2814.0
Slovakia	128.12	117.43	-1.9	-0.9	-15.8	-1.5	-1.2	4.2	13.8	-2.8	3.7	2.5	0.0	1.8	-1.9	18.6	-19.6	1.0	-8.3
Slovenia	9.83	10.70	0	0	0	0	0	0	8.9	0	0	0	0	0	0	0	0	0	8.9
Spain	6,10876471	122,175294	100.0	20.0	16.7	14.3	12.5	11.1	10.0	9.1	8.3	7.7	7.1	6.7	6.2	5.9	5.6	5.3	1900.0
Sweden	26.45	82.86	19.7	7.4	4.1	15.7	6.2	16.1	4.3	8.4	4.3	7.9	-4.5	8.0	3.9	-3.2	-7.4	10.3	213.3
Switzerland	45.85	57.05	0.0	1.3	1.5	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.6	1.4	1.3	1.1	1.2	24.4
Turkey	0	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	194.24	957.52	50.2	4.1	21.9	23.4	2.4	6.2	8.7	1.6	1.6	3.2	0	0.0	0.0	0.0	0	0	393.0
United Kingdom	3,233.27	5,103.52	2.7	2.5	2.4	2.4	2.3	2.3	2.7	2.6	2.5	2.5	2.4	2.3	2.3	2.2	2.2	2.1	57.8
United States	10,136.85	13,557.40	1.4	2.5	1.3	3.3	21.7	1.2	2.5	2.8	-2.5	-2.1	-0.5	-0.6	-0.6	-0.6	-0.6	-0.6	33.7

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.24a

Forest land converted to grassland - AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)^a

	Activity data		IEF (Mg C/ha)					
	Total area (kha)	Area of organic soil (kha)	CSC ^b in living biomass/area			Net CSC ^b in DOM ^c /area	Net CSC ^b in soils/area	
			Increase	Decrease	Net Change		Mineral soils	Organic soils
Australia	12,949.72	NO	0.04	-0.40	-0.36	-0.24	-0.31	NO
Austria	54.70	NO	IE	-0.93	-0.93	-0.75	-0.10	NO
Belarus	NO	NE	NO	NO	NO	NO	NE	NE
Belgium	5.40	NO	NO	-2.474885749	-2.474885749	NO	0.235870391	NO
Bulgaria	NO	NO	NO	NO	NO	NO	NO	NO
Canada	NO	NO	NO	NO	NO	NO	NO	NO
Croatia	NE	NE	NE	NE	NE	NE	NE	NE
Czech Republic	2.77	NO	NO	-3.71	-3.71	-0.08	0.04	NO
Denmark	4.51	0.23	0.05	-0.78	-0.74	-0.16	0.14	-1.25
Estonia	11.51	NO	5.67	IE	5.67	IE	NE	NO
European Union (27)	832.65	5.26	0.16	-1.29	-1.13	-0.22	-0.09	-2.19
Finland	7.52	1.88	0.000425	IE	0.000425	IE	-0.02637336	-3.2
France	328.13	0	NO	-1.15	-1.15	-0.17	0.02	0
Germany	1.79	0.09	28.56	-55.15	-26.59	IE	NO	-5.00
Greece	0.18	NO	NO	NO	NO	NO	NO	NO
Hungary	1.17	NO	IE	-1.89	-1.89	-0.56	NO	NO
Iceland	NO	NO	NO	NO	NO	NO	NO	NO
Ireland	0.01	NO	NO	-30.88	-30.88	NO	NO	NO
Italy	NO	NO	NO	NO	NO	NO	NO	NO
Japan	4.01	IE	0.12	-1.41	-1.29	-0.46	2.48	NE
Kazakhstan	NO	NO	NO	NO	NO	NE	NE	NO
Latvia	NO	NO	NO	NO	NO	NO	NO	NO
Liechtenstein	0.01	IE	9.03	-89.68	-80.65	-2.44	-22.97	IE
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	4.81	NO	0.30	-5.50	-5.20	-0.07	0.35	NO
Malta	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	1.28	0.09	NE	-88.06	-88.06	-30.58	NE	NE
New Zealand	126.40	0.47	0.07	-1.10	-1.03	-0.26	0.54	-1.16
Norway	17.93	NO	NO	NO	NO	NE	NO	NA
Poland	NE	NE	NE	NE	NE	NE	NE	NE
Portugal	28.62	NO	NO	-2.77	-2.77	-0.10	-1.49	NO
Romania	NA	NE	NA	NA	NA	NA	NE	NE
Russian Federation	NO	NO	NO	NO	NO	NO	NO	NO
Slovakia	5.45	NO	NO	-1.43	-1.43	-0.04	-1.82	NO
Slovenia	1.98	NA	NA	-112.32	-112.32	-10.09	2.60	NA
Spain	NO	NO	NO	NO	NO	NO	NO	NO
Sweden	30.57	2.97	0.44	IE	0.44	-0.72	0.23	-1.60
Switzerland	14.84	0.01	0.00	-4.08	-4.08	-1.59	-0.22	NO
Turkey	0	0	0	0	0	0	0	0
Ukraine	9.28	NO	NO	-10.47	-10.47	-0.35	-0.27	NO
United Kingdom	342.26	IE	IE, NO	-0.20	-0.20	IE	-0.10	IE
United States	IE	IE	NE	NE	NE	NE	IE	IE

^a Changes introduced by the LULUCF tables included in decision 14/CP.11 have been incorporated in this S&A report, part I. The main changes introduced include splitting of soils into mineral and organic components, and the inclusion of a 'Net CO₂' column.

^b CSC = carbon stock change.

^c DOM = dead organic matter.

Table 5.24b**Forest land converted to grassland - AD, IEFs, carbon stock changes in pools and net CO₂ emissions/removals (2009)^a**

	Emissions/Removals (Gg C)						Net CO ₂ (Gg)
	CSC ^b in living biomass			Net CSC ^b in DOM ^c	Net CSC ^b in soils		
	Gains	Losses	Net Change		Mineral soils	Organic soils	
Australia	522.79	-5,240.07	-4,717.28	-3,138.99	-3,982.09	NO	43,407.35
Austria	IE	-51.02	-51.02	-41.03	-5.64	NO	358.16
Belarus	NO	NO	NO	NO	NE	NE, NO	
Belgium	NO	-13.36	-13.36	NO	1.27	NO	44.32
Bulgaria	NO	NO	NO	NO	NO	NO	NO
Canada	NO	NO	NO	NO	NO	NO	NO
Croatia	NE	NE	NE	NE	NE	NE	NE
Czech Republic	NO	-10.28	-10.28	-0.23	0.12	NO	38.08
Denmark	0.21	-3.53	-3.33	-0.71	0.60	-0.28	13.63
Estonia	65.27	IE	65.27	IE	NE	NO	-239.33
European Union (27)	131.38	-1,074.58	-943.19	-183.76	-70.95	-11.52	4,434.56
Finland	0.00	IE	0.00	IE	-0.15	-6.01	22.57
France	NO	-378.91	-378.91	-57.13	7.58	0	1,571.03
Germany	51.11	-98.69	-47.58	IE	NO	-0.47	176.19
Greece	NO	NO	NO	NO	NO	NO	NO
Hungary	IE	-2.21	-2.21	-0.65	NO	NO	10.46
Iceland	NO	NO	NO	NO	NO	NO	NO
Ireland	NO	-0.16	-0.16	NO	NO	NO	0.58
Italy	NO	NO	NO	NO	NO	NO	NO
Japan	0.47	-5.64	-5.17	-1.86	9.96	NE	-10.69
Kazakhstan	NO	NO	NO	NE	NE	NO	NE, NO
Latvia	NO	NO	NO	NO	NO	NO	NO
Liechtenstein	0.06	-0.60	-0.54	-0.02	-0.15	IE	2.59
Lithuania	NA	NA	NA	NA	NA	NA	NA
Luxembourg	1.44	-26.46	-25.02	-0.36	1.68	NO	86.89
Malta	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO
Netherlands	NE	-112.60	-112.60	-39.10	NE	NE	556.21
New Zealand	8.26	-138.93	-130.66	-32.44	68.24	-0.54	349.81
Norway	NO	NO	NO	NE	NO	NA	NA, NE, NO
Poland	NE	NE	NE	NE	NE	NE	NE
Portugal	NO	-79.17	-79.17	-2.92	-42.59	NO	457.13
Romania	NA	NA	NA	NA	NE	NE	NA, NE
Russian Federation	NO	NO	NO	NO	NO	NO	NO
Slovakia	NO	-7.77	-7.77	-0.24	-9.92	NO	65.77
Slovenia	NA	-222.56	-222.56	-19.99	5.15	NA	870.46
Spain	NO	NO	NO	NO	NO	NO	NO
Sweden	13.35	IE	13.35	-22.07	6.21	-4.76	26.66
Switzerland	0.00	-60.55	-60.55	-23.67	-3.31	NO	320.97
Turkey	0	0	0	0	0	0	0
Ukraine	NO	-97.23	-97.23	-3.29	-2.51	NO	377.78
United Kingdom	IE, NO	-68.57	-68.57	IE	-35.28	IE	380.77
United States	NE	NE	NE	NE	IE	IE	IE, NE

^a Changes introduced by the LULUCF tables included in decision 14/CP.11 have been incorporated in this S&A report, part I. The main changes introduced include splitting of soils into mineral and organic components, and the inclusion of a 'Net CO₂' column.

^b CSC = carbon stock change.

^c DOM = dead organic matter.

Table 5.25

Net CO₂ emissions/removals from forest land converted to grassland - trend information

	CO ₂ emissions/removals ^b (Gg)		Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	105,304	43,407	-14.1	-19.4	1.5	-1.9	7.2	-4.5	6.5	5.1	-5.1	-14.2	12.2	30.6	-9.9	-7.8	-16.9	-19.2	-58.8
Austria	608	358	1.5	-19.6	-4.1	-4.3	-4.5	-1.9	-1.9	-2.0	-2.0	-2.1	-1.6	-1.7	-1.7	-1.8	-1.1	-41.1	
Belarus	NE,NO	NE,NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	NO	44	*	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	*
Bulgaria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Canada	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Croatia	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	25	38	287.6	-4.1	353.3	-51.4	138.9	-80.7	86.5	-45.2	-25.2	148.0	-50.9	40.8	-31.7	17.8	-37.5	148.5	49.4
Denmark	161	14	-55.3	-100.4	-8474.2	-101.3	0	-49669.7	-41.0	-7.2	-93.1	850.3	-29.1	-77.0	-9.4	0.1	2.0	3.4	-91.6
Estonia	IE,NE,NO	-239	*	*	*	*	*	0	0	0	0	0	0	474.9	0	0	53.5	0	*
European Union (27)	4,661	4,435	5.3	-13.2	11.8	-2.1	-5.4	16.9	-19.4	20.3	1.7	-12.3	3.9	8.2	6.2	9.9	-5.0	-18.7	-4.9
Finland	0	23	-39.9	-88.8	-1140.8	774.1	18.2	18.7	2.2	3.4	5.3	47.6	59.4	37.2	25.1	19.9	16.6	14.5	6888.0
France	2,069	1,571	-4.3	-23.7	13.3	2.7	-7.8	20.7	-34.0	38.1	2.0	-38.4	32.8	23.3	21.0	16.3	-7.5	-40.0	-24.1
Germany	205	176	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-7.8	-0.4	-0.4	-0.4	-11.5	11.9	11.3	-11.1	-14.2
Greece	0	NO	1397.0	511.9	*	*	*	*	*	*	*	10332.0	-82.0	*	*	28.1	-6.3	*	*
Hungary	3	10	-68.0	121.3	30.5	14.1	-53.8	117.4	-37.8	78.6	-11.7	-50.5	169.7	-77.6	-22.1	75.8	-41.9	234.5	236.5
Iceland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	1	1	-2.1	3097.4	-0.4	-0.1	-0.8	-0.9	49.6	0.2	0.4	-0.3	0.6	0.7	-93.6	-38.4	455.7	-93.7	-39.5
Italy	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Japan	-30	-11	356.8	-8.2	-2.5	-9.2	-12.1	-7.6	3.7	-6.6	-14.9	-16.9	-23.5	-29.9	-1.2	-32.7	-14.1	-59.5	-64.7
Kazakhstan	NE,NO	NE,NO	*	0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Latvia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Liechtenstein	1	3	0	0	0	660.9	0	0	0	0	0	-35.6	0	0	0	0	0	0	389.9
Lithuania	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	111	87	0	0	0	0	0	0	-22.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-21.9
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	394	556	2.1	2.2	2.0	2.1	1.9	1.9	-0.6	2.3	2.4	2.4	1.7	1.7	1.5	1.5	1.6	1.4	41.0
New Zealand	655	350	8.7	1.6	1.6	1.6	1.5	1.6	118.6	-2.0	-5.3	70.9	60.9	74.0	19.5	36.0	-97.2	-14.0	-46.6
Norway	NA,NE,NO	NA,NE,NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Poland	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Portugal	186	457	6.9	5.8	6.1	5.9	5.7	5.5	4.5	4.3	4.1	3.9	3.7	3.6	3.5	3.4	3.3	3.2	145.5
Romania	NA,NE	NA,NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Russian Federation	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovakia	166	66	76.1	-44.4	159.4	-14.8	27.1	-55.7	-39.5	89.6	-22.8	100.6	-67.5	274.8	-43.8	20.3	-7.2	-35.4	-60.4
Slovenia	592	870	0	0	0	0	0	0	0	16.1	0	0	0	0	0	0	0	0	47.1
Spain	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Sweden	-144	27	-108.1	-81.8	-232.8	0.0	-782.0	-106.6	-1773.5	-30.3	-143.9	-2.6	-152.9	-298.8	-39.1	115.4	-101.2	-2842.1	-118.6
Switzerland	211	321	0.6	6.5	0.7	2.1	0.6	0.4	0.5	0.3	0.2	0.3	0.3	44.7	-4.7	-10.3	-14.5	-0.1	51.9
Turkey																			
Ukraine	0	378	238.6	1.9	692.0	0.4	25.5	0.3	1.6	0.9	2.3	0	0	0.3	9.4	4.1	0	0	145371.5
United Kingdom	121	381	2.1	6.4	8.2	-11.6	2.3	86.9	35.2	25.5	-1.2	-9.0	-9.4	-18.9	12.8	6.0	21.4	5.8	214.7
United States	IE,NE	IE,NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

^a In accordance with the UNFCCC reporting guidelines on annual GHG inventories of Annex 1 Parties, the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

^b Only net CO₂ emissions from carbon stock change are included in this table.

Table 5.26

Area of forest land converted to grassland - trend information

Area (kha)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	7,675.11	12,949.72	4.5	2.8	2.9	2.6	2.8	2.8	2.9	3.0	2.3	2.2	3.0	2.8	2.7	1.9	1.4	1.0	68.7
Austria	102.29	54.70	2.8	-6.2	-6.6	-7.1	-7.6	-3.3	-3.5	-3.6	-3.7	-3.9	-3.1	-3.2	-3.3	-3.4	-3.6	-2.3	-46.5
Belarus	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	NO	5,398,102.3	*	25.0	20.0	16.7	14.3	12.5	11.1	10.0	9.1	8.3	7.7	7.1	6.7	6.3	5.9	2.8	*
Bulgaria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Canada	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Croatia	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	1.90	2.77	15.7	1.8	13.7	5.9	11.5	-3.2	-1.8	-2.1	-3.0	0.9	-2.5	1.6	-5.9	-6.6	0.7	2.3	45.4
Denmark	0.60	4.51	44.5	0	7.9	0	0	45.3	18.3	14.5	1.0	8.4	5.5	1.3	1.2	1.1	1.1	1.1	649.8
Estonia	NO	11.51	*	*	*	*	0	0	0	0	0	0	0	200.0	0	0	33.3	0	*
European Union (27)	786.06	832.65	1.1	-0.2	-0.7	-0.3	0.4	-0.6	14.2	-12.9	-0.3	-0.7	-0.5	5.9	-2.8	2.0	-0.1	1.0	5.9
Finland	1.88	7.52	1.7	5.1	-0.2	8.7	10.0	15.4	4.5	6.5	10.1	12.7	14.0	12.2	13.2	10.7	9.6	10.0	301.0
France	310.96	328.13	1.1	0.3	-0.3	-0.2	-0.5	-0.3	-1.6	-0.5	-0.4	-2.2	-1.8	2.0	2.1	3.1	1.7	-0.1	5.5
Germany	1.79	1.79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Greece	0.00	0.18	904.7	1585.7	0	1.5	0	3.9	0	0	0.4	7.4	4.2	0	0.5	1.0	0.9	0	35442.2
Hungary	0.04	1.17	8.9	21.9	23.4	21.7	8.2	16.5	8.8	14.5	11.2	5.0	12.8	0.6	0.0	1.5	1.4	7.6	2697.5
Iceland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	0.01	0.01	0	3152.4	0	0	0	0	50.1	0	0	0	0	0	-93.8	-39.6	444.3	-93.8	-37.4
Italy	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Japan	30.64	4.01	-2.1	-4.9	-7.9	-10.2	-7.0	-7.0	-8.9	-9.3	-13.3	-11.6	-20.6	-15.9	-12.7	-12.7	-13.2	-20.7	-86.9
Kazakhstan	NO	NO	*	0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Latvia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Liechtenstein	0.00	0.01	0	0	0	700.6	0	0	0	0	0	-33.3	0	0	0	0	0	0	433.9
Lithuania	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	5.38	4.81	0	0	0	0	0	0	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.2	-1.2	-10.6
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	1.28	1.28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Zealand	351.72	126.40	-3.5	-11.4	-11.5	-12.1	-13.1	-14.3	-13.8	-14.1	-16.3	2.6	5.1	10.6	11.7	16.3	-1.8	-1.8	-64.1
Norway	0.08	17.93	100.0	20.0	16.7	14.3	12.5	212.5	100.0	0	12.0	0	23.2	26.1	11.5	20.6	12.0	51.9	22287.5
Poland	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Portugal	7.14	28.62	10.2	9.5	9.3	9.0	8.8	8.5	7.8	7.3	6.7	6.3	5.9	5.6	5.2	5.0	4.7	4.5	300.6
Romania	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	-94.0	225.0	-33.2	*	*
Russian Federation	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovakia	4.50	5.45	12.4	-0.2	-5.0	0.9	1.5	0.5	-0.9	0.7	-1.2	-0.8	-0.7	4.1	1.8	2.5	1.5	-1.4	21.2
Slovenia	1.98	1.98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spain	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Sweden	4.70	30.57	0	22.2	4.9	0	22.1	20.8	3.9	17.0	0	8.9	6.2	5.3	10.1	8.1	-28.3	61.4	551.0
Switzerland	11.46	14.84	-0.1	1.4	1.4	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.3	3.0	2.8	2.1	1.5	1.4	29.5
Turkey	0	0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	0.01	9.28	240.1	1.8	664.7	0.4	26.3	0.3	1.6	0.9	2.3	0	0	0.3	0.8	3.8	0	0	135164.3
United Kingdom	341.51	342.26	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	-0.1	0.0	0.0	0.1	0.0	0.2
United States	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.27

Direct N₂O emissions from N-fertilization - AD, IEFs and N₂O emissions (base year and 2009)

	Forest Land remaining Forest Land						Land converted to Forest Land					
	Base year ^a			2009			Base year ^a			2009		
	Total amount of fertilizer applied	N ₂ O-N emissions per unit of fertilizer	N ₂ O emissions	Total amount of fertilizer applied	N ₂ O-N emissions per unit of fertilizer	N ₂ O emissions	Total amount of fertilizer applied	N ₂ O-N emissions per unit of fertilizer	N ₂ O emissions	Total amount of fertilizer applied	N ₂ O-N emissions per unit of fertilizer	N ₂ O emissions
	(Gg N/yr)	(kg N ₂ O-N/kg N)	(Gg)	(Gg N/yr)	(kg N ₂ O-N/kg N)	(Gg)	(Gg N/yr)	(kg N ₂ O-N/kg N)	(Gg)	(Gg N/yr)	(kg N ₂ O-N/kg N)	(Gg)
Australia	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Austria	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Belarus	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Belgium	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Bulgaria	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Canada	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Croatia	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Czech Republic	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Denmark	IE, NE, NO	IE, NA, NE	IE, NA, NE	IE, NE, NO	IE, NA, NE	IE, NA, NE	IE, NE, NO	IE, NA, NE	IE, NA, NE	IE, NE, NO	IE, NA, NE	IE, NA, NE
Estonia	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
European Union (27)	14.88	0.01	0.27	12.40	0.01	0.23	1.66	0.01	0.02	0.32	0.01	0.00
Finland	4.40	0.01	0.09	4.07	0.01	0.08	IE	IE	IE	IE	IE	IE
France	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Germany	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Greece	NO	NO	NO	NO	NO	NO	NO	NA	NA	NO	NA	NA
Hungary	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Iceland	NO	NO	NO	NO	NO	NO	0.00	0.01	0.00	0.02	0.01	0.00
Ireland	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Italy	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Japan	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Kazakhstan	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Liechtenstein	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
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	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
New Zealand	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Norway	1.12	0.00	0.00	0.42	0.00	0.00	IE	IE	IE	IE	IE	IE
Poland	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Portugal	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Romania	NA	NA	NA	NA	NA	NA	IE	IE	IE	IE	IE	IE
Russian Federation	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Slovakia	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Slovenia	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Spain	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Sweden	10.48	0.01	0.19	8.33	0.01	0.15	IE	IE	IE	IE	IE	IE
Switzerland	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Turkey	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Ukraine	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
United Kingdom	NO	NO	NO	NO	NO	NO	1.66	0.01	0.02	0.32	0.01	0.00
United States	13.25	0.01	0.21	73.54	0.01	1.16	NE	IE	IE	NE	IE	IE

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.28

Direct N₂O emissions from N-fertilization (Gg) - trend information

N ₂ O emissions (Gg)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	IE, NO	IE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Austria	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belarus	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Bulgaria	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Canada	IE, NA	IE, NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Croatia	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Denmark	IE, NA, NE	IE, NA, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Estonia	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
European Union (27)	0.288	0.230	-33.9	-6.5	-4.2	2.0	3.9	2.8	-0.5	-6.0	-14.9	6.9	14.1	21.8	23.0	20.3	51.5	-16.7	-20.1
Finland	0.087	0.080	-24.5	-43.8	18.4	63.5	6.9	-29.1	1.5	13.3	5.6	-2.6	5.8	-8.0	66.3	-8.4	112.2	-30.0	-7.5
France	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Germany	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Greece	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Hungary	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Iceland	0.007	0.013	20.2	58.9	-11.4	31.5	27.7	-9.4	-8.6	6.6	9.5	53.4	12.6	9.1	2.3	-34.4	36.8	-15.2	91.8
Ireland	IE, NA	IE, NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Italy	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Japan	IE, NA	IE, NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Kazakhstan	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Latvia	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
New Zealand	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Norway	0.004	0.002	52.9	-1.6	-1.4	11.6	-7.7	0	-35.7	-18.2	36.9	-55.8	1.4	26.6	-54.7	69.3	24.8	6.7	-58.3
Poland	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Portugal	IE, NO	IE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Romania	IE, NA	IE, NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Russian Federation	IE, NA	IE, NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovakia	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovenia	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Spain	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Sweden	0.185	0.147	-41.7	15.8	-9.5	-21.2	1.4	30.4	-1.8	-15.4	-31.0	18.6	25.1	48.4	7.4	40.4	28.3	-6.9	-20.6
Switzerland	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Turkey	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
United Kingdom	0.017	0.003	5.1	-0.6	-15.2	-6.9	3.7	4.1	1.7	-6.9	2.5	-2.3	-7.2	-19.5	-17.6	4.7	-23.1	-23.7	-80.8
United States	0.208	1.156	-2.6	50.0	43.1	8.7	10.7	37.3	-13.8	-0.1	7.9	-5.9	-13.2	0	0	0	0	0	455.1

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.29**N₂O emissions from disturbance associated with land-use conversion to cropland - AD, IEF and N₂O emissions (base year and 2009)**

	Base year ^a			2009		
	Land area converted	N ₂ O-N emissions per area converted	N ₂ O emissions	Land area converted	N ₂ O-N emissions per area converted	N ₂ O emissions
	(kha)	(kg N ₂ O-N/ha)	(Gg)	(kha)	(kg N ₂ O-N/ha)	(Gg)
Australia	3,139.35	0.05	0.23	4,408.35	0.03	0.19
Austria	82.88	1.08	0.14	96.09	1.06	0.16
Belarus	1,171,600.00	IE, NE, NO	IE, NE, NO	1,258,900.00	IE, NE, NO	IE, NE, NO
Belgium	NE	NE	NE	NE	NE	NE
Bulgaria	312.15	1.07	0.52	312.15	1.07	0.52
Canada	1,313.70	0.02	0.04	476.88	0.05	0.04
Croatia	NE	NE	NE	NE	NE	NE
Czech Republic	110.79	0.39	0.07	34.57	0.39	0.02
Denmark	0.88	7.41	0.01	0.11	7.41	0.00
Estonia	NO	NO	NO	NO	NO	NO
European Union (27)	8,672.45	0.83	11.26	9,759.50	0.58	8.87
Finland	38.26	0.20	0.01	111.73	0.18	0.03
France	4,032.77	0.77	4.88	3,593.94	0.78	4.43
Germany	81.85	16.19	2.08	30.84	20.36	0.99
Greece	NO	NO	NO	NO	NO	NO
Hungary	10.83	0.62	0.01	101.77	0.55	0.09
Iceland	IE, NE	IE, NE	IE, NE	IE, NE	IE, NE	IE, NE
Ireland	NO	NA, NO	NA, NO	97.22	0.50	0.08
Italy	13.95	17.83	0.39	NO	NO	NO
Japan	493.13	0.37	0.29	65.30	0.24	0.02
Kazakhstan	33.60	NE, NO	NE, NO	292.30	NE, NO	NE, NO
Latvia	1.91	76.68	0.23	0.40	76.68	0.05
Liechtenstein	0.00	NO	NO	0.00	3.12	0.00
Lithuania	NE	NE	NE	NE	NE	NE
Luxembourg	6.87	0.85	0.01	6.31	0.84	0.01
Malta	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO
Netherlands	NE	NE	NE	NE	NE	NE
New Zealand	34.23	0.28	0.01	33.66	0.12	0.01
Norway	151.64	0.01	0.00	39.26	0.00	0.00
Poland	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE	NA, NE
Portugal	100.22	1.75	0.28	79.71	1.41	0.18
Romania	NE	NE	NE	NE	NE	NE
Russian Federation	NO	NO	NO	NO	NO	NO
Slovakia	NO	NO	NO	NO	NO	NO
Slovenia	4.57	1.21	0.01	4.65	1.19	0.01
Spain	NO	NO	NO	NO	NO	NO
Sweden	17.79	2.50	0.07	67.49	2.50	0.27
Switzerland	20.57	0.61	0.02	15.49	0.55	0.01
Turkey	0	0	0	0	0	0
Ukraine	0.04	NA, NO	NA, NO	337.94	NA, NE, NO	NA, NE, NO
United Kingdom	3,827.62	0.42	2.52	5,222.52	0.25	2.04
United States	NE	NE	NE	NE	NE	NE

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.30

N₂O emissions from disturbance associated with land-use conversion to cropland - trend information

N ₂ O emissions (Gg)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	0.23	0.19	-52.7	185.0	-11.4	-36.5	128.4	-8.4	-11.9	-48.3	63.4	58.7	-66.9	68.3	-74.2	590.8	-15.7	-29.4	-17.6
Austria	0.14	0.16	-0.3	-1.8	-1.9	-1.7	-1.7	-1.1	-1.0	-1.0	-1.0	-0.9	-1.8	0.6	6.5	10.3	10.6	2.3	13.2
Belarus	IE, NE, NO	IE, NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Bulgaria	0.52	0.52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canada	0.04	0.04	-4.5	-0.8	-0.5	-0.5	0.0	0.4	0.8	1.1	1.5	1.8	1.9	2.0	1.8	2.2	2.2	1.8	6.4
Croatia	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	0.07	0.02	-2.6	-9.8	-16.2	-17.3	9.3	-10.3	-4.3	-9.0	-6.6	-5.3	-5.7	-4.0	-2.4	-2.9	-3.3	-1.3	-69.3
Denmark	0.01	0.00	-55.4	-99.7	11208.7	-99.1	0	69485.3	31.9	-58.4	-92.1	748.8	-28.3	-75.2	39.6	0	0	0	-87.1
Estonia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
European Union (27)	11.26	8.87	-3.2	-0.5	-1.4	-0.3	-0.2	-0.7	-1.3	-1.5	-1.3	-1.2	-1.6	-0.7	-3.9	11.0	-5.2	-10.9	-21.3
Finland	0.01	0.03	2.2	-0.1	6.4	2.2	2.4	10.7	8.1	9.7	5.0	12.1	6.6	6.2	5.8	7.5	6.9	5.9	165.5
France	4.88	4.43	0.3	-1.2	-0.3	-0.8	-0.6	-1.9	-2.0	-2.1	-1.9	-2.3	-2.5	-0.5	0.6	1.0	3.4	0.9	-9.3
Germany	2.08	0.99	0	0	0	0	0	0	0	0	0	0	0	0	-18.3	61.6	-25.2	-52.0	-52.6
Greece	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Hungary	0.01	0.09	-0.1	14.4	12.7	11.3	10.0	9.1	8.0	2.7	2.7	2.6	2.5	-1.7	-1.6	-4.0	-4.7	-5.2	727.7
Iceland	IE, NE	IE, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	NA, NO	0.08	*	0	61.2	0	0	0	0	73.5	24.9	29.7	0	0	0	0	69.3	0.0	*
Italy	0.39	NO	-96.6	0.0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Japan	0.29	0.02	-6.5	-10.7	-15.0	-17.6	-9.0	-8.2	-10.2	-10.5	-14.1	-12.4	-17.1	-17.3	-12.6	-10.7	-27.2	-9.2	-91.6
Kazakhstan	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Latvia	0.23	0.05	0	0	-58.6	0	0	0	0	-12.7	0	0	0	0	0	0	0	-42.0	-79.1
Liechtenstein	NO	0.00	*	*	0	162.5	0.4	136.2	-7.7	*	*	-55.6	-33.3	-4.2	-62.6	0	0	0	*
Lithuania	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	0.01	0.01	0	0	0	0	0	0	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-1.0	-1.0	-1.0	-8.9
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
New Zealand	0.01	0.01	-2.9	-3.3	-3.4	-3.6	-3.7	-3.8	-4.0	-4.2	-4.3	-4.5	-4.7	-5.0	-5.2	-5.5	-5.9	-6.2	-55.8
Norway	0.00	0.00	-9.7	-11.3	-5.0	-5.5	-6.5	-7.5	-7.7	-21.9	-12.3	3.7	1.7	-10.7	-6.4	-16.5	-18.8	-16.3	-86.0
Poland	NA, NE	NA, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Portugal	0.28	0.18	-1.6	-2.0	-2.1	-2.2	-2.3	-2.4	-2.5	-2.5	-2.6	-2.6	-2.6	-2.6	-2.6	-2.6	-2.7	-2.7	-35.9
Romania	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Russian Federation	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovakia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovenia	0.01	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spain	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Sweden	0.07	0.27	25.3	8.6	5.5	9.0	2.4	0	8.6	7.7	6.0	8.3	2.5	4.9	7.4	-3.3	2.1	7.4	279.4
Switzerland	0.02	0.01	-0.3	-2.3	-2.2	-2.5	-2.5	-2.6	-2.7	-2.7	-2.8	-2.9	-3.0	-0.8	-1.2	-1.9	-2.8	-3.3	-32.2
Turkey	0	0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	NA, NO	NA, NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
United Kingdom	2.52	2.04	0.1	0.1	0.0	0.0	0.0	0.0	-2.4	-2.3	-2.3	-2.2	-2.2	-2.1	-2.0	-2.0	-1.9	-1.9	-19.0
United States	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.31

CO₂ emissions from agricultural lime application in cropland and grassland (base year and 2009)

	Cropland						Grassland					
	Base year ^a			2009			Base year ^a			2009		
	Total amount of lime applied	CO ₂ emissions per unit of lime	CO ₂ emissions	Total amount of lime applied	CO ₂ emissions per unit of lime	CO ₂ emissions	Total amount of lime applied	CO ₂ emissions per unit of lime	CO ₂ emissions	Total amount of lime applied	CO ₂ emissions per unit of lime	CO ₂ emissions
	(Mg/yr)	(MgCO ₂ -C/Mg)	(Gg)	(Mg/yr)	(MgCO ₂ -C/Mg)	(Gg)	(Mg/yr)	(MgCO ₂ -C/Mg)	(Gg)	(Mg/yr)	(MgCO ₂ -C/Mg)	(Gg)
Australia	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Austria	205,230	0.12	90.30	200,277	0.12	88.12	IE	IE	IE	IE	IE	IE
Belarus	5,221,200	0.12	2,297.33	1,968,800	0.12	866.27	NO	NO	NO	NO	NO	NO
Belgium	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Bulgaria	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Canada	442,755	0.13	203.62	626,205	0.13	287.76	IE	IE	IE	IE	IE	IE
Croatia	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Czech Republic	2,517,500	0.12	1,107.70	138,039	0.12	60.74	118,280	0.12	52.04	7,265	0.12	3.20
Denmark	1,416,684	0.12	622.92	423,551	0.12	186.24	19	0.13	0.01	9	0.13	0.00
Estonia	136	120.00	59.84	0	120.00	0.19	NE	NE	NE	NE	NE	NE
European Union (27)	18,328,018	0.12	8,159.93	10,183,734	0.12	4,494.53	2,264,006	0.12	1,017.34	1,449,630	0.12	648.71
Finland	1,344,769	0.13	617.87	692,206	0.12	312.04	IE	IE	IE	IE	IE	IE
France	2,390,843	0.12	1,053.95	2,500,566	0.12	1,101.77	NO	NO	NO	NO	NO	NO
Germany	2,635,649	0.12	1,158.93	3,827,394	0.12	1,682.96	IE	IE	IE	IE	IE	IE
Greece	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Hungary	320,135	0.12	141.44	25,570	0.12	11.25	NO	NO	NO	NO	NO	NO
Iceland	NE	NE	NE	9,638	0.11	4.02	NO	NO	NO	NO	NO	NO
Ireland	83,308	0.12	36.66	74,487	0.12	32.77	723,592	0.12	318.38	623,973	0.12	274.55
Italy	NO	NO	NO	38,114	0.12	16.77	NO	NO	NO	NO	NO	NO
Japan	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Kazakhstan	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	10,500	0.12	4.62	8,700	0.12	3.83	IE	IE	IE	IE	IE	IE
Liechtenstein	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	200,000	0.13	93.43	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	1340	0.12	0.59	9260	0.12	4.07	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO	IE, 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	IE	IE, NA	IE, NA	IE	IE, NA	IE, NA	IE	IE	IE	IE	IE	IE
New Zealand	52,336	0.12	23.03	100,656	0.12	44.29	797,281	0.12	350.80	1,533,370	0.12	674.68
Norway	492,407	0.12	216.66	187,706	0.12	82.59	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO
Poland	5,205,545	0.12	2,299.81	760,863	0.12	338.10	IE	IE	IE	IE	IE	IE
Portugal	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Romania	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Russian Federation	21,980,000	0.12	9,671.20	1,260,910	0.12	554.80	IE	IE	IE	IE	IE	IE
Slovakia	101,400	0.03	12.17	40,528	0.03	4.86	NO	NO	NO	NO	NO	NO
Slovenia	100,000	0.12	44.00	100,000	0.12	44.00	IE	IE	IE	IE	IE	IE
Spain	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Sweden	383,760	0.12	169.79	236,100	0.12	104.49	IE	IE	IE	IE	IE	IE
Switzerland	51,300	0.12	22.57	74,050	0.12	32.58	NO	NO	NO	NO	NO	NO
Turkey	NA	NA	NA	NA	NA	NA	0	0	0	0	0	0
Ukraine	6,931	120.00	3,049.51	406	120.00	178.68	NO	NO	NO	NO	NO	NO
United Kingdom	1,723,285	0.12	783.89	1,112,864	0.12	504.43	1,426,356	0.12	648.78	822,715	0.12	372.87
United States	24,666,866	0.08	7,083.85	24,251,601	0.09	7,832.09	IE	IE	IE	IE	IE	IE

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.32

CO₂ emissions from agricultural lime application (all land-use categories) - trend information

CO ₂ emissions (Gg)	Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	169.87	1,072.99	39.3	-9.9	-12.2	26.0	20.6	23.0	2.4	3.3	34.2	10.1	-7.8	0.7	0.7	0.7	0.5	0.7	531.7
Austria	90.30	88.12	0.8	1.4	0.0	0.1	-0.5	0.0	-1.4	-0.1	0.0	0.0	-0.1	0.1	-0.2	-0.1	-2.0	-0.1	-2.4
Belarus	2,297.33	866.27	-11.5	13.1	2.3	20.3	-10.6	-29.2	-10.3	10.2	16.2	10.8	7.1	12.9	-9.3	-7.7	-7.7	2.1	-62.3
Belgium	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Bulgaria	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Canada	203.62	287.76	25.4	-0.8	10.5	-8.6	11.9	-1.7	-11.3	7.6	9.2	-7.9	0	0	0	0	0	0	41.3
Croatia	NA, NE	NA, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	1,159.74	63.93	-73.6	7.9	2.6	-17.8	-3.1	-3.6	6.2	0.6	-6.8	-12.1	-8.3	-9.4	11.9	10.2	16.6	-28.5	-94.5
Denmark	622.93	186.24	-16.4	30.2	-20.7	15.0	-42.3	2.9	-1.4	-19.9	-1.7	-3.3	-30.2	38.9	-11.7	-0.9	19.1	-19.3	-70.1
Estonia	59.84	0.19	-7.8	2.5	-23.8	27.8	251.2	4.4	-24.0	9.3	-6.7	-4.4	*	*	-6.5	*	*	-74.4	-99.7
European Union (27)	9,477.21	5,299.71	-17.2	18.5	-2.5	3.2	-9.2	-4.8	-3.2	-6.9	1.1	-1.8	-6.4	-2.6	-7.8	0.6	-1.3	4.1	-44.1
Finland	617.87	312.04	-30.2	-14.0	17.5	3.1	-8.5	0.3	-24.0	21.2	6.9	-34.2	-9.3	5.2	12.7	-16.6	16.4	7.8	-49.5
France	1,053.95	1,101.77	-6.7	12.8	-5.2	17.9	-8.4	-0.7	-10.8	-6.1	13.1	-6.5	3.2	-4.3	-4.6	-4.9	6.2	11.0	4.5
Germany	1,275.72	1,748.38	0.7	16.5	-0.1	4.9	10.4	2.8	9.6	-14.5	3.8	-7.7	0.4	-4.7	-3.9	7.8	3.4	-2.7	37.1
Greece	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Hungary	141.44	11.25	-57.6	-28.5	33.4	-14.2	-89.8	-98.3	56871.9	11.9	-14.9	30.0	-40.0	14.2	4.1	-56.6	-30.6	16.0	-92.0
Iceland	NA, NE, NO	4.02	*	*	*	*	*	*	*	*	*	*	6.6	37.2	2.4	35.6	15.1	-27.3	*
Ireland	355.04	307.32	-11.2	83.4	-2.1	-12.5	-27.8	25.4	-4.4	5.2	-28.9	41.2	-37.7	10.8	-4.5	47.8	-30.4	17.2	-13.4
Italy	NA, NO	16.77	*	*	*	*	*	46.3	-8.1	14.7	198.2	-1.3	63.5	40.8	-18.0	33.0	17.9	-5.8	*
Japan	550.22	268.25	-4.2	3.7	-3.6	3.7	-1.2	-2.2	13.4	-25.7	9.1	-8.7	-4.1	-2.1	-0.4	41.1	-5.9	-12.2	-51.2
Kazakhstan	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Latvia	4.62	3.83	0	0	-25.5	-61.5	56.2	4.3	108.2	-93.1	4589.9	63.5	-95.9	50.0	-9.1	256.7	-43.9	45.0	-17.1
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	93.43	NA	-14.3	-33.3	-50.0	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	0.59	4.07	20.1	-18.3	-11.8	48.0	38.0	-44.3	67.6	21.2	26.9	-3.0	-14.1	61.5	-22.0	1.0	-7.1	42.5	591.0
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	183.15	91.05	-19.9	2.5	12.6	-0.5	-5.5	-18.9	15.7	-18.0	5.8	2.1	-8.6	-5.4	8.5	-12.4	28.1	0	-50.3
New Zealand	373.83	718.97	7.6	-1.1	-0.6	9.7	8.8	8.1	7.5	7.0	-2.8	-7.6	3.6	-3.8	-6.1	-0.4	5.1	8.2	92.3
Norway	226.78	99.24	-13.0	11.3	-7.2	0.2	-11.0	-1.0	-13.4	1.9	-2.0	-8.5	-11.1	-1.0	-4.8	-6.4	2.8	0.0	-56.2
Poland	2,299.81	338.10	-24.1	25.4	-6.1	11.4	-5.5	-19.8	-8.7	-1.0	-4.9	-3.8	-0.1	-4.7	-38.8	-29.4	-14.5	0	-85.3
Portugal	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Romania	NA, NE	NA, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Russian Federation	9,671.20	554.80	-7.6	-36.7	-29.0	-25.0	-30.3	8.7	12.0	-3.6	-8.0	3.7	-8.4	-4.1	3.6	-12.3	12.4	-21.9	-94.3
Slovakia	12.17	4.86	-19.2	513.3	-23.9	116.8	34.9	-49.2	-38.8	50.3	-57.3	-9.9	-55.7	-22.1	6.1	20.9	80.2	-11.4	-60.0
Slovenia	44.00	44.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spain	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Sweden	169.79	104.49	-21.0	8.1	14.0	-9.6	-24.9	19.6	-0.1	-12.3	-4.4	-2.1	-4.4	-4.6	-22.2	30.7	-12.0	0	-38.5
Switzerland	22.57	32.58	0.1	1.9	1.9	1.8	1.8	1.8	1.8	1.7	1.7	1.7	9.5	1.5	1.5	1.4	1.4	0	44.3
Turkey	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	3,049.51	178.68	-47.9	0	-77.9	-74.5	1.8	*	*	12.6	-24.8	-8.2	68.8	9.1	16.6	6.0	11.3	21.6	-94.1
United Kingdom	1,432.67	877.30	23.8	20.4	-0.9	-11.1	-21.4	-16.1	-10.4	-8.7	2.0	24.1	-11.2	-11.7	7.6	7.1	-12.5	20.6	-38.8
United States	7,083.85	7,832.09	3.4	3.3	-1.3	0.2	10.0	-2.5	0.9	3.8	9.3	-3.4	-8.5	4.0	0.3	4.2	5.5	-9.5	10.6

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.33**Biomass burning - CO₂ emissions from forest land (base year and 2009)**

	Base year ^a					2009				
	Activity Data			CO ₂ IEF	CO ₂ Emission	Activity Data			CO ₂ IEF	CO ₂ Emission
	Description	Unit	Value	(Mg/activity data unit)	(Gg)	Description	Unit	Value	(Mg/activity data unit)	(Gg)
Australia	Area burned	ha	1,134,819.87	IE	IE	Area burned	ha	1,108,709.78	IE	IE
Austria	Area burned	ha	200	IE, NO	IE, NO	Area burned	ha	56	IE, NO	IE, NO
Belarus	Biomass burned	kg dm	44,364,355	0.00	36.31	Biomass burned	kg dm	57,534,340	0.00	34.94
Belgium	Area burned	ha	NO	NO	NO	Area burned	ha	NO	NO	NO
Bulgaria	Area burned	ha	462	30.31	14.00	Area burned	ha	2,271	30.31	68.84
Canada	Area burned	ha	336,792	113.11	38,095.73	Area burned	ha	465,301	155.31	72,263.80
Croatia		Not specified	NA	IE, NO	IE, NO		Not specified	NA	IE, NO	IE, NO
Czech Republic		Not specified	NA	NA	1,091.49		Not specified	NA	NA	1,325.28
Denmark		Not specified	NA, NO	NE, NO	NE, NO		Not specified	NA, NO	NE, NO	NE, NO
Estonia	Area burned	ha	117	48.14	5.63	Area burned	ha	38	53.87	2.03
European Union (27)	Biomass burned	kg dm	IE, NA, NE, NO	IE, NA, NE, NO	5,266.85	Biomass burned	kg dm	IE, NA, NE, NO	IE, NA, NE, NO	2,744.06
Finland	Area burned	ha	4,188	0.92	3.86	Area burned	ha	1,222	4.06	4.96
France		Not specified	NA	NA	1,594.01		Not specified	NA	NA	428.97
Germany		Not specified	1,606	IE, NO	IE, NO		Not specified	757	IE, NO	IE, NO
Greece	Area burned	ha	6,429	IE, NO	IE, NO	Area burned	ha	5,795	IE, NO	IE, NO
Hungary		Not specified	NA	IE, NO	IE, NO		Not specified	NA	IE, NO	IE, NO
Iceland		Not specified	NE, NO	NE, NO	NE, NO		Not specified	NE, NO	NE, NO	NE, NO
Ireland	Area burned	ha	389	31.53	12.26	Area burned	ha	154	27.85	4.30
Italy	Area burned	ha	98,410	IE, NO	IE, NO	Area burned	ha	31,060	IE, NO	IE, NO
Japan	Biomass burned	kg dm	49,465,963	IE, NO	IE, NO	Biomass burned	kg dm	51,937,301	IE, NO	IE, NO
Kazakhstan	Area burned	ha	1,329	IE, NO	IE, NO	Area burned	ha	4,370	IE, NO	IE, NO
Latvia	Biomass burned	kg dm	10,690,110	0.00	5.51	Biomass burned	kg dm	26,681,033	0.00	13.79
Liechtenstein	Biomass burned	kg dm	NO	NO	NO	Biomass burned	kg dm	NO	NO	NO
Lithuania	Area burned	ha	134	3.74	0.50	Area burned	ha	507	3.74	1.90
Luxembourg	Biomass burned	kg dm	NO	NO	NO	Biomass burned	kg dm	NO	NO	NO
Malta	Biomass burned	kg dm	NO	NO	NO	Biomass burned	kg dm	NO	NO	NO
Monaco		Not specified	NO	NO	NO		Not specified	NO	NO	NO
Netherlands		Not specified	NA	NE, NO	NE, NO		Not specified	NA	NE, NO	NE, NO
New Zealand	Biomass burned	kg dm	134,757,455	IE, NE	IE, NE	Biomass burned	kg dm	220,334,857	IE, NE	IE, NE
Norway	Area burned	ha	936	IE, NO	IE, NO	Area burned	ha	1,329	IE, NO	IE, NO
Poland	Area burned	ha	7,341	NA, NO	NA, NO	Area burned	ha	4,400	NA, NO	NA, NO
Portugal	Area burned	ha	79,549	29.67	2,360.31	Area burned	ha	24,104	28.03	675.57
Romania	Area burned	ha	93	24.77	2.30	Area burned	ha	974	24.77	24.12
Russian Federation	Area burned	ha	2,671,957	IE, NO	IE, NO	Area burned	ha	3,922,562	IE, NO	IE, NO
Slovakia	Biomass burned	kg dm	97,098	IE, NO	IE, NO	Biomass burned	kg dm	138,582	IE, NO	IE, NO
Slovenia	Area burned	ha	IE, NA, NO	IE, NA, NO	IE, NA, NO	Area burned	ha	177	171.45	30.36
Spain		Not specified	NA	NA	0.18307898		Not specified	NA	NA	29.54241226
Sweden	Area burned	ha	1,673	9.78	16.36	Area burned	ha	2,626	10.53	27.64
Switzerland		Not specified	1,102	27.28	30.07		Not specified	42	27.28	1.15
Turkey	Area burned	Not specified	NA	IE, NE, NO	IE, NE, NO	Area burned	Not specified	NA	IE, NE, NO	IE, NE, NO
Ukraine	Biomass burned	kg dm	32,163	2.64	84.96	Biomass burned	kg dm	90,065	1.70	153.23
United Kingdom		Not specified	25,585,497.65	0.00	46.91		Not specified	56,400,286	0.00	103.40
United States	Area burned	ha	489,900	IE, NE	IE, NE	Area burned	ha	1,290,285	IE, NE	IE, NE

^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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Table 5.34

CH₄ emissions from biomass burning in forest land - trend information

CH ₄ emissions (Gg)	Relative change (%)																		
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	65.85	79.10	154.7	-18.4	48.2	-21.0	51.3	-60.1	5.9	125.5	59.7	230.9	-87.8	25.8	-10.0	228.1	-59.9	-1.7	20.1
Austria	0.03	0.01	-73.5	-44.8	-9.4	-31.0	365.0	-91.4	425.0	-42.9	700.0	-4.7	-90.7	82.4	138.7	-50.0	35.1	12.0	-72.0
Belarus	0.34	0.44	-53.8	95.9	27.8	-84.5	14.1	232.0	-42.2	-59.7	1509.3	-67.0	-75.5	-12.0	172.2	-52.9	-3.5	99.4	31.5
Belgium	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Bulgaria	0.06	0.32	-50.9	-97.0	291.6	-63.9	796.7	19.0	598.5	-65.2	-67.7	-21.6	-77.7	26.9	156.3	1071.8	-87.5	-58.3	391.5
Canada	140.66	265.71	68.2	230.3	-76.5	-63.8	834.7	-59.4	-78.6	115.5	304.4	-24.0	11.1	-42.3	20.2	3.4	-40.0	36.9	88.9
Croatia	0.00	0.00	0	-83.0	302.8	57.9	87.6	-93.7	3537.4	-79.5	-49.7	367.6	-95.7	7.3	33.1	234.9	-23.5	-50.3	-84.7
Czech Republic	4.76	5.78	-25.4	-6.2	31.8	8.1	-12.7	-7.5	-8.1	4.1	7.5	24.9	-8.2	-4.5	23.6	29.8	-21.0	-15.4	21.4
Denmark	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Estonia	0.03	0.01	-69.5	-58.5	217.2	101.6	-95.2	1009.0	35.2	-88.9	1794.8	-87.8	122.3	-74.2	3088.4	-97.5	453.4	-88.8	-63.9
European Union (27)	66.79	48.17	-7.4	-27.2	-4.7	12.1	1.8	-12.8	30.2	-25.9	5.1	23.1	-24.2	18.5	21.1	-11.0	-26.1	5.1	-27.9
Finland	0.19	0.05	-57.3	-16.7	-29.0	49.2	-64.6	156.9	-53.9	184.7	6.2	-26.5	-72.1	159.0	61.3	-56.4	25.5	-12.3	-72.6
France	40.59	29.48	-4.6	5.2	-1.7	-2.4	-0.4	-6.3	4.9	-7.3	7.6	3.9	-12.7	2.8	-10.7	-0.8	2.4	5.8	-27.4
Germany	0.43	0.22	-42.5	-46.6	134.2	-56.5	-33.5	5.0	40.6	-78.9	0.4	982.1	-79.1	-33.0	164.4	-46.7	111.4	41.0	-49.2
Greece	0.52	0.47	-62.1	-34.3	-58.7	193.1	213.5	-93.6	1838.7	-89.4	-90.5	50.7	162.2	-15.7	198.7	1220.0	-84.4	41.9	-9.9
Hungary	1.37	1.00	-2.6	4.4	8.7	1.9	-2.6	-10.2	33.8	-9.6	0.6	-1.4	-13.4	59.3	-36.9	42.6	-30.2	-1.6	-27.0
Iceland	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	0.05	0.02	-36.1	34.9	10.2	-45.1	-47.2	-18.4	149.5	98.3	-77.1	517.7	-41.8	-63.7	0.4	13.1	23.0	-48.7	-64.9
Italy	6.96	2.61	-69.4	-54.9	-4.6	210.7	14.9	-44.6	42.3	-34.4	-44.2	109.4	-40.9	0.7	-20.5	542.7	-76.5	18.9	-62.5
Japan	0.40	0.42	-25.2	-51.2	227.7	21.0	-68.9	-51.3	49.0	59.2	66.4	-81.0	211.0	-24.5	-73.3	-16.4	961.8	-59.7	5.0
Kazakhstan	0.02	0.07	275.6	342.6	-42.9	1586.9	-92.5	62.6	5.6	10.2	1.8	192.5	-35.2	-75.6	50.5	207.8	-88.5	-43.5	228.7
Latvia	0.92	1.62	16.1	23.8	0.5	27.5	11.1	12.5	1.4	-44.4	20.6	-6.1	-8.5	2.6	6.4	-15.8	-9.7	21.3	76.1
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	0.01	0.03	-52.2	0	0	0	-84.8	535.0	-4.6	-66.0	545.0	-39.2	-41.9	-79.9	2258.4	-96.8	195.8	351.1	278.4
Luxembourg	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
New Zealand	0.56	0.82	-30.8	-18.7	22.0	12.2	-34.3	-42.1	7.6	-19.2	-2.6	-17.9	-11.4	-13.9	11.7	100.3	-27.2	48.3	46.9
Norway	0.08	0.12	68.2	-51.2	352.9	68.8	-68.2	-69.0	101.3	-47.7	144.4	328.3	-87.6	196.2	1009.1	-96.7	2374.3	-58.1	41.9
Poland	1.34	1.53	-64.8	-41.5	171.5	-52.3	-37.2	110.1	-15.0	-50.5	53.6	321.8	-82.3	59.9	2.0	3.4	4.4	0.1	14.1
Portugal	0.04	0.23	200.9	736.3	-58.3	-56.8	449.1	-39.2	113.6	-28.0	52.6	291.2	-80.1	465.9	-83.2	-70.8	-40.0	387.2	495.2
Romania	0.01	0.11	-37.6	-33.3	9.1	-70.0	101.5	176.6	851.7	-71.7	252.0	-78.8	-83.7	71.0	346.2	211.7	-71.4	15.5	947.3
Russian Federation	477.91	553.35	-9.4	-4.8	25.2	-19.3	57.7	-33.4	10.4	-3.1	10.7	12.9	-23.7	5.7	5.2	-5.3	14.1	6.5	15.8
Slovakia	0.67	0.99	-36.4	12.1	7.0	10.3	0	13.5	-8.2	21.4	-1.6	7.6	13.8	30.5	-15.8	-0.9	12.4	-1.4	47.4
Slovenia	NA, NO	0.17	4.4	*	13.6	75.3	160.0	-64.7	-37.4	30.9	-51.7	1233.4	-93.3	106.5	410.8	-91.0	-38.1	139.3	*
Spain	8.231021933	2.9438324	55.3	-72.2	-70.8	201.1	-2.1	-37.7	108.1	-59.5	57.5	38.0	-19.6	107.9	116.2	-93.2	-37.6	185.4	-64.2
Sweden	0.07	0.12	-7.8	0.7	7.7	463.1	-95.2	615.6	-2.2	1.3	57.6	24.3	-6.3	-7.6	147.4	-80.6	461.7	-80.7	69.0
Switzerland	0.39	0.01	-86.6	49.6	-46.8	548.4	-83.5	-96.4	296.9	3.1	1007.6	37.6	-96.4	133.8	115.7	131.3	-84.7	17.3	-96.2
Turkey	0.00	0.00	-41.2	-79.9	94.7	-57.6	6.5	-13.7	353.3	-71.9	14.6	-21.8	-26.4	-68.4	536.0	62.3	170.1	-85.6	-54.9
Ukraine	0.40	0.72	-41.9	-69.8	163.9	-93.0	422.0	32.6	-81.3	311.7	-20.9	-49.8	-84.4	498.4	70.2	1081.6	-68.2	-55.0	80.4
United Kingdom	0.20	0.45	68.8	682.9	-48.0	31.4	-44.5	-84.2	249.9	38.2	-15.3	-15.3	32.2	-78.5	1043.4	14.1	-5.0	-35.7	120.4
United States	152.38	372.47	-13.0	-44.3	184.3	-80.5	34.1	254.7	27.1	-41.7	50.5	-35.9	-43.4	115.2	120.0	-7.2	-40.3	-34.5	144.4

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.35

N₂O emissions from biomass burning in forest land - trend information

N ₂ O emissions (Gg)	Relative change (%)																			
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	1.22	1.46	154.7	-18.4	48.2	-21.0	51.3	-60.1	5.9	125.5	59.7	230.9	-87.8	25.8	-10.0	228.1	-59.9	-1.7	20.1	
Austria	0.00	0.00	-73.5	-44.8	-9.4	-31.0	365.0	-91.4	425.0	-42.9	700.0	-4.7	-90.7	82.4	138.7	-50.0	35.1	12.0	-72.0	
Belarus	0.01	0.02	-71.3	135.9	29.5	-91.8	5.5	523.4	-49.1	-80.5	4158.8	-69.9	-87.2	-40.9	562.2	-75.1	-21.2	326.0	60.3	
Belgium	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Bulgaria	0.00	0.00	-50.9	-97.0	291.6	-63.9	796.7	19.0	598.5	-65.2	-67.7	-21.6	-77.7	26.9	156.3	1071.8	-87.5	-58.3	391.5	
Canada	5.89	11.17	67.6	230.8	-76.5	-63.8	837.3	-59.4	-78.6	115.3	305.1	-24.1	11.1	-42.3	20.1	3.4	-39.9	36.8	89.7	
Croatia	0.00	0.00	0	-83.0	302.8	57.9	87.6	-93.7	3537.4	-79.5	-49.7	367.6	-95.7	7.3	33.1	234.9	-23.5	-50.3	-84.7	
Czech Republic	0.03	0.04	-25.4	-6.2	31.8	8.1	-12.7	-7.5	-8.1	4.1	7.5	24.9	-8.2	-4.5	23.6	29.8	-21.0	-15.4	21.4	
Denmark	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Estonia	0.00	0.00	-69.5	-58.5	217.2	101.6	-95.2	1009.0	35.2	-88.9	1794.8	-87.8	122.3	-74.2	3088.4	-97.5	453.4	-88.8	-63.9	
European Union (27)	0.63	0.41	-25.6	-29.9	2.7	5.2	19.1	-25.7	72.6	-39.0	2.3	43.1	-40.6	23.4	14.3	3.2	-38.6	20.3	-35.5	
Finland	0.00	0.00	-57.3	-16.9	-28.9	49.1	-64.6	157.3	-54.0	185.2	6.3	-26.4	-72.1	159.7	61.1	-56.3	25.4	-12.3	-72.6	
France	0.39	0.23	-27.2	3.4	-4.5	3.1	-1.9	-8.9	9.6	-8.9	20.4	17.5	-33.2	8.2	-18.2	0.0	0.8	14.1	-40.8	
Germany	0.01	0.00	-42.5	-46.6	134.2	-56.5	-33.5	5.0	40.6	-78.9	0.4	982.1	-79.1	-33.0	164.4	-46.7	111.4	41.0	-49.2	
Greece	0.00	0.00	-62.1	-34.3	-58.7	193.1	213.5	-93.6	1838.7	-89.4	-90.5	50.7	162.2	-15.7	198.7	1220.0	-84.4	41.9	-9.9	
Hungary	0.01	0.01	-2.6	4.5	8.7	1.9	-2.6	-10.2	33.8	-9.6	0.6	-1.4	-13.4	59.3	-36.9	42.6	-30.2	-1.6	-27.0	
Iceland	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	0.00	0.00	-36.1	34.9	10.2	-45.1	-47.2	-18.4	149.5	98.3	-77.1	517.7	-41.8	-63.7	0.4	13.1	23.0	-48.7	-64.9	
Italy	0.05	0.02	-69.4	-54.9	-4.6	210.7	14.9	-44.6	42.3	-34.4	-44.2	109.4	-40.9	0.7	-20.5	542.7	-76.5	18.9	-62.5	
Japan	0.00	0.00	-25.2	-51.2	227.7	21.0	-68.9	-51.3	49.0	59.2	66.4	-81.0	211.0	-24.5	-73.3	-16.4	961.8	-59.7	5.0	
Kazakhstan	0.00	0.00	275.6	342.6	-42.9	1586.9	-92.5	62.6	5.6	10.2	1.8	192.5	-35.2	-75.6	50.5	207.8	-88.5	-43.5	228.7	
Latvia	0.01	0.01	13.1	28.2	3.2	22.6	9.5	19.0	0.3	-46.3	36.5	-15.1	-9.2	-0.2	30.5	-30.4	-8.7	15.6	67.6	
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	0.00	0.02	-52.2	0	0	0	-84.8	535.0	-4.6	-66.0	545.0	-39.2	-41.9	-79.9	2258.4	-96.8	195.8	45457.8	38114.2	
Luxembourg	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
New Zealand	0.00	0.01	-30.8	-18.7	22.0	12.2	-34.3	-42.1	7.6	-19.2	-2.6	-17.9	-11.4	-13.9	11.7	100.3	-27.2	48.3	46.9	
Norway	0.00	0.00	72.7	0	200.0	66.7	-60.0	-50.0	0	0	0	500.0	-88.0	177.8	1100.0	-95.8	1863.5	-58.1	41.9	
Poland	0.02	0.01	-64.8	-41.5	171.5	-52.3	-37.2	110.1	-15.0	-50.5	53.6	321.8	-82.3	59.9	3.5	-37.7	-11.3	8.1	-35.9	
Portugal	0.00	0.00	200.9	736.3	-58.3	-56.8	449.1	-39.2	113.6	-28.0	52.6	291.2	-80.1	465.9	-83.2	-70.8	-40.0	387.2	495.2	
Romania	0.00	0.00	-37.6	-33.3	9.1	-70.0	101.5	176.6	851.7	-71.7	252.0	-78.8	-83.7	71.0	346.2	211.7	-71.4	15.5	947.3	
Russian Federation	26.44	30.62	-9.4	-4.8	25.2	-19.3	57.7	-33.4	10.4	-3.1	10.7	12.9	-23.7	5.7	5.2	-5.3	14.1	6.6	15.8	
Slovakia	0.04	0.02	-50.3	9.7	168.1	-66.0	-68.0	212.1	1068.0	-91.4	-58.3	372.1	-30.0	21.3	-40.6	157.6	-77.4	281.7	-41.8	
Slovenia	NA, NO	0.00	4.4	*	13.6	75.3	160.0	-64.7	-37.4	30.9	-51.7	1233.4	-93.3	106.5	410.8	-91.0	-38.1	139.3	*	
Spain	0.056588276	0.0202388	55.3	-72.2	-70.8	201.1	-2.1	-37.7	108.1	-59.5	57.5	38.0	-19.6	107.9	116.2	-93.2	-37.6	185.4	-64.2	
Sweden	0.00	0.00	-7.7	0.7	7.9	462.3	-95.2	615.8	-2.2	1.3	57.6	24.4	-6.3	-7.5	147.4	-80.6	461.7	-80.7	69.0	
Switzerland	0.02	0.00	-86.5	51.1	-47.1	550.0	-83.3	-97.4	500.0	0	950.0	38.1	-96.6	133.3	128.6	125.0	-83.3	16.7	-95.9	
Turkey	0.00	0.00	-41.7	-79.4	85.7	-53.8	0	-16.7	360.0	-69.6	14.3	-25.0	-33.3	-75.0	800.0	55.6	185.7	-86.2	-54.0	
Ukraine	0.01	0.01	-41.9	-69.8	163.9	-93.0	422.0	32.6	-81.3	311.7	-20.9	-49.8	-84.4	498.4	70.2	1081.6	-68.2	-55.0	80.4	
United Kingdom	0.00	0.00	68.8	682.9	-48.0	31.4	-44.5	-84.2	249.9	38.2	-15.3	-15.3	32.2	-78.5	1043.4	14.1	-5.0	-35.7	120.4	
United States	8.43	20.60	-13.0	-44.3	184.3	-80.5	34.1	254.7	27.1	-41.7	50.5	-35.9	-43.4	115.2	120.0	-7.2	-40.3	-34.5	144.4	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.36

CH₄ emissions from biomass burning in land converted to cropland - trend information

CH ₄ emissions (Gg)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	42.83	25.05	-9.5	-17.1	9.4	-3.4	0.6	-4.7	3.0	-1.4	-0.8	-3.2	14.7	10.7	2.5	-14.1	-4.9	-9.3	-41.5
Austria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belarus	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Bulgaria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Canada	12.16	4.89	-4.6	-16.1	-3.7	-4.5	-0.6	-7.2	-8.3	0.0	4.4	-6.3	-6.5	-3.3	9.3	2.1	-5.1	-0.2	-59.8
Croatia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Denmark	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Estonia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
European Union (27)	1.24	2.30	-1.0	-3.0	20.1	-2.9	14.2	8.9	-14.9	19.8	-5.1	10.3	8.0	0.7	9.7	8.6	1.1	-10.7	85.7
Finland	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
France	1.23	2.28	-1.0	-3.0	20.2	-2.8	14.3	8.6	-15.4	19.6	-5.1	10.6	8.3	1.0	9.7	8.7	1.0	-10.9	84.9
Germany	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Greece	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Hungary	IE, NO	IE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Iceland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Italy	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Japan	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Kazakhstan	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Latvia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
New Zealand	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Norway	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Poland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Portugal	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Romania	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Russian Federation	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovakia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovenia	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Spain	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Sweden	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Switzerland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Turkey	0	0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
United Kingdom	0.01	0.02	6.8	11.3	17.8	-17.0	4.4	89.6	48.3	32.7	-3.1	-11.6	-13.0	-25.8	11.9	5.8	26.8	5.6	249.6
United States	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.37

N₂O emissions from biomass burning in land converted to cropland - trend information

N ₂ O emissions (Gg)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	0.79	0.46	-9.5	-17.1	9.4	-3.4	0.6	-4.7	3.0	-1.4	-0.8	-3.2	14.7	10.7	2.5	-14.1	-4.9	-9.3	-41.5
Austria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belarus	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Bulgaria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Canada	0.51	0.20	-4.4	-15.7	-4.1	-4.4	-0.8	-7.2	-8.5	0.0	3.5	-5.3	-7.4	-2.9	9.8	1.4	-5.4	0.2	-60.6
Croatia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Denmark	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Estonia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
European Union (27)	0.01	0.02	-1.0	-3.0	20.1	-2.9	14.2	8.9	-14.9	19.8	-5.1	10.3	8.0	0.7	9.7	8.6	1.1	-10.7	85.7
Finland	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
France	0.01	0.02	-1.0	-3.0	20.2	-2.8	14.3	8.6	-15.4	19.6	-5.1	10.6	8.3	1.0	9.7	8.7	1.0	-10.9	84.9
Germany	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Greece	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Hungary	IE, NO	IE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Iceland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Italy	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Japan	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Kazakhstan	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Latvia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
New Zealand	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Norway	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Poland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Portugal	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Romania	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Russian Federation	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovakia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovenia	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Spain	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Sweden	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Switzerland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Turkey	0	0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
United Kingdom	0.00	0.00	6.8	11.3	17.8	-17.0	4.4	89.6	48.3	32.7	-3.1	-11.6	-13.0	-25.8	11.9	5.8	26.8	5.6	249.6
United States	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.38

CH₄ emissions from biomass burning in grassland - trend information

CH ₄ emissions (Gg)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	122.53	43.52	-9.5	-23.5	1.7	-0.6	-5.6	13.5	-0.1	15.1	-11.1	-15.5	10.9	43.1	-13.5	-11.1	-27.9	-20.0	-64.5
Austria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belarus	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Bulgaria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Canada	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Croatia	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Denmark	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Estonia	0.13	0.16	-68.6	-57.5	224.4	105.9	-95.1	3465.7	-72.3	-96.1	16389.6	-90.8	37.0	-86.3	6536.3	-57.7	321.5	-97.6	21.3
European Union (27)	7.95	6.97	9.9	-10.9	8.4	2.5	-4.4	7.0	5.7	-22.5	36.8	-31.2	4.4	-7.1	65.0	25.1	5.2	-50.5	-12.4
Finland	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
France	6.56	5.43	14.8	-3.1	9.8	-10.1	-1.1	-1.5	-11.1	6.9	-5.8	-1.9	4.4	3.4	1.6	0.6	2.4	-7.5	-17.1
Germany	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Greece	0.67	0.60	-15.3	-57.6	7.7	50.5	96.5	-88.7	1286.1	-79.9	-81.3	34.0	148.1	-48.6	58.7	1926.8	-89.5	5.0	-9.5
Hungary	0.03	0.05	0	0	0	0	71.5	-54.8	143.6	-49.9	35.2	-12.9	-33.5	21.4	-93.9	1114.2	-23.0	174.2	40.6
Iceland	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Italy	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Japan	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Kazakhstan	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Latvia	IE, NO	0.01	*	436.2	132.8	-52.9	117.8	114.0	-15.8	112.3	140.6	24.1	-53.1	-68.9	1135.4	-84.3	-71.2	282.1	*
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	NA, NE	NA, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
New Zealand	1.83	1.80	-42.4	-7.3	16.9	-15.6	94.1	-38.2	-32.0	12.7	1.7	2.7	-32.4	58.4	-19.4	14.0	-23.6	33.9	-1.4
Norway	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Poland	0.41	0.05	0	44.7	-65.0	37.6	-50.3	106.9	-63.7	16.4	67.8	50.1	-36.5	-4.5	116.5	-85.0	293.7	-80.6	-88.6
Portugal	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Romania	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Russian Federation	7.13	12.35	43.3	-45.7	343.3	-43.5	172.3	-52.9	167.7	-40.7	55.1	56.2	-87.9	97.9	211.6	-34.6	-26.1	15.5	73.2
Slovakia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovenia	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Spain	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Sweden	0.01	0.00	0	0	0	60.7	-85.4	5.1	89.4	26.0	143.9	25.8	-73.7	-3.2	13.5	-46.9	78.8	-13.6	-57.3
Switzerland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Turkey	0	0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
United Kingdom	0.14	0.66	6.8	11.3	17.8	-17.0	4.4	154.6	48.3	32.7	-3.1	-11.6	-13.0	-25.8	11.9	5.8	26.8	5.6	369.3
United States	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 5.39

N₂O emissions from biomass burning in grassland - trend information

N ₂ O emissions (Gg)	Relative change (%)		Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	2.27	0.81	-9.5	-23.5	1.7	-0.6	-5.6	13.5	-0.1	15.1	-11.1	-15.5	10.9	43.1	-13.5	-11.1	-27.9	-20.0	-64.5
Austria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belarus	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Bulgaria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Canada	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Croatia	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Czech Republic	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Denmark	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Estonia	0	0	-68.6	-57.5	224.4	105.9	-95.1	3465.7	-72.3	-96.1	16389.6	-90.8	37.0	-86.3	6536.3	-57.7	321.5	-97.6	21.3
European Union (27)	0.06	0.06	2.3	-17.6	25.2	31.1	-43.3	134.2	-38.4	-40.8	308.1	-69.8	7.3	-27.9	387.5	-33.1	139.9	-85.4	-12.2
Finland	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
France	0.05	0.04	14.8	-3.1	9.8	-10.1	-1.1	-1.5	-11.1	6.9	-5.8	-1.9	4.4	3.4	1.6	0.6	2.4	-7.5	-17.1
Germany	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Greece	0.00	0.00	-15.3	-57.6	7.7	50.5	96.5	-88.7	1286.1	-79.9	-81.3	34.0	148.1	-48.6	58.7	1926.8	-89.5	5.0	-9.5
Hungary	0	0	0	0	0	0	71.5	-54.8	143.6	-49.9	35.2	-12.9	-33.5	21.4	-93.9	1114.2	-23.0	174.2	40.6
Iceland	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ireland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Italy	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Japan	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Kazakhstan	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Latvia	IE, NO	0.00	*	436.2	132.8	-52.9	117.8	114.0	-15.8	112.3	140.6	24.1	-53.1	-68.9	1135.4	-84.3	-79.4	400.0	*
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	NA, NE	NA, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Luxembourg	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Malta	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
New Zealand	0.01	0.01	-42.8	-8.6	18.4	-14.3	100.3	-39.5	-27.6	7.0	-1.3	7.2	-32.1	46.1	-17.6	20.1	-26.0	27.9	-5.8
Norway	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Poland	0	0	0	44.7	-65.0	37.6	-50.3	106.9	-63.7	16.4	67.8	50.1	-36.5	-4.5	116.5	-85.0	293.7	-80.6	-88.6
Portugal	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Romania	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Russian Federation	1	1	43.3	-45.7	343.3	-43.5	172.3	-52.9	167.7	-40.7	55.1	56.2	-87.9	97.9	211.6	-34.6	-26.1	15.5	73.2
Slovakia	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovenia	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Spain	NE, NO	NE, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Sweden	0.00	0.00	0	0	0	60.7	-85.5	5.3	89.4	26.1	143.7	25.8	-73.7	-3.2	13.4	-46.8	78.7	-13.6	-57.4
Switzerland	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Turkey	0	0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
United Kingdom	0.00	0.00	6.8	11.3	17.8	-17.0	4.4	154.6	48.3	32.7	-3.1	-11.6	-13.0	-25.8	11.9	5.8	26.8	5.6	369.3
United States	IE, NE	IE, NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

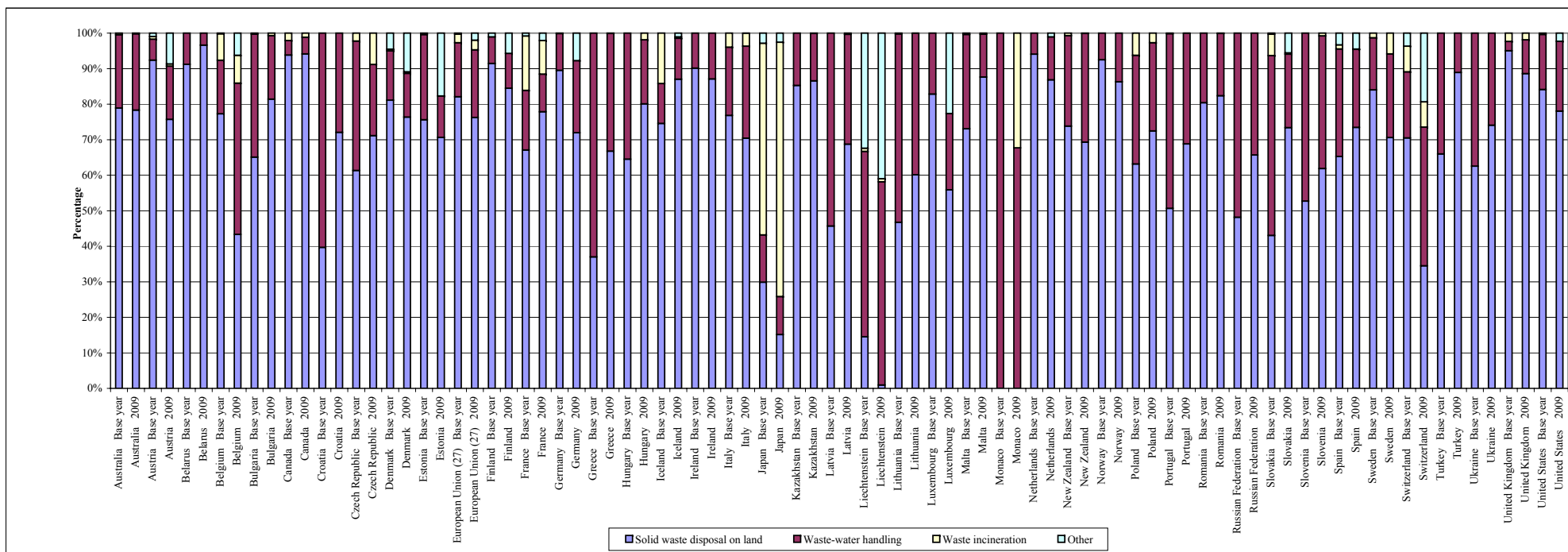
^a In accordance with the UNFCCC reporting guidelines on annual GHG inventories of Annex I Parties, the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years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

Table 5.40
Land Area (2009)

Area (kha)	CRF						Total	FAO ^a	difference	FAO ^a	difference
	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land		Total country area	%	Forest	%
Australia	106,511.83	26,100.11	448,343.94	13,486.90	1,598.40	172,922.65	768,963.83	774122.0	0.0	151148.0	-0.3
Austria	3,999	1,437	1,796	145	522	488	8,387.00	8387.0	0.0	3877.0	0.0
Belarus	7,965	1,379	3,263	14	NE,NO	NE,NO	12,620.57	20760.0	-0.4	8552.4	-0.1
Belgium	712	979	674	51	625	18	3,058.50	3053.0	0.0	675.7	0.1
Bulgaria	3,808	3,752	1,834	211	830	664	11,100.19	11100.0	0.0	3816.6	0.0
Canada	229,453	47,518	NE,NO	513	2,321	NE,NO	279,804.39	998467.0	-0.7	310134.0	-0.3
Croatia	1,893	NE,NO	NE,NO	NE,NO	0	NE	1,893.16	5659.0	-0.7	1913.2	0.0
Czech Republic	2,602	3,256	1,082	163	677	107	7,886.49	7887.0	0.0	2653.0	0.0
Denmark	577	2,794	405	19	457	216.667	220,918.40	45493.6	3.9	540.3	0.1
Estonia	2,209	1,109	365	492	305	43	4,522.71	4523.0	0.0	2231.0	0.0
European Union (27)	161281.55	131924.91	79196.87	20245.47	26224.89	27776.25	446,649.94	486643.5	-0.1	165179.0	0.0
Finland	22,015	2,448	225	6,420	1,451	1,283	33,842.44	33842.0	0.0	22157.0	0.0
France	23500.98	18559.57	14345.95	1084.67	5196.52	922.11	63,609.80	66139.5	0.0	25154.4	-0.1
Germany	11,223	13,193	6,853	792	3,620	98	35,779.63	35711.0	0.0	11076.0	0.0
Greece	3389.28	3732.46	4970.35	299.68	532.67	271.30	13,195.74	13196.0	0.0	3842.6	-0.1
Hungary	2,039	5,234	1,198	263	567	2	9,303.27	9303.0	0.0	2010.6	0.0
Iceland	89.64126027	169.3102143	5258.998356	703.7690856	71.0426892	3996.865721	10,289.63	10300.0	0.0	28.1	2.2
Ireland	719	400	3,894	53	114	891	6,070.57	7028.0	-0.1	721.4	0.0
Italy	8,995	9,213	9,716	57	1,544	887	30,412.46	30134.0	0.0	8993.0	0.0
Japan	24947.90	3972.88	901.08	1330.00	3760.00	2878.13	37,790.00	37794.0	0.0	24961.4	0.0
Kazakhstan	14110.90	14446.60	201193.00	9041.10	2210.40	24717.90	265,719.90	272490.0	0.0	3320.2	3.3
Latvia	3349.40676	1163.531737	1259.748503	448.349	252.739	4.305	6,478.08	6455.9	0.0	3331.2	0.0
Liechtenstein	6	2	5	0	2	1	16.12	16.0	0.0	6.9	-0.1
Lithuania	2,160	2,988	476	379	312	215	6,530.00	6530.0	0.0	2144.4	0.0
Luxembourg	94.52411135	51.27088326	86.51139002	1.261488432	24.97658762	0.05640932	258.60	259.0	0.0	86.8	0.1
Malta	0.82235	1.322	NO	NO	0.18102	NO	2.33	32.0	-0.9	0.3	1.7
Monaco	NO	NO	NO	NO	0.0442666	NO	0.04	NA	NA	NA	NA
Netherlands	396	905	1,365	814	634	37	4,151.50	4154.0	0.0	365.0	0.1
New Zealand	10132.72	436.59	14602.34	652.81	207.03	893.65	26,925.14	26771.0	0.0	8285.8	0.2
Norway	12,177	956	202	3,610	642	14,791	32,378.36	32378.0	0.0	9912.2	0.2
Poland	9,296	12,940	3,180	882	2,080	2,891	31,269.00	31268.0	0.0	9282.2	0.0
Portugal	4,118	1,913	1,917	154	312	505	8,918.12	9209.0	0.0	3448.4	0.2
Romania	6752.9	9843.1	4841.8	833.3	1093.1	474.9	23,839.10	23839.0	0.0	6500.2	0.0
Russian Federation	897,334	92,372	120,359	225,055	13,644	361,060	1,709,824.21	1709824.0	0.0	808970.0	0.1
Slovakia	2,009	1,539	878	94	230	153	4,903.68	4903.5	0.0	1932.6	0.0
Slovenia	1,243	221	404	14	111	27	2,021.29	2027.0	0.0	1249.0	0.0
Spain	13669	19838	4549	84	1186	11318	50,644.28	50537.0	0.0	17821.2	-0.2
Sweden	29388.21	3148.69	352.29	6484.58	1654.71	4220.15	45,248.64	45030.0	0.0	28203.0	0.0
Switzerland	1,259.21	431.12	1,358.10	196.95	324.72	558.27	4,128.37	4128.0	0.0	1230.8	0.0
Turkey	21389.784	NA	NA	NA	NA	NA	21,389.78	78356.0	-0.7	11096.4	0.9
Ukraine	10,592	34,914	7,900	3,403	2,499	1,048	60,354.80	60355.0	0.0	9653.0	0.1
United Kingdom	2847.34	11273.77	12778.47	7.38	1898.50	1948.40	30,753.87	25677.0	0.2	2886.3	0.0
United States	279,939	176,349	182,761	NA	12,486	NA,NE	651,535.72	984147.0	-0.3	303855.0	-0.1

^a Source of data for total country area and forest area: FAO secretariat, downloaded on 1 June 2011 from <http://faostat.fao.org/site/377/default.aspx#ancor>. At the time of download, the data were available only until 2008.

Figure 6.1
Contribution of subsectors to total GHG emissions in Waste^a



^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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 6.1
Solid waste disposal on land, waste-water handling and waste incineration (2009)

Activity data		Solid waste disposal on land								Waste-water handling								N ₂ O from human sewage		Waste incineration			
		Population (million)		Methods and EF used ^a		Key category	CH ₄		CH ₄ IEF		Methods and EF used ^b		Key category	CH ₄		CH ₄ IEF		Emissions per capita	N ₂ O IEF	Methods and EF used ^c		Key category	Share of national total
							Share of national total	Emissions per capita	Managed	Unmanaged				Share of national total	Emissions per capita	Domestic / commercial	Industrial						
CRF	World Bank ^d	Methods	EF		(%)	(kg)	(t/t)	(t/t)	Methods	EF		(%)	(kg)	(kg / kg DC)	(kg)	(kg N ₂ O -/kg sewage N)	Methods	EF	Key category	Share of national total			
IPCC default EF ^e																0.01							
Australia	21	22	T2	D	L, T	2.02	24	0.08	NA	T2, T3	CS, D	T	0.47	5.64	0.04	0.14	0.07	0.03	0.06	T2	CS	0.01	
Austria	8	8	T2	CS, D	L, T	1.82	8	0.32	NO	D	CS, D		0.03	0.16	0.00	NA	NA	NA	0.08	D	CS, D	0.02	
Belarus	10	10	T1	D	L, T	6.82	30	NO	0.06	NA	NA		-	NE	NE	NE	NE	NE	0.07	NA	NA	-	
Belgium	11	11	CS	CS	T	0.34	2	0.04	NO	CR, T1	CR, D		0.10	0.54	NE	NE	NE	NE	0.09	T1	PS	0.06	
Bulgaria	8	8	T2	CS, D	L, T	6.51	24	0.01	0.10	D	CS, D	L, T	1.15	4.30	0.15	0.15	0.04	0.04	0.07	T1	D	0.06	
Canada	34	34	CS	CS	L, T	2.95	29	0.06	NE	CS, T3	CS, D, PS		0.05	0.48	NA	NE	0.00	NO	0.06	CS	CS	0.03	
Croatia	4	4	T2	CS	L, T	2.49	8	0.02	0.02	T1	D	T	0.61	1.89	0.08	NE	0.00	NE	0.07	T1	D	0.00	
Czech Republic	10	10	T2	CS, D	L, T	1.90	11	0.04	NO	CS, T1, T2	CS, D		0.38	2.31	0.09	0.26	0.06	0.06	0.01	T1	D	T	
Denmark	6	6	CS, T2	CS, D	L, T	1.67	9	0.07	0.02	CS, D	CS		0.12	0.63	0.22	IE, NE, NO	IE, NA, NE	IE, NE, NO	0.02	NE	T1	CS, D	
Estonia	1	1	T2	D	L, T	2.78	17	0.09	NO	T1	D	T	0.03	0.18	0.00	IE	0.00	IE	0.09	0.01	NA	NA	
European Union (27)	501	499	CR, CS, M, OTH, T1, T2	CR, CS, D, M	L, T	2.42	111	0.05	0.07	CR, CS, D, T1, T2	CR, CS, D		0.33	1.45	NE	NE	0.03	0.06	0.08	NE	CR, CS, D, M, T1, T1a, T2	CR, CS, D, PS	
Finland	5	5	T2	CS, D	L, T	2.79	16	0.08	NO	D	CS, D		0.18	1.08	IE	0.00	IE	0.04	0.00	NA	NA	-	
France	65	63	CR, T2	CS	L, T	3.31	13	0.04	59248591288.30	CR, T2	CS		0.23	0.92	0.10	NA	NA	NA	0.06	0.01	CR	CS, PS	
Germany	82	82	T2	CS, D	L, T	0.92	5	0.90	NO	D	CS, D	T	0.01	0.05	0.00	NO	NO	NO	0.09	0.01	NA	NA	
Greece	11	11	T2	CS, D	L, T	2.01	10	0.02	2.83	CS, D	CS, D	L, T	0.68	3.54	0.06	IE	0.25	0.24	0.11	0.01	T2	D	
Hungary	10	10	T2	D	L, T	4.49	14	0.04	NA, NO	CS, D	CS, D	L	0.71	2.26	0.13	IE	0.02	IE	0.06	0.01	T2	D	
Iceland	0	0	T2	D	L, T	4.00	28	0.05	IE	CS, T1	D		0.35	2.41	NE	NE	NE	NE	0.08	0.01	T1	D	
Ireland	4	4	T2	CS, D	L, T	1.73	0.03	0.07	NO	T1	D		0.12	0.17	NO	0.01	NO	0.02	0.11	0.01	NA	NA	
Italy	60	60	T2	CS	L, T	2.59	10	0.05	NO	D	D	L, T	0.55	2.15	0.60	0.60	0.25	IE	0.10	0.01	D	CS	
Japan	127	128	CS, T3	CS	T	0.27	1	0.41	NA	CS, D	CS, D		0.10	0.47	NE	NE	NE	IE	0.00	NE	CS	L	
Kazakhstan	16	16	T2	CS	L, T	1.32	11	0.00	0.00	D	D		0.13	1.15	0.06	NO	0.03	NO	0.09	0.01	D	D	
Latvia	2	2	T2	D	L, T	5.53	13	0.05	NO	D, T2	D	L, T	1.99	4.50	0.06	0.20	0.25	NA	0.08	0.01	D	D	
Liechtenstein	0	0	T2	CS	NO	0.01	0	NO	NO	CS	CS		0.01	0.04	IE	NA	IE	NO	0.09	0.01	T2	CS	
Lithuania	3	3	T2	D	L, T	3.84	12	0.03	0.15	T1	D	L, T	2.20	6.78	IE	IE	IE	IE	0.07	0.01	T1	D	
Luxembourg	1	0	T2	D		0.32	4	0.07	NO	T1	CS		0.03	0.30	0.16	NE	NO	NO	0.09	IE	NA	NA	
Malta	0	0	M	M	L, T	6.68	22	0.02	NA	D	CS		0.52	1.71	IE	NA	NO	NO	0.09	0.01	CS	CS	
Monaco	0	0	NA	NA		-	NA, NO	NO	NO	NA	NA		-	NA, NO	NO	NO	NO	NO	0.08	0.01	NA	NA	
Netherlands	17	17	T2	CS	L, T	2.33	13	0.13	NO	T2	CS		0.10	0.60	0.06	IE	NE	IE, NE	0.02	NA	NA	NA	
New Zealand	4	4	T2	CS, D	L, T	1.98	15	0.03	IE	D, OTH, T1	CS, OTH		0.62	4.83	0.36	0.17	NE	0.15	0.08	0.01	D	D	
Norway	5	5	T2	CS, D	L, T	2.08	11	0.14	IE	T1	D		0.02	0.10	IE	IE	IE	IE	0.01	IE	NA	NA	
Poland	38	38	OTH	D	L, T	1.71	8	0.04	0.04	CS, D	CS, D		0.29	1.36	0.03	0.49	0.03	0.06	0.09	0.01	D	CS	
Portugal	11	11	T2	CS, D	L, T	7.10	24	0.04	NO	D	CS, D	L, T	2.51	8.39	0.13	0.47	0.02	NE	0.11	0.01	D	CS, D	
Romania	21	21	T1	D	L, T	4.25	12	0.04	0.03	D	T		0.68	1.98	0.01	0.576	0.01	IE	0.04	0.01	D	D	
Russian Federation	142	142	T1, T2	CS, D	L, T	2.29	17	0.05	0.02	D	CS, D	L, T	1.01	7.32	0.07	0.12	0.06	IE	0.09	0.01	NA	NA	
Slovakia	5	5	T1, T2	CS, D	L, T	3.65	14	0.04	NO	T1	CS	L	0.84	3.20	0.11	IE	0.03	IE	0.04	0.01	T1a	D	
Slovenia	2	2	T2	D	L, T	1.87	8	0.04	NO	T1	CS, D	L, T	0.82	3.71	0.02	0.50	0.01	0.02	0.09	0.01	D	D	
Spain	47	46	CS, T2	CR, CS, D	L, T	3.25	12	0.03	0.07	D	CS, D	L	0.63	2.39	0.00	0.11	0.03	0.04	0.09	0.01	CR	CR, CS	
Sweden	9	9	T2	CS, D	L, T	2.28	7	0.12	NO	CS, D, T1	CS, D		0.50	1.52	1.41	NE	0.05	NO	0.01	M	PS		
Switzerland	8	8	CS, D	CS, D	L, T	0.41	1	NO	NO	CS	CS		0.07	0.21	0.01	NO	IE	IE	0.09	0.01	CS	CS	
Turkey	NA	75	T1	D	L, T	8.16	19	0.08	0.05	T1	D	T	0.54	1.28	0.10	NA	NE	NE	NE	0.01	NA	NA	
Ukraine	46	46	T2	CS, D	L, T	1.95	7	0.03	0.03	T2	CS, D	T	0.40	1.55	0.05	0.30	0.02	0.12	0.07	0.01	NA	NA	
United Kingdom	62	62	OTH, T2	CS	L, T	2.82	12	0.04	NO	CS, OTH	CS, OTH		0.06	0.27	IE	0.08	IE	IE	0.07	0.01	T2	CS	
United States	0	307	M	M	L, T	1.78	18	0.04	NA	D	D		0.37	3.80	0.07	NE	0.03	NE	0.05	0.00	NA	NA	

^a 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 used or type of emission factor for all subcategories within the category 6.A Solid waste disposal on land.

^b 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 used or type of emission factor for all subcategories within the category 6.B Waste-water handling.

^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 used or type of emission factor for all subcategories within the category 6.C Waste incineration.

^d Source of population data: HNPStats - The World Bank Group: World Development Indicators (WDI) database, <http://go.worldbank.org/1W6ZUUHULZ0>. Downloaded 23 May 2011.

^e Source of default emission factors: IPCC Guidelines, volume 3, page 6.28.

Table 6.2

CH₄ emissions from solid waste disposal on land - trend information

Country	CH ₄ emissions (Gg)		Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	677	525	-0.5	0.6	-8.7	-0.6	-4.5	2.1	-0.8	0.6	1.2	-6.6	-3.6	-2.2	-2.6	3.1	3.4	-0.2	-22.5
Austria	158	69	-0.4	-5.8	-5.7	-5.1	-4.0	-4.5	-4.2	-3.8	0.6	1.9	-6.5	-6.0	-4.8	-6.3	-7.5	-7.5	-56.0
Belarus	112	285	0.2	2.9	22.6	1.0	4.1	7.2	1.3	1.6	3.3	34.5	10.2	3.6	11.3	4.6	5.9	10.8	155.3
Belgium	125	20	-0.7	-3.2	-10.3	-1.1	-6.4	-8.1	-7.3	-19.0	-15.3	-11.5	-4.6	-17.9	-15.3	-14.7	-17.0	-12.1	-83.9
Bulgaria	212	184	2.8	0.4	-0.1	0.1	-1.5	-2.1	-1.6	-1.7	-2.4	-2.4	-2.4	-2.3	-2.6	-2.2	-2.5	-3.5	-13.1
Canada	854	969	2.0	-0.2	-0.4	1.4	0.8	0.9	-0.6	-0.7	1.2	1.2	1.2	1.2	2.3	-1.4	-0.6	1.1	13.5
Croatia	12	34	4.7	5.2	5.4	5.8	5.7	6.1	5.8	6.4	6.8	7.0	7.2	-3.3	11.9	7.4	8.5	8.2	196.0
Czech Republic	79	120	4.6	3.5	1.0	-2.0	2.2	2.8	2.5	2.1	1.4	0.5	2.4	2.2	0.9	-0.9	4.3	3.4	52.1
Denmark	53	50	2.5	-3.0	0.0	-4.2	-3.2	3.6	0.9	1.8	-3.2	4.1	-7.3	0.2	6.0	-1.5	-0.6	-1.6	-6.4
Estonia	29	22	-1.9	-7.1	0.0	11.0	7.3	0.4	5.2	-0.9	-5.5	-3.8	-2.0	-7.5	-3.3	-4.7	-0.4	-9.0	-22.0
European Union (27)	8,362	5,319	0.7	-1.1	-1.5	-3.2	-2.9	-3.2	-2.2	-3.6	-2.2	-4.6	-4.7	-2.4	-2.1	-2.9	-2.2	-2.3	-36.4
Finland	173	88	1.3	-1.9	-2.6	-2.8	-4.7	-2.4	-6.6	-4.6	-7.9	-6.9	-5.8	-9.4	2.9	-4.6	-4.5	-3.7	-49.1
France	424	823	5.6	5.7	5.1	4.9	4.7	3.9	3.7	3.4	3.0	3.0	1.9	0.9	1.4	1.6	1.1	0.6	94.0
Germany	1,838	403	2.4	-4.1	-5.3	-9.5	-7.6	-11.0	-7.1	-7.5	-7.2	-8.2	-13.9	-11.7	-12.5	-12.0	-10.1	-14.3	-78.1
Greece	88	117	3.0	3.0	3.0	3.1	2.1	-2.2	3.5	3.6	0.8	3.3	-0.2	-0.8	4.1	-3.2	-1.2	-0.3	32.6
Hungary	91	142	3.9	2.0	1.8	2.0	2.6	2.6	2.7	1.6	1.7	1.0	0.8	0.8	0.0	-0.2	-0.9	-1.0	56.0
Iceland	6	9	3.0	2.2	2.5	1.0	0.9	1.6	2.0	3.9	-5.3	2.6	-0.3	1.2	11.6	7.7	-2.4	-5.7	37.9
Ireland	56	52	6.7	2.8	-6.4	-15.1	5.6	1.4	2.6	9.0	7.0	4.0	-12.5	-8.1	6.8	-8.6	-6.5	-4.0	-7.8
Italy	726	607	5.8	2.7	5.1	2.9	0.2	1.4	5.1	-0.5	-2.8	-5.3	-6.7	-1.0	-4.3	-4.4	-5.8	-4.7	-16.5
Japan	364	157	-0.9	-2.9	-2.8	-3.2	-4.0	-4.0	-4.0	-4.8	-5.0	-5.1	-5.4	-5.4	-6.9	-7.0	-8.3	-7.9	-56.8
Kazakhstan	173	182	0.4	3.7	2.0	-0.1	0.5	-0.4	-0.8	-0.8	0.1	-1.1	2.2	2.0	2.1	-6.4	1.6	3.6	5.0
Latvia	19	28	6.3	2.2	2.4	2.7	2.9	3.1	3.3	3.4	0.4	-5.5	-2.7	2.0	2.8	3.6	2.5	0.0	49.8
Liechtenstein	0	0	-13.0	-13.0	-13.0	-13.0	-13.0	-13.0	-13.0	-13.0	-13.0	-13.0	-13.0	-13.0	-13.0	-13.0	-13.0	-13.0	-92.9
Lithuania	36	40	2.4	0.7	0.6	0.6	0.6	0.5	0.4	0.8	0.2	0.6	-1.8	-0.5	0.0	0.2	-0.4	0.5	10.3
Luxembourg	4	2	2.5	-3.7	-3.3	-2.4	-3.4	-3.3	-5.9	-3.7	-2.7	-1.9	-10.4	-5.2	-5.0	-3.3	-5.9	-5.4	-49.7
Malta	4	9	8.4	6.5	4.4	5.3	2.0	1.9	2.4	1.8	2.3	2.3	2.5	5.8	5.5	4.9	5.8	5.3	132.6
Monaco	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	572	221	0.1	-5.1	-3.4	-3.2	-4.3	-8.5	-5.8	-6.0	-4.7	-6.5	-4.5	-6.6	-6.5	-6.4	-7.2	-5.7	-61.4
New Zealand	72	67	0.6	1.1	1.3	0.8	-0.1	0.3	0.7	1.1	1.4	-3.8	0.8	1.2	-3.5	0.3	-2.6	-2.0	-7.6
Norway	80	51	-0.7	-2.3	-2.1	-2.5	-7.0	-8.1	3.6	-4.2	-4.9	-1.5	-1.1	-6.7	1.0	-2.5	-4.5	2.0	-36.7
Poland	282	306	1.8	0.8	1.6	1.8	2.5	2.1	1.9	-3.6	-0.9	-1.1	-0.2	0.4	-1.5	-0.7	-5.1	-1.2	8.6
Portugal	144	252	4.6	4.4	4.5	4.6	5.4	5.2	-12.4	12.7	7.1	-2.6	-1.0	-0.6	2.1	-1.0	7.3	5.3	74.6
Romania	112	265	0.4	32.0	7.6	3.9	-13.5	27.9	15.3	0.8	13.1	-2.0	-5.4	12.0	-1.4	-4.1	5.2	3.7	136.6
Russian Federation	1,345	2,358	2.1	2.2	2.1	2.8	2.3	2.8	3.2	2.6	2.9	3.3	3.6	3.5	3.9	3.2	1.6	9.2	75.3
Slovakia	22	75	4.8	11.2	9.6	30.4	31.5	24.5	-20.4	4.3	46.6	-3.8	5.6	-7.4	6.8	-4.3	0.4	-11.0	237.3
Slovenia	14	17	1.6	0.8	1.3	3.6	3.6	3.5	3.6	3.1	2.6	1.4	2.5	0.8	-2.1	-4.8	-11.8	-9.6	20.9
Spain	227	568	9.1	6.7	6.0	6.6	5.6	4.2	4.2	5.1	3.5	-0.6	-0.1	3.9	4.9	4.2	5.6	4.8	150.8
Sweden	137	65	1.5	-0.3	-0.9	-1.0	-1.6	-4.3	-3.1	-1.8	-6.6	-5.7	-1.0	-7.0	-3.9	-9.0	-12.5	-7.0	-52.4
Switzerland	33	10	-1.1	-1.6	-4.7	-2.6	-4.3	-5.3	-9.6	-5.7	-4.5	-12.4	-0.3	-6.2	-3.8	-8.5	-10.0	-9.5	-69.2
Turkey	304	1,437	52.5	22.4	11.7	10.7	6.2	4.8	3.8	0.2	-2.4	3.3	-6.2	8.0	1.1	5.9	-5.3	0	372.4
Ukraine	251	343	3.4	0.4	0.6	0.8	1.2	1.6	1.5	1.6	2.3	2.2	1.8	1.2	2.2	1.7	1.9	2.2	36.8
United Kingdom	2,677	764	-4.5	-4.8	-4.8	-8.7	-7.6	-9.5	-7.3	-13.1	-9.4	-12.7	-8.1	-3.5	-2.3	-2.6	-3.0	-3.0	-71.4
United States	7,018	5,593	0.7	-5.0	-2.4	-6.6	-5.7	-4.2	-2.7	-3.1	0.3	4.7	-3.5	2.6	-0.7	-0.4	4.2	1.3	-20.3

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 6.3

Solid waste disposal on land: kg CH₄/capita - trend information

	CH ₄ emissions per capita (kg/capita)		Relative change (%)																	
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	39.7	24.0	-1.7	-0.6	-9.9	-1.7	-5.5	0.9	-2.0	-0.8	0.0	-7.8	-4.7	-3.5	-4.0	1.2	1.6	-2.2	-39.5	
Austria	20.5	8.3	-1.5	-6.1	-5.9	-5.1	-4.1	-4.7	-4.3	-4.2	0.0	1.5	-7.2	-6.7	-5.4	-6.5	-7.9	-7.8	-59.4	
Belarus	11.0	29.5	0.1	3.3	23.0	1.4	4.6	7.5	1.6	1.9	3.8	35.2	10.8	4.1	11.8	4.9	6.1	11.0	169.2	
Belgium	12.6	1.9	-1.0	-3.4	-10.5	-1.3	-6.6	-8.3	-7.5	-19.2	-15.6	-11.9	-5.0	-18.4	-15.8	-15.3	-17.6	-12.7	-85.1	
Bulgaria	23.6	24.3	3.9	0.8	0.5	0.7	-0.8	-1.5	0.2	0.2	-1.9	-1.9	-1.9	-1.8	-2.1	-1.7	-2.1	-3.1	2.9	
Canada	30.7	28.7	0.7	-1.1	-1.5	0.4	-0.1	0.0	-1.4	-1.7	0.3	0.2	0.2	0.3	1.2	-2.4	-1.6	-0.2	-6.5	
Croatia	2.4	7.7	10.9	4.8	9.5	3.9	7.4	4.9	8.9	6.0	6.8	7.0	7.2	-3.3	12.0	7.5	8.5	8.3	219.2	
Czech Republic	7.6	11.5	5.1	3.5	1.1	-1.9	2.3	2.9	2.6	2.6	1.6	0.5	2.3	2.0	0.6	-1.6	3.4	2.7	50.3	
Denmark	10.1	8.8	2.2	-3.4	-0.7	-4.6	-3.5	3.2	0.6	1.4	-3.5	3.9	-7.6	0.0	5.6	-2.0	-1.2	-2.3	-12.9	
Estonia	18.2	16.6	-1.4	-5.5	1.5	12.2	8.4	1.2	5.7	-0.5	-5.2	-3.4	-1.6	-7.3	-3.1	-4.6	-0.4	-8.9	-8.7	
European Union (27)	17.7	10.7	0.3	-1.3	-1.6	-3.4	-3.0	-3.4	-2.3	-3.7	-2.5	-5.0	-5.2	-2.8	-2.5	-3.4	-2.6	-2.7	-39.9	
Finland	34.7	16.5	0.7	-2.2	-2.9	-3.1	-4.9	-2.6	-6.8	-4.8	-8.1	-7.1	-6.1	-9.7	2.5	-5.0	-5.0	-4.1	-52.5	
France	7.5	13.1	5.2	5.3	4.8	4.6	4.4	3.5	3.2	2.8	2.3	2.0	1.3	0.4	0.6	0.7	0.5	0.0	75.8	
Germany	23.1	4.9	1.7	-4.3	-5.6	-9.6	-7.5	-11.0	-7.2	-7.6	-7.4	-8.3	-13.9	-11.7	-12.4	-11.8	-10.0	-14.0	-78.7	
Greece	8.7	10.4	2.0	2.2	2.3	2.5	1.6	-2.6	3.2	3.3	0.4	3.0	-0.6	-1.1	3.7	-3.6	-1.6	-0.7	19.4	
Hungary	8.7	14.2	3.9	2.2	2.0	2.2	2.8	2.9	2.9	1.8	2.0	1.3	1.1	1.0	0.2	-0.1	-0.7	-0.9	63.9	
Iceland	25.0	27.5	1.7	1.4	1.8	0.3	0.2	0.3	0.7	2.4	-6.3	2.0	-1.2	-0.4	9.0	5.1	-4.2	-6.2	10.1	
Ireland	15.9	11.6	6.1	1.7	-7.1	-16.0	4.5	0.3	1.2	7.3	5.2	2.3	-14.0	-10.1	4.3	-10.7	-8.0	-4.5	-27.3	
Italy	12.8	10.1	5.7	2.7	5.0	2.9	0.1	1.4	5.0	-0.6	-3.1	-6.0	-7.7	-1.7	-4.8	-5.1	-6.6	-5.3	-21.3	
Japan	2.9	1.2	-1.2	-3.3	-3.1	-3.5	-4.3	-4.2	-4.2	-5.0	-5.2	-5.3	-5.4	-5.4	-6.9	-7.0	-8.2	-7.8	-58.1	
Kazakhstan	10.6	11.5	-0.2	5.6	3.6	1.5	2.2	0.5	-0.5	-0.6	0.1	-1.4	1.5	1.1	1.0	-7.5	0.3	2.2	8.1	
Latvia	7.1	12.5	6.6	3.6	3.4	4.4	4.6	4.0	4.1	4.0	1.3	-5.0	-2.1	2.5	3.3	4.2	3.0	0.5	77.4	
Liechtenstein	0.4	0.0	-14.1	-14.1	-14.1	-14.0	-14.0	-14.0	-14.0	-14.0	-14.0	-13.9	-13.9	-13.8	-13.8	-13.7	-13.7	-13.7	-94.2	
Lithuania	9.7	11.8	2.2	1.4	1.4	1.3	1.3	1.2	1.3	1.3	0.5	1.1	-1.2	0.1	0.6	0.8	0.1	1.1	22.1	
Luxembourg	9.3	3.6	1.2	-5.1	-4.6	-3.6	-4.6	-4.6	-7.2	-4.8	-3.7	-3.1	-11.7	-6.6	-6.5	-4.7	-7.5	-7.1	-61.4	
Malta	10.9	22.0	7.4	5.4	3.9	4.4	1.4	1.1	1.9	1.0	1.5	1.6	1.9	5.2	4.7	4.2	5.0	4.6	101.8	
Monaco	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Netherlands	38.3	13.4	-0.7	-5.6	-3.7	-3.8	-4.8	-9.1	-6.6	-6.7	-5.3	-6.9	-4.8	-6.8	-6.7	-6.6	-7.6	-6.1	-65.1	
New Zealand	20.9	15.4	-0.7	-0.3	-0.3	-0.5	-1.0	-0.2	0.1	0.5	-0.4	-5.7	-0.7	0.0	-4.7	-0.8	-3.5	-3.1	-26.2	
Norway	18.9	10.5	-1.1	-2.8	-2.6	-3.0	-7.6	-8.6	2.9	-4.7	-5.4	-2.0	-1.6	-7.3	0.2	-3.5	-5.7	0.8	-44.3	
Poland	7.4	8.0	1.5	0.7	1.5	1.8	2.5	2.1	2.4	-3.0	-0.8	-1.0	-0.2	0.4	-1.5	-0.7	-5.1	-1.2	7.8	
Portugal	14.6	23.7	4.2	4.1	4.2	4.3	5.0	4.7	-12.8	12.0	6.3	-3.2	-1.6	-1.0	1.7	-1.2	7.2	5.2	62.5	
Romania	4.8	12.3	0.5	32.3	7.9	4.1	-13.3	28.1	15.4	2.3	14.8	-1.7	-5.1	12.2	-1.2	-3.9	5.4	3.8	155.0	
Russian Federation	9.1	16.6	1.9	2.3	2.4	3.1	2.5	3.2	3.2	2.8	3.4	3.8	4.2	4.0	4.4	3.5	1.7	9.3	83.3	
Slovakia	4.2	13.9	4.8	10.8	9.4	30.2	31.4	24.4	-20.4	4.5	46.6	-3.8	5.5	-7.5	6.7	-4.4	0.2	-11.2	228.9	
Slovenia	7.2	8.4	1.4	0.8	1.2	3.8	3.8	3.4	3.4	2.9	2.5	1.4	2.4	0.6	-2.4	-5.4	-12.0	-10.6	17.2	
Spain	5.8	12.4	8.8	6.4	5.7	6.3	5.2	3.7	3.3	3.9	2.1	-2.2	-1.7	2.2	3.2	2.4	4.0	3.9	111.9	
Sweden	16.0	7.0	0.8	-0.8	-1.0	-1.1	-1.7	-4.3	-3.3	-2.1	-6.9	-6.0	-1.4	-7.3	-4.5	-9.7	-13.2	-7.9	-56.2	
Switzerland	4.9	1.3	-2.4	-2.3	-5.2	-2.8	-4.6	-5.7	-10.1	-6.2	-5.2	-13.1	-4.6	-1.0	-6.8	-4.4	-9.3	-11.1	-10.5	-73.3
Turkey	5.4	19.2	49.9	20.3	9.8	8.8	4.5	3.1	2.2	-1.2	-3.8	2.0	-7.4	6.6	-0.2	4.6	-6.4	-1.2	254.1	
Ukraine	4.8	7.5	3.1	1.2	1.5	1.7	2.1	2.5	2.6	2.7	3.3	3.0	2.5	1.9	2.9	2.3	2.4	2.7	54.3	
United Kingdom	46.8	12.4	-4.8	-5.0	-5.1	-8.9	-7.8	-9.8	-7.6	-13.4	-9.7	-13.1	-8.6	-4.0	-2.9	-3.2	-3.7	-3.7	-73.6	
United States	28.1	18.2	-0.7	-6.1	-3.5	-7.7	-6.8	-5.3	-3.7	-6.1	-0.6	3.8	-4.4	1.6	-1.6	-1.4	3.2	0.5	-35.2	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 6.4

CH₄ recovered from managed solid waste disposal sites - trend information

CH ₄ emissions (Gg)			Relative change (%)																	
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	2	215	0.0	-18.7	221.9	7.4	32.7	-6.7	6.5	1.1	-1.8	37.0	12.2	5.1	7.0	-2.9	-4.9	4.6	9284.6	
Austria	4	12	19.3	23.4	19.3	7.8	0.9	4.5	4.0	4.6	-12.1	-7.5	-4.2	-8.0	-13.1	-6.3	0.3	-7.5	193.5	
Belarus	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Belgium	NO	33	*	48.1	74.2	-5.3	8.4	15.6	2.8	42.3	2.2	-4.9	-13.3	5.8	-2.1	-3.8	-2.4	-6.5	*	
Bulgaria	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Canada	193	349	1.5	9.0	8.7	1.2	1.5	1.5	6.7	6.3	-0.1	-0.1	0.2	0.2	-2.8	8.3	5.4	0.4	81.3	
Croatia	NO	2	*	*	*	*	*	*	*	*	*	*	*	*	*	-35.0	23.3	10.3	-1.7	*
Czech Republic	3	23	0	0	74.8	95.5	10.8	4.7	-2.3	5.3	9.8	3.4	2.6	4.0	13.9	26.5	-5.2	-0.3	613.2	
Denmark	1	5	39.3	60.6	9.7	36.5	18.2	-12.9	-3.9	-9.1	11.8	-29.1	38.6	-11.6	-18.3	-3.6	-36.8	-3.4	830.3	
Estonia	NO	4	*	*	29.4	-11.8	-27.8	52.9	-29.0	7.9	36.6	0.9	-25.7	74.4	0	17.3	-11.9	34.3	*	
European Union (27)	642	3312	21.1	11.6	9.4	16.7	10.7	15.0	5.3	10.8	6.7	6.8	6.5	1.3	0.4	0.1	1.0	1.0	416.2	
Finland	NO	32	*	45.3	51.9	48.0	61.1	-5.2	70.2	16.2	43.4	18.5	9.3	22.5	-13.6	5.9	4.1	-1.2	*	
France	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Germany	126	421	7.9	6.0	8.0	36.8	7.7	24.6	0.9	1.1	1.1	0.8	17.1	5.2	2.9	-3.3	-5.4	0	234.1	
Greece	NO	46	*	26.2	21.0	17.6	40.0	102.8	6.6	4.0	25.5	4.9	24.7	23.7	-0.5	17.4	10.2	7.0	*	
Hungary	NO	2	*	*	*	*	*	*	*	*	*	*	*	*	2181.7	84.8	1.2	38.4	*	
Iceland	NO	1	*	*	*	*	128.6	45.4	23.2	-5.3	172.2	3.2	22.5	10.7	-41.9	-54.4	87.8	14.8	*	
Ireland	NO	72	*	*	*	*	*	*	16.0	1.6	3.4	8.0	48.6	24.2	1.6	20.0	12.9	5.3	*	
Italy	107	489	4.3	3.1	5.1	5.8	19.5	9.2	-2.7	20.6	14.8	10.8	14.0	1.3	11.8	6.0	8.6	6.8	355.5	
Japan	1	0	-38.0	102.7	6.7	13.1	-5.5	18.3	-29.9	-11.9	-7.1	-20.4	1.1	-89.1	711.7	-21.5	-0.5	7.2	-56.4	
Kazakhstan	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Latvia	NO	6	*	*	*	*	*	*	*	*	*	251.0	49.5	4.0	3.1	4.6	3.9	11.4	*	
Liechtenstein	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Lithuania	NO	1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	201.9	*	
Luxembourg	NO	0	*	*	*	*	*	*	*	0	-11.6	-24.7	197.5	3.1	10.5	-6.7	-3.9	-12.4	*	
Malta	NA	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Monaco	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Netherlands	26	37	37.0	14.9	-6.3	-14.2	-9.4	23.4	-0.8	1.4	-6.1	-0.2	-16.5	-9.8	-3.4	0.1	-2.9	-15.1	44.8	
New Zealand	7	38	3.1	2.0	1.8	1.8	4.8	0.7	0.8	0.8	0.9	27.6	5.3	5.6	19.9	5.7	13.2	10.6	420.1	
Norway	1	21	182.5	28.1	16.7	14.7	44.0	33.2	-15.1	9.4	7.7	-3.0	-4.8	12.9	-10.0	0.9	8.0	-8.8	2084.5	
Poland	NA	6	*	*	*	*	*	*	*	*	15.4	12.1	-9.7	2.1	21.9	11.1	62.9	3.8	*	
Portugal	NO	18	*	*	*	*	*	*	*	*	*	*	*	164.4	-11.2	107.2	53.5	7.5	*	
Romania	NO	13	*	*	*	*	*	*	*	*	96.2	47.1	30.8	22.6	97.3	37.6	9.7	1.4	*	
Russian Federation	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Slovakia	IE	2	*	*	*	*	*	*	*	*	*	*	*	100.0	8.8	35.1	236.0	0	*	
Slovenia	NO	10	167.0	38.0	24.9	7.3	6.8	6.4	6.0	5.7	6.6	8.1	-0.9	5.0	17.4	19.9	7.0	22.6	*	
Spain	3	118	26.2	14.0	27.9	11.4	27.4	17.7	32.6	7.0	28.7	47.6	49.5	4.8	2.1	2.2	-0.4	0.5	3954.2	
Sweden	12	24	12.5	0	0	0	0	10.0	3.0	-4.7	10.9	1.4	-17.3	-2.4	-16.5	-0.1	9.9	-10.2	102.0	
Switzerland	0	NO	16.3	-11.2	-12.6	-2.5	-0.8	-33.6	-36.4	-36.6	-57.6	-34.6	-76.4	-40.8	-69.1	-71.7	-20.7	*	*	
Turkey	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Ukraine	NO	NO	*	*	*	*	*	*	*	*	*	*	0	*	*	*	*	*	*	
United Kingdom	359	1937	29.8	13.2	10.1	17.2	11.2	12.1	7.1	12.3	6.3	7.0	2.5	-0.7	-1.9	-2.1	0	0	438.9	
United States	970	7208	18.7	31.5	13.7	22.6	16.0	11.8	8.1	8.9	5.7	2.3	10.8	3.6	5.9	4.9	0.7	3.0	643.4	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 6.5

Waste generation rate - trend information

	Waste generation (kg/person/day)		Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	2.66	2.50	2.7	0.6	0.3	1.9	5.1	-3.6	2.7	-4.1	0.6	1.0	2.6	-2.8	-0.3	1.0	0.7	-10.1	-6.0
Austria	0.94	0.08	-7.8	-4.4	4.9	-1.6	0.6	3.4	-1.7	-2.5	6.5	15.2	-72.6	0.0	8.0	-10.1	-27.7	-43.1	-91.1
Belarus	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Bulgaria	2.36	2.05	6.9	-7.4	-8.0	-8.7	-9.7	-11.0	2.5	-2.1	69.9	11.5	-3.7	6.9	-3.9	-8.5	-6.9	-7.4	-13.0
Canada	1.68	3.13	10.0	3.8	3.6	3.4	9.4	1.3	1.1	1.4	1.3	1.7	1.6	3.1	2.9	2.8	1.8	1.7	86.6
Croatia	0.57	1.07	3.8	5.0	7.8	2.8	6.4	2.8	-3.7	7.0	7.0	6.5	0.4	0.6	12.3	3.5	6.3	-3.0	87.0
Czech Republic	1.00	1.16	2.3	2.4	2.5	2.5	2.4	-7.6	0.2	2.9	10.4	-1.9	0.0	-4.7	-10.6	3.2	3.0	2.4	15.5
Denmark	5.42	6.89	2.1	2.8	11.8	-0.9	-5.1	-0.4	6.2	-2.4	2.3	-4.0	5.6	6.1	8.4	-0.8	0.0	-10.9	27.1
Estonia	0.93	0.99	0.0	12.2	9.7	6.5	-5.0	2.3	6.7	-29.9	8.7	4.9	4.7	3.0	4.7	-15.9	-5.6	-15.8	6.5
European Union (27)	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Finland	1.55	1.43	-7.3	-4.4	-2.4	1.2	1.8	3.9	2.6	-8.1	-1.0	1.6	0.8	1.8	3.4	2.4	3.0	-0.5	-7.9
France	1.63	1.98	1.3	2.5	2.1	2.7	-0.7	2.3	9.6	-0.4	-0.4	0.5	0.5	0.0	0.1	-1.0	-1.0	-0.6	21.0
Germany	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Greece	0.82	1.24	0.6	3.0	2.9	3.0	3.3	3.2	3.0	3.1	1.5	1.2	1.2	1.0	1.1	1.0	1.1	1.1	50.7
Hungary	1.10	1.23	-3.1	1.0	3.0	6.7	2.7	1.8	5.2	1.6	0.8	1.6	-2.4	1.6	1.6	-2.3	-0.7	-1.0	11.8
Iceland	3.36	4.93	0.5	11.4	2.0	1.3	0.9	0.7	0.9	1.3	1.0	1.8	1.8	3.5	2.2	5.5	20.6	-11.5	46.7
Ireland	1.41	1.81	0	0	2.7	2.7	2.6	8.9	8.1	7.5	-1.2	5.6	1.2	-0.8	8.4	-1.9	-6.9	-9.2	29.0
Italy	1.07	1.55	5.0	-1.1	0.5	2.3	0.8	5.5	1.8	1.3	1.2	0.2	3.4	1.4	2.0	-0.7	-0.9	4.6	45.4
Japan	1.12	0.99	-0.2	-0.1	0.8	-0.2	0.5	3.7	2.2	-0.4	-1.2	-0.3	-1.5	-1.3	-1.4	-2.3	-5.1	-3.8	-11.3
Kazakhstan	0.70	0.80	0	2.8	2.7	2.7	2.6	1.3	0	0	1.3	-1.2	0	0	0	0	0	0	14.3
Latvia	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Liechtenstein	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lithuania	0.92	0.88	-0.6	0.5	0.6	0.8	0.8	0.0	4.2	-3.4	1.0	-14.6	7.2	4.3	1.9	3.0	4.6	-7.9	-4.2
Luxembourg	NE	NE	*	*	-0.3	-1.2	1.8	3.1	2.0	-1.0	1.1	3.6	0.0	-1.1	*	*	*	*	*
Malta	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Monaco	NO	0.38	*	-2.0	2.4	7.0	-0.6	-8.7	6.4	-5.2	-5.0	10.3	5.7	-14.9	-20.1	26.5	-24.1	41.1	*
Netherlands	1.52	1.70	0	-2.2	2.6	4.7	0.5	1.0	2.9	-0.1	1.2	-1.9	2.0	0	-0.3	0	0	0	11.8
New Zealand	2.35	2.05	0	0	-5.3	-5.6	-5.9	1.2	1.2	1.2	1.2	-0.1	2.3	-1.6	-1.6	0	0	0	-12.6
Norway	1.29	1.29	5.1	14.5	0.9	-2.0	4.4	-7.9	3.3	-41.2	8.7	2.6	3.0	2.7	7.9	6.9	-0.8	-3.6	-0.4
Poland	0.87	0.72	-4.5	-0.3	5.7	4.8	0.7	0.4	0.3	-9.1	-5.3	-5.5	-1.6	-4.1	5.7	2.1	-0.5	0.1	-17.4
Portugal	0.76	1.15	3.0	3.5	3.4	3.3	3.3	3.2	1.9	4.6	1.7	1.8	-1.1	-1.8	4.7	0.0	1.0	1.0	51.8
Romania	0.57	1.16	-0.2	29.0	7.4	3.6	8.7	8.0	2.6	2.8	5.9	5.9	1.6	0.0	0.2	0.0	-0.3	0	105.0
Russian Federation	0.66	1.27	1.1	1.7	1.7	1.8	1.7	2.0	6.2	-1.7	6.7	7.1	7.9	2.7	7.9	5.6	3.7	4.8	91.5
Slovakia	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovenia	1.29	1.11	0	0	0	0	-0.4	0.4	-2.7	-0.1	-2.9	1.6	-7.5	1.2	2.2	1.9	3.2	-10.2	-13.5
Spain	0.88	1.69	10.6	1.2	4.5	12.7	3.4	3.1	1.9	0.4	3.4	-1.0	8.1	1.0	3.8	-0.4	3.9	-2.1	93.1
Sweden	1.02	1.32	0	0	-0.3	12.1	5.0	-1.9	-0.5	3.5	5.9	-0.1	-1.1	4.1	2.8	4.0	-0.5	-6.1	29.1
Switzerland	2.03	2.26	-4.7	1.2	1.4	3.4	4.3	5.3	2.4	-0.7	-0.5	0.5	1.7	4.4	6.6	-9.0	0.2	0.0	11.5
Turkey	NE	NE	*	15.4	8.2	6.6	3.3	-9.4	-0.8	-0.4	-0.8	2.7	-5.1	-0.4	-7.5	*	*	*	*
Ukraine	0.79	1.20	-12.7	9.6	7.0	6.6	7.7	7.1	5.3	11.4	1.1	1.1	1.1	16.5	-3.8	-1.0	18.8	0	51.9
United Kingdom	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
United States	2.04	2.04	-1.1	-2.8	-2.0	3.7	0.9	2.6	-0.9	-2.6	0.4	-0.2	2.6	-0.6	0.4	-0.4	-2.8	0	0

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 6.6a

CH₄ emissions from waste-water handling - trend information

CH ₄ emissions (Gg)	Relative change (%)		Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	161	123	-1.4	-3.9	-4.5	-3.2	-3.4	-1.6	-0.8	5.2	-1.6	-3.7	1.4	-4.3	0.4	2.3	0.6	-0.3	-23.1
Austria	5	1	-0.3	-4.1	-8.0	-8.8	-9.7	-7.9	-8.6	-9.3	-10.3	-10.7	-7.8	-8.5	-9.6	-6.3	-6.7	0.3	-73.2
Belarus	NE	NE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	10	6	0.5	-1.6	-1.6	-2.9	-3.3	-13.4	-4.4	-9.8	-4.7	-3.2	-2.9	-1.3	0.2	-3.7	-4.4	-0.2	-44.2
Bulgaria	102	33	-18.6	23.6	-4.1	-11.9	-10.5	-9.0	-4.4	-13.8	-3.6	106.7	0.2	-50.0	5.6	-0.2	-7.3	-5.9	-68.1
Canada	13	16	1.4	1.3	1.2	1.0	1.0	1.0	1.3	1.4	1.3	3.6	-1.6	1.7	1.7	1.1	1.1	0.7	25.5
Croatia	13	8	-2.5	125.5	-9.8	-27.9	-25.0	2.2	-4.3	13.3	-32.0	124.3	-25.4	-34.2	34.6	-6.8	-7.3	5.8	-36.9
Czech Republic	39	24	-3.6	-4.1	-6.9	3.9	-2.2	-7.0	-6.1	-3.6	7.3	-7.8	-0.6	-0.5	2.2	-1.5	0.0	-1.3	-38.5
Denmark	3	4	0.2	1.3	2.1	2.1	0.2	-0.6	3.2	0.2	-2.2	2.1	-0.7	0.9	0.1	0.5	0.3	0.3	12.7
Estonia	5	0	-12.9	48.6	19.3	21.8	2.7	8.9	3.9	-20.2	6.1	-27.1	-48.4	5.9	0.1	-4.0	-5.1	-12.1	-95.5
European Union (27)	968	722	-3.1	-0.3	-2.1	-0.7	0.3	-1.9	-8.6	-3.3	1.1	5.5	1.9	-4.2	1.1	-2.5	-2.7	-2.7	-25.4
Finland	7	6	-5.8	1.8	-2.6	-1.3	-2.5	-2.9	-1.7	-1.3	3.5	-2.1	-0.2	-2.7	0.7	0.2	-1.4	-5.1	-21.4
France	40	57	4.7	3.7	3.8	3.8	3.7	3.5	1.0	1.1	-0.4	-0.4	-0.4	-0.5	-0.6	0.6	0.6	0.5	43.4
Germany	106	4	-23.3	-5.3	-25.2	-33.7	-50.8	-9.7	-10.7	-12.0	-5.0	-5.3	-5.5	-7.6	-8.3	-9.0	-9.9	-11.0	-96.4
Greece	135	40	-2.8	-2.6	-0.2	-7.4	3.4	-5.5	-9.6	-21.7	-12.2	-13.4	-1.4	-12.6	0.6	-12.0	-14.2	-2.7	-70.4
Hungary	40	23	-0.8	-0.1	-0.1	-1.0	-1.8	0.3	-2.5	-8.8	8.0	-7.5	-2.6	-2.6	-7.6	-7.0	-5.3	-9.6	-43.8
Iceland	1	1	-2.4	9.2	5.2	0.1	-7.4	4.6	2.8	-1.4	6.8	7.9	-9.3	-11.5	-0.7	-11.5	-2.8	11.2	19.1
Ireland	1	1	0.6	-2.6	0.7	37.5	1.1	6.3	1.7	3.7	1.8	-4.6	5.1	-38.2	2.1	2.0	2.0	1.9	6.8
Italy	95	130	4.1	-0.2	0.8	1.3	0.4	0.4	3.7	3.8	3.0	2.1	2.8	2.5	0.6	0.3	-0.9	0.0	36.8
Japan	101	59	-2.0	-3.1	-1.9	-2.5	-2.5	-2.8	-2.9	-3.3	-3.2	-2.7	-2.4	-3.5	-2.4	-3.1	-1.3	-4.8	-41.1
Kazakhstan	20	18	0.4	-3.5	-1.2	-2.0	-1.2	-0.4	0.4	0.3	0.1	1.8	1.3	1.2	1.1	0.7	1.8	0.8	-7.2
Latvia	19	10	-4.5	-4.4	-2.3	2.6	2.9	-1.1	23.9	8.3	0.3	0.2	15.1	-5.4	-24.7	-3.9	33.4	-17.1	-47.4
Liechtenstein	0	0	4.8	-9.4	6.7	1.8	8.2	7.7	0.9	-3.8	-4.2	3.6	4.4	-3.8	8.2	7.6	3.2	-5.5	51.9
Lithuania	37	23	-12.7	-3.4	1.0	7.1	5.2	-19.8	12.9	0.8	-14.7	13.1	6.5	-4.9	4.8	4.9	-1.9	-2.6	-38.7
Luxembourg	0	0	-2.5	-2.8	-3.5	-3.6	-3.7	-3.9	-4.0	-2.9	-3.0	-3.0	-3.1	-3.9	-1.5	-0.4	-6.9	-8.5	-48.6
Malta	1	1	0.6	0.8	0.5	2.9	-1.0	-4.3	4.6	-25.2	0.7	0.6	0.7	0.6	0.7	0.6	-5.3	-6.3	-25.2
Monaco	NA, NO	NA, NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	14	10	33.4	-14.3	-1.4	-2.5	-0.5	2.4	-6.5	-0.3	2.3	-6.1	2.5	-5.1	-2.2	1.2	-2.7	4.8	-28.4
New Zealand	18	21	4.9	1.2	1.8	-0.4	1.0	-1.5	3.1	2.0	-1.6	2.1	0.0	4.2	0.1	-1.5	1.1	-1.1	18.7
Norway	1	0	-4.3	-5.5	-5.8	-6.2	-6.7	-7.2	-7.9	-8.8	-9.7	-14.2	20.1	2.7	4.6	-2.1	1.3	1.3	-49.7
Poland	82	52	13.0	-7.7	1.5	9.1	7.3	4.6	-57.2	-0.5	1.7	2.5	1.6	1.4	1.3	2.2	1.4	1.7	-36.9
Portugal	118	89	1.9	1.7	-5.8	1.8	2.2	-5.4	-12.1	-3.6	6.1	5.6	3.4	4.0	0.8	-11.7	-10.3	-10.2	-24.5
Romania	19	42	-11.8	-22.1	-3.8	-1.1	-4.0	0.6	92.7	22.6	18.9	15.6	12.7	7.0	10.2	2.1	-1.3	-1.1	122.4
Russian Federation	1,189	1,039	-8.5	5.9	-10.4	0.9	3.1	11.9	8.6	3.8	3.7	4.2	4.1	4.6	3.6	1.9	0.8	-2.7	-12.7
Slovakia	20	17	-0.5	-3.4	-0.4	-0.5	0.6	0.0	0.8	-1.1	0.0	-0.2	-1.0	-1.4	-0.2	-0.4	-0.7	-2.7	-11.9
Slovenia	10	8	-6.7	-0.3	-1.1	11.6	3.1	2.4	2.5	-2.2	1.4	-1.1	-10.4	3.9	15.9	-7.9	-11.4	1.6	-23.9
Spain	59	110	3.6	3.3	2.7	5.8	4.7	3.7	2.9	3.3	4.4	3.8	2.9	3.2	3.2	2.6	1.8	-0.2	85.4
Sweden	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0.8	0.6	1.4	-0.6	2.1
Switzerland	0	2	1.8	1.3	1.9	1.4	2.2	1.3	1.3	1.0	1.4	1.4	1.2	56.4	13.2	31.5	120.4	13.8	642.0
Turkey	93	96	1.7	0.3	0.2	0.2	1.4	0.1	0.1	0.0	0.0	-0.1	-0.1	-0.2	1.2	1.2	-6.1	-0.4	3.1
Ukraine	76	71	1.6	0.0	-0.2	-1.3	-1.6	-1.4	-1.5	-0.8	-1.0	-0.4	-0.5	0.0	-0.7	-0.3	-0.3	-0.4	-6.5
United Kingdom	14	16	-0.1	1.8	-0.7	4.5	-0.7	1.3	-0.1	10.3	1.4	4.0	2.0	0.6	1.0	-1.9	0.3	-4.0	20.2
United States	1,118	1,167	1.6	0.6	0.3	1.3	0.0	0.4	-0.5	-1.8	-0.2	-0.7	0.1	-0.9	0.7	-0.3	0.4	-0.1	4.4

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 6.6b**N₂O emissions from waste-water handling - trend information**

N ₂ O emissions (Gg)	Relative change (%)																			
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009	
Australia	1.11	1.39	1.4	-0.8	2.5	5.7	1.7	0.7	0.8	0.8	0.9	1.6	0.9	0.9	1.2	1.5	4.4	-2.4	25.4	
Austria	0.35	0.84	-0.8	12.8	12.9	7.1	8.9	9.4	14.1	11.7	0.3	-0.9	-0.6	5.2	6.0	1.6	1.6	0.3	138.3	
Belarus	0.73	0.68	-2.7	-4.6	6.5	4.5	4.3	4.2	0	1.3	0	-4.2	1.6	1.4	0.4	-0.4	-3.1	-6.7	-7.1	
Belgium	0.95	0.95	1.9	-0.9	-0.4	0.2	1.4	2.2	-8.8	5.8	-2.0	-0.5	0.8	-0.2	0.3	0.2	0.4	0.4	0.0	
Bulgaria	0.73	0.53	-0.9	-5.3	-0.5	-0.7	-0.6	-0.5	-0.5	-2.7	-1.1	-0.6	-0.5	-8.8	-0.5	-0.3	-0.7	-0.6	-26.6	
Canada	1.66	2.16	2.6	2.0	1.2	2.9	1.8	1.8	1.9	2.5	0.8	-0.5	1.5	-0.5	0.9	2.2	-1.0	0.6	30.3	
Croatia	0.29	0.33	-6.6	7.8	-5.2	0.5	-2.3	7.2	-2.7	7.5	6.2	0.5	-0.3	0.9	4.7	0.7	0.7	0.6	13.5	
Czech Republic	0.52	0.66	-0.5	0.0	-0.2	-0.1	-0.1	-0.1	25.0	-0.8	0.0	0.0	0.1	0.2	0.3	0.6	1.4	0.2	26.6	
Denmark	0.40	0.30	-2.3	-3.6	-13.5	-4.8	2.4	-2.9	6.8	-5.3	14.1	-17.9	-2.4	11.0	-12.1	13.3	17.0	-26.5	-24.8	
Estonia	0.24	0.23	-0.2	-2.0	-1.6	-1.3	-0.9	-1.0	-0.5	-0.4	-0.4	-0.4	11.8	-0.3	-0.2	-0.2	-0.1	0.0	-4.2	
European Union (27)	39.54	41.10	0.6	-0.4	0.3	0.4	0.7	0.6	0.9	-0.4	1.0	-0.1	0.6	0.5	-0.1	0.7	0.2	-0.6	4.0	
Finland	0.46	0.30	-4.5	0.5	-3.0	-1.3	-5.0	-3.9	-0.3	-0.1	-4.6	1.0	-1.7	-3.4	-1.1	-1.4	3.2	-9.1	-34.9	
France	4.48	3.69	5.0	0.7	-1.6	-2.2	-2.4	-1.2	0.2	-2.7	-2.8	-2.6	-1.1	-2.1	-2.0	-0.4	-1.3	-0.9	-17.5	
Germany	7.17	7.43	0.7	0.3	0.2	0.8	0.7	0.8	0.1	0.2	1.1	1.0	0.0	-0.1	-0.1	-0.1	-0.3	-0.2	3.6	
Greece	1.06	1.24	1.9	0.8	-0.3	2.0	0.3	2.3	-0.5	-0.7	0.0	0.2	0.3	1.6	0.5	0.4	0.2	0.4	16.8	
Hungary	0.67	0.64	-2.9	0	-6.5	0	-1.7	3.5	5.1	-3.2	0	10.0	1.5	0.2	-1.0	-3.3	-0.6	-0.1	-4.7	
Iceland	0.02	0.03	1.5	0.4	0.7	0.9	1.2	1.4	1.4	1.2	0.7	0.8	1.0	2.1	2.6	1.8	0.0	1.5	24.2	
Ireland	0.37	0.47	1.4	-3.1	1.1	3.0	2.1	2.8	4.2	-0.8	1.3	1.6	1.6	2.1	4.2	2.6	2.3	1.9	0.8	27.1
Italy	5.91	6.34	1.2	-0.9	2.7	-0.6	2.7	2.8	0.4	-2.7	0.1	-0.4	2.2	-0.1	0.0	0.6	2.6	-0.1	7.2	
Japan	4.15	3.51	1.7	-1.4	1.8	0.8	-1.3	-3.0	-1.0	-1.5	-1.3	0.6	0.6	-2.6	0.1	-1.8	1.5	-6.0	-15.5	
Kazakhstan	1.50	1.41	-3.3	-6.3	-6.7	-7.1	-7.7	-8.3	-9.1	10.0	0	9.1	8.3	0	0	-0.8	7.6	1.6	-5.9	
Latvia	0.21	0.17	-0.5	-1.7	-1.5	-1.2	-1.0	-0.8	-1.8	0.8	-1.2	-0.9	-0.4	-0.8	-0.9	-0.5	-0.9	-0.1	-17.8	
Liechtenstein	0.00	0.00	1.2	1.0	0.7	0.6	2.2	1.3	1.3	2.0	1.0	1.3	0.9	0.9	0.8	0.6	0.6	0.9	23.7	
Lithuania	0.26	0.24	0.4	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.3	-0.1	-0.2	-0.3	-0.4	-0.4	-0.3	-0.3	-0.3	-5.6	
Luxembourg	0.03	0.04	1.9	-0.4	-6.2	1.9	3.6	3.0	4.0	3.1	-9.6	2.3	8.7	1.8	2.3	2.7	-6.9	0.7	20.5	
Malta	0.03	0.04	1.1	0.5	0.8	0.7	0.6	0.6	0.7	0.8	0.7	0.6	0.7	0.6	0.7	0.6	0.8	-0.2	14.1	
Monaco	0.00	0.00	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	-6.2	0.6	5.7	0.1	10.0	
Netherlands	1.50	1.41	0.9	-4.8	-1.2	1.9	0.9	-1.4	0.2	0.7	0.5	-2.4	0.6	2.1	0.3	2.4	1.1	-4.7	-5.9	
New Zealand	0.50	0.58	1.7	0.9	0.9	0.6	0.4	0.3	0.3	0.6	1.1	4.0	2.5	-1.1	0.7	0.6	2.3	-2.0	17.1	
Norway	0.38	0.51	-0.4	2.4	5.0	6.2	0.0	0.7	-8.9	1.8	-6.1	5.8	0.4	1.3	4.3	5.0	3.7	4.7	36.0	
Poland	3.68	3.59	1.9	1.1	1.3	-1.2	1.9	-0.2	-1.1	-1.0	0.8	0.4	0.2	1.0	0.0	1.4	0.0	0.1	-2.5	
Portugal	1.49	1.69	2.7	0.2	-1.6	4.3	4.5	1.3	0.4	-3.2	4.7	1.6	2.8	-0.3	-2.2	2.6	-5.2	-5.5	13.5	
Romania	0.55	0.93	-0.3	-12.4	-0.4	2.0	1.2	1.2	8.5	6.7	18.2	6.9	5.6	5.3	9.3	1.4	0.5	0.2	68.8	
Russian Federation	17.49	13.05	-14.1	-1.2	-1.5	1.3	-0.6	-2.1	-1.7	2.5	2.8	1.0	0.4	2.4	-0.7	1.4	1.5	0.7	-25.4	
Slovakia	0.45	0.26	-4.5	3.0	0.9	-0.7	-2.4	-4.9	-9.5	-3.4	10.8	-16.4	-1.6	3.7	-1.5	-2.9	-6.7	-1.2	-40.8	
Slovenia	0.19	0.19	-6.1	4.8	3.7	-2.4	-1.0	8.0	0.1	-4.1	-1.7	1.3	-1.7	2.7	-0.3	0.9	0.3	0.7	0.3	
Spain	3.46	4.08	-3.8	-3.6	-0.2	4.8	1.3	1.0	-0.8	2.8	3.7	1.6	1.0	1.5	-0.3	2.7	2.2	1.4	18.0	
Sweden	0.68	0.51	-3.3	2.2	-4.1	-4.3	-4.3	-4.2	-3.0	-2.2	-1.1	-0.3	-0.7	1.5	0.9	-1.0	0.1	-0.7	-24.8	
Switzerland	0.58	0.66	1.2	0.6	0.3	0.1	0.3	0.5	0.6	1.1	0.8	0.8	0.7	0.6	0.8	0.8	1.1	1.0	14.4	
Turkey	4.34	5.66	1.7	1.6	1.5	1.5	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	30.4	
Ukraine	5.02	3.33	-6.6	-6.2	-3.8	-2.3	0	-4.4	0.9	1.5	3.6	-2.6	2.1	-0.9	0.3	-2.3	1.2	-2.1	-33.7	
United Kingdom	4.03	4.44	-0.7	1.3	2.9	0.0	-0.5	-1.1	4.8	0.9	0.5	-0.6	-0.4	1.9	0.0	-0.4	-2.2	0.6	10.1	
United States	11.90	16.19	2.3	0.1	2.0	0.1	2.4	3.4	2.1	2.9	-1.7	1.0	2.1	2.4	1.1	1.5	1.4	1.3	36.1	

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 6.7

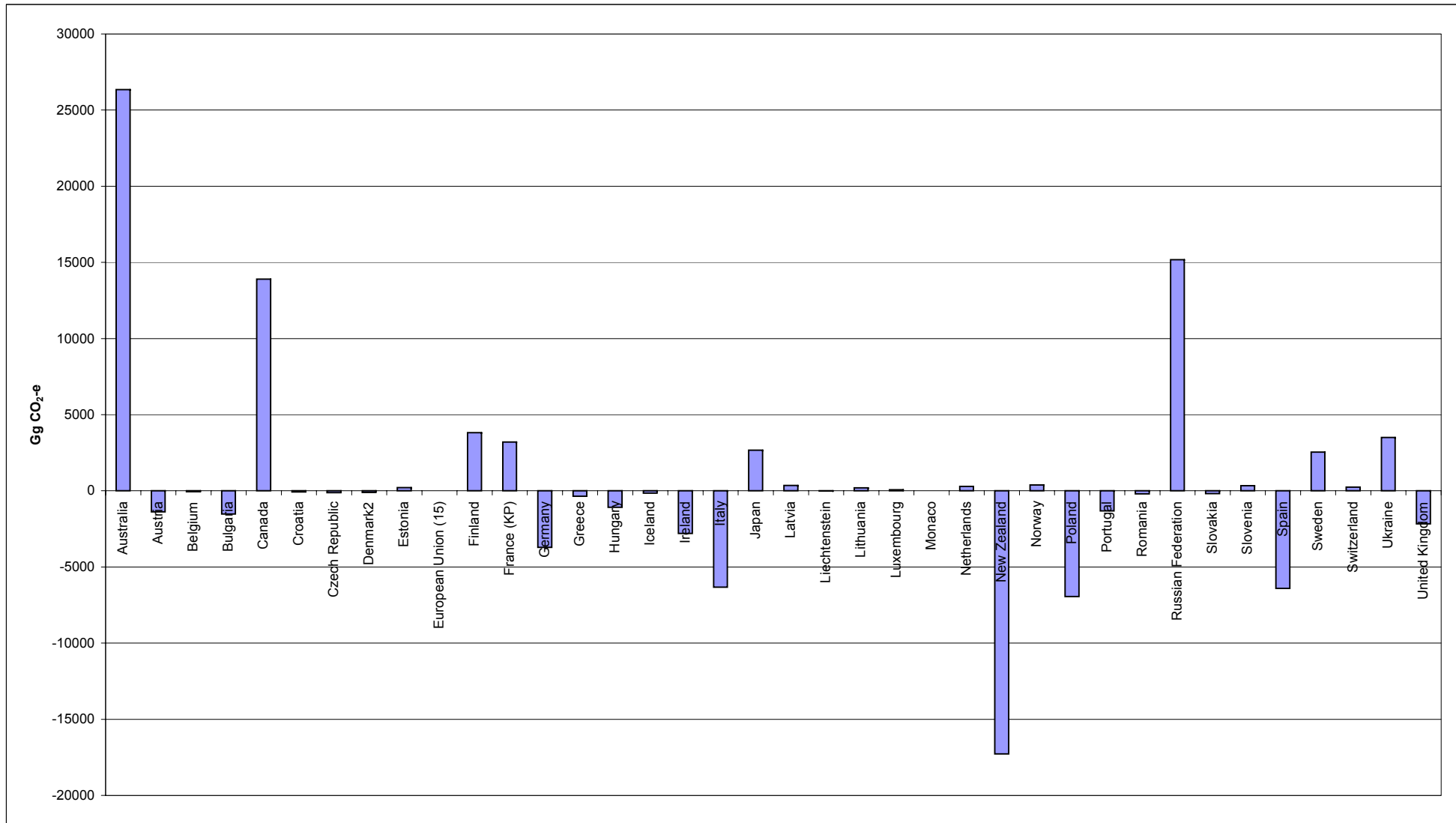
CO₂ emissions from waste incineration - trend information

CO ₂ emissions (Gg)			Relative change (%)																
	Base year ^a	2009	1990 to 1991	1994 to 1995	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	Base year ^a to 2009
Australia	73	30	0.2	7.7	-27.0	-51.9	1.2	1.8	-3.9	0.5	0.6	0.6	0.6	0.5	1.0	1.2	1.5	1.4	-59.2
Austria	27	12	-13.0	3.0	2.9	2.9	2.8	2.7	0	0	0	0	0	0	0	0	0	0	-54.4
Belarus	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Belgium	253	77	-51.5	-29.1	3.6	16.6	-13.0	25.8	6.8	2.4	6.6	15.3	-31.3	-9.2	-30.7	6.3	6.4	-15.2	-69.7
Bulgaria	19	34	1.7	1.3	-1.4	0.8	65.7	-18.4	118.0	-36.1	-2.3	13.2	58.1	-20.4	-5.9	-32.8	21.9	-21.5	78.1
Canada	267	200	-4.7	-2.4	-2.8	-3.2	-3.5	-9.2	1.9	0.0	-12.0	1.8	1.8	2.0	1.8	2.0	1.8	1.6	-25.3
Croatia	0	0	-5.5	0.4	-3.7	1.7	-1.6	1.2	-3.8	1.3	0.1	0.0	2.4	-18.2	19.4	106.3	201.7	-49.3	193.2
Czech Republic	59,681,875	306	0.3	7.6	2.9	3.1	23.1	11.4	5.9	20.1	7.3	4.5	-0.4	-5.2	-0.5	5.8	2.5	-10.4	413.2
Denmark	3	3	0.9	2.6	6.3	4.7	11.8	-2.9	-6.8	2.1	-1.5	-3.1	-2.5	0.6	0.4	-0.2	-0.4	0.4	15.0
Estonia	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
European Union (27)	4,494	3,190	-4.5	-3.7	-0.4	-12.8	0.7	-7.4	1.6	0.3	2.0	-2.7	-4.8	4.0	5.9	-15.8	1.7	8.8	-29.0
Finland	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
France	1,737	1,797	-1.5	-0.7	-2.6	-9.1	-5.5	-4.0	5.2	-2.8	0.8	0.0	-5.5	6.4	4.0	-11.2	7.7	22.8	3.4
Germany	NO	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Greece	0.15048	4	0	0	0	0	0	0	0	0	173.3	90.9	24.6	90.7	21.0	35.8	17.9	-2.3	2245.4
Hungary	NA	68	*	*	*	*	*	*	*	*	*	*	*	-10.0	48.9	-8.4	0.1	6.3	*
Iceland	19	0	-0.8	-11.8	-10.4	-3.6	-15.3	-18.2	-6.0	-7.3	-7.1	-14.7	-53.0	-98.9	0	0	0	0	-99.9
Ireland	NE	NO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Italy	537	250	4.7	-7.8	-2.3	7.5	-0.7	-22.0	-48.8	10.3	10.2	-11.9	-7.7	22.8	9.3	-10.2	4.0	0.0	-53.5
Japan	12,263	13,984	0.3	1.9	2.8	3.6	0.1	-1.4	1.0	-7.3	-3.6	0.0	-3.6	-3.7	-6.1	2.4	6.8	-2.6	14.0
Kazakhstan	NO	8	*	*	*	*	*	*	*	*	*	*	*	*	*	14050.0	47.9	798.7	*
Latvia	NO	0	*	*	*	*	*	*	59.9	98.6	-87.2	22.2	20.1	-0.1	244.2	-21.8	-57.4	-32.7	*
Liechtenstein	0	0	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-2.9	2.8	0.9	1.5	1.2	7.0
Lithuania	4	1	8.4	261.1	-66.2	-0.9	5.1	-56.6	195.4	32.1	-8.2	169.0	-48.7	84.4	-8.2	-85.9	-17.2	5.8	-83.9
Luxembourg	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Malta	0	0	0	0	0	0	-6.7	0	0	0	0	0	-8.6	0	0	0	11.5	34.9	28.2
Monaco	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Netherlands	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
New Zealand	13	1	0	-1.3	-2.9	-0.7	-0.9	-5.3	-48.4	0	-9.9	-10.9	-5.4	-18.9	-33.4	-61.4	-1.3	0	-92.9
Norway	0	NA, NO	0	-18.3	-8.3	5.0	5.5	-16.2	-40.8	0	-41.1	0	0	0	*	*	*	*	*
Poland	567	231	-10.1	1.2	1.4	-0.2	6.3	-16.3	26.7	-4.6	3.7	-18.4	-22.4	9.2	-2.2	0.3	-19.8	-2.0	-59.3
Portugal	10	1	0.0	0.0	11.7	16.4	-24.7	-11.7	-32.1	-54.5	-12.0	-15.2	-23.4	-30.5	-43.9	0	0	0	-94.0
Romania	NE, NO	8	*	24.7	19.8	16.5	14.2	12.4	37.2	13.2	4.8	9.7	25.0	66.6	103.9	-97.1	-19.1	-5.4	*
Russian Federation	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Slovakia	63	5	0	0	0	-27.8	101.1	-30.6	-0.6	-16.9	-52.7	6.9	6.1	-21.8	121.5	-84.5	-24.0	-12.3	-92.0
Slovenia	NO	4	0	-48.8	45.1	-53.2	141.5	144.5	22.5	1.2	-12.2	41.3	-12.8	-4.0	20.9	23.8	5.1	23.5	*
Spain	78	4	-30.1	-47.8	3.8	-56.9	-0.2	7.6	-1.5	-2.1	-1.9	-39.3	-46.3	-3.9	2.2	-3.0	6.1	0	-95.0
Sweden	44	108	19.0	-12.9	14.9	3.0	-2.8	-2.0	-7.8	6.8	27.9	26.0	16.2	2.6	-22.7	46.6	18.6	-11.5	147.1
Switzerland	53	15	-8.1	-11.9	-7.3	-7.9	-8.6	-9.4	-10.4	-11.6	-13.1	-0.4	-0.4	0	0	0	0	0	-71.1
Turkey	NA	NA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ukraine	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
United Kingdom	1,212	297	-0.5	-3.7	1.7	-42.5	0.9	-7.8	1.4	4.4	-0.2	-9.7	-6.1	-12.6	-15.9	7.3	-13.2	-0.4	-75.5
United States	IE	IE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

^a In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Figure 7.1

Net emissions/removals from land use, land-use change and forestry activities under Article 3.3 of the Kyoto Protocol for 2009 ¹

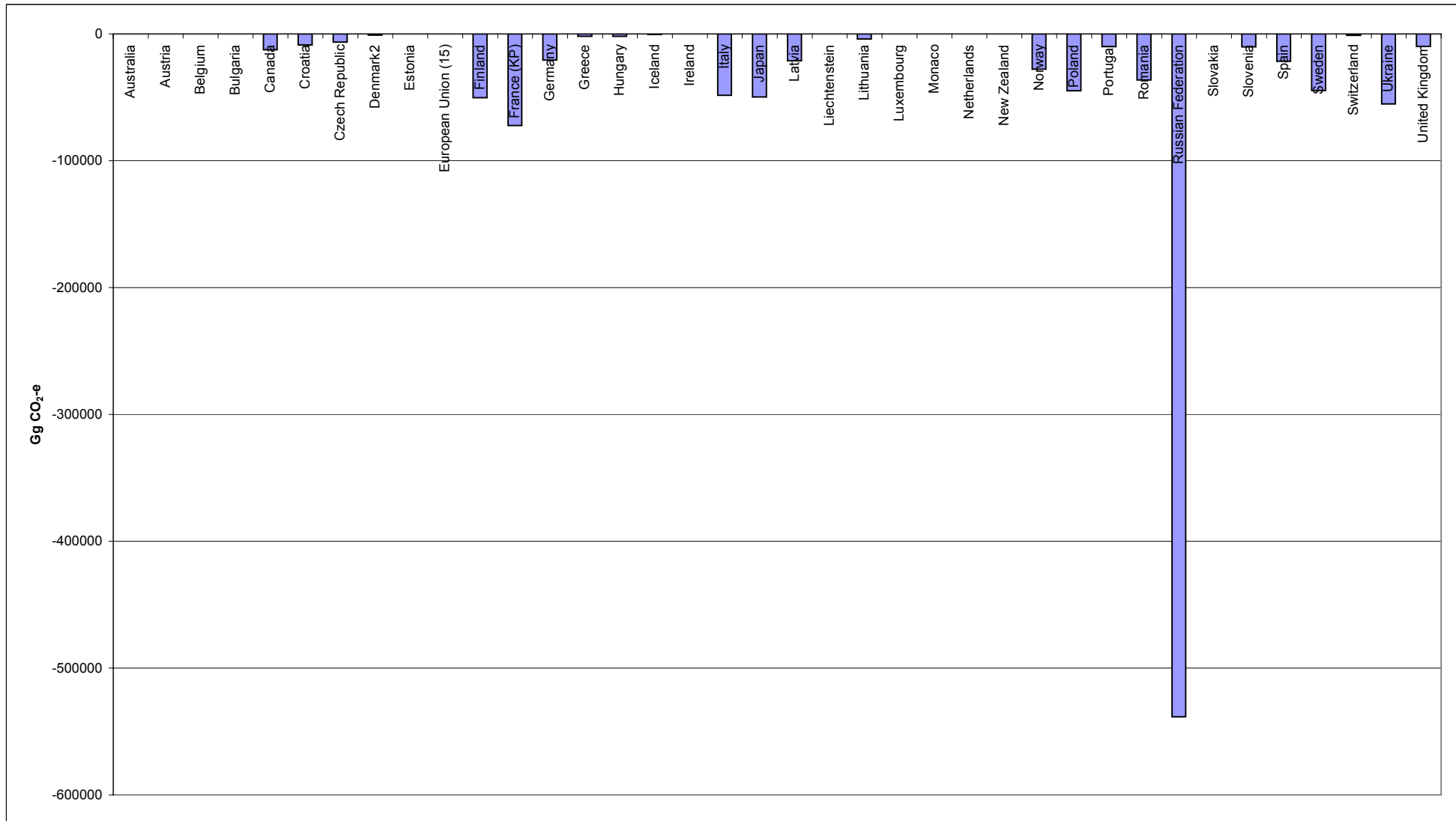


¹Net emissions/removals comprises CO₂ emissions from changes in carbon stock and CO₂, CH₄ and N₂O emissions from other greenhouse gas sources.

² Includes Greenland but excludes Faroe Islands.

Figure 7.2

Net emissions/removals from land use, land-use change and forestry activities, if elected by the Party, under Article 3.4 of the Kyoto Protocol for 2009 ¹



¹Net emissions/removals comprises CO₂ emissions from changes in carbon stock and CO₂, CH₄ and N₂O emissions from other greenhouse gas sources.

² Includes Greenland but excludes Faroe Islands.

Table 7.1

Selected values (forest parameters), elected activities under Article 3, paragraph 4, of the Kyoto Protocol, accounting period, forest management cap and geographical coverage^{1,8}

	Minimum value for 'tree cover' (%) ²	Minimum 'tree height' (m) ²	Minimum area for 'Forest land' (ha) ²	Forest Management ³	Cropland Management ³	Grazing Land Management ³	Revegetation ³	Accounting period ⁴	FM CAP ^{5,6,7} (Mt C/yr)
Australia	20	2	0.2					Annually	0.00
Austria	30	2	0.05					CP	0.63
Belgium	20	5	0.5					CP	0.03
Bulgaria	10	5	0.1					CP	0.37
Canada	25	5	1		X			CP	12.00
Croatia	10	2	0.1	X					0.265
Czech Republic	30	2	0.05	X				CP	0.32
Denmark ⁹	10	5	0.5	X	X	X		Annually	0.05
Estonia	30	2	0.5					CP	0.10
European Union (15)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Finland	10	5	0.5	X				CP	0.16
France (KP)	10	5	0.5	X				Annually	0.88
Germany	10	5	0.1	X				CP	1.24
Greece	25	2	0.3	X				CP	0.09
Hungary	30	5	0.5	X				Annually	0.29
Iceland	10	2	0.5				X	CP	0.00
Ireland	20	5	0.1					CP	0.05
Italy	10	5	0.5	X				CP	0.18
Japan	30	5	0.3	X			X	CP	13.00
Latvia	20	5	0.1	X				CP	0.34
Liechtenstein	20	3	0.0625					Annually	0.01
Lithuania	30	5	0.1	X				CP	0.28
Luxembourg	10	5	0.5					CP	0.01
Monaco	10	5	0.5					Annually	0.00
Netherlands	20	5	0.5					CP	0.01
New Zealand	30	5	1					CP	0.20
Norway	10	5	0.5	X				CP	0.40
Poland	10	2	0.1	X				CP	0.82
Portugal	10	5	1	X	X	X		CP	0.22
Romania	10	5	0.25	X			X	CP	1.10
Russian Federation	18	5	1	X				Annually	33.00
Slovakia	20	5	0.3					CP	0.50
Slovenia	30	2	0.25	X				CP	0.36
Spain	20	3	1	X	X			CP	0.67
Sweden	10	5	0.5	X				CP	0.58
Switzerland	20	3	0.0625	X				Annually	0.50
Ukraine	30	5	0.1	X				CP	1.11
United Kingdom (UK)	20	2	0.1	X				CP	0.37

¹ As either reported by a Party in its initial report under the Kyoto Protocol, and subsequently reviewed under Article 8 of the Kyoto Protocol and recorded in the compilation and accounting database, or included in a decision of the COP/MOP. These parameters are fixed for the first commitment period under the Kyoto Protocol. The Forest management CAP is from the appendix to the annex to decision 16/CMP.1.

² As reported by Party in accordance with paragraph 8(b) of the annex to decision 13/CMP.1 using the definitions and ranges outlined in paragraph 1(a) of the annex to decision 16/CMP.1.

³ Accounting for activities under Article 3, paragraph 4, of the Kyoto Protocol is optional, and is marked with an 'X' in the appropriate column.

⁴ Parties specified in their initial reports whether it intends to account for activities under Article 3, paragraph 3 and 4, of the Kyoto Protocol 'annually' or over the commitment period (CP), in accordance with paragraph 8(d) of the annex to decision 13/CMP.1.

⁵ In accordance with paragraph 11 of the annex to decision 16/CMP.1, for the first commitment period only, additions and subtractions from the assigned amount of a Party resulting from forest management under Article 3, paragraph 4, after the application of paragraph 10 of the annex to decision 16/CMP.1 and resulting from forest management projects under Article 6, shall not exceed this value times 5.

⁶ In accordance with paragraph 10 of the annex to decision 16/CMP.1, for the first commitment period, a Party that incurs a net source of emissions under Article 3, paragraph 3, activities may account for emissions/removals under Forest Management under Article 3, paragraph 4, up to a level equal to the net source of emissions under Article 3, paragraph 3, but no greater than 9.0 megatonnes of carbon times 5, if the total emissions/removals in the managed forest since 1990 is equal to, or larger than, the net source of emissions incurred under Article 3, paragraph 3.

⁷ The value in the appendix to the annex to decision 16/CMP.1 for Italy was revised by decision 8/CMP.2.

⁸ Parties for which territories included in the report may differ from corresponding territory covered under the Convention.

⁹ Includes Greenland but excludes Faroe Islands.

Table 7.2(a)

Activity coverage in the reporting of information relating to activities under Article 3.3 for 2009 ¹

	Afforestation and reforestation										Deforestation									
	Change in carbon pool reported					Greenhouse gas sources reported					Change in carbon pool reported					Greenhouse gas sources reported				
	Above-ground biomass	Below-ground biomass	Litter	Deadwood	Soil	Fertilization ²	Liming	Biomass burning ³			Above-ground biomass	Below-ground biomass	Litter	Deadwood	Soil	Disturbance associated with LU conversion to CL	Liming	Biomass burning ³		
						N ₂ O	CO ₂	CO ₂	CH ₄	N ₂ O						N ₂ O	CO ₂	CO ₂	CH ₄	N ₂ O
Australia	R	R	R	IE	R	IE	R	IE	R	R	R	R	R	IE	R	NO	IE	IE, R	IE, R	IE, R
Austria	R	R	R	NO	R	NO	NO	NO	NO	NO	R	R	R	IE	R	NO	NO	NO	NO	NO
Belgium	R	R	R	NO	R	NO	NO	NO	NO	NO	R	R	R	R	NE	NO	NO	NO	NO	
Bulgaria	R	IE	R	NR	R	NO	NO	NO	NO	NO	R	IE	R	R	NO	NO	NO	NO	NO	
Canada	R	R	R	R	IE, R	IE	NO	NO	NO	NO	R	R	R	R	NO, R	R	IE	R	R	
Croatia	R	IE	NA	NA	NA	NO	NO	IE	IE	IE	R	IE	NA	NA	NA	NE	NO	NO	NO	
Czech Republic	R	R	IE	R	R	NO	NO	NO	NO	NO	R	R	IE	R	R	NO	NO	NO	NO	
Denmark ⁴	R	R	IE, R	R	NR, R	IE, NO	IE, NO	NO	NO	NO	NO, R	NO, R	NO, R	NO, R	NO, R	NO, R	IE, NO	NO	NO	
Estonia	R	R	NE	NO	R	NO	NO	NO	NO	NO	R	R	NE	R	R	NO	NO	NO	NO	
European Union (15)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Finland	R	IE	IE	NO	R	NO	NO	NO, R	NO, R	NO, R	R	IE	IE	R	R	R	IE, NO	IE, NO	IE, NO	
France (KP)	R	R	R	R	R	NO	NO	R	R	R	R	R	R	R	R	R	R	R	R	
Germany	R	R	R	NO	R	NO	R	R	R	R	R	R	R	R	R	NO	NO	NO	NO	
Greece	R	R	NR	NR	NR	NO	NO	R	R	R	R	R	NR	NR	NO	NO	R	R	R	
Hungary	R	R	NR	NR	NR	NO	NO	IE	R	R	R	R	R	R	R	NO	IE	R	R	
Iceland	R	IE	R	IE	R	R	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	
Ireland	R	R	R	R	R	IE	NO	R	R	R	R	R	R	R	NO	NO	NO	NO	NO	
Italy	R	R	R	R	R	NO	NO	IE	R	R	R	R	R	R	NO	NO	NO	NO	NO	
Japan	R	R	R	R	R	IE	NO	IE	R	R	R	R	R	R	R	NO	NO	NO	NO	
Latvia	R	R	R	R	R	NO	NO	NO	NO	NO	R	R	R	R	NO	NO	NO	NO	NO	
Liechtenstein	R	IE	NR	NR	R	NO	NO	NO	NO	NO	R	IE	R	R	NO	NO	NO	NO	NO	
Lithuania	R	R	R	R	R	NO	NO	IE	IE	IE	R	R	R	R	NO	NO	NA	NA	NA	
Luxembourg	R	IE	IE	NO	R	NO	NO	NO	NO	NO	R	IE	IE	R	R	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	R	R	NR	NR	NR	NO	NO	NE	NE	NE	R	R	R	R	NR	R	NE	NE	NE	
New Zealand	R	R	R	R	R	IE	IE	R	R	R	R	R	R	R	R	R	IE	IE	IE	
Norway	R	R	IE	IE	R	IE	IE	IE	IE	IE	R	R	IE	IE	R	NA	IE	NA	NA	
Poland	R	R	IE	R	R	NO	NO	IE	IE	IE	R	R	IE	R	NA	NO	IE	IE	IE	
Portugal	R	R	R	IE	R	IE	NE	R	R	R	R	R	R	IE	R	NE	R	R	R	
Romania	R	IE	R	IE	R	IE	NO	NO	NO	NO	R	R	R	IE	R	NO	NO	NO	NO	
Russian Federation	R	R	R	R	R	NA	NA	IE	R	R	R	R	R	R	NO	NA	NO	NO	NO	
Slovakia	R	R	IE	NO	R	NO	NO	NO	NO	NO	R	R	IE	R	NO	NO	NO	NO	NO	
Slovenia	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	R	R	R	R	R	NO	NO	NO	NO	
Spain	R	IE	NR	NR	R	NO	NO	IE, NO	IE, NO	IE, NO	R	IE	R	R	NO	NO	NO	NO	NO	
Sweden	R	R	R	R	R	NO	NO	NO	NO	NO	R	R	R	R	R	NO	NO	NO	NO	
Switzerland	R	IE	NR	NR	R	NO	NO	NO	NO	NO	R	IE	R	R	R	NO	NO	NO	NO	
Ukraine	R	IE	R	R	R	NO	NO	R	R	R	R	IE	R	R	NO	NO	NO	NO	NO	
United Kingdom	R	IE	R	IE	R	R	NO	IE	IE	IE	R	IE	IE	IE	R	NO	NO	R	R	

¹ As reported in Table NIR 1. "Summary Table - activity coverage and other information relating to activities under Article 3, paragraph 3, and elected activities under Article 3, paragraph 4, of the Kyoto Protocol".

² N₂O emissions from fertilization for cropland management, grazing land management and revegetation should be reported in the Agriculture sector. If a Party is unable to separate fertilizer applied to forest land from Agriculture, it may report N₂O emissions from fertilization in the agriculture sector.

³ If CO₂ emissions from biomass burning are not already included under changes in carbon stock, they should be reported under biomass burning; this also includes the carbon component of CH₄.

⁴ Includes Greenland but excludes Faroe Islands.

Table 7.2(b)

Activity coverage in the reporting of information relating to elected activities under Article 3.4 for 2009 ¹

	Forest management												Cropland management									
	Change in carbon pool reported					Greenhouse gas sources reported							Change in carbon pool reported					Greenhouse gas sources reported				
	Above-ground biomass	Below-ground biomass	Litter	Deadwood	Soil	Fertilization ²	Drainage of soil under FM	Liming	Biomass burning ³				Above-ground biomass	Below-ground biomass	Litter	Deadwood	Soil	Disturbance associated with LU conversion to CL	Liming	Biomass burning ³		
					N ₂ O	N ₂ O	CO ₂	CO ₂	CH ₄	N ₂ O						N ₂ O	CO ₂	CO ₂	CH ₄	N ₂ O		
Australia	NA	NA	NA	NA	NA	NA	NA	NA	NA	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	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
Bulgaria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Canada	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	R	R	R	R	R	R	R	NA	IE
Croatia	R	IE	NA	NA	NA	NO	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Czech Republic	R	R	IE	R	NR	NO	NO	R	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark ⁴	R	R	IE, R	R	NR, R	IE, NO	NO, R	IE, NO	NO	NO	NO	R	IE, R	NO	NO	R	NA, R	IE, R	NO	NO	NO	NO
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (15)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Finland	R	IE	IE	IE	R	R	NE	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	R	R	R	R	R	NO	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Germany	R	R	NO	R	R	NO	R	R	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Greece	R	R	NR	NR	NR	NO	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	R	R	NR	NR	NR	NO	NO	NO	IE	R	R	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	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Italy	R	R	R	R	R	NO	NO	NO	IE	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Japan	R	R	R	R	R	IE	NO	NO	IE	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Latvia	R	R	R	R	R	NO	R	NO	R	R	R	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
Lithuania	R	R	R	R	R	NO	R	NO	R	R	R	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
Monaco	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Netherlands	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
Norway	R	R	R	R	R	R	R	IE	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poland	R	R	IE	R	R	NO	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	R	R	R	IE	R	IE	NO	NE	R	R	R	R	R	R	R	IE	R	R	NE	NE	NE	NE
Romania	R	R	NR	NR	R	IE	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Russian Federation	R	R	R	R	R	NA	R	NA	IE	R	R	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
Slovenia	R	R	NR	R	NR	NO	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	R	IE	NR	NR	NR	NO	NO	NO	IE, NE	NE, R	NE, R	R	IE	NR	NR	R	NO	NO	IE, NO	IE, NO	IE, NO	IE, NO
Sweden	R	R	R	R	R	R	NE	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland	R	IE	NR	R	NR	NO	NO	NO	IE, R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ukraine	R	IE	R	R	NO	NO	R	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom	R	IE	R	IE	R	NO	NE	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

¹ As reported in Table NIR 1. "Summary Table - activity coverage and other information relating to activities under Article 3, paragraph 3, and elected activities under Article 3, paragraph 4, of the Kyoto Protocol".

² N₂O emissions from fertilization for cropland management, grazing land management and revegetation should be reported in the Agriculture sector. If a Party is unable to separate fertilizer applied to forest land from Agriculture, it may report N₂O emissions from fertilization in the Agriculture sector.

³ If CO₂ emissions from biomass burning are not already included under changes in carbon stock, they should be reported under biomass burning; this also includes the carbon component of CH₄

⁴ Includes Greenland but excludes Faroe Islands.

Table 7.2(c)

Activity coverage in the reporting of information relating to elected activities under Article 3.4 for 2009 ¹

	Grazing land management										Revegetation									
	Change in carbon pool reported					Greenhouse gas sources reported					Change in carbon pool reported					Greenhouse gas sources reported				
	Above-ground biomass	Below-ground biomass	Litter	Deadwood	Soil	Liming	Biomass burning ²				Above-ground biomass	Below-ground biomass	Litter	Deadwood	Soil	Liming	Biomass burning ²			
							CO ₂	CO ₂	CH ₄	N ₂ O							CO ₂	CO ₂	CH ₄	N ₂ O
Australia	NA	NA	NA	NA	NA	NA	NA	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	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
Bulgaria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Canada	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
Czech Republic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark ³	R	IE, R	NO	NO	R	IE, R	NO	NO	NO	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
European Union (15)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Finland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Germany	NA	NA	NA	NA	NA	NA	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
Hungary	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	NA	NA	NA	NA	NA	NA	NA	NA	NA	R	IE	IE	NO	R	NO	NO	NO	NO	NO	NO
Ireland	NA	NA	NA	NA	NA	NA	NA	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	NA	NA	NA	NA	NA	NA	NA
Japan	NA	NA	NA	NA	NA	NA	NA	NA	NA	R	R	R	IE	NR	R	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
Liechtenstein	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
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Monaco	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Netherlands	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
Norway	NA	NA	NA	NA	NA	NA	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
Portugal	R	R	R	IE	R	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Romania	NA	NA	NA	NA	NA	NA	NA	NA	NA	R	IE	R	IE	NR	NO	NO	NO	NO	NO	NO
Russian Federation	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
Slovenia	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
Sweden	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
Ukraine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

¹ As reported in Table NIR 1. "Summary Table - activity coverage and other information relating to activities under Article 3, paragraph 3, and elected activities under Article 3, paragraph 4, of the Kyoto Protocol".

² If CO₂ emissions from biomass burning are not already included under changes in carbon stock, they should be reported under biomass burning; this also includes the carbon component of CH₄.

³ Includes Greenland but excludes Faroe Islands.

Table 7.3(a)

Afforestation and reforestation - area, implied carbon stock change factors and emissions and removals from the change in carbon stocks for 2009

	Area (kha)		Implied carbon stock change factor (Mg C/ha)											Implied emission/ removal factor per area (Mg CO ₂ /ha)	Change in carbon stock (Gg C)										Net CO ₂ emissions/ removals (Gg CO ₂)
	Total	Organic Soil	Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil		Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil				
			Increase	Decrease	Net change	Increase	Decrease	Net change			Mineral	Organic	Increase		Decrease	Net change	Increase	Decrease			Net change	Mineral	Organic		
Australia	1,122	NO	4.79	-23.44	-18.65	1.21	-5.86	-4.65	2.00	5.48	0.41	NO	56.48	4,913.4	-2,262.7	2,650.7	1,245.9	-565.6	680.3	539.1	495.2	-271.3	NO	-15,011.7	
Austria	220	NO	1.00	IE,NO	1.00	0.18	IE,NO	0.18	0.75	NO	1.35	NO	-12.05	220.6	IE,NO	220.6	39.5	IE,NO	39.5	164.8	NO	297.3	NO	-2,648.3	
Belgium	20	NO	1.92	NO	1.92	0.38	NO	0.38	NO	NO	0.80	NO	-11.38	37.5	NO	37.5	7.5	NO	7.5	NO	NO	15.7	NO	-222.5	
Bulgaria	304	NO	2.28	-0.55	1.73	NO,IE	NO,IE	NO,IE	0.27	NO,NE	-0.49	NO	-5.50	693.7	-168.8	524.9	NO,IE	NO,IE	NO,IE	81.8	NO,NE	-150.5	NO	-1,672.8	
Canada	98	IE,NA	2.13	-0.53	1.60	0.97	-0.60	0.37	0.25	0.20	-0.20	IE,NA	-8.13	208.3	-52.0	156.4	95.1	-59.1	36.0	24.4	19.9	-19.4	IE,NA	-796.7	
Croatia	18	NA,NE	2.19	NO,NA,NE	2.19	NE,IE,NA	NO,IE,NA	NE,NO,IE,NA	NA,NE	NA,NE	NA,NE	NA,NE	-8.03	39.4	NO,NA,NE	39.4	NE,IE,NA	NO,IE,NA	IE,NO,IE,NA	NA,NE	NA,NE	NA,NE	NA,NE	-144.6	
Czech Republic	40	NO	1.54	NO	1.54	0.31	NO	0.31	IE,NO	NO	0.16	NO	-7.36	61.8	NO	61.8	12.4	NO	12.4	IE,NO	NO	6.2	NO	-294.7	
Denmark ¹	43	2	0.86	-0.40	0.46	0.13	NA,IE	0.13	0.13	0.35	-0.16	-0.34	-3.34	37.4	-17.6	19.9	5.6	NA,IE	5.6	5.8	15.4	-6.5	-0.6	-145.3	
Estonia	159	36	0.24	NA,NO	0.24	0.10	NA,NO	0.10	NA,NE	NA,NO	NA,NO	0.08	-1.31	37.5	NA,NO	37.5	16.5	NA,NO	16.5	NA,NE	NA,NO	NA,NO	2.9	-208.5	
European Union (15)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Finland	161	59	0.44	IE,NA	0.44	IE,NA	IE,NA	IE,NA	IE,NA	NA,NO	-0.09	-1.97	1.26	71.5	IE,NA	71.5	IE,NA	IE,NA	IE,NA	IE,NA	NA,NO	-9.4	-117.2	202.1	
France (KP)	1,101	NO	0.92	-0.01	0.91	0.38	NO	0.38	0.30	0.05	0.07	NO	-6.27	1,014.7	-14.2	1,000.5	421.5	NO	421.5	329.4	53.0	76.8	NO	-6,897.9	
Germany	357	23	3.11	-0.49	2.62	1.04	-0.53	0.51	0.50	NO	0.07	-0.68	-13.39	1,108.7	-173.6	935.1	372.3	-188.6	183.7	178.5	NO	22.0	-15.8	-4,779.2	
Greece	33	NO	2.01	NO,NA	2.01	0.87	NO,NA	0.87	NA	NA	NA	NA,NO	-10.55	66.8	NO,NA	66.8	28.8	NO,NA	28.8	NA	NA	NA	NA	NA	-350.6
Hungary	162	NO	2.50	IE	2.50	0.62	IE	0.62	NE	NE	NE	NO	-11.44	251.9	IE	251.9	63.0	IE	63.0	NE	NE	NE	NO	-1,154.5	
Iceland	29	3	0.72	NA,NO	0.72	0.18	NA,NO	0.18	0.14	NA,NE	0.41	-0.16	-5.13	20.7	NA,NO	20.7	5.2	NA,NO	5.2	4.0	NA,NE	10.7	-0.4	-147.4	
Ireland	271	153	13.17	-19.05	-5.89	2.68	-2.18	0.50	5.71	1.70	NO,NA	-0.98	-5.73	982.2	-667.4	314.8	187.9	-17.3	170.5	332.7	23.6	NO,NA	-68.1	-2,836.6	
Italy	1,543	NA,NO	2.10	-1.28	0.83	0.42	-0.26	0.17	0.00	0.01	0.19	NA,NO	-4.36	3,244.1	-1,968.5	1,275.6	652.8	-394.8	258.0	3.3	9.8	288.9	NA,NO	-6,730.5	
Japan	28	NO,IE,NA	2.31	NA,NO	2.31	0.61	NA,NO	0.61	0.28	0.65	0.15	NO,IE,NA	-14.69	65.4	NA,NO	65.4	17.3	NA,NO	17.3	8.0	18.4	4.2	NO,IE,NA	-415.1	
Latvia	219	5	0.49	NA,NO	0.49	0.16	NA,NO	0.16	NA,NE	NA,NE	NA,NO	-0.68	-2.31	107.3	NA,NO	107.3	34.3	NA,NO	34.3	NA,NE	NA,NE	NA,NO	-3.6	-506.2	
Liechtenstein	1	NE,NO,IE	1.28	NO	1.28	IE,NO	IE,NO	IE,NO	NO	NO	0.18	NO	-5.34	0.8	NO	0.8	IE,NO	IE,NO	IE,NO	NO	NO	0.1	NO	-3.2	
Lithuania	245	39	0.39	NA	0.39	0.09	NA	0.09	NA	NA	NA	-0.34	-1.54	94.7	NA	94.7	21.6	NA	21.6	NA	NA	NA	-13.2	-378.2	
Luxembourg	9	NO	1.65	-0.16	1.49	IE,NO	IE,NO	IE,NO	IE,NO	NO	0.93	NO	-8.89	14.5	-1.4	13.1	IE,NO	IE,NO	IE,NO	IE,NO	NO	8.2	NO	-78.0	
Monaco	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Netherlands	51	4	2.24	NA,NO	2.24	0.97	NA,NO	0.97	NA,NE	NA,NE	0.20	-6.46	-10.49	114.4	NA,NO	114.4	49.9	NA,NO	49.9	NA,NE	NA,NE	9.2	-27.1	-537.1	
New Zealand	591	1	12.40	-64.47	-52.07	2.81	-14.47	-11.66	-1.47	29.15	-2.43	-0.68	141.08	4,220.9	-47.0	4,173.9	854.9	-19.3	835.6	0.0	236.3	-438.0	-0.8	-17,625.8	
Norway	379	17	0.64	NO	0.64	0.19	NO	0.19	IE	IE	-0.10	IE,NE	-2.69	75.9	NO	75.9	23.9	IE	23.9	IE	IE	-34.5	IE,NE	-239.3	
Poland	422	12	2.13	NO	2.13	0.60	NO	0.60	IE,NO	NO	1.98	NO	-17.06	897.7	NO	897.7	254.4	NO	254.4	IE,NO	NO	811.1	NO	-7,198.4	
Portugal	359	NO	4.78	-17.12	-12.34	1.12	-4.39	-3.27	0.14	IE	1.23	NO	52.22	546.8	-173.5	373.3	112.3	-65.6	46.7	30.4	IE	317.0	NO	-2,813.9	
Romania	28	NO	1.40	-0.12	1.28	IE,NO	IE,NO	IE,NO	0.45	IE,NO	0.90	NO	-9.65	39.5	-3.4	36.1	IE,NO	IE,NO	IE,NO	12.7	IE,NO	25.4	NO	-271.7	
Russian Federation	470	NA,NO	1.81	-0.60	1.21	0.52	-0.17	0.35	0.10	0.36	0.50	NA,NO	-9.22	850.1	-280.5	569.6	242.6	-80.0	162.5	46.4	170.3	232.8	NA,NO	-4,332.8	
Slovakia	30	NA,NO	1.24	NA,NO	1.24	0.29	NA,NO	0.29	IE,NA	NA,NO	2.71	NA,NO	-15.51	37.4	NA,NO	37.4	8.7	NA,NO	8.7	IE,NA	NA,NO	81.9	NA,NO	-469.2	
Slovenia	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	
Spain	1,092	NA,NO	1.49	IE,NA	1.49	IE,NA	IE,NA	IE,NA	NA,NE	NA,NE	0.15	NA,NO	-5.99	1,626.3	IE,NA	1,626.3	IE,NA	IE,NA	IE,NA	NA,NE	NA,NE	158.8	NA,NO	-6,545.2	
Sweden	292	46	0.59	IE,NO	0.59	0.20	IE,NO	0.20	0.30	0.02	-0.13	-0.57	-3.36	173.2	IE,NO	173.2	59.1	IE,NO	59.1	88.5	5.9	-33.2	-26.0	-980.8	
Switzerland	2	0	2.07	NO	2.07	IE,NO	IE,NO	IE,NO	NO	NO	0.15	NO	-8.14	4.3	NO	4.3	IE,NO	IE,NO	IE,NO	NO	NO	0.3	NO	-16.9	
Ukraine	219	NO	2.71	-0.05	2.66	IE	NO,IE,NA	NA,NO,IE	0.62	0.24	2.56	NO	-22.30	296.7	-6.4	290.3	IE	NO,IE,NA	NA,NO,IE	67.8	26.4	248.7	NO	-2,321.8	
United Kingdom	289	27	5.40	-2.98	2.43	IE,NO	IE,NO	IE,NO	0.10	IE,NO	0.12	0.37	-9.79	1,559.4	-859.5	700.0	IE,NO	IE,NO	IE,NO	27.7	IE,NO	32.6	10.0	-2,824.0	

¹ Includes Greenland but excludes Faroe Islands.

Table 7.3(b)

Afforestation and reforestation (units of land not harvested since the beginning of the commitment period) - area, implied carbon stock change factors and emissions and removals from the change in carbon stocks for 2009

	Area (kha)		Implied carbon stock change factor (Mg C/ha)										Implied emission/ removal factor per area (Mg CO ₂ /ha)	Change in carbon stock (Gg C)										Net CO ₂ emissions/ removals (Gg CO ₂)	
	Total	Organic Soil	Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil			Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil			
			Increase	Decrease	Net change	Increase	Decrease	Net change			Mineral	Organic		Increase	Decrease	Net change	Increase	Decrease	Net change			Mineral	Organic		
Australia	1,026	NO	4.79	IE, NO	4.79	1.21	IE, NO	1.21	0.37	-0.04	-0.33	NO	-22.03	4,913.4	IE, NO	4,913.4	1,245.9	IE, NO	1,245.9	381.8	-37.4	-343.0	NO	-22,589.2	
Austria	220	NO	1.00	IE	1.00	0.18	IE	0.18	0.75	NO	1.35	NO	-12.05	220.6	IE	220.6	39.5	IE	39.5	164.8	NO	297.3	NO	-2,648.3	
Belgium	20	NO	1.92	NO	1.92	0.38	NO	0.38	—	NO	0.80	NO	-11.38	37.5	NO	37.5	7.5	NO	7.5	—	NO	15.7	NO	-222.5	
Bulgaria	304	NO	2.28	-0.55	1.73	IE, NO	IE, NO	IE, NO	0.27	NE, NO	-0.49	NO	-5.50	693.7	-168.8	524.9	IE, NO	IE, NO	IE, NO	81.8	NE, NO	-150.5	NO	-1,672.8	
Canada	98	IE	2.13	-0.53	1.60	0.97	-0.60	0.37	0.25	0.20	-0.20	IE	-8.13	208.3	-52.0	156.4	95.1	-59.1	36.0	24.4	19.9	-19.4	IE	-796.7	
Croatia	18	NE	2.19	NE, NO	2.19	IE, NE	IE, NE, NO	IE, NE, NO	NE	NE	NE	NE	-8.03	39.4	NE, NO	39.4	IE, NE	IE, NE, NO	IE, NE, NO	NE	NE	NE	NE	-144.6	
Czech Republic	40	NO	1.54	NO	1.54	0.31	NO	0.31	IE	NO	0.16	NO	-7.36	61.8	NO	61.8	12.4	NO	12.4	IE	NO	6.2	NO	-294.7	
Denmark ¹	43	2	0.86	-0.40	0.46	0.13	IE, NA	0.13	0.13	0.35	-0.16	-0.34	-3.34	37.4	-17.6	19.9	5.6	IE, NA	5.6	5.8	15.4	-6.5	-0.6	-145.3	
Estonia	159	36	0.24	NO	0.24	0.10	NO	0.10	NE	NO	NO	0.08	-1.31	37.5	NO	37.5	16.5	NO	16.5	NE	NO	NO	2.9	-208.5	
European Union (15)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Finland	161	59	0.44	IE	0.44	IE	IE	IE	IE	NO	-0.09	-1.97	1.26	71.5	IE	71.5	IE	IE	IE	NO	-9.4	-117.2	202.1		
France (KP)	1,101	NO	0.92	-0.01	0.91	0.38	NO	0.38	0.30	0.05	0.07	NO	-6.27	1,014.7	-14.2	1,000.5	421.5	NO	421.5	329.4	53.0	76.8	NO	-6,897.9	
Germany	357	23	3.11	-0.49	2.62	1.04	-0.53	0.51	0.50	NO	0.07	-0.68	-13.39	1,108.7	-173.6	935.1	372.3	-188.6	183.7	178.5	NO	22.0	-15.8	-4,779.2	
Greece	33	NO	2.01	NA, NO	2.01	0.87	NA, NO	0.87	—	—	—	NO	-10.55	66.8	NA, NO	66.8	28.8	NA, NO	28.8	—	—	—	—	-350.6	
Hungary	151	NO	1.60	IE	1.60	0.40	IE	0.40	NE	NE	NE	NO	-7.35	241.7	IE	241.7	60.4	IE	60.4	NE	NE	NE	NO	-1,107.7	
Iceland	29	3	0.72	NO	0.72	0.18	NO	0.18	0.14	NE	0.41	-0.16	-5.13	20.7	NO	20.7	5.2	NO	5.2	4.0	NE	10.7	-0.4	-147.4	
Ireland	266	151	3.50	-2.18	1.32	0.67	-0.02	0.64	1.16	0.06	NA, NO	-0.44	-10.76	932.0	-579.7	352.3	177.4	-6.1	171.3	309.1	15.1	NA, NO	-67.0	-2,862.8	
Italy	1,543	NO	2.10	-1.28	0.83	0.42	-0.26	0.17	0.00	0.01	0.19	NO	-4.36	3,244.1	-1,968.5	1,275.6	652.8	-394.8	258.0	3.3	9.8	288.9	NO	-6,730.5	
Japan	28	IE, NO	2.31	NO	2.31	0.61	NO	0.61	0.28	0.65	0.15	IE, NO	-14.69	65.4	NO	65.4	17.3	NO	17.3	8.0	18.4	4.2	IE, NO	-415.1	
Latvia	219	5	0.49	NO	0.49	0.16	NO	0.16	NE	NE	NO	-0.68	-2.31	107.3	NO	107.3	34.3	NO	34.3	NE	NE	NO	-3.6	-506.2	
Liechtenstein	1	IE, NE, NO	1.28	NO	1.28	IE	IE	IE	IE	NO	0.18	NO	-5.34	0.8	NO	0.8	IE	IE	IE	NO	0.1	NO	NO	-3.2	
Lithuania	245	39	0.39	NA	0.39	0.09	NA	0.09	NA	NA	NA	-0.34	-1.54	94.7	NA	94.7	21.6	NA	21.6	NA	NA	NA	-13.2	-378.2	
Luxembourg	9	NO	1.65	-0.16	1.49	IE	IE	IE	IE	NO	0.93	NO	-8.89	14.5	-1.4	13.1	IE	IE	IE	IE	NO	8.2	NO	-78.0	
Monaco	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Netherlands	51	4	2.24	NO	2.24	0.97	NO	0.97	NE	NE	0.20	-6.46	-10.49	114.4	NO	114.4	49.9	NO	49.9	NE	NE	9.2	-27.1	-537.1	
New Zealand	591	1	7.14	-0.03	7.11	1.45	-0.02	1.42	0.00	0.38	-0.74	-0.68	-29.97	4,218.5	-18.0	4,200.5	854.2	-12.8	841.5	0.7	223.3	-437.2	-0.8	-17,702.8	
Norway	376	17	0.20	NO	0.20	0.06	NO	0.06	IE	IE	-0.10	NE	-0.62	74.5	NO	74.5	23.5	NO	23.5	IE	IE	-34.5	NE	-232.8	
Poland	422	12	2.13	NO	2.13	0.60	NO	0.60	IE	—	1.98	NO	-17.06	897.7	NO	897.7	254.4	NO	254.4	IE	—	811.1	NO	-7,198.4	
Portugal	352	NO	1.48	-0.11	1.37	0.30	-0.09	0.21	0.09	IE	0.89	NO	-9.37	521.0	-40.4	480.6	105.9	-32.0	73.9	30.0	IE	314.4	NO	-3,295.7	
Romania	28	NO	1.40	-0.12	1.28	IE	IE	IE	IE	0.45	IE	0.90	NO	-9.65	39.5	-3.4	36.1	IE	IE	IE	IE	25.4	NO	-271.7	
Russian Federation	470	NO	1.81	-0.60	1.21	0.52	-0.17	0.35	0.10	0.36	0.50	NO	-9.22	850.1	-280.5	569.6	242.6	-80.0	162.5	46.4	170.3	232.8	NO	-4,332.8	
Slovakia	30	NO	1.24	NO	1.24	0.29	NO	0.29	IE	NO	2.71	NO	-15.51	37.4	NO	37.4	8.7	NO	8.7	IE	NO	81.9	NO	-469.2	
Slovenia	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	
Spain	1,092	NO	1.49	IE	1.49	IE	IE	IE	IE	NE	0.15	NO	-5.99	1,626.3	IE	1,626.3	IE	IE	IE	NE	NE	158.8	NO	-6,545.2	
Sweden	292	46	0.59	IE	0.59	0.20	IE	0.20	0.30	0.02	-0.13	-0.57	-3.36	173.2	IE	173.2	59.1	IE	59.1	88.5	5.9	-33.2	-26.0	-980.8	
Switzerland	2	0	2.07	NO	2.07	IE	IE	IE	IE	NO	0.15	NO	-8.14	4.3	NO	4.3	IE	IE	IE	NO	NO	0.3	NO	-16.9	
Ukraine	87	NO	1.35	NO	1.35	IE	NA, NO	IE, NA, NO	0.31	0.12	1.98	NO	-13.78	117.3	NO	117.3	IE	NA, NO	IE, NA, NO	27.2	10.3	172.6	NO	-1,200.3	
United Kingdom	289	27	5.40	-2.98	2.43	IE	IE	IE	IE	0.10	IE	0.12	0.37	-9.79	1,559.4	-859.5	700.0	IE	IE	IE	27.7	IE	32.6	10.0	-2,824.0

¹ Includes Greenland but excludes Faroe Islands.

Table 7.3(c)

Afforestation and reforestation (units of land harvested since the beginning of the commitment period) - area, implied carbon stock change factors and emissions and removals from the change in carbon stocks for 2009

	Area (kha)		Implied carbon stock change factor (Mg C/ha)										Implied emission/ removal factor per area (Mg CO ₂ /ha)	Change in carbon stock (Gg C)										Net CO ₂ emissions/ removals (Gg CO ₂)
	Total	Organic Soil	Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil			Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil		
			Increase	Decrease	Net change	Increase	Decrease	Net change			Mineral	Organic		Increase	Decrease	Net change	Increase	Decrease	Net change			Mineral	Organic	
Australia	97	NO	0.00	-23.44	-23.44	0.00	-5.86	-5.86	1.63	5.52	0.74	NO	78.51	0.0	-2,262.7	-2,262.7	0.0	-565.6	-565.6	157.3	532.7	71.7	NO	7,577.4
Austria	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Belgium	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Bulgaria	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Canada	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
Czech Republic	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Denmark ¹	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE, NA	IE, NA	IE, NA	IE	IE	IE	IE	IE	IE	IE	IE	IE, NA	IE, NA	NA, IE
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
European Union (15)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
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
France (KP)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Germany	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Greece	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA, NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	11	NO	0.89	IE	0.89	0.22	IE	0.22	NE	NE	NE	NO	-4.09	10.2	IE	10.2	2.6	IE	2.6	NE	NE	NE	NO	-46.8
Iceland	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA, NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	5	2	9.66	-16.87	-7.21	2.02	-2.16	-0.14	4.54	1.64	NA, NO	-0.53	5.02	50.3	-87.7	-37.5	10.5	-11.2	-0.7	23.6	8.5	NA, NO	-1.1	26.1
Italy	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	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	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
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
Liechtenstein	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	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	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	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	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
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
New Zealand	0	NO	5.26	-64.44	-59.18	1.37	-14.45	-13.08	-1.47	28.78	-1.69	NO	171.04	2.4	-29.0	-26.6	0.6	-6.5	-5.9	-0.7	12.9	-0.8	NO	77.0
Norway	3	NO	0.44	NO	0.44	0.12	NO	0.12	IE	IE	IE	IE	-2.07	1.4	NO	1.4	0.4	NO	0.4	IE	IE	IE	IE	-6.5
Poland	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Portugal	8	NO	3.30	-17.01	-13.71	0.82	-4.30	-3.48	0.06	IE	0.34	NO	61.59	25.8	-133.0	-107.3	6.4	-33.6	-27.2	0.4	IE	2.6	NO	481.8
Romania	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
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
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
Slovenia	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
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
Sweden	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Switzerland	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Ukraine	132	NO	1.36	-0.05	1.31	IE	IE	IE	0.31	0.12	0.58	NO	-8.52	179.3	-6.4	172.9	IE	IE	IE	40.6	16.1	76.2	NO	-1,121.4
United Kingdom	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

¹ Includes Greenland but excludes Faroe Islands.

Table 7.3(d)

Deforestation - area, implied carbon stock change factors and emissions and removals from the change in carbon stocks for 2009

	Area (kha)		Implied carbon stock change factor (Mg C/ha)										Implied emission/ removal factor per area (Mg CO ₂ /ha)	Change in carbon stock (Gg C)										Net CO ₂ emissions/ removals (Gg CO ₂)	
	Total	Organic Soil	Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil			Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil			
			Increase	Decrease	Net change	Increase	Decrease	Net change			Mineral	Organic		Increase	Decrease	Net change	Increase	Decrease	Net change			Mineral	Organic		
Australia	6,276	NO	0.00	-0.67	-0.67	0.00	-0.30	-0.30	-0.18	-0.39	-0.18	NO	6.32	0.0	-4,232.2	-4,233.1	1.0	-1,856.0	-1,855.0	-1,149.1	-2,422.1	-1,153.7	NO	39,647.6	
Austria	103	NO	IE	-0.74	-0.74	IE	-0.19	-0.19	-0.75	IE	-1.66	NO	12.24	IE	-76.4	-76.4	IE	-19.6	-19.6	-77.4	IE	-171.2	NO	1,263.8	
Belgium	19	NO	NO	-1.97	-1.97	NO	-0.39	-0.39	0.00	0.00	-0.10	NO	9.04	NO	-36.7	-36.7	NO	-7.3	-7.3	0.0	0.0	-1.9	NO	168.2	
Bulgaria	6	NO	0.01	-4.09	-4.08	IE	IE	IE	-0.27	-0.20	-2.56	NO	26.07	0.1	-24.0	-23.9	IE	IE	IE	-1.6	-1.2	-15.0	NO	152.8	
Canada	1,023	NO	NO	-1.90	-1.90	NO	-0.45	-0.45	0.08	-0.28	-0.56	NO	11.39	NO	-1,948.7	-1,948.7	NO	-460.7	-460.7	86.8	-284.4	-571.7	NO	11,655.4	
Croatia	0	NE	NE, NO	-70.47	-70.47	NE, NO	NE, NO	NE, NO	NE	NE	NE	NE	258.38	NE, NO	-20.3	-20.3	NE, NO	NE, NO	NE, NO	NE	NE	NE	NE	74.5	
Czech Republic	13	NO	NO	-2.75	-2.75	NO	-0.55	-0.55	IE, NA	-0.07	-0.07	NO	12.59	NO	-37.0	-37.0	NO	-7.4	-7.4	IE, NA	-0.9	-0.9	NO	169.8	
Denmark ¹	7	0	0.07	-0.99	-0.92	IE, NA	-0.19	-0.19	-0.22	-0.02	0.14	-2.52	4.86	0.5	-6.7	-6.3	IE, NA	-1.3	-1.3	-1.5	-0.1	0.9	-0.7	33.1	
Estonia	31	4	IE	-3.05	-3.05	IE	-0.72	-0.72	NE	0.08	NO	-0.16	13.62	IE	-94.9	-94.9	IE	-22.5	-22.5	NE	2.5	NO	-0.6	423.4	
European Union (15)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Finland	276	61	0.11	-2.75	-2.65	IE, NE, NO	IE, NO	IE, NE, NO	IE, NE, NO	-0.05	-0.11	-3.34	12.92	29.0	-759.3	-730.3	IE, NE, NO	IE, NO	IE, NE, NO	IE, NE, NO	-13.0	-24.3	-204.4	3,563.8	
France (KP)	687	NO	NO	-2.29	-2.29	NO	-0.50	-0.50	-0.20	-0.09	-0.86	NO	14.42	NO	-1,569.6	-1,569.6	NO	-341.1	-341.1	-135.0	-63.8	-591.7	NO	9,904.6	
Germany	140	9	0.40	-1.19	-0.79	0.32	-0.44	-0.12	-0.96	-0.17	-0.03	-0.15	7.61	55.6	-166.4	-110.8	44.8	-61.3	-16.5	-133.8	-23.3	-3.9	-1.3	1,061.8	
Greece	3	NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	—	—	—	—	NO, NA	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	—	—	—	—	NO, NA	
Hungary	9	NO	IE	-1.43	-1.43	IE	-0.36	-0.36	-0.16	-0.16	-0.39	NO	9.14	IE	-12.7	-12.7	IE	-3.2	-3.2	-1.5	-1.4	-3.4	NO	81.0	
Iceland	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA, NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Ireland	8	2	NA, NO	-0.77	-0.77	NA, NO	-0.22	-0.22	-0.10	-0.02	NA, NO	-0.02	4.11	NA, NO	-6.3	-6.3	NA, NO	-1.8	-1.8	-0.8	-0.2	NA, NO	-0.1	33.4	
Italy	14	NO	NO	-2.40	-2.40	NO	-0.51	-0.51	-0.18	-0.36	-4.30	NO	28.42	NO	-32.9	-32.9	NO	-7.0	-7.0	-2.4	-4.9	-59.1	NO	389.9	
Japan	309	IE	0.03	-1.45	-1.42	NO	-0.37	-0.37	-0.19	-0.48	-0.25	IE	9.96	8.1	-448.9	-440.8	NO	-115.2	-115.2	-59.3	-148.1	-77.1	IE	3,081.8	
Latvia	35	1	NO	-1.09	-1.09	NO	-0.35	-0.35	-0.78	-0.22	-3.51	-0.02	21.41	NO	-38.4	-38.4	NO	-12.3	-12.3	-27.5	-7.8	-119.6	0.0	754.3	
Liechtenstein	0	IE, NE	NO	-3.38	-3.38	IE, NE	IE, NE	IE, NE	-0.38	-0.10	-1.84	IE, NE	20.87	NO	-0.1	-0.1	IE, NE	IE, NE	IE, NE	0.0	0.0	0.0	IE, NE	0.4	
Lithuania	21	3	NA	-2.57	-2.57	NA	-0.59	-0.59	-1.07	-0.13	-3.07	-3.87	27.69	NA	-53.3	-53.3	NA	-12.2	-12.2	-22.2	-2.8	-53.7	-12.6	574.3	
Luxembourg	7	NO	0.31	-5.03	-4.72	IE	IE	IE	IE	-0.07	-0.44	NO	19.14	2.3	-37.0	-34.7	IE	IE	IE	IE	-0.5	-3.2	NO	141.0	
Monaco	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Netherlands	40	2	0.23	-3.33	-3.09	0.04	-0.63	-0.59	-1.61	-0.07	0.03	-6.52	20.88	9.2	-132.5	-123.3	1.6	-25.0	-23.3	-64.3	-2.8	1.3	-14.4	831.8	
New Zealand	99	0	0.03	-1.15	-1.12	0.05	-0.22	-0.17	-0.18	-0.15	0.69	-1.16	3.43	3.3	-113.6	-110.3	4.9	-21.6	-16.6	-17.8	-14.7	67.6	-0.5	338.8	
Norway	108	NO	NO	-0.57	-0.57	NO	-0.19	-0.19	IE	IE	-0.82	IE	5.78	NO	-61.3	-61.3	NO	-20.4	-20.4	IE	IE	-87.9	IE	621.8	
Poland	11	NA	NA	-3.30	-3.30	NA	-0.66	-0.66	IE	0.09	-2.71	NA	24.10	NA	-36.1	-36.1	NA	-7.2	-7.2	IE	1.0	-29.6	NA	263.9	
Portugal	154	NO	0.19	-0.96	-0.77	0.14	-0.24	-0.09	-0.09	IE	-1.52	NO	9.05	29.6	-148.1	-118.5	22.2	-36.8	-14.6	-13.6	IE	-234.0	NO	1,395.8	
Romania	4	NO	NO	-3.12	-3.12	NO	-0.78	-0.78	-0.57	IE	-0.84	NO	19.46	NO	-11.9	-11.9	NO	-3.0	-3.0	-2.2	IE	-3.2	NO	74.0	
Russian Federation	25	NO	NO	-36.99	-36.99	NO	-9.68	-9.68	-8.39	-9.28	-142.28	NO	757.63	NO	-941.6	-941.6	NO	-246.4	-246.4	-213.6	-236.3	-3,621.7	NO	19,285.5	
Slovakia	7	NO	NO	-7.91	-7.91	NO	-1.84	-1.84	IE	-0.30	-0.21	NO	37.65	NO	-58.9	-58.9	NO	-13.7	-13.7	IE	-2.3	-1.6	NO	280.1	
Slovenia	5	NO	IE	-13.93	-13.93	IE	-0.41	-0.41	-0.71	-0.52	-1.23	NO	61.65	IE	-74.2	-74.2	IE	-2.2	-2.2	-3.8	-2.8	-6.6	NO	328.4	
Spain	1	NO	IE	-29.50	-29.50	IE	IE	IE	-4.25	-4.91	-15.40	NO	198.23	IE	-15.9	-15.9	IE	IE	IE	IE	-2.3	-2.7	-8.3	NO	107.1
Sweden	272	43	IE	-0.78	-0.78	IE	-0.26	-0.26	-1.24	0.00	-1.20	-0.28	12.91	IE	-212.0	-212.0	IE	-69.9	-69.9	-336.3	0.5	-276.2	-64.9	3,515.7	
Switzerland	8	0	NO	-5.58	-5.58	IE	IE	IE	-1.12	-0.31	-1.81	-6.00	32.40	NO	-44.5	-44.5	IE	IE	IE	-9.0	-2.5	-14.4	-0.1	258.3	
Ukraine	146	NO	NO	-10.47	-10.47	NO	IE	IE, NO	-0.12	-0.16	-0.12	NO	39.86	NO	-1,529.0	-1,529.0	NO	IE	IE, NO	-18.1	-23.0	-17.1	NO	5,819.5	
United Kingdom	21	IE, NO	IE, NO	-4.07	-4.07	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO	-1.68	IE, NO	21.09	IE, NO	-85.2	-85.2	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO	IE, NO	441.6	

¹ Includes Greenland but excludes Faroe Islands.

Table 7.3(c)

Forest management - area, implied carbon stock change factors and emissions and removals from the change in carbon stocks for 2009

	Area (kha)		Implied carbon stock change factor (Mg C/ha)											Implied emission/ removal factor per area (Mg CO ₂ /ha)	Change in carbon stock (Gg C)									Net CO ₂ emissions/ removals (Gg CO ₂)													
	Total	Organic Soil	Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil		Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil																
			Increase	Decrease	Net change	Increase	Decrease	Net change			Mineral	Organic	Increase		Decrease	Net change	Increase	Decrease	Net change			Mineral	Organic														
Australia	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	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	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	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	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Canada	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	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Croatia	1,893	NE	2.35	-1.10	1.25	IE	IE	IE	NE	NE	NE	NE	NE	-4.57	4,442.9	-2,086.0	2,356.9	IE	IE	IE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	-8,642.0			
Czech Republic	2,562	19	2.53	-1.83	0.70	0.51	-0.37	0.14	NE	NO	NE	NE	NE	-3.08	6,475.2	-4,679.7	1,795.5	1,295.0	-935.9	359.1	NE	NO	NE	NE	NO	NE	NE	NE	NE	NE	NE	NE	NE	NE	-7,900.2		
Denmark ¹	533	27	0.83	IE, NA	0.83	0.17	IE, NA	0.17	0.33	0.01	NA, NR	-0.34	NK?	441.0	IE, NA	441.0	89.3	IE, NA	89.3	178.2	7.3	NA, NR	-9.1	NK?	NK?	441.0	IE, NA	441.0	89.3	IE, NA	89.3	178.2	7.3	NA, NR	-9.1	NK?	
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	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
European Union (15)	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	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Finland	21,823	5,901	1.61	-0.96	0.65	IE	IE	IE	IE	IE	0.11	-0.37	-2.31	35,143.0	-21,019.0	14,124.0	IE	IE	IE	IE	IE	1,793.4	-2,196.4	-50,310.3	-2,196.4	35,143.0	-21,019.0	14,124.0	IE	IE	IE	IE	IE	1,793.4	-2,196.4	-50,310.3	
France (KP)	21,669	NO	1.56	-1.01	0.55	0.45	-0.21	0.24	NO	0.13	NO	NO	-3.38	33,789.0	-21,786.2	12,002.8	9,680.6	-4,577.4	5,103.1	NO	2,883.5	NO	NO	-73,294.7	-73,294.7	33,789.0	-21,786.2	12,002.8	9,680.6	-4,577.4	5,103.1	NO	2,883.5	NO	NO	-73,294.7	
Germany	10,866	240	0.34	IE	0.34	0.10	IE	0.10	NO	0.09	NO	-0.68	-1.90	3,711.9	IE	3,711.9	1,062.2	IE	1,062.2	NO	1,018.7	-163.0	-20,642.4	-20,642.4	3,711.9	IE	3,711.9	1,062.2	IE	1,062.2	NO	1,018.7	-163.0	-20,642.4			
Greece	1,183	NO	0.45	-0.12	0.33	0.15	-0.03	0.12	---	---	---	NO	-1.65	529.8	-137.7	392.1	177.4	-36.2	141.3	---	---	---	---	-1,955.6	-1,955.6	529.8	-137.7	392.1	177.4	-36.2	141.3	---	---	---	---	-1,955.6	
Hungary	1,657	NO	0.25	IE	0.25	0.06	IE	0.06	NE	NE	NE	NO	-1.16	417.6	IE	417.6	104.4	IE	104.4	NE	NE	NE	NO	-1,914.0	-1,914.0	417.6	IE	417.6	104.4	IE	104.4	NE	NE	NE	NO	-1,914.0	
Iceland	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	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Ireland	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	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Italy	7,451	NO	2.21	-1.32	0.89	0.45	-0.27	0.17	0.01	0.34	0.36	NO	-6.51	16,500.7	-9,868.8	6,632.0	3,344.4	-2,048.4	1,296.0	69.0	2,566.9	2,661.6	NO	-48,493.5	-48,493.5	16,500.7	-9,868.8	6,632.0	3,344.4	-2,048.4	1,296.0	69.0	2,566.9	2,661.6	NO	-48,493.5	
Japan	14,352	IE	0.76	-0.04	0.72	0.19	-0.01	0.18	0.01	-0.01	0.03	IE	-3.42	10,891.7	-540.3	10,351.4	2,755.9	-142.9	2,613.0	107.5	-147.5	442.3	IE	-49,011.4	-49,011.4	10,891.7	-540.3	10,351.4	2,755.9	-142.9	2,613.0	107.5	-147.5	442.3	IE	-49,011.4	
Latvia	3,131	428	2.57	-1.11	1.46	0.82	-0.34	0.48	NO	NO	NO	-0.68	-6.80	8,059.4	-3,474.3	4,585.1	2,579.0	-1,065.0	1,514.1	NO	NO	NO	-291.1	-291.1	8,059.4	-3,474.3	4,585.1	2,579.0	-1,065.0	1,514.1	NO	NO	NO	-291.1	-291.1		
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	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Lithuania	1,915	301	0.34	NA	0.34	0.09	NA	0.09	0.12	0.08	0.00	-0.34	-2.11	654.9	NA	654.9	166.2	NA	166.2	234.7	147.0	0.6	-102.9	-4,034.7	-4,034.7	654.9	NA	654.9	166.2	NA	166.2	234.7	147.0	0.6	-102.9	-4,034.7	
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	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Monaco	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	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
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	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	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Norway	11,681	614	0.76	-0.36	0.41	0.20	-0.09	0.11	0.01	0.02	0.11	-0.06	-2.38	8,935.4	-4,153.6	4,781.8	2,280.8	-1,015.7	1,265.2	65.3	273.2	1,250.1	-39.2	-27,853.1	-27,853.1	8,935.4	-4,153.6	4,781.8	2,280.8	-1,015.7	1,265.2	65.3	273.2	1,250.1	-39.2	-27,853.1	
Poland	8,873	233	2.04	-1.42	0.61	0.55	-0.30	0.25	IE	---	---	NO	-5.06	18,057.7	-12,629.4	5,428.3	4,837.7	-2,652.1	2,185.6	IE	---	---	NO	-44,857.6	-44,857.6	18,057.7	-12,629.4	5,428.3	4,837.7	-2,652.1	2,185.6	IE	---	---	NO	-44,857.6	
Portugal	3,766	NO	1.71	-0.84	0.87	0.35	-0.16	0.18	-0.01	IE	-0.36	NO	-2.51	6,425.9	-3,151.0	3,274.9	1,303.2	-617.0	686.2	-42.4	IE	-1,337.9	NO	-9,462.8	-9,462.8	6,425.9	-3,151.0	3,274.9	1,303.2	-617.0	686.2	-42.4	IE	-1,337.9	NO	-9,462.8	
Romania	6,696	NO	2.35	-0.88	1.48	IE	IE	IE	NE	NE	NO	NO	-5.41	15,741.9	-5,863.1	9,878.8	IE	IE	IE	NE	NE	NO	NO	-36,222.3	-36,222.3	15,741.9	-5,863.1	9,878.8	IE	IE	IE	NE	NE	NO	NO	-36,222.3	
Russian Federation	611,892	1,950	0.28	-0.12	0.17	0.08	-0.04	0.04	0.01	0.03	0.01	-0.16	-0.92	172,787.5	-70,732.5	102,055.0	48,098.6	-21,799.4	26,299.2	3,097.5	15,931.4	5,716.6	-312.0	-560,221.7	-560,221.7	172,787.5	-70,732.5	102,055.0	48,098.6	-21,799.4	26,299.2	3,097.5	15,931.4	5,716.6	-312.0	-560,221.7	
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	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Slovenia	1,186	NO	1.84	IE	1.84	0.43	IE	0.43	NA	0.11	NA	NO	-8.71	2,177.3	IE	2,177.3	511.8	IE	511.8	NA	127.1	NA	NO	-10,326.0	-10,326.0	2,177.3	IE	2,177.3	511.8	IE	511.8	NA	127.1	NA	NO	-10,326.0	
Spain	12,577	NO	0.40	IE	0.40	IE	IE	IE	NE	NE	NE	NO	-1.48	5,080.7	IE	5,080.7	IE	IE	IE	NE	NE	NE	NO	-18,629.2	-18,629.2	5,080.7	IE	5,080.7	IE	IE	IE	NE	NE	NE	NO	-18,629.2	
Sweden	29,096	4,562	0.21	IE	0.21	0.07	IE	0.07	0.01	0.07	0.17	-0.58	-1.53	6,083.4	IE	6,083.4	2,033.6	IE	2,033.6	401.3	2,013.4	4,273.5	-2,640.8	-44,602.8	-44,602.8	6,083.4	IE	6,083.4	2,033.6	IE	2,033.6	401.3	2,013.4	4,273.5	-2,640.8	-44,602.8	
Switzerland	1,260	1	2.75	-2.64	0.11	IE	IE	IE	IE	NO	0.15	NO	-0.92	3,461.7	-3,328.8	132.9	IE	IE	IE	NO	182.7	NO	NO	-1,157.2	-1,157.2	3,461.7	-3,328.8	132.9	IE	IE	IE	NO	182.7	NO	NO	-1,157.2	
Ukraine	8,950	192	2.03	-0.51	1.52	IE	IE	IE	IE	0.03	0.16	NO	-0.68	-6.18	18,142.9	-4,556.8	13,586.2	IE	IE	IE	226.5	1,409.7	NO	-130.7	-55,336.2	-55,336.2	18,142.9	-4,556.8	13,586.2	IE	IE	IE	226.5	1,409.7	NO	-130.7	-55,336.2
United Kingdom	1,375	236	7.10	-6.06	1.04	IE	IE	IE	IE	0.36	IE	0.56	0.58	-7.21	9,763.8	-8,328.4	1,435.3	IE	IE	IE	489.7	IE	640.6	137.6	-9,911.8	-9,911.8	9,763.8	-8,328.4	1,435.3	IE	IE	IE	489.7	IE	640.6	137.6	-9,911.8

¹ Includes Greenland but excludes Faroe Islands.

Table 7.3(f)

Cropland management - area, implied carbon stock change factors and emissions and removals from the change in carbon stocks for 2009

	Area (kha)		Implied carbon stock change factor (Mg C/ha)										Implied emission/ removal factor per area (Mg CO ₂ /ha)	Change in carbon stock (Gg C)										Net CO ₂ emissions/ removals (Gg CO ₂)						
	Total	Organic Soil	Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil			Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil								
			Increase	Decrease	Net change	Increase	Decrease	Net change			Mineral	Organic		Increase	Decrease	Net change	Increase	Decrease	Net change			Mineral	Organic							
Australia	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	NA	NA	NA	NA	NA
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	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	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	NA	NA	NA	NA	NA
Canada	47,045	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.09	-5.00	-0.27	21.7	-22.1	-0.4	6.9	-8.0	-1.1	-37.2	-416.9	3,998.3	-80.8	-12,693.6	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	NA	NA	NA	NA	NA
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	NA	NA	NA	NA	NA
Denmark ¹	2,860	43	0.09	-0.10	-0.01	IE	IE	IE	NA	NA	0.02	-8.16	0.41	252.6	-283.2	-30.5	IE	IE	IE	NA	NA	56.7	-348.9	1,183.1	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	NA	NA	NA	NA	NA
European Union (15)	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	NA	NA	NA	NA	NA
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	NA	NA	NA	NA	NA
France (KP)	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	NA	NA	NA	NA	NA
Germany	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	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	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	NA	NA	NA	NA	NA
Iceland	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	NA	NA	NA	NA	NA
Ireland	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	NA	NA	NA	NA	NA
Italy	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	NA	NA	NA	NA	NA
Japan	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	NA	NA	NA	NA	NA
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	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	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	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	NA	NA	NA	NA	NA
Monaco	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	NA	NA	NA	NA	NA
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	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	NA	NA	NA	NA	NA
Norway	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	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	NA	NA	NA	NA	NA
Portugal	1,865	NO	0.01	-0.04	-0.02	0.01	-0.01	0.00	0.00	NO	0.06	NO	-0.14	27.7	-70.5	-42.7	26.5	-19.9	6.7	-0.7	NO	107.6	NO	-259.6	NA	NA	NA	NA	NA	NA
Romania	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	NA	NA	NA	NA	NA
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	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	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	NA	NA	NA	NA	NA
Spain	20,494	NO	0.03	-0.04	-0.01	IE	IE	IE	NE	NE	0.05	NO	-0.15	705.0	-873.1	-168.1	IE	IE	IE	NE	NE	986.2	NO	-2,999.7	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	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	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	NA	NA	NA	NA	NA
United Kingdom	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	NA	NA	NA	NA	NA

¹ Includes Greenland but excludes Faroe Islands.

Table 7.3(g)

Cropland management - area, implied carbon stock change factors and emissions and removals from the change in carbon stocks for the base year

	Area (kha)		Implied carbon stock change factor (Mg C/ha)										Implied emission/ removal factor per area (Mg CO ₂ /ha)	Change in carbon stock (Gg C)										Net CO ₂ emissions/ removals (Gg CO ₂)		
	Total	Organic Soil	Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil			Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil				
			Increase	Decrease	Net change	Increase	Decrease	Net change			Mineral	Organic		Increase	Decrease	Net change	Increase	Decrease	Net change			Mineral	Organic			
Australia																										
Austria																										
Belgium																										
Bulgaria																										
Canada	48,757	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.03	0.01	-5.00	0.07	10.4	-19.7	-9.3	3.7	-7.9	-4.2	-26.3	-1,367.3	528.5	-80.8	3,517.5		
Croatia																										
Czech Republic																										
Denmark ¹	2,921	44	0.04	-0.06	-0.02	IE, NA	IE, NA	IE, NA	NA	NA	-0.10	-8.30	0.88	115.6	-168.0	-52.4	IE, NA	IE, NA	IE, NA	NA	NA	-281.1	-366.3	2,565.7		
Estonia																										
European Union (15)	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	NA
Finland																										
France (KP)																										
Germany																										
Greece																										
Hungary																										
Iceland	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	NA
Ireland																										
Italy																										
Japan	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	NA
Latvia																										
Liechtenstein																										
Lithuania																										
Luxembourg																										
Monaco																										
Netherlands																										
New Zealand																										
Norway																										
Poland																										
Portugal	3,234	NO	0.00	-0.02	-0.01	0.00	-0.01	-0.01	0.00	NE	0.01	NO	0.04	14.3	-52.6	-38.3	2.4	-23.8	-21.4	-1.2	NE	21.4	NO	145.0		
Romania	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	NA
Russian Federation																										
Slovakia																										
Slovenia																										
Spain	21,208	NO	0.03	-0.02	0.01	IE	IE	IE	NE	NE	0.00	NO	-0.03	567.9	-386.6	181.3	IE	IE	IE	NE	NE	12.8	NO	-711.6		
Sweden																										
Switzerland																										
Ukraine																										
United Kingdom																										

¹ Includes Greenland but excludes Faroe Islands.

Table 7.3(h)

Grazing land management - area, implied carbon stock change factors and emissions and removals from the change in carbon stocks for 2009

	Area (kha)		Implied carbon stock change factor (Mg C/ha)										Implied emission/ removal factor per area (Mg CO ₂ /ha)	Change in carbon stock (Gg C)								Net CO ₂ emissions/ removals (Gg CO ₂)								
	Total	Organic Soil	Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil			Above-ground biomass			Below-ground biomass			Litter	Deadwood		Soil							
			Increase	Decrease	Net change	Increase	Decrease	Net change			Mineral	Organic		Increase	Decrease	Net change	Increase	Decrease	Net change				Mineral	Organic						
Australia	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	NA	NA	NA	NA	
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	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	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	NA	NA	NA	NA	NA
Canada	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	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	NA	NA	NA	NA	NA
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	NA	NA	NA	NA	NA
Denmark ¹	404	37	0.03	-0.04	-0.01	IE	IE	IE	NA	NA	-0.02	-1.00	0.46	12.0	-17.8	-5.8	IE	IE	IE	NA	NA	NA	NA	-7.3	-37.2				184.2	
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	NA	NA	NA	NA	NA
European Union (15)	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	NA	NA	NA	NA	NA
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	NA	NA	NA	NA	NA
France (KP)	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	NA	NA	NA	NA	NA
Germany	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	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	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	NA	NA	NA	NA	NA
Iceland	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	NA	NA	NA	NA	NA
Ireland	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	NA	NA	NA	NA	NA
Italy	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	NA	NA	NA	NA	NA
Japan	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	NA	NA	NA	NA	NA
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	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	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	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	NA	NA	NA	NA	NA
Monaco	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	NA	NA	NA	NA	NA
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	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	NA	NA	NA	NA	NA
Norway	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	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	NA	NA	NA	NA	NA
Portugal	1,892	NO	0.00	-0.03	-0.03	0.00	-0.01	-0.01	0.00	NO	0.18	NO	-0.51	0.8	-63.1	-62.3	0.8	-18.0	-17.2	-0.4	NO	342.6	NO						-963.6	
Romania	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	NA	NA	NA	NA	NA
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	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	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	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	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	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	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	NA	NA	NA	NA	NA
United Kingdom	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	NA	NA	NA	NA	NA

¹ Includes Greenland but excludes Faroe Islands.

Table 7.3(i)

Grazing land management - area, implied carbon stock change factors and emissions and removals from the change in carbon stocks for the base year

	Area (kha)		Implied carbon stock change factor (Mg C/ha)										Implied emission/ removal factor per area (Mg CO ₂ /ha)	Change in carbon stock (Gg C)										Net CO ₂ emissions/ removals (Gg CO ₂)			
	Total	Organic Soil	Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil			Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil					
			Increase	Decrease	Net change	Increase	Decrease	Net change			Mineral	Organic		Increase	Decrease	Net change	Increase	Decrease	Net change			Mineral	Organic				
Australia																											
Austria																											
Belgium																											
Bulgaria																											
Canada	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	NA	NA
Croatia																											
Czech Republic																											
Denmark ¹	361	37	0.03	-0.16	-0.13	IE	IE	IE	NA	NA	0.00	-1.00	0.87	11.2	-58.9	-47.7	IE	IE	IE	NA	NA	-0.4	-37.4			313.2	
Estonia																											
European Union (15)	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	NA	NA
Finland																											
France (KP)																											
Germany																											
Greece																											
Hungary																											
Iceland	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	NA	NA
Ireland																											
Italy																											
Japan	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	NA	NA
Latvia																											
Liechtenstein																											
Lithuania																											
Luxembourg																											
Monaco																											
Netherlands																											
New Zealand																											
Norway																											
Poland																											
Portugal	848	NO	NE	-0.02	-0.02	NE	-0.01	-0.01	0.00	NE	0.22	NO	-0.73	NE	-13.8	-13.8	NE	-6.2	-6.2	-0.1	NE	188.7	NO			-617.9	
Romania	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	NA	NA
Russian Federation																											
Slovakia																											
Slovenia																											
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	NA	NA
Sweden																											
Switzerland																											
Ukraine																											
United Kingdom																											

¹ Includes Greenland but excludes Faroe Islands.

Table 7.3(i)

Revegetation - area, implied carbon stock change factors and emissions and removals from the change in carbon stocks for 2009

	Area (kha)		Implied carbon stock change factor (Mg C/ha)										Implied emission/ removal factor per area (Mg CO ₂ /ha)	Change in carbon stock (Gg C)										Net CO ₂ emissions/ removals (Gg CO ₂)	
	Total	Organic Soil	Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil			Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil			
			Increase	Decrease	Net change	Increase	Decrease	Net change			Mineral	Organic		Increase	Decrease	Net change	Increase	Decrease	Net change			Mineral	Organic		
Australia	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
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
Canada	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
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 ¹	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
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 (15)	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
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)	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
Germany	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
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	177	NO	0.07	IE	0.07	IE	IE	IE	IE	NO	0.61	NA	-2.48	12.0	IE	12.0	IE	IE	IE	IE	NO	107.8	NA	-439.4	
Ireland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	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	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Japan	76	1	2.11	-0.01	2.10	0.55	0.00	0.55	0.06	IE, NO	NA, NO	NA, NO	-9.93	160.6	-0.6	159.9	41.7	-0.2	41.6	4.3	IE, NO	NA, NO	NA, NO	-754.9	
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
Monaco	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
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	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
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	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
Romania	9	NO	1.96	-0.56	1.39	IE	IE	IE	NO	NO	NE	NO	-5.11	18.4	-5.3	13.1	IE	IE	IE	NO	NO	NE	NO	-48.0	
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	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

¹ Includes Greenland but excludes Faroe Islands.

Table 7.3(k)

Revegetation - area, implied carbon stock change factors and emissions and removals from the change in carbon stocks for the base year

	Area (kha)		Implied carbon stock change factor (Mg C/ha)										Implied emission/ removal factor per area (Mg CO ₂ /ha)	Change in carbon stock (Gg C)										Net CO ₂ emissions/ removals (Gg CO ₂)	
	Total	Organic Soil	Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil			Above-ground biomass			Below-ground biomass			Litter	Deadwood	Soil			
			Increase	Decrease	Net change	Increase	Decrease	Net change			Mineral	Organic		Increase	Decrease	Net change	Increase	Decrease	Net change			Mineral	Organic		
Australia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Austria	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Belgium	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bulgaria	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Canada	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Czech Republic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Denmark ¹	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
Estonia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
European Union (15)	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
Finland	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
France (KP)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Germany	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Greece	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hungary	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Iceland	101	NO	0.07	IE	0.07	IE	IE	IE	IE	NO	0.61	NA	-2.48	6.8	IE	6.8	IE	IE	IE	IE	NO	61.4	NA	-250.3	
Ireland	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Italy	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Japan	5	NO	1.89	-0.03	1.86	0.49	-0.01	0.48	0.06	IE, NO	NA, NO	NO	-8.80	10.1	-0.2	9.9	2.6	0.0	2.6	0.3	IE, NO	NA, NO	NO	-47.1	
Latvia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Liechtenstein	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lithuania	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Luxembourg	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Monaco	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Netherlands	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
New Zealand	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Norway	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Poland	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Portugal	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
Romania	6	NA	0.21	NO	0.21	IE	IE	IE	IE	NA	NO	NA	NA	-0.78	1.3	NO	1.3	IE	IE	IE	NA	NO	NA	NA	-4.9
Russian Federation	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Slovakia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Slovenia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Switzerland	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ukraine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
United Kingdom	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

¹ Includes Greenland but excludes Faroe Islands.

Table 7.4(a)**Net CO₂ emissions/removals¹ from changes in carbon stocks from cropland management² - trend information**

	CO ₂ emissions/removals (Gg) ¹		Relative change (%)					
	Base year ^{3,4}	2009	Base year to 2009	2008 to 2009	2009 to 2010	2010 to 2011	2011 to 2012	Base year to 2012
Australia	—	NA	*	*				
Austria	—	NA	*	*				
Belgium	—	NA	*	*				
Bulgaria	—	NA	*	*				
Canada	3,518	-12,694	-460.9	5.8				
Croatia	—	NA	*	*				
Czech Republic	—	NA	*	*				
Denmark ⁵	2,566	1,183	-53.9	-48.5				
Estonia	—	NA	*	*				
European Union (15)	NA	NA	*	*				
Finland	—	NA	*	*				
France (KP)	—	NA	*	*				
Germany	—	NA	*	*				
Greece	—	NA	*	*				
Hungary	—	NA	*	*				
Iceland	NA	NA	*	*				
Ireland	—	NA	*	*				
Italy	—	NA	*	*				
Japan	NA	NA	*	*				
Latvia	—	NA	*	*				
Liechtenstein	—	NA	*	*				
Lithuania	—	NA	*	*				
Luxembourg	—	NA	*	*				
Monaco	—	NA	*	*				
Netherlands	—	NA	*	*				
New Zealand	—	NA	*	*				
Norway	—	NA	*	*				
Poland	—	NA	*	*				
Portugal	145	-260	-279.0	90.2				
Romania	NA	NA	*	*				
Russian Federation	—	NA	*	*				
Slovakia	—	NA	*	*				
Slovenia	—	NA	*	*				
Spain	-712	-3,000	321.6	-15.7				
Sweden	—	NA	*	*				
Switzerland	—	NA	*	*				
Ukraine	—	NA	*	*				
United Kingdom	—	NA	*	*				

¹ Only includes CO₂ emissions and removals from changes in carbon stocks.² If the activity is elected by the Party.³ In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).⁴ Cropland management, Grazing Land Management and Revegetation are net-net accounting and therefore the base year is required to be reported.

Table 7.4(b)**Net CO₂ emissions/removals¹ from changes in carbon stocks from grazing land management² - trend information**

	CO ₂ emissions/removals (Gg) ¹		Relative change (%)					
	Base year ^{3,4}	2009	Base year to 2009	2008 to 2009	2009 to 2010	2010 to 2011	2011 to 2012	Base year to 2012
Australia	—	NA	*	*				
Austria	—	NA	*	*				
Belgium	—	NA	*	*				
Bulgaria	—	NA	*	*				
Canada	NA	NA	*	*				
Croatia	—	NA	*	*				
Czech Republic	—	NA	*	*				
Denmark ⁵	313	184	-41.2	-0.1				
Estonia	—	NA	*	*				
European Union (15)	NA	NA	*	*				
Finland	—	NA	*	*				
France (KP)	—	NA	*	*				
Germany	—	NA	*	*				
Greece	—	NA	*	*				
Hungary	—	NA	*	*				
Iceland	NA	NA	*	*				
Ireland	—	NA	*	*				
Italy	—	NA	*	*				
Japan	NA	NA	*	*				
Latvia	—	NA	*	*				
Liechtenstein	—	NA	*	*				
Lithuania	—	NA	*	*				
Luxembourg	—	NA	*	*				
Monaco	—	NA	*	*				
Netherlands	—	NA	*	*				
New Zealand	—	NA	*	*				
Norway	—	NA	*	*				
Poland	—	NA	*	*				
Portugal	-618	-964	55.9	1.1				
Romania	NA	NA	*	*				
Russian Federation	—	NA	*	*				
Slovakia	—	NA	*	*				
Slovenia	—	NA	*	*				
Spain	NA	NA	*	*				
Sweden	—	NA	*	*				
Switzerland	—	NA	*	*				
Ukraine	—	NA	*	*				
United Kingdom	—	NA	*	*				

¹ Only includes CO₂ emissions and removals from changes in carbon stocks.

² If the activity is elected by the Party.

³ In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

⁴ Cropland management, Grazing Land Management and Revegetation are net-net accounting and therefore the base year is required to be reported.

Table 7.4(c)**Net CO₂ emissions/removals¹ from changes in carbon stocks from revegetation² - trend information**

	CO ₂ emissions/removals (Gg) ¹		Relative change (%)					
	Base year ^{3,4}	2009	Base year to 2009	2008 to 2009	2009 to 2010	2010 to 2011	2011 to 2012	Base year to 2012
Australia	—	NA	*	*				
Austria	—	NA	*	*				
Belgium	—	NA	*	*				
Bulgaria	—	NA	*	*				
Canada	NA	NA	*	*				
Croatia	—	NA	*	*				
Czech Republic	—	NA	*	*				
Denmark ⁵	NA	NA	*	*				
Estonia	—	NA	*	*				
European Union (15)	NA	NA	*	*				
Finland	—	NA	*	*				
France (KP)	—	NA	*	*				
Germany	—	NA	*	*				
Greece	—	NA	*	*				
Hungary	—	NA	*	*				
Iceland	-250	-439	75.5	2.0				
Ireland	—	NA	*	*				
Italy	—	NA	*	*				
Japan	-47	-755	1,503.9	3.4				
Latvia	—	NA	*	*				
Liechtenstein	—	NA	*	*				
Lithuania	—	NA	*	*				
Luxembourg	—	NA	*	*				
Monaco	—	NA	*	*				
Netherlands	—	NA	*	*				
New Zealand	—	NA	*	*				
Norway	—	NA	*	*				
Poland	—	NA	*	*				
Portugal	NA	NA	*	*				
Romania	-5	-48	876.9	—				
Russian Federation	—	NA	*	*				
Slovakia	—	NA	*	*				
Slovenia	—	NA	*	*				
Spain	NA	NA	*	*				
Sweden	—	NA	*	*				
Switzerland	—	NA	*	*				
Ukraine	—	NA	*	*				
United Kingdom	—	NA	*	*				

¹ Only includes CO₂ emissions and removals from changes in carbon stocks.² If the activity is elected by the Party.³ In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).⁴ Cropland management, Grazing Land Management and Revegetation are net-net accounting and therefore the base year is required to be reported.

Table 7.5(a)

Area of land reported for cropland management¹ - trend information

	Area (kha)		Relative change (%)					
	Base year ^{2,3}	2009	Base year to 2009	2008 to 2009	2009 to 2010	2010 to 2011	2011 to 2012	Base year to 2012
Australia	—	NA	*	*				
Austria	—	NA	*	*				
Belgium	—	NA	*	*				
Bulgaria	—	NA	*	*				
Canada	48,757	47,045	-3.5	-0.3				
Croatia	—	NA	*	*				
Czech Republic	—	NA	*	*				
Denmark ⁵	2,921	2,860	-2.1	-0.1				
Estonia	—	NA	*	*				
European Union (15)	NA	NA	*	*				
Finland	—	NA	*	*				
France (KP)	—	NA	*	*				
Germany	—	NA	*	*				
Greece	—	NA	*	*				
Hungary	—	NA	*	*				
Iceland	NA	NA	*	*				
Ireland	—	NA	*	*				
Italy	—	NA	*	*				
Japan	NA	NA	*	*				
Latvia	—	NA	*	*				
Liechtenstein	—	NA	*	*				
Lithuania	—	NA	*	*				
Luxembourg	—	NA	*	*				
Monaco	—	NA	*	*				
Netherlands	—	NA	*	*				
New Zealand	—	NA	*	*				
Norway	—	NA	*	*				
Poland	—	NA	*	*				
Portugal	3,234	1,865	-42.3	-3.3				
Romania	NA	NA	*	*				
Russian Federation	—	NA	*	*				
Slovakia	—	NA	*	*				
Slovenia	—	NA	*	*				
Spain	21,208	20,494	-3.4	0.0				
Sweden	—	NA	*	*				
Switzerland	—	NA	*	*				
Ukraine	—	NA	*	*				
United Kingdom	—	NA	*	*				

¹ If the activity is elected by the Party.² In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).³ Cropland management, Grazing Land Management and Revegetation are net-net accounting and therefore the base year is required to be reported.⁴ Includes Greenland but excludes Faroe Islands.

Table 7.5(b)

Area of land reported for grazing land management¹ - trend information

	Area (kha)		Relative change (%)					
	Base year ^{2,3}	2009	Base year to 2009	2008 to 2009	2009 to 2010	2010 to 2011	2011 to 2012	Base year to 2012
Australia	—	NA	*	*				
Austria	—	NA	*	*				
Belgium	—	NA	*	*				
Bulgaria	—	NA	*	*				
Canada	NA	NA	*	*				
Croatia	—	NA	*	*				
Czech Republic	—	NA	*	*				
Denmark ⁴	361	404	11.7	0.6				
Estonia	—	NA	*	*				
European Union (15)	NA	NA	*	*				
Finland	—	NA	*	*				
France (KP)	—	NA	*	*				
Germany	—	NA	*	*				
Greece	—	NA	*	*				
Hungary	—	NA	*	*				
Iceland	NA	NA	*	*				
Ireland	—	NA	*	*				
Italy	—	NA	*	*				
Japan	NA	NA	*	*				
Latvia	—	NA	*	*				
Liechtenstein	—	NA	*	*				
Lithuania	—	NA	*	*				
Luxembourg	—	NA	*	*				
Monaco	—	NA	*	*				
Netherlands	—	NA	*	*				
New Zealand	—	NA	*	*				
Norway	—	NA	*	*				
Poland	—	NA	*	*				
Portugal	848	1,892	123.1	2.6				
Romania	NA	NA	*	*				
Russian Federation	—	NA	*	*				
Slovakia	—	NA	*	*				
Slovenia	—	NA	*	*				
Spain	NA	NA	*	*				
Sweden	—	NA	*	*				
Switzerland	—	NA	*	*				
Ukraine	—	NA	*	*				
United Kingdom	—	NA	*	*				

¹ If the activity is elected by the Party.

² In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

³ Cropland management, Grazing Land Management and Revegetation are net-net accounting and therefore the base year is required to be reported.

⁴ Includes Greenland but excludes Faroe Islands.

Table 7.5(c)

Area of land reported for Revegetation¹ - trend information

	Area (kha)		Relative change (%)					
	Base year ^{2,3}	2009	Base year to 2009	2008 to 2009	2009 to 2010	2010 to 2011	2011 to 2012	Base year to 2012
Australia	—	NA	*	*				
Austria	—	NA	*	*				
Belgium	—	NA	*	*				
Bulgaria	—	NA	*	*				
Canada	NA	NA	*	*				
Croatia	—	NA	*	*				
Czech Republic	—	NA	*	*				
Denmark ⁴	NA	NA	*	*				
Estonia	—	NA	*	*				
European Union (15)	NA	NA	*	*				
Finland	—	NA	*	*				
France (KP)	—	NA	*	*				
Germany	—	NA	*	*				
Greece	—	NA	*	*				
Hungary	—	NA	*	*				
Iceland	101	177	75.5	2.0				
Ireland	—	NA	*	*				
Italy	—	NA	*	*				
Japan	5	76	1,322.1	3.8				
Latvia	—	NA	*	*				
Liechtenstein	—	NA	*	*				
Lithuania	—	NA	*	*				
Luxembourg	—	NA	*	*				
Monaco	—	NA	*	*				
Netherlands	—	NA	*	*				
New Zealand	—	NA	*	*				
Norway	—	NA	*	*				
Poland	—	NA	*	*				
Portugal	NA	NA	*	*				
Romania	6	9	48.4	—				
Russian Federation	—	NA	*	*				
Slovakia	—	NA	*	*				
Slovenia	—	NA	*	*				
Spain	NA	NA	*	*				
Sweden	—	NA	*	*				
Switzerland	—	NA	*	*				
Ukraine	—	NA	*	*				
United Kingdom	—	NA	*	*				

¹ If the activity is elected by the Party.

² In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

³ Cropland management, Grazing Land Management and Revegetation are net-net accounting and therefore the base year is required to be reported.

⁴ Includes Greenland but excludes Faroe Islands.

Table 7.6

Units of land subject to Afforestation or Reforestation under Article 3.3 otherwise subject to elected activities under Article 3.4 - trend information

	Afforestation and Reforestation ¹										Deforestation ²									
	Area (kha)					Relative change (%)					Area (kha)					Relative change (%)				
	2008	2009	2010	2011	2012	2008 to 2009	2009 to 2010	2010 to 2011	2011 to 2012	2008 to 2012	2008	2009	2010	2011	2012	2008 to 2009	2009 to 2010	2010 to 2011	2011 to 2012	2008 to 2012
Australia	NA	NA				*					NA	NA				*				
Austria	NA	NA				*					NA	NA				*				
Belgium	NA	NA				*					NA	NA				*				
Bulgaria	NA	NA				*					NA	NA				*				
Canada	NA	NA				*					454	473				4.2				
Croatia	NA	NA				*					NA	NA				*				
Czech Republic	37	40				7.1					NA	NA				*				
Denmark ³	NE, NO	NE, NO				*					1	1				2.9				
Estonia	NA	NA				*					NA	NA				*				
European Union (15)	NA	NA				*					NA	NA				*				
Finland	156	160				2.5					NA	NA				*				
France (KP)	NA	NA				*					NE	NE				*				
Germany	339	357				5.3					133	140				5.3				
Greece	NO	NO				*					NA	NA				*				
Hungary	159	162				2.2					NO	NO				*				
Iceland	4	5				24.1					NO	NO				*				
Ireland	NA	NA				*					NA	NA				*				
Italy	NA	NA				*					NA	NA				*				
Japan	NA	NA				*					4	4				-5.6				
Latvia	NA	NA				*					NA	NA				*				
Liechtenstein	NA	NA				*					0	0				39.3				
Lithuania	NA	NA				*					NA	NA				*				
Luxembourg	NA	NA				*					NA	NA				*				
Monaco	NA	NA				*					NA	NA				*				
Netherlands	NA	NA				*					NA	NA				*				
New Zealand	NA	NA				*					NA	NA				*				
Norway	NO	NO				*					NA	NA				*				
Poland	NA	NA				*					NA	NA				*				
Portugal	NE	NE				*					76	80				5.3				
Romania	NO	NO				*					NO	NO				*				
Russian Federation	NA	NA				*					NA	NA				*				
Slovakia	NA	NA				*					NA	NA				*				
Slovenia	NO	NO				*					0	1				118.5				
Spain	NA	NA				*					NA	NA				*				
Sweden	NA	NA				*					NO	NO				*				
Switzerland	NO	NO				*					NO	NO				*				
Ukraine	181	219				20.9					NA	NA				*				
United Kingdom	NO	NO				*					NO	NO				*				

¹ Units of land subject to Afforestation or Reforestation under Article 3.3 otherwise subject to elected activities under Article 3.4 are implicitly included under table A.1.1 or A.1.2. They are reported in table A.1.3 for transparency and to fulfil the requirement of paragraph 6 (b) (ii) of the annex to decision 15/CMP.1.

² Units of lands subject to Deforestation under Article 3.3 otherwise subject to elected activities under Article 3.4 are implicitly included under table A.2. They are reported also in table A.2.1. for transparency and to fulfil the requirement of paragraph 6 (b) (ii) of the annex to decision 15/CMP.1.

³ Includes Greenland but excludes Faroe Islands.

Table 7.7**Direct N₂O emissions from N fertilization¹ for 2009**

	A/R: units of land not harvested since beginning of CP			A/R: units of land harvested since beginning of CP			Forest management ²		
	Total fertilizer	N ₂ O-N per unit of fertilizer	N ₂ O	Total fertilizer	N ₂ O-N per unit of fertilizer	N ₂ O	Total fertilizer	N ₂ O-N per unit of fertilizer	N ₂ O
	Gg N/yr	kg N ₂ O-N/kg N	Gg	Gg N/yr	kg N ₂ O-N/kg N	Gg	Gg N/yr	kg N ₂ O-N/kg N	Gg
Australia	IE	IE	IE	IE	IE	IE	NA	NA	NA
Austria	NO	NO	NO	NO	NO	NO	NA	NA	NA
Belgium	NO	NO	NO	NO	NO	NO	NA	NA	NA
Bulgaria	NO	NO	NO	NO	NO	NO	NO	NO	NO
Canada	IE	IE	IE	NA	NA	NA	NA	NA	NA
Croatia	NO	NO	NO	NA	NA	NA	NO	NO	NO
Czech Republic	NO	NO	NO	NO	NO	NO	NO	NO	NO
Denmark ³	IE	IE	IE	IE	IE	IE	IE	IE	IE
Estonia	NO	NO	NO	NO	NO	NO	NA	NA	NA
European Union (15)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Finland	NO	NO	NO	NA	NA	NA	4.07	0.01	0.08
France (KP)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Germany	NO	NO	NO	NO	NO	NO	NO	NO	NO
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NO	NO	NO	NO	NO	NO	NO	NO	NO
Iceland	0.02	0.01	0.00	NO	NA	NA	NA	NA	NA
Ireland	IE	IE	IE	IE	IE	IE	NA	NA	NA
Italy	NA	NA	NA	NA	NA	NA	NA	NA	NA
Japan	IE	IE	IE	NA	NA	NA	IE	IE	IE
Latvia	NO	NO	NO	NO	NO	NO	NO	NO	NO
Liechtenstein	NO	NO	NO	NO	NO	NO	NA	NA	NA
Lithuania	NO	NO	NO	NO	NO	NO	NO	NO	NO
Luxembourg	NO	NO	NO	NO	NO	NO	NA	NA	NA
Monaco	NA	NA	NA	NA	NA	NA	NA	NA	NA
Netherlands	NO	NO	NO	NO	NO	NO	NA	NA	NA
New Zealand	IE	IE	IE	IE	IE	IE	NA	NA	NA
Norway	IE	IE	IE	IE	IE	IE	0.42	NO	NO
Poland	NO	NO	NO	NO	NO	NO	NO	NO	NO
Portugal	IE	IE	IE	IE	IE	IE	IE	IE	IE
Romania	IE	IE	IE	NA	NA	NA	NO	NO	NO
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NO	NO	NO	NO	NO	NO	NO	NO	NO
Spain	NO	NO	NO	NO	NO	NO	NO	NO	NO
Sweden	NO	NO	NO	NO	NO	NO	8.33	0.01	0.15
Switzerland	NO	NO	NO	NO	NO	NO	NO	NO	NO
Ukraine	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom	0.32	0.01	0.00	NO	NO	NO	NO	NO	NO

¹ N₂O emissions from fertilization for Cropland Management, Grazing Land Management and Revegetation should be reported in the agriculture sector.

² If Forest Management is elected by the Party

³ Includes Greenland but excludes Faroe Islands

Table 7.8**N₂O emissions from drainage of soils^{1,2} for 2009**

	Organic soil			Mineral soil			Total		
	Area of drained soils	IEF	N ₂ O	Area of drained soils	IEF	N ₂ O	Area of drained soils	IEF	N ₂ O
	kha	kg N ₂ O-N/ha	Gg	kha	kg N ₂ O-N/ha	Gg	kha	kg N ₂ O-N/ha	Gg
Australia	NA	NA	NA	NA	NA	NA	NA	NA	NA
Austria	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	NO	NO	NO	NO	NO	NO	NO	NO	NO
Canada	NA	NA	NA	NA	NA	NA	NA	NA	NA
Croatia	NO	NO	NO	NO	NO	NO	NO	NO	NO
Czech Republic	NO	NO	NO	NO	NO	NO	NO	NO	NO
Denmark ³	13.33	0.60	0.01	278.54	0.06	0.03	291.87	0.08	0.04
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (15)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Finland	NE	NE	NE	NE	NE	NE	NE	NE	NE
France (KP)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Germany	239.73	0.38	0.14	NO	NO	NO	239.73	0.38	0.14
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NO	NO	NO	NO	NO	NO	NO	NO	NO
Iceland	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	NA	NA	NA	NA	NA	NA	NA	NA	NA
Italy	NA	NA	NA	NA	NA	NA	NA	NA	NA
Japan	NO	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	428.15	0.60	0.40	604.16	0.06	0.06	1,032.31	0.28	0.46
Liechtenstein	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lithuania	170.60	0.28	0.07	NO	NO	NO	170.60	0.28	0.07
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Monaco	NA	NA	NA	NA	NA	NA	NA	NA	NA
Netherlands	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand	NA	NA	NA	NA	NA	NA	NA	NA	NA
Norway	245.30	NO	NO	NO	NO	NO	245.30	NO	NO
Poland	NO	NO	NO	NO	NO	NO	NO	NO	NO
Portugal	NO	NO	NO	NO	NO	NO	NO	NO	NO
Romania	NO	NO	NO	NO	NO	NO	NO	NO	NO
Russian Federation	1,950.20	0.22	0.68	NO	NO	NO	1,950.20	0.22	0.68
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NO	NO	NO	NO	NO	NO	NO	NO	NO
Spain	NO	NO	NO	NO	NO	NO	NO	NO	NO
Sweden	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland	NO	NO	NO	NO	NO	NO	NO	NO	NO
Ukraine	192.20	0.10	0.03	NE	NO	NO	192.20	0.10	0.03
United Kingdom	NE	NE	NE	NE	NE	NE	NE	NE	NE

¹ N₂O emissions from drainage of soils include those from Forest Management. NO emissions from drained cropland and grassland soils are covered in the agriculture sector under cultivation of histosols. Fertilization for Cropland Management, Grazing Land Management and Revegetation should be reported in the agriculture sector.

² If Forest Management is elected by the Party

³ Includes Greenland but excludes Faroe Islands

Table 7.9(a)**N₂O emissions from disturbance associated with land-use conversion to cropland (deforestation ¹) for 2009**

	Deforestation								
	Organic Soil ²			Mineral Soil			Total		
	Area of drained soils	IEF	N ₂ O	Area of drained soils	IEF	N ₂ O	Area of drained soils	IEF	N ₂ O
	kha	kg N ₂ O-N/ha	Gg	kha	kg N ₂ O-N/ha	Gg	kha	kg N ₂ O-N/ha	Gg
Australia	NO	NO	NO	6,276.27	0.07	0.71	6,276.27	0.07	0.71
Austria	NO	NO	NO	5.16	0.03	0.00	5.16	0.03	0.00
Belgium	NE	NE	NE	NE	NE	NE	NE	NE	NE
Bulgaria	NO	NO	NO	NO	NO	NO	NO	NO	NO
Canada	NO	NO	NO	472.95	0.05	0.04	472.95	0.05	0.04
Croatia	NO	NO	NO	NO	NO	NO	NO	NO	NO
Czech Republic	NO	NO	NO	2.58	0.35	0.00	2.58	0.35	0.00
Denmark ³	0.27	0.16	0.00	6.54	0.12	0.00	6.81	0.12	0.00
Estonia	NO	NO	NO	NO	NO	NO	NO	NO	NO
European Union (15)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Finland	29.21	IE	IE	49.23	0.19	0.02	78.44	0.12	0.02
France (KP)	NO	NO	NO	547.48	0.20	0.17	547.48	0.20	0.17
Germany	0.28	IE	IE	7.55	1.05	0.01	7.84	1.01	0.01
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NO	NO	NO	1.39	0.39	0.00	1.39	0.39	0.00
Iceland	NO	NA	NA	NO	NA	NA	NO	NA	NA
Ireland	NO	NO	NO	NO	NO	NO	NO	NO	NO
Italy	NA	NA	NA	NA	NA	NA	NA	NA	NA
Japan	IE	IE, NA	IE, NA	22.78	0.28	0.01	22.78	0.28	0.01
Latvia	1.12	IE	IE	21.31	1.44	0.05	22.42	1.37	0.05
Liechtenstein	NO	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	NO	NO	NO	NO	NO	NO	NO	NO	NO
Luxembourg	NO	NO	NO	0.93	0.80	0.00	0.93	0.80	0.00
Monaco	NA	NA	NA	NA	NA	NA	NA	NA	NA
Netherlands	0.02	6.60	0.00	1.72	0.55	0.00	1.74	0.62	0.00
New Zealand	NO	NO	NO	0.27	0.41	0.00	0.27	0.41	0.00
Norway	NA	NO	NO	NA	NO	NO	NA	NO	NO
Poland	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	NO	NO	NO	50.92	1.51	0.12	50.92	1.51	0.12
Romania	NO	NO	NO	NO	NO	NO	NO	NO	NO
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NO	NO	NO	0.15	40.36	0.01	0.15	40.36	0.01
Spain	NO	NO	NO	NO	NO	NO	NO	NO	NO
Sweden	IE	IE	IE	4.89	2.50	0.02	4.89	2.50	0.02
Switzerland	0.01	NO	NO	0.03	1.16	0.00	0.04	0.86	0.00
Ukraine	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom	NO	NO	NO	0.03	12.64	0.00	0.03	12.64	0.00

¹ N₂O emissions associated with deforestation followed by the establishment of cropland should be reported under deforestation even if cropland management is not elected under Article 3.4² N₂O emissions from cropland are included in the agriculture sector.³ Includes Greenland but excludes Faroe Islands

Table 7.9(b)**N₂O emissions from disturbance associated with land-use conversion to cropland (cropland management ^{1,2}) for 2009**

	Cropland management								
	Organic soil ³			Mineral soil			Total		
	Area of drained soils	IEF	N ₂ O	Area of drained soils	IEF	N ₂ O	Area of drained soils	IEF	N ₂ O
	kha	kg N ₂ O-N/ha	Gg	kha	kg N ₂ O-N/ha	Gg	kha	kg N ₂ O-N/ha	Gg
Australia	NA	NA	NA	NA	NA	NA	NA	NA	NA
Austria	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	NO	NO	NO	NO	NO	NO	NO	NO	NO
Canada	NO	NO	NO	3.42	0.22	0.00	3.42	0.22	0.00
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA
Czech Republic	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark ⁴	0.47	NA	NA	8.85	IE	IE	9.32	IE, NA	IE, NA
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (15)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Finland	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Germany	NA	NA	NA	NA	NA	NA	NA	NA	NA
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	NA	NA	NA	NA	NA	NA	NA	NA	NA
Italy	NA	NA	NA	NA	NA	NA	NA	NA	NA
Japan	NA	NA	NA	NA	NA	NA	NA	NA	NA
Latvia	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Monaco	NA	NA	NA	NA	NA	NA	NA	NA	NA
Netherlands	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand	NA	NA	NA	NA	NA	NA	NA	NA	NA
Norway	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poland	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	NO	NO	NO	28.79	1.23	0.06	28.79	1.23	0.06
Romania	NA	NA	NA	NA	NA	NA	NA	NA	NA
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	NO	NO	NO	NO	NO	NO	NO	NO	NO
Sweden	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ukraine	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom	NA	NA	NA	NA	NA	NA	NA	NA	NA

¹ This includes N₂O emissions in land subject to cropland management from disturbance of soils due to the conversion to cropland of lands other than forest lands.² If Cropland Management is elected by the Party³ N₂O emissions from cropland are included in the agriculture sector⁴ Includes Greenland but excludes Faroe Islands.

Table 7.9(c)

N₂O emissions from disturbance associated with land-use conversion to cropland (cropland management ^{1,2}) for the base year

	Cropland management								
	Organic soil ³			Mineral soil			Total		
	Area of drained soils	IEF	N ₂ O	Area of drained soils	IEF	N ₂ O	Area of drained soils	IEF	N ₂ O
	kha	kg N ₂ O-N/ha	Gg	kha	kg N ₂ O-N/ha	Gg	kha	kg N ₂ O-N/ha	Gg
Australia	—	—	—	—	—	—	—	—	—
Austria	—	—	—	—	—	—	—	—	—
Belgium	—	—	—	—	—	—	—	—	—
Bulgaria	—	—	—	—	—	—	—	—	—
Canada	NO	NO	NO	1,269.82	0.02	0.04	1,269.82	0.02	0.04
Croatia	—	—	—	—	—	—	—	—	—
Czech Republic	—	—	—	—	—	—	—	—	—
Denmark ⁴	0.02	NA	NA	0.44	IE	IE	0.47	IE, NA	IE, NA
Estonia	—	—	—	—	—	—	—	—	—
European Union (15)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Finland	—	—	—	—	—	—	—	—	—
France (KP)	—	—	—	—	—	—	—	—	—
Germany	—	—	—	—	—	—	—	—	—
Greece	—	—	—	—	—	—	—	—	—
Hungary	—	—	—	—	—	—	—	—	—
Iceland	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	—	—	—	—	—	—	—	—	—
Italy	—	—	—	—	—	—	—	—	—
Japan	NA	NA	NA	NA	NA	NA	NA	NA	NA
Latvia	—	—	—	—	—	—	—	—	—
Liechtenstein	—	—	—	—	—	—	—	—	—
Lithuania	—	—	—	—	—	—	—	—	—
Luxembourg	—	—	—	—	—	—	—	—	—
Monaco	—	—	—	—	—	—	—	—	—
Netherlands	—	—	—	—	—	—	—	—	—
New Zealand	—	—	—	—	—	—	—	—	—
Norway	—	—	—	—	—	—	—	—	—
Poland	—	—	—	—	—	—	—	—	—
Portugal	NO	NO	NO	27.82	1.71	0.07	27.82	1.71	0.07
Romania	NA	NA	NA	NA	NA	NA	NA	NA	NA
Russian Federation	—	—	—	—	—	—	—	—	—
Slovakia	—	—	—	—	—	—	—	—	—
Slovenia	—	—	—	—	—	—	—	—	—
Spain	NO	NO	NO	NO	NO	NO	NO	NO	NO
Sweden	—	—	—	—	—	—	—	—	—
Switzerland	—	—	—	—	—	—	—	—	—
Ukraine	—	—	—	—	—	—	—	—	—
United Kingdom	—	—	—	—	—	—	—	—	—

¹ This includes N₂O emissions in land subject to Cropland Management from disturbance of soils due to the conversion to cropland of lands other than Forest Lands.

² If Cropland Management is elected by the Party

³ N₂O emissions from cropland are included in the agriculture sector

⁴ Includes Greenland but excludes Faroe Islands.

Table 7.9(d)

N₂O emissions from disturbance associated with land-use conversion to cropland (deforestation: units of land otherwise subject to elected activities under Article 3.4) ^{1,2} for 2009

	Deforestation: units of land otherwise subject to elected activities under Article 3.4 (information item)				
	Organic soil ³	Mineral soil	Total		
	Area of drained soils	Area of drained soils	Area of drained soils	IEF	N ₂ O
	kha	kha	kha	kg N ₂ O-N/ha	Gg
Australia	NA	NA	NA		
Austria	NO	NO	NO		
Belgium	NA	NA	NA		
Bulgaria	NO	NO	NO		
Canada	IE	IE	IE		
Croatia	NA	NA	NA		
Czech Republic	NA	NA	NA		
Denmark ⁴	0.0	0.9	0.9		
Estonia	NA	NA	NA		
European Union (15)	NA	NA	NA		
Finland	NA	NA	NA		
France (KP)	NE	NE	NE		
Germany	NA	NA	NA		
Greece	NA	NA	NA		
Hungary	NO	NO	NO		
Iceland	NA	NA	NA		
Ireland	NA	NA	NA		
Italy	NA	NA	NA		
Japan	NA	NA	NA		
Latvia	NA	NA	NA		
Liechtenstein	NO	NO	NO		
Lithuania	NO	NO	NO		
Luxembourg	NA	NA	NA		
Monaco	NA	NA	NA		
Netherlands	NA	NA	NA		
New Zealand	NA	NA	NA		
Norway	NA	NA	NA		
Poland	NA	NA	NA		
Portugal	NO	79.5	79.5		
Romania	NA	NA	NA		
Russian Federation	NA	NA	NA		
Slovakia	NA	NA	NA		
Slovenia	NA	0.2	0.2		
Spain	NO	NO	NO		
Sweden	NO	NO	NO		
Switzerland	NO	NO	NO		
Ukraine	NA	NA	NA		
United Kingdom	NO	NO	NO		

¹ N₂O 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

² Units of land subject to deforestation under Article 3.3 otherwise subject to elected activities under Article 3.4 are implicitly included under A.2. They are reported in table 3 for transparency purposes and to fulfil the requirement of paragraph 6(b) (ii) of the annex to decision 15/CMP.1

³ N₂O emissions from cropland are included in the agriculture sector

⁴ Includes Greenland but excludes Faroe Islands.

Table 7.10(a)

Carbon emissions from lime application on Article 3.3 activities for 2009

	Afforestation and reforestation			R (units of land not harvested since the beginning of 2008)			+R (units of land harvested since the beginning of 2008)			Deforestation			Total Article 3.3		
	Total lime applied	C emission per unit of lime	Carbon	Total lime applied	C emission per unit of lime	Carbon	Total lime applied	C emission per unit of lime	Carbon	Total lime applied	C emission per unit of lime	Carbon	Total lime applied	C emission per unit of lime	Carbon
	Mg/yr	Mg C/Mg	Gg	Mg/yr	Mg C/Mg	Gg	Mg/yr	Mg C/Mg	Gg	Mg/yr	Mg C/Mg	Gg	Mg/yr	Mg C/Mg	Gg
Australia	376.21	0.11	0.04	376.21	0.11	0.04	NO	NO	NO	NO	NO	NO	376.21	0.11	0.04
Austria	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Belgium	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Bulgaria	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Canada	NA,NO	NA,NO	NA,NO	NO	NO	NO	NA	NA	NA	IE	IE	IE	IE,NA,NO	IE,NA,NO	IE,NA,NO
Croatia	NA,NO	NA,NO	NA,NO	NO	NO	NO	NA	NA	NA	NO	NO	NO	NA,NO	NA,NO	NA,NO
Czech Republic	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Denmark ²	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Estonia	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
European Union (15)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Finland	NA,NO	NA,NO	NA,NO	NO	NO	NO	NA	NA	NA	110,317.61	0.13	13.79	110,317.61	0.13	13.79
France (KP)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	1.43	NO	NO	NO	1.43
Germany	IE,NO	IE,NO	IE,NO	IE	IE	IE	NO	NO	NO	NO	NO	NO	IE,NO	IE,NO	IE,NO
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Iceland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	NO	NO	NO	NO	NO	NO	NO	NO	NO	727.42	0.12	0.09	727.42	0.12	0.09
Italy	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Japan	NA,NO	NA,NO	NA,NO	NO	NO	NO	NA	NA	NA	967.20	0.44	0.43	967.20	0.44	0.43
Latvia	NO	NO	NO	NO	NO	NO	NO	NO	NO	197.12	119.98	23.65	197.12	119.98	23.65
Liechtenstein	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Luxembourg	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Netherlands	NO	NO	NO	NO	NO	NO	NO	NO	NO	1,944.45	0.13	0.25	1,944.45	0.13	0.25
New Zealand	IE	IE	IE	IE	IE	IE	IE	IE	IE	10,560.35	0.44	4.65	10,560.35	0.44	4.65
Norway	NO	NO	NO	NO	NO	NO	NO	NO	NO	IE, NO	IE, NO	IE, NO	NO,IE	NO,IE	NO,IE
Poland	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA	NA	NA	NA,NO	NA,NO	NA,NO
Portugal	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Romania	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Russian Federation	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
Slovenia	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Spain	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Sweden	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Switzerland	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Ukraine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

¹ Total for limestone and dolomite.

² Includes Greenland but excludes Faroe Islands.

Table 7.10(b)

Carbon emissions from lime application¹ on Article 3.3 activities for the base year

	Afforestation and reforestation			R (units of land not harvested since the beginning of			+R (units of land harvested since the beginning of C			Deforestation			Total Article 3.3		
	Total lime applied	C emission per unit of lime	Carbon	Total lime applied	C emission per unit of lime	Carbon	Total lime applied	C emission per unit of lime	Carbon	Total lime applied	C emission per unit of lime	Carbon	Total lime applied	C emission per unit of lime	Carbon
	Mg/yr	Mg C/Mg	Gg	Mg/yr	Mg C/Mg	Gg	Mg/yr	Mg C/Mg	Gg	Mg/yr	Mg C/Mg	Gg	Mg/yr	Mg C/Mg	Gg
Australia															
Austria															
Belgium															
Bulgaria															
Canada	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Croatia															
Czech Republic															
Denmark ²	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Estonia															
European Union (15)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Finland															
France (KP)															
Germany															
Greece															
Hungary															
Iceland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland															
Italy															
Japan	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Latvia															
Liechtenstein															
Lithuania															
Luxembourg															
Monaco															
Netherlands															
New Zealand															
Norway															
Poland															
Portugal	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Romania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Russian Federation															
Slovakia															
Slovenia															
Spain	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Sweden															
Switzerland															
Ukraine															
United Kingdom															

¹ Total for limestone and dolomite.

² Includes Greenland but excludes Faroe Islands.

Table 7.10(c)

Carbon emissions from lime application on Article 3.4 activities for 2009

	Forest management ¹			Cropland management ²			Grazing land management ²			Revegetation ²			Total Article 3.4 ²		
	Total lime applied	C emission per unit of lime	Carbon	Total lime applied	C emission per unit of lime	Carbon	Total lime applied	C emission per unit of lime	Carbon	Total lime applied	C emission per unit of lime	Carbon	Total lime applied	C emission per unit of lime	Carbon
	Mg/yr	Mg C/Mg	Gg	Mg/yr	Mg C/Mg	Gg	Mg/yr	Mg C/Mg	Gg	Mg/yr	Mg C/Mg	Gg	Mg/yr	Mg C/Mg	Gg
Australia	NA	NA	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	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Canada	NA	NA	NA	626,205.00	0.13	78.48	NA	NA	NA	NA	NA	NA	626,205.00	0.13	78.48
Croatia	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA,NO	NA,NO	NA,NO
Czech Republic	81.00	0.12	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	81.00	0.12	0.01
Denmark ³	IE	IE	IE	423,550.72	0.12	50.79	9.25	0.13	0.00	NA	NA	NA	423,559.97	0.25	50.79
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (15)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Finland	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA,NO	NA,NO	NA,NO
France (KP)	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA,NO	NA,NO	NA,NO
Germany	148,776.25	0.12	17.84	NA	NA	NA	NA	NA	NA	NA	NA	NA	148,776.25	0.12	17.84
Greece	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA,NO	NA,NO	NA,NO
Hungary	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA,NO	NA,NO	NA,NO
Iceland	NA	NA	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	NA	NA	NA
Italy	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Japan	NO	NO	NO	NA	NA	NA	NA	NA	NA	81.61	0.08	0.01	81.61	0.08	0.01
Latvia	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA,NO	NA,NO	NA,NO
Liechtenstein	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lithuania	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA,NO	NA,NO	NA,NO
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Monaco	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Netherlands	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
Norway	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poland	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA,NO	NA,NO	NA,NO
Portugal	NE	NE	NE	NE	NE	NE	NE	NE	NE	NA	NA	NA	NA,NE	NA,NE	NA,NE
Romania	NO	NO	NO	NA	NA	NA	NA	NA	NA	NO	NO	NO	NA,NO	NA,NO	NA,NO
Russian Federation	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
Slovenia	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA,NO	NA,NO	NA,NO
Spain	NO	NO	NO	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA,NO	NA,NO	NA,NO
Sweden	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA,NO	NA,NO	NA,NO
Switzerland	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA,NO	NA,NO	NA,NO
Ukraine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA,NO	NA,NO	NA,NO

¹ Total for limestone and dolomite.

² If elected by the Party

³ Includes Greenland but excludes Faroe Islands.

Table 7.10(d)

Carbon emissions from lime application¹ on Article 3.4 activities for the base year

	Forest management ²			Cropland management ²			Grazing land management ²			Revegetation ²			Total Article 3.4 ²		
	Total lime applied	C emission per unit of lime	Carbon	Total lime applied	C emission per unit of lime	Carbon	Total lime applied	C emission per unit of lime	Carbon	Total lime applied	C emission per unit of lime	Carbon	Total lime applied	C emission per unit of lime	Carbon
	Mg/yr	Mg C/Mg	Gg	Mg/yr	Mg C/Mg	Gg	Mg/yr	Mg C/Mg	Gg	Mg/yr	Mg C/Mg	Gg	Mg/yr	Mg C/Mg	Gg
Australia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Austria	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Belgium	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bulgaria	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Canada	NA	NA	NA	442,755.00	0.13	55.53	NA	NA	NA	NA	NA	NA	442,755.00	0.13	55.53
Croatia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Czech Republic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Denmark ³	IE	IE	IE	1,416,684.16	0.12	169.89	18.50	0.13	0.00	NA	NA	NA	1,416,702.66	0.25	169.89
Estonia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
European Union (15)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Finland	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
France (KP)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Germany	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Greece	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hungary	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Iceland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Italy	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Japan	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.73	0.08	0.00	5.73	0.08	0.00
Latvia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Liechtenstein	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lithuania	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Luxembourg	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Monaco	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Netherlands	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
New Zealand	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Norway	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Poland	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Portugal	NE	NE	NE	NE	NE	NE	NE	NE	NE	NA	NA	NA	NA,NE	NA,NE	NA,NE
Romania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NO	NO	NO	NA,NO	NA,NO	NA,NO
Russian Federation	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Slovakia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Slovenia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Spain	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA	NA	NA	NA,NO	NA,NO	NA,NO
Sweden	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Switzerland	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ukraine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
United Kingdom	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

¹ Total for limestone and dolomite.

² If elected by the Party

³ Includes Greenland but excludes Faroe Islands.

Table 7.11(a)**Carbon emissions from lime application on cropland management¹ - trend information**

	C emissions (Gg)		Relative change (%)					
	Base year ^{2,3}	2009	Base year to 2009	2008 to 2009	2009 to 2010	2010 to 2011	2011 to 2012	Base year to 2012
Australia	—	NA	*	*				
Austria	—	NA	*	*				
Belgium	—	NA	*	*				
Bulgaria	—	NO	*	*				
Canada	56	78	41.3	—				
Croatia	—	NA	*	*				
Czech Republic	—	NA	*	*				
Denmark ⁴	170	51	-70.1	-19.3				
Estonia	—	NA	*	*				
European Union (15)	NA	NA	*	*				
Finland	—	NA	*	*				
France (KP)	—	NA	*	*				
Germany	—	NA	*	*				
Greece	—	NA	*	*				
Hungary	—	NA	*	*				
Iceland	NA	NA	*	*				
Ireland	—	NA	*	*				
Italy	—	NA	*	*				
Japan	NA	NA	*	*				
Latvia	—	NA	*	*				
Liechtenstein	—	NA	*	*				
Lithuania	—	NA	*	*				
Luxembourg	—	NA	*	*				
Monaco	—	NA	*	*				
Netherlands	—	NA	*	*				
New Zealand	—	NA	*	*				
Norway	—	NA	*	*				
Poland	—	NA	*	*				
Portugal	NE	NE	*	*				
Romania	NA	NA	*	*				
Russian Federation	—	NA	*	*				
Slovakia	—	NA	*	*				
Slovenia	—	NA	*	*				
Spain	NO	NO	*	*				
Sweden	—	NA	*	*				
Switzerland	—	NA	*	*				
Ukraine	—	NA	*	*				
United Kingdom	—	NA	*	*				

¹ If Cropland Management is elected by the Party² In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).³ Cropland management, grazing land management and revegetation are net-net accounting and therefore the base year is required to be reported.⁴ Includes Greenland but excludes Faroe Islands.

Table 7.11(b)**Carbon emissions from lime application on grazing land management¹ - trend information**

	C emissions (Gg)		Relative change (%)					
	Base year ^{2,3}	2009	Base year to 2009	2008 to 2009	2009 to 2010	2010 to 2011	2011 to 2012	Base year to 2012
Australia	—	NA	*	*				
Austria	—	NA	*	*				
Belgium	—	NA	*	*				
Bulgaria	—	NO	*	*				
Canada	NA	NA	*	*				
Croatia	—	NA	*	*				
Czech Republic	—	NA	*	*				
Denmark ⁴	0	0	-50.0	-50.0				
Estonia	—	NA	*	*				
European Union (15)	NA	NA	*	*				
Finland	—	NA	*	*				
France (KP)	—	NA	*	*				
Germany	—	NA	*	*				
Greece	—	NA	*	*				
Hungary	—	NA	*	*				
Iceland	NA	NA	*	*				
Ireland	—	NA	*	*				
Italy	—	NA	*	*				
Japan	NA	NA	*	*				
Latvia	—	NA	*	*				
Liechtenstein	—	NA	*	*				
Lithuania	—	NA	*	*				
Luxembourg	—	NA	*	*				
Monaco	—	NA	*	*				
Netherlands	—	NA	*	*				
New Zealand	—	NA	*	*				
Norway	—	NA	*	*				
Poland	—	NA	*	*				
Portugal	NE	NE	*	*				
Romania	NA	NA	*	*				
Russian Federation	—	NA	*	*				
Slovakia	—	NA	*	*				
Slovenia	—	NA	*	*				
Spain	NA	NA	*	*				
Sweden	—	NA	*	*				
Switzerland	—	NA	*	*				
Ukraine	—	NA	*	*				
United Kingdom	—	NA	*	*				

¹ If Grazingland Management is elected by the Party² In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).³ Cropland management, grazing land management and revegetation are net-net accounting and therefore the base year is required to be reported.⁴ Includes Greenland but excludes Faroe Islands.

Table 7.11(c)**Carbon emissions from lime application on revegetation¹ - trend information**

	C emissions (Gg)		Relative change (%)					
	Base year ^{2,3}	2009	Base year to 2009	2008 to 2009	2009 to 2010	2010 to 2011	2011 to 2012	Base year to 2012
Australia	—	NA	*	*				
Austria	—	NA	*	*				
Belgium	—	NA	*	*				
Bulgaria	—	NO	*	*				
Canada	NA	NA	*	*				
Croatia	—	NA	*	*				
Czech Republic	—	NA	*	*				
Denmark ⁴	NA	NA	*	*				
Estonia	—	NA	*	*				
European Union (15)	NA	NA	*	*				
Finland	—	NA	*	*				
France (KP)	—	NA	*	*				
Germany	—	NA	*	*				
Greece	—	NA	*	*				
Hungary	—	NA	*	*				
Iceland	NA	NA	*	*				
Ireland	—	NA	*	*				
Italy	—	NA	*	*				
Japan	0	0	1,324.4	3.6				
Latvia	—	NA	*	*				
Liechtenstein	—	NA	*	*				
Lithuania	—	NA	*	*				
Luxembourg	—	NA	*	*				
Monaco	—	NA	*	*				
Netherlands	—	NA	*	*				
New Zealand	—	NA	*	*				
Norway	—	NA	*	*				
Poland	—	NA	*	*				
Portugal	NA	NA	*	*				
Romania	NO	NO	*	*				
Russian Federation	—	NA	*	*				
Slovakia	—	NA	*	*				
Slovenia	—	NA	*	*				
Spain	NA	NA	*	*				
Sweden	—	NA	*	*				
Switzerland	—	NA	*	*				
Ukraine	—	NA	*	*				
United Kingdom	—	NA	*	*				

¹ If Revegetation is elected by the Party² In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).³ Cropland management, grazing land management and revegetation are net-net accounting and therefore the base year is required to be reported.⁴ Includes Greenland but excludes Faroe Islands.

Table 7.12(a)

Emissions from biomass burning on afforestation and reforestation land for 2009

	Activity data ¹			Implied Emission Factor ¹			Emissions ¹		
	Description	Unit	Value	CO ₂	CH ₄	N ₂ O	CO ₂	CH ₄	N ₂ O
	AB or BB ²	ha or kg dm		Mg/activity data unit			Gg		
Australia	bb	kg dm	157,683,630.25	NO,IE	0.00	0.00	NO,IE	0.57	0.01
Austria	ab	ha	NO	NO	NO	NO	NO	NO	NO
Belgium	ab	ha	NO	NO	NO	NO	NO	NO	NO
Bulgaria	ab	ha	NO	NO	NO	NO	NO	NO	NO
Canada	ab	ha	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
Croatia	ab	ha	NO,IE,NA	NO,IE,NA	NE,NO,IE,NA	NE,NO,IE,NA	NO,IE,NA	NE,NO,IE,NA	NE,NO,IE,NA
Czech Republic	bb,ab	kg dm,ha	NO	NO	NO	NO	NO	NO	NO
Denmark ³							NO	NO	NO,NA
Estonia	ab	ha	NO,NE	NO,NE	NO,NE	NO,NE	NO,NE	NO,NE	NO,NE
European Union (15)							NA	NA	NA
Finland	ab	ha	4.00	NA	NA	NO,IE,NA	0.01	0.00	NO,IE,NA
France (KP)							NA	NA	NA
Germany	ab	ha	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE
Greece							NA	NA	NA
Hungary	bb	kg dm	1,404,363.96	NO,IE	0.00	0.00	NO,IE	0.01	0.00
Iceland							NA	NA	NA
Ireland	bb	kg dm	1,789,113.88	0.00	0.00	0.00	2.62	0.01	0.00
Italy	ab	ha	9,318.00	NO,IE	0.08	0.00	NO,IE,NA	0.78	0.01
Japan	bb	kg dm	61,564.69	NO,IE,NA	0.00	0.00	NO,IE,NA	0.00	0.00
Latvia							NO	NO	NO
Liechtenstein							NO	NO	NO
Lithuania	ab	ha	NA,IE	NA,IE	NA,IE	NA,IE	NA,IE	NA,IE	NA,IE
Luxembourg	ab	ha	NO	NO	NO	NO	NO	NO	NO
Monaco							NA	NA	NA
Netherlands	bb	kg dm	NO,NE	NO,NE	NO,NE	NO,NE	NO,NE	NO,NE	NO,NE
New Zealand	bb	kg dm	11,835,657.06	IE	0.00	0.00	IE	0.07	0.00
Norway							NO,IE	NO,IE	NO,IE
Poland	ab	ha	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE
Portugal	ab	ha	2,140.35	50.56	0.19	0.00	62.10	0.23	0.00
Romania	ab	ha	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE
Russian Federation	ab	ha	NA,IE	NA,IE	NA,IE	NA,IE	NA,IE	5.94	0.34
Slovakia							NA	NA	NA
Slovenia	ab	ha	NO	NO	NO	NO	NO	NO	NO
Spain	bb	kg dm	16,114,043.05				29.54	0.13	0.00
Sweden							NO	NO	NO
Switzerland	ab	ha	NO	NO	NO	NO	NO	NO	NO
Ukraine	bb	kg dm	2,201.50	1.70	0.01	0.00	3.75	0.02	0.00
United Kingdom	bb	kg dm	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE

¹ Total for controlled burning and wildfires.

² Area burned (AA) and biomass burned (BB)

³ Includes Greenland but excludes Faroe Islands

Table 7.12(b)

Emissions from biomass burning on afforestation and reforestation (A.1.1: units of land not harvested) land for 2009

	Activity data ¹			Implied Emission Factor ¹			Emissions ¹		
	Description	Unit	Value	CO ₂	CH ₄	N ₂ O	CO ₂	CH ₄	N ₂ O
	AB or BB ¹	ha or kg dm		Mg/activity data unit			Gg		
Australia	bb	kg dm	1,765,850.32	NO,IE	0.00	0.00	IE, NO	0.01	0.00
Austria	ab	ha	NO	NO	NO	NO	NO	NO	NO
Belgium	ab	ha	NO	NO	NO	NO	NO	NO	NO
Bulgaria	ab	ha	NO	NO	NO	NO	NO	NO	NO
Canada	ab	ha	NO	NO	NO	NO	NO	NO	NO
Croatia	ab	ha	NO,IE	NO,IE	NE,NO,IE	NE,NO,IE	IE, NO	IE, NE, NO	IE, NE, NO
Czech Republic	bb	kg dm	NO	NO	NO	NO	NO	NO	NO
Denmark ³							NO	NO	NA, NO
Estonia	ab	ha	NO,NE	NO,NE	NO,NE	NO,NE	NE, NO	NE, NO	NE, NO
European Union (15)							NA	NA	NA
Finland	ab	ha	4.00			NO,IE	0.01	0.00	IE, NO
France (KP)							NA	NA	NA
Germany	ab	ha	NO,IE	NO,IE	NO,IE	NO,IE	IE, NO	IE, NO	IE, NO
Greece							NA	NA	NA
Hungary	bb	kg dm	31,188.00	NO	0.00	0.00	NO	0.00	0.00
Iceland							NA	NA	NA
Ireland	bb	kg dm	1,789,113.88	0.00	0.00	0.00	2.62	0.01	0.00
Italy	ab	ha	9,318.00	NO,IE	0.08	0.00	IE, NO	0.78	0.01
Japan	bb	kg dm	61,564.69	NO,IE	0.00	0.00	IE, NO	0.00	0.00
Latvia							NO	NO	NO
Liechtenstein							NO	NO	NO
Lithuania	ab	ha	NA,IE	NA,IE	NA,IE	NA,IE	IE, NA	IE, NA	IE, NA
Luxembourg	ab	ha	NO	NO	NO	NO	NO	NO	NO
Monaco							NA	NA	NA
Netherlands	bb	kg dm	NO,NE	NO,NE	NO,NE	NO,NE	NE, NO	NE, NO	NE, NO
New Zealand	bb	kg dm	11,835,657.06	IE	0.00	0.00	IE	0.07	0.00
Norway							IE, NO	IE, NO	IE, NO
Poland	ab	ha	NO,IE	NO,IE	NO,IE	NO,IE	IE, NO	IE, NO	IE, NO
Portugal	ab	ha	2,100.67	29.16	0.11	0.00	61.25	0.23	0.00
Romania	ab	ha	NO,IE	NO,IE	NO,IE	NO,IE	IE, NO	IE, NO	IE, NO
Russian Federation	ab	ha	NA,IE	NA,IE	NA,IE	NA,IE	IE, NA	5.94	0.34
Slovakia							NA	NA	NA
Slovenia	ab	ha	NO	NO	NO	NO	NO	NO	NO
Spain	bb	kg dm	16,114,043.05				29.54	0.13	0.00
Sweden							NO	NO	NO
Switzerland	ab	ha	NO	NO	NO	NO	NO	NO	NO
Ukraine							NA	NA	NA
United Kingdom	bb	kg dm	NO,IE	NO,IE	NO,IE	NO,IE	IE, NO	IE, NO	IE, NO

¹ Total for controlled burning and wildfires.

² Area burned (AA) and biomass burned (BB)

³ Includes Greenland but excludes Faroe Islands

Table 7.12(c)

Emissions from biomass burning on afforestation and reforestation (A.1.2: units of land harvested) land for 2009

	Activity data ¹			Implied Emission Factor ¹			Emissions ¹		
	Description	Unit	Value	CO ₂	CH ₄	N ₂ O	CO ₂	CH ₄	N ₂ O
	AB or BB ²	ha or kg dm		Mg/activity data unit			Gg		
Australia	bb	kg dm	155,917,779.92	NO,IE	0.00	0.00	IE, NO	0.56	0.01
Austria	ab	ha	NO	NO	NO	NO	NO	NO	NO
Belgium	ab	ha	NO	NO	NO	NO	NO	NO	NO
Bulgaria	ab	ha	NO	NO	NO	NO	NO	NO	NO
Canada	ab	ha	NA	NA	NA	NA	NA	NA	NA
Croatia	ab	ha	NA	NA	NA	NA	NA	NA	NA
Czech Republic	ab	ha	NO	NO	NO	NO	NO	NO	NO
Denmark ³							NO	NO	NO
Estonia	ab	ha	NO	NO	NO	NO	NO	NO	NO
European Union (15)							NA	NA	NA
Finland	ab	ha	NA	NA	NA	NA	NA	NA	NA
France (KP)							NA	NA	NA
Germany							NO	NO	NO
Greece							NA	NA	NA
Hungary	bb	kg dm	1,373,175.96	NO,IE	0.00	0.00	IE, NO	0.01	0.00
Iceland							NA	NA	NA
Ireland	bb	kg dm	NO,IE	IE	IE	IE	IE	IE	IE
Italy							NA	NA	NA
Japan			NA	NA	NA	NA	NA	NA	NA
Latvia							NO	NO	NO
Liechtenstein							NO	NO	NO
Lithuania	ab	ha	NA	NA	NA	NA	NA	NA	NA
Luxembourg	ab	ha	NO	NO	NO	NO	NO	NO	NO
Monaco							NA	NA	NA
Netherlands	bb	kg dm	NO,NE	NO,NE	NO,NE	NO,NE	NE, NO	NE, NO	NE, NO
New Zealand	bb	kg dm	IE	IE	IE	IE	IE	IE	IE
Norway							IE, NO	IE, NO	IE, NO
Poland	ab	ha	NO,IE	NO,IE	NO,IE	NO,IE	IE, NO	IE, NO	IE, NO
Portugal	ab	ha	39.68	21.40	0.08	0.00	0.85	0.00	0.00
Romania	ab	ha	NO	NO	NO	NO	NO	NO	NO
Russian Federation							NA	NA	NA
Slovakia							NA	NA	NA
Slovenia	ab	ha	NO	NO	NO	NO	NO	NO	NO
Spain							NO	NO	NO
Sweden							NO	NO	NO
Switzerland	ab	ha	NO	NO	NO	NO	NO	NO	NO
Ukraine	bb	kg dm	2,201.50	1.70	0.01	0.00	3.75	0.02	0.00
United Kingdom	bb	kg dm	NO	NO	NO	NO	NO	NO	NO

¹ Total for controlled burning and wildfires.

² Area burned (AA) and biomass burned (BB)

³ Includes Greenland but excludes Faroe Islands

Table 7.12(d)

Emissions from biomass burning on deforestation land for 2009

	Activity data ¹			Implied Emission Factor ¹			Emissions ¹		
	Description	Unit	Value	CO ₂	CH ₄	N ₂ O	CO ₂	CH ₄	N ₂ O
	AB or BB ¹	ha or kg dm		Mg/activity data unit			Gg		
Australia	bb	kg dm	10,722,792,782.59	NO,IE	0.00	0.00	IE, NO	55.04	1.02
Austria	ab	ha	NO	NO	NO	NO	NO	NO	NO
Belgium	ab	ha	NO	NO	NO	NO	NO	NO	NO
Bulgaria	ab	ha	NO	NO	NO	NO	NO	NO	NO
Canada	ab	ha	20,742.85	129.05	0.52	0.02	2,676.95	10.75	0.41
Croatia	ab	ha	NO	NO	NO	NO	NO	NO	NO
Czech Republic	ab	ha	NO	NO	NO	NO	NO	NO	NO
Denmark ³							NO	NO	NO
Estonia	ab	ha	NO,NE	NO,NE	NO,NE	NO,NE	NE, NO	NE, NO	NE, NO
European Union (15)							NA	NA	NA
Finland	ab	ha	NE,NO,IE	NE,NO,IE	NE,NO,IE	NE,NO,IE	IE, NE, NO	IE, NE, NO	IE, NE, NO
France (KP)							IE, NO	6.19	0.04
Germany							NO	NO	NO
Greece							NA	NA	NA
Hungary	bb	kg dm	1,039,186.47	NO,IE	0.00	0.00	IE, NO	0.01	0.00
Iceland							NA	NA	NA
Ireland	bb	kg dm	NO	NO,IE	NO,IE	NO,IE	IE, NO	IE, NO	IE, NO
Italy							NA	NA	NA
Japan	bb	kg dm	NO	NO	NO	NO	NO	NO	NO
Latvia							NO	NO	NO
Liechtenstein							NO	NO	NO
Lithuania	ab	ha	NA	NA	NA	NA	NA	NA	NA
Luxembourg	ab	ha	NO	NO	NO	NO	NO	NO	NO
Monaco							NA	NA	NA
Netherlands	bb	kg dm	NO,NE	NO,NE	NO,NE	NO,NE	NE, NO	NE, NO	NE, NO
New Zealand	bb	kg dm	NE	IE	NE	NE	IE	NE	NE
Norway							IE, NO	IE, NO	IE, NO
Poland	ab	ha	NO,IE	NO,IE	NO,IE	NO,IE	IE, NO	IE, NO	IE, NO
Portugal	ab	ha	NO	NO	NO	NO	NO	NO	NO
Romania	ab	ha	NO	NO	NO	NO	NO	NO	NO
Russian Federation							NA	NA	NA
Slovakia							NA	NA	NA
Slovenia	ab	ha	NO	NO	NO	NO	NO	NO	NO
Spain							NO	NO	NO
Sweden							NO	NO	NO
Switzerland	ab	ha	NO	NO	NO	NO	NO	NO	NO
Ukraine							NA	NA	NA
United Kingdom	bb	kg dm	113,576,857.30	0.00	0.00	0.00	187.40	0.82	0.01

¹ Total for controlled burning and wildfires.

² Area burned (AA) and biomass burned (BB)

³ Includes Greenland but excludes Faroe Islands

Table 7.12(e)

Emissions from biomass burning on Total Article 3.3 land for 2009

	Activity data ¹			Implied Emission Factor ¹			Emissions ¹		
	Description	Unit	Value	CO ₂	CH ₄	N ₂ O	CO ₂	CH ₄	N ₂ O
	AB or BB ²	ha or kg dm		Mg/activity data unit			Gg		
Australia	bb	kg dm	10,880,476,412.84	NO,IE	0.00	0.00	NO,IE	55.61	1.03
Austria	ab	ha	NO	NO	NO	NO	NO	NO	NO
Belgium	ab	ha	NO	NO	NO	NO	NO	NO	NO
Bulgaria	ab	ha	NO	NO	NO	NO	NO	NO	NO
Canada	ab	ha	20,742.85	129.05	0.52	0.02	2,676.95	10.75	0.41
Croatia	ab	ha	NO,IE,NA	NO,IE,NA	NE,NO,IE,NA	NE,NO,IE,NA	NO,IE,NA	NE,NO,IE,NA	NE,NO,IE,NA
Czech Republic	bb,ab	kg dm,ha	NO	NO	NO	NO	NO	NO	NO
Denmark ³							NO	NO	NO,NA
Estonia	ab	ha	NO,NE	NO,NE	NO,NE	NO,NE	NO,NE	NO,NE	NO,NE
European Union (15)							NA	NA	NA
Finland	ab	ha	4.00	NE,NO,IE,NA	NE,NO,IE,NA	NE,NO,IE,NA	0.01	0.00	NE,NO,IE,NA
France (KP)							NO,IE,NA	6.19	0.04
Germany	ab	ha	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE
Greece							NA	NA	NA
Hungary	bb	kg dm	2,443,550.43	NO,IE	0.00	0.00	NO,IE	0.02	0.00
Iceland							NA	NA	NA
Ireland	bb	kg dm	1,789,113.88	0.00	0.00	0.00	2.62	0.01	0.00
Italy	ab	ha	9,318.00	NO,IE	0.08	0.00	NO,IE,NA	0.78	0.01
Japan	bb	kg dm	61,564.69	NO,IE,NA	0.00	0.00	NO,IE,NA	0.00	0.00
Latvia							NO	NO	NO
Liechtenstein							NO	NO	NO
Lithuania	ab	ha	NA,IE	NA,IE	NA,IE	NA,IE	NA,IE	NA,IE	NA,IE
Luxembourg	ab	ha	NO	NO	NO	NO	NO	NO	NO
Monaco							NA	NA	NA
Netherlands	bb	kg dm	NO,NE	NO,NE	NO,NE	NO,NE	NO,NE	NO,NE	NO,NE
New Zealand	bb	kg dm	11,835,657.06	IE	0.00	0.00	IE	0.07	0.00
Norway							NO,IE	NO,IE	NO,IE
Poland	ab	ha	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE
Portugal	ab	ha	2,140.35	50.56	0.19	0.00	62.10	0.23	0.00
Romania	ab	ha	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE	NO,IE
Russian Federation	ab	ha	NA,IE	NA,IE	NA,IE	NA,IE	NA,IE	5.94	0.34
Slovakia							NA	NA	NA
Slovenia	ab	ha	NO	NO	NO	NO	NO	NO	NO
Spain	bb	kg dm	16,114,043.05				29.54	0.13	0.00
Sweden							NO	NO	NO
Switzerland	ab	ha	NO	NO	NO	NO	NO	NO	NO
Ukraine	bb	kg dm	2,201.50	1.70	0.01	0.00	3.75	0.02	0.00
United Kingdom	bb	kg dm	113,576,857.30	0.00	0.00	0.00	187.40	0.82	0.01

¹ Total for controlled burning and wildfires.

² Area burned (AA) and biomass burned (BB)

³ Includes Greenland but excludes Faroe Islands

Table 7.12(f)**Emissions from biomass burning on forest management¹ land for 2009**

	Activity data ²			Implied Emission Factor ²			Emissions ²		
	Description	Unit	Value	CO ₂	CH ₄	N ₂ O	CO ₂	CH ₄	N ₂ O
	AB or BB ³	ha or kg dm		Mg/activity data unit			Gg		
Australia							NA	NA	NA
Austria	ab	ha	NA	NA	NA	NA	NA	NA	NA
Belgium							NA	NA	NA
Bulgaria	ab	ha	NO	NO	NO	NO	NO	NO	NO
Canada	ab	ha	NA	NA	NA	NA	NA	NA	NA
Croatia	ab	ha	646.00	NO,IE	0.00	0.00	IE, NO	0.00	0.00
Czech Republic	bb	kg dm	722,879,525.06	0.00	0.00	0.00	1,325.28	5.78	0.04
Denmark⁴							NO	NO	NO
Estonia							NA	NA	NA
European Union (15)							NA	NA	NA
Finland	ab	ha	1,218.00	4.04	0.04	0.00	4.92	0.05	0.00
France (KP)							431.38	29.49	0.23
Germany	ab	ha	757.00	NO,IE	0.29	0.00	IE, NO	0.22	0.00
Greece	ab	ha	5,794.89	NE,NO,IE	0.08	0.00	IE, NE, NO	0.47	0.00
Hungary	bb	kg dm	138,040,826.11	IE	0.00	0.00	IE	0.96	0.01
Iceland							NA	NA	NA
Ireland							NA	NA	NA
Italy	ab	ha	21,742.00	NO,IE	0.08	0.00	IE, NO	1.83	0.01
Japan	bb	kg dm	31,519,749.55	NO,IE	0.00	0.00	IE, NO	0.24	0.00
Latvia							13.79	1.62	0.01
Liechtenstein							NA	NA	NA
Lithuania	ab	ha	507.00	3.74	1.26	0.13	1.90	0.64	0.07
Luxembourg							NA	NA	NA
Monaco							NA	NA	NA
Netherlands							NA	NA	NA
New Zealand							NA	NA	NA
Norway	ab	ha	1,328.50	NO,IE	NO	NO	IE, NO	NO	NO
Poland	ab	ha	4,400.00	17.93	0.34	0.00	78.88	1.48	0.02
Portugal	ab	ha	21,963.65	27.93	0.11	0.00	613.47	2.31	0.03
Romania	ab	ha	839.00	24.78	0.11		20.79	0.09	0.00
Russian Federation	ab	ha	3,980.44	NO,IE	142.56	7.89	IE, NO	567.46	31.40
Slovakia							NA	NA	NA
Slovenia	ab	ha	177.08	165.20	0.94	0.01	29.25	0.17	0.00
Spain	bb	kg dm	351,865,000.83	NE,IE	0.00	0.00	IE, NE	2.81	0.02
Sweden	ab	ha	2,626.00	10.53	0.05	0.00	27.64	0.12	0.00
Switzerland	ab	ha	42.00	27.29	0.35	0.02	1.15	0.01	0.00
Ukraine	bb	kg dm	87,863.51	1.70	0.01	0.00	149.49	0.70	0.01
United Kingdom	bb	kg dm	56,400,286.49	0.00	0.00	0.00	103.40	0.45	0.00

¹ If elected by the Party² Total for controlled burning and wildfires.³ Area burned (AA) and biomass burned (BB)⁴ Includes Greenland but excludes Faroe Islands

Table 7.12(g)

Emissions from biomass burning on cropland management¹ land for 2009

	Activity data ²			Implied Emission Factor ²			Emissions ²		
	Description	Unit	Value	CO ₂	CH ₄	N ₂ O	CO ₂	CH ₄	N ₂ O
	AB or BB ³	ha or kg dm		Mg/activity data unit			Gg		
Australia							NA	NA	NA
Austria	ab	ha	NA	NA	NA	NA	NA	NA	NA
Belgium							NA	NA	NA
Bulgaria	ab	ha	NO	NO	NO	NO	NO	NO	NO
Canada	ab	ha	NO,IE	NO,NA	NO,IE	NO,IE	NA,NO	IE,NO	IE,NO
Croatia							NA	NA	NA
Czech Republic							NA	NA	NA
Denmark ⁴							NO	NO	NO
Estonia							NA	NA	NA
European Union (15)							NA	NA	NA
Finland	ab	ha	NA	NA	NA	NA	NA	NA	NA
France (KP)							NA	NA	NA
Germany							NA	NA	NA
Greece							NA	NA	NA
Hungary							NA	NA	NA
Iceland							NA	NA	NA
Ireland							NA	NA	NA
Italy							NA	NA	NA
Japan			NA	NA	NA	NA	NA	NA	NA
Latvia							NA	NA	NA
Liechtenstein							NA	NA	NA
Lithuania	ab	ha	NA	NA	NA	NA	NA	NA	NA
Luxembourg							NA	NA	NA
Monaco							NA	NA	NA
Netherlands							NA	NA	NA
New Zealand							NA	NA	NA
Norway							NA	NA	NA
Poland							NA	NA	NA
Portugal	ab	ha	NO,NE	NO,NE	NO,NE	NO,NE	NE,NO	NE,NO	NE,NO
Romania	ab	ha	NA	NA	NA	NA	NA	NA	NA
Russian Federation							NA	NA	NA
Slovakia							NA	NA	NA
Slovenia							NA	NA	NA
Spain	bb	kg dm	NO,IE	NO,IE	NO,IE	NO,IE	IE,NO	IE,NO	IE,NO
Sweden							NA	NA	NA
Switzerland							NA	NA	NA
Ukraine							NA	NA	NA
United Kingdom							NA	NA	NA

¹ If elected by the Party

² Total for controlled burning and wildfires.

³ Area burned (AA) and biomass burned (BB)

⁴ Includes Greenland but excludes Faroe Islands

Table 7.12(h)

Emissions from biomass burning on cropland management¹ land for the base year

	Activity data ²			Implied Emission Factor ²			Emissions ²		
	Description	Unit	Value	CO ₂	CH ₄	N ₂ O	CO ₂	CH ₄	N ₂ O
	AB or BB ³	ha or kg dm		Mg/activity data unit			Gg		
Australia							—	—	—
Austria	ab	ha					—	—	—
Belgium							—	—	—
Bulgaria	ab	ha					—	—	—
Canada	ab	ha	NO,IE	NO,NA	NO,IE	NO,IE	NA, NO	IE, NO	IE, NO
Croatia							—	—	—
Czech Republic							—	—	—
Denmark⁴							NO	NO	NO
Estonia							—	—	—
European Union (15)							NA	NA	NA
Finland	ab	ha					—	—	—
France (KP)							—	—	—
Germany							—	—	—
Greece							—	—	—
Hungary							—	—	—
Iceland							NA	NA	NA
Ireland							—	—	—
Italy							—	—	—
Japan			NA	NA	NA	NA	NA	NA	NA
Latvia							—	—	—
Liechtenstein							—	—	—
Lithuania	ab	ha					—	—	—
Luxembourg							—	—	—
Monaco							—	—	—
Netherlands							—	—	—
New Zealand							—	—	—
Norway							—	—	—
Poland							—	—	—
Portugal	ab	ha	NO,NE	NO,NE	NO,NE	NO,NE	NE, NO	NE, NO	NE, NO
Romania	ab	ha	NA	NA	NA	NA	NA	NA	NA
Russian Federation							—	—	—
Slovakia							—	—	—
Slovenia							—	—	—
Spain	bb	kg dm	NO,IE	NO,IE	NO,IE	NO,IE	IE, NO	IE, NO	IE, NO
Sweden							—	—	—
Switzerland							—	—	—
Ukraine							—	—	—
United Kingdom							—	—	—

¹ If elected by the Party

² Total for controlled burning and wildfires.

³ Area burned (AA) and biomass burned (BB)

⁴ Includes Greenland but excludes Faroe Islands

Table 7.12(i)

Emissions from biomass burning on grazing land management¹ land for 2009

	Activity data ²			Implied Emission Factor ²			Emissions ²		
	Description	Unit	Value	CO ₂	CH ₄	N ₂ O	CO ₂	CH ₄	N ₂ O
	AB or BB ³	ha or kg dm		Mg/activity data unit			Gg		
Australia							NA	NA	NA
Austria	ab	ha	NA	NA	NA	NA	NA	NA	NA
Belgium							NA	NA	NA
Bulgaria	ab	ha	NO	NO	NO	NO	NO	NO	NO
Canada	ab	ha	NA	NA	NA	NA	NA	NA	NA
Croatia							NA	NA	NA
Czech Republic							NA	NA	NA
Denmark⁴							NO	NO	NO
Estonia							NA	NA	NA
European Union (15)							NA	NA	NA
Finland	ab	ha	NA	NA	NA	NA	NA	NA	NA
France (KP)							NA	NA	NA
Germany							NA	NA	NA
Greece							NA	NA	NA
Hungary							NA	NA	NA
Iceland							NA	NA	NA
Ireland							NA	NA	NA
Italy							NA	NA	NA
Japan			NA	NA	NA	NA	NA	NA	NA
Latvia							NA	NA	NA
Liechtenstein							NA	NA	NA
Lithuania	ab	ha	NA	NA	NA	NA	NA	NA	NA
Luxembourg							NA	NA	NA
Monaco							NA	NA	NA
Netherlands							NA	NA	NA
New Zealand							NA	NA	NA
Norway							NA	NA	NA
Poland							NA	NA	NA
Portugal	ab	ha	NO,NE	NO,NE	NO,NE	NO,NE	NE, NO	NE, NO	NE, NO
Romania	ab	ha	NA	NA	NA	NA	NA	NA	NA
Russian Federation							NA	NA	NA
Slovakia							NA	NA	NA
Slovenia							NA	NA	NA
Spain							NA	NA	NA
Sweden							NA	NA	NA
Switzerland							NA	NA	NA
Ukraine							NA	NA	NA
United Kingdom							NA	NA	NA

¹ If elected by the Party

² Total for controlled burning and wildfires.

³ Area burned (AA) and biomass burned (BB)

⁴ Includes Greenland but excludes Faroe Islands

Table 7.12(j)

Emissions from biomass burning on grazing land management¹ land for the base year

	Activity data ²			Implied Emission Factor ²			Emissions ²		
	Description	Unit	Value	CO ₂	CH ₄	N ₂ O	CO ₂	CH ₄	N ₂ O
	AB or BB ³	ha or kg dm		Mg/activity data unit			Gg		
Australia							—	—	—
Austria	ab	ha					—	—	—
Belgium							—	—	—
Bulgaria	ab	ha					—	—	—
Canada	ab	ha	NA	NA	NA	NA	NA	NA	NA
Croatia							—	—	—
Czech Republic							—	—	—
Denmark ⁴							NO	NO	NO
Estonia							—	—	—
European Union (15)							NA	NA	NA
Finland	ab	ha					—	—	—
France (KP)							—	—	—
Germany							—	—	—
Greece							—	—	—
Hungary							—	—	—
Iceland							NA	NA	NA
Ireland							—	—	—
Italy							—	—	—
Japan			NA	NA	NA	NA	NA	NA	NA
Latvia							—	—	—
Liechtenstein							—	—	—
Lithuania	ab	ha					—	—	—
Luxembourg							—	—	—
Monaco							—	—	—
Netherlands							—	—	—
New Zealand							—	—	—
Norway							—	—	—
Poland							—	—	—
Portugal	ab	ha	NO,NE	NO,NE	NO,NE	NO,NE	NE, NO	NE, NO	NE, NO
Romania	ab	ha	NA	NA	NA	NA	NA	NA	NA
Russian Federation							—	—	—
Slovakia							—	—	—
Slovenia							—	—	—
Spain							NA	NA	NA
Sweden							—	—	—
Switzerland							—	—	—
Ukraine							—	—	—
United Kingdom							—	—	—

¹ If elected by the Party

² Total for controlled burning and wildfires.

³ Area burned (AA) and biomass burned (BB)

⁴ Includes Greenland but excludes Faroe Islands

Table 7.12(k)

Emissions from biomass burning on revegetation¹ land for 2009

	Activity data ²			Implied Emission Factor ²			Emissions ²		
	Description	Unit	Value	CO ₂	CH ₄	N ₂ O	CO ₂	CH ₄	N ₂ O
	AB or BB ³	ha or kg dm		Mg/activity data unit			Gg		
Australia							NA	NA	NA
Austria	ab	ha	NA	NA	NA	NA	NA	NA	NA
Belgium							NA	NA	NA
Bulgaria	ab	ha	NO	NO	NO	NO	NO	NO	NO
Canada	ab	ha	NA	NA	NA	NA	NA	NA	NA
Croatia							NA	NA	NA
Czech Republic							NA	NA	NA
Denmark ⁴							NA	NA	NA
Estonia							NA	NA	NA
European Union (15)							NA	NA	NA
Finland	ab	ha	NA	NA	NA	NA	NA	NA	NA
France (KP)							NA	NA	NA
Germany							NA	NA	NA
Greece							NA	NA	NA
Hungary							NA	NA	NA
Iceland							NA	NA	NA
Ireland							NA	NA	NA
Italy							NA	NA	NA
Japan	bb	kg dm	NO	NO	NO	NO	NO	NO	NO
Latvia							NA	NA	NA
Liechtenstein							NO	NO	NO
Lithuania	ab	ha	NA	NA	NA	NA	NA	NA	NA
Luxembourg							NA	NA	NA
Monaco							NA	NA	NA
Netherlands							NA	NA	NA
New Zealand							NA	NA	NA
Norway							NA	NA	NA
Poland							NA	NA	NA
Portugal							NA	NA	NA
Romania	ab	ha	NO,IE	NO,IE	NO,IE	NO,IE	IE, NO	IE, NO	IE, NO
Russian Federation							NA	NA	NA
Slovakia							NA	NA	NA
Slovenia							NA	NA	NA
Spain							NA	NA	NA
Sweden							NA	NA	NA
Switzerland							NA	NA	NA
Ukraine							NA	NA	NA
United Kingdom							NA	NA	NA

¹ If elected by the Party

² Total for controlled burning and wildfires.

³ Area burned (AA) and biomass burned (BB)

⁴ Includes Greenland but excludes Faroe Islands

Table 7.12(l)

Emissions from biomass burning on revegetation¹ land for the base year

	Activity data ²			Implied Emission Factor ²			Emissions ²		
	Description	Unit	Value	CO ₂	CH ₄	N ₂ O	CO ₂	CH ₄	N ₂ O
	AB or BB ³	ha or kg dm		Mg/activity data unit			Gg		
Australia							—	—	—
Austria	ab	ha					—	—	—
Belgium							—	—	—
Bulgaria	ab	ha					—	—	—
Canada	ab	ha	NA	NA	NA	NA	NA	NA	NA
Croatia							—	—	—
Czech Republic							—	—	—
Denmark ⁴							NA	NA	NA
Estonia							—	—	—
European Union (15)							NA	NA	NA
Finland	ab	ha					—	—	—
France (KP)							—	—	—
Germany							—	—	—
Greece							—	—	—
Hungary							—	—	—
Iceland							NA	NA	NA
Ireland							—	—	—
Italy							—	—	—
Japan	bb	kg dm	NO	NO	NO	NO	NO	NO	NO
Latvia							—	—	—
Liechtenstein							—	—	—
Lithuania	ab	ha					—	—	—
Luxembourg							—	—	—
Monaco							—	—	—
Netherlands							—	—	—
New Zealand							—	—	—
Norway							—	—	—
Poland							—	—	—
Portugal							NA	NA	NA
Romania	ab	ha	NA	NA	NA	NA	NA	NA	NA
Russian Federation							—	—	—
Slovakia							—	—	—
Slovenia							—	—	—
Spain							NA	NA	NA
Sweden							—	—	—
Switzerland							—	—	—
Ukraine							—	—	—
United Kingdom							—	—	—

¹ If elected by the Party

² Total for controlled burning and wildfires.

³ Area burned (AA) and biomass burned (BB)

⁴ Includes Greenland but excludes Faroe Islands

Table 7.12(m)**Emissions from biomass burning on Total Article 3.4¹ land for 2009**

	Activity data ²			Implied Emission Factor ²			Emissions ²		
	Description	Unit	Value	CO ₂	CH ₄	N ₂ O	CO ₂	CH ₄	N ₂ O
	AB or BB ³	ha or kg dm		Mg/activity data unit			Gg		
Australia							NA	NA	NA
Austria	ab	ha	NA	NA	NA	NA	NA	NA	NA
Belgium							NA	NA	NA
Bulgaria	ab	ha	NO	NO	NO	NO	NO	NO	NO
Canada	ab	ha	NO,IE,NA	NO,NA	NO,IE,NA	NO,IE,NA	NO,NA	NO,IE,NA	NO,IE,NA
Croatia	ab	ha	646.00	NO,IE	0.00	0.00	NO,IE,NA	0.00	0.00
Czech Republic	bb	kg dm	722,879,525.06	0.00	0.00	0.00	1,325.28	5.78	0.04
Denmark⁴							NA,NO	NA,NO	NA,NO
Estonia							NA	NA	NA
European Union (15)							NA	NA	NA
Finland	ab	ha	1,218.00	4.04	0.04	0.00	4.92	0.05	0.00
France (KP)							431.38	29.49	0.23
Germany	ab	ha	757.00	NO,IE	0.29	0.00	NO,IE,NA	0.22	0.00
Greece	ab	ha	5,794.89	NE,NO,IE	0.08	0.00	NE,NO,IE,NA	0.47	0.00
Hungary	bb	kg dm	138,040,826.11	IE	0.00	0.00	IE,NA	0.96	0.01
Iceland							NA	NA	NA
Ireland							NA	NA	NA
Italy	ab	ha	21,742.00	NO,IE	0.08	0.00	NO,IE,NA	1.83	0.01
Japan	bb	kg dm	31,519,749.55	NO,IE,NA	0.00	0.00	NO,IE,NA	0.24	0.00
Latvia							13.79	1.62	0.01
Liechtenstein							NA,NO	NA,NO	NA,NO
Lithuania	ab	ha	507.00	3.74	1.26	0.13	1.90	0.64	0.07
Luxembourg							NA	NA	NA
Monaco							NA	NA	NA
Netherlands							NA	NA	NA
New Zealand							NA	NA	NA
Norway	ab	ha	1,328.50	NO,IE	NO	NO	NO,IE,NA	NA,NO	NA,NO
Poland	ab	ha	4,400.00	17.93	0.34	0.00	78.88	1.48	0.02
Portugal	ab	ha	21,963.65	27.93	0.11	0.00	613.47	2.31	0.03
Romania	ab	ha	839.00	24.78	0.11	NO,IE,NA	20.79	0.09	0.00
Russian Federation	ab	ha	3,980.44	NO,IE	142.56	7.89	NO,IE,NA	567.46	31.40
Slovakia							NA	NA	NA
Slovenia	ab	ha	177.08	165.20	0.94	0.01	29.25	0.17	0.00
Spain	bb	kg dm	351,865,000.83	NE,NO,IE	0.00	0.00	NE,NO,IE,NA	2.81	0.02
Sweden	ab	ha	2,626.00	10.53	0.05	0.00	27.64	0.12	0.00
Switzerland	ab	ha	42.00	27.29	0.35	0.02	1.15	0.01	0.00
Ukraine	bb	kg dm	87,863.51	1.70	0.01	0.00	149.49	0.70	0.01
United Kingdom	bb	kg dm	56,400,286.49	0.00	0.00	0.00	103.40	0.45	0.00

¹ If elected by the Party² Total for controlled burning and wildfires.³ Area burned (AA) and biomass burned (BB)⁴ Includes Greenland but excludes Faroe Islands

Table 7.12(n)

Emissions from biomass burning on Total Article 3.4¹ land for the base year

	Activity data ²			Implied Emission Factor ²			Emissions ²		
	Description	Unit	Value	CO ₂	CH ₄	N ₂ O	CO ₂	CH ₄	N ₂ O
	AB or BB ³	ha or kg dm		Mg/activity data unit			Gg		
Australia									
Austria	ab	ha							
Belgium									
Bulgaria	ab	ha							
Canada	ab	ha	NO,IE,NA	NO,NA	NO,IE,NA	NO,IE,NA	NO,NA	NO,IE,NA	NO,IE,NA
Croatia									
Czech Republic									
Denmark⁴							NA,NO	NA,NO	NA,NO
Estonia									
European Union (15)							NA	NA	NA
Finland	ab	ha							
France (KP)									
Germany									
Greece									
Hungary									
Iceland							NA	NA	NA
Ireland									
Italy									
Japan	bb	kg dm	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO
Latvia									
Liechtenstein									
Lithuania	ab	ha							
Luxembourg									
Monaco									
Netherlands									
New Zealand									
Norway									
Poland									
Portugal	ab	ha	NO,NE	NO,NE	NO,NE	NO,NE	2,349.50	8.31	0.11
Romania	ab	ha	NA	NA	NA	NA	NA	NA	NA
Russian Federation									
Slovakia									
Slovenia									
Spain	bb	kg dm	NO,IE	NO,IE	NO,IE	NO,IE	NE,NO,IE,NA	8.23	0.06
Sweden									
Switzerland									
Ukraine									
United Kingdom									

¹ If elected by the Party

² Total for controlled burning and wildfires.

³ Area burned (AA) and biomass burned (BB)

⁴ Includes Greenland but excludes Faroe Islands

Table 7.13(a)**CO₂ emissions from biomass burning on cropland management¹ land - trend information**

	CO ₂ emissions (Gg)		Relative change (%)					
	Base year ^{2,3}	2009	Base year to 2009	2008 to 2009	2009 to 2010	2010 to 2011	2011 to 2012	Base year to 2012
Australia	—	NA	*	*				
Austria	—	NA	*	*				
Belgium	—	NA	*	*				
Bulgaria	—	NO	*	*				
Canada	NA, NO	NA, NO	*	*				
Croatia	—	NA	*	*				
Czech Republic	—	NA	*	*				
Denmark ⁴	NO	NO	*	*				
Estonia	—	NA	*	*				
European Union (15)	NA	NA	*	*				
Finland	—	NA	*	*				
France (KP)	—	NA	*	*				
Germany	—	NA	*	*				
Greece	—	NA	*	*				
Hungary	—	NA	*	*				
Iceland	NA	NA	*	*				
Ireland	—	NA	*	*				
Italy	—	NA	*	*				
Japan	NA	NA	*	*				
Latvia	—	NA	*	*				
Liechtenstein	—	NA	*	*				
Lithuania	—	NA	*	*				
Luxembourg	—	NA	*	*				
Monaco	—	NA	*	*				
Netherlands	—	NA	*	*				
New Zealand	—	NA	*	*				
Norway	—	NA	*	*				
Poland	—	NA	*	*				
Portugal	NE, NO	NE, NO	*	*				
Romania	NA	NA	*	*				
Russian Federation	—	NA	*	*				
Slovakia	—	NA	*	*				
Slovenia	—	NA	*	*				
Spain	IE, NO	IE, NO	*	*				
Sweden	—	NA	*	*				
Switzerland	—	NA	*	*				
Ukraine	—	NA	*	*				
United Kingdom	—	NA	*	*				

¹ If elected by the Party² In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).³ Cropland management, grazing land management and revegetation are net-net accounting and therefore the base year is required to be reported.⁴ Includes Greenland but excludes Faroe Islands.

Table 7.13(b)**CO₂ emissions from biomass burning on grazing land management¹ land - trend information**

	CO ₂ emissions (Gg)		Relative change (%)					
	Base year ^{2,3}	2009	Base year to 2009	2008 to 2009	2009 to 2010	2010 to 2011	2011 to 2012	Base year to 2012
Australia	—	NA	*	*				
Austria	—	NA	*	*				
Belgium	—	NA	*	*				
Bulgaria	—	NO	*	*				
Canada	NA	NA	*	*				
Croatia	—	NA	*	*				
Czech Republic	—	NA	*	*				
Denmark ⁴	NO	NO	*	*				
Estonia	—	NA	*	*				
European Union (15)	NA	NA	*	*				
Finland	—	NA	*	*				
France (KP)	—	NA	*	*				
Germany	—	NA	*	*				
Greece	—	NA	*	*				
Hungary	—	NA	*	*				
Iceland	NA	NA	*	*				
Ireland	—	NA	*	*				
Italy	—	NA	*	*				
Japan	NA	NA	*	*				
Latvia	—	NA	*	*				
Liechtenstein	—	NA	*	*				
Lithuania	—	NA	*	*				
Luxembourg	—	NA	*	*				
Monaco	—	NA	*	*				
Netherlands	—	NA	*	*				
New Zealand	—	NA	*	*				
Norway	—	NA	*	*				
Poland	—	NA	*	*				
Portugal	NE, NO	NE, NO	*	*				
Romania	NA	NA	*	*				
Russian Federation	—	NA	*	*				
Slovakia	—	NA	*	*				
Slovenia	—	NA	*	*				
Spain	NA	NA	*	*				
Sweden	—	NA	*	*				
Switzerland	—	NA	*	*				
Ukraine	—	NA	*	*				
United Kingdom	—	NA	*	*				

¹ If elected by the Party² In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).³ Cropland management, grazing land management and revegetation are net-net accounting and therefore the base year is required to be reported.⁴ Includes Greenland but excludes Faroe Islands.

Table 7.13(c)

CO₂ emissions from biomass burning on revegetation¹ land - trend information

	CO ₂ emissions (Gg)		Relative change (%)					
	Base year ^{2,3}	2009	Base year to 2009	2008 to 2009	2009 to 2010	2010 to 2011	2011 to 2012	Base year to 2012
Australia	—	NA	*	*				
Austria	—	NA	*	*				
Belgium	—	NA	*	*				
Bulgaria	—	NO	*	*				
Canada	NA	NA	*	*				
Croatia	—	NA	*	*				
Czech Republic	—	NA	*	*				
Denmark ⁴	NA	NA	*	*				
Estonia	—	NA	*	*				
European Union (15)	NA	NA	*	*				
Finland	—	NA	*	*				
France (KP)	—	NA	*	*				
Germany	—	NA	*	*				
Greece	—	NA	*	*				
Hungary	—	NA	*	*				
Iceland	NA	NA	*	*				
Ireland	—	NA	*	*				
Italy	—	NA	*	*				
Japan	NO	NO	*	*				
Latvia	—	NA	*	*				
Liechtenstein	—	NO	*	*				
Lithuania	—	NA	*	*				
Luxembourg	—	NA	*	*				
Monaco	—	NA	*	*				
Netherlands	—	NA	*	*				
New Zealand	—	NA	*	*				
Norway	—	NA	*	*				
Poland	—	NA	*	*				
Portugal	NA	NA	*	*				
Romania	NA	IE, NO	*	*				
Russian Federation	—	NA	*	*				
Slovakia	—	NA	*	*				
Slovenia	—	NA	*	*				
Spain	NA	NA	*	*				
Sweden	—	NA	*	*				
Switzerland	—	NA	*	*				
Ukraine	—	NA	*	*				
United Kingdom	—	NA	*	*				

¹ If elected by the Party

² In accordance with the UNFCCC reporting guidelines on annual GHG 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 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

³ Cropland management, grazing land management and revegetation are net-net accounting and therefore the base year is required to be reported.

⁴ Includes Greenland but excludes Faroe Islands.