



**SYNTHESIS AND ASSESSMENT REPORT ON THE GREENHOUSE GAS INVENTORIES
SUBMITTED IN 2005**

Note by the secretariat

CONTENTS

| | <u>Page</u> |
|---|-------------|
| I. MANDATE..... | 2 |
| II. COMPARISON OF GHG INVENTORY INFORMATION | 2 |
| A. Approach..... | 2 |
| B. Explanatory notes to the tables. | 3 |
| C. List of tables in Part I..... | 7 |
| D. Sectoral tables | 14 |
| 1. General | 14 |
| 2. Energy | 22 |
| 3. Industrial Processes | 74 |
| 4. Solvent and other product use | 102 |
| 5. Agriculture | 103 |
| 6. Land Use, Land-use Change and Forestry | 117 |
| 7. Waste | 157 |

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 (hereinafter referred to as the review guidelines) to be applied from the year 2003. It also determined that the revised reporting guidelines on annual inventories adopted by decision 18/CP.8 should be used for the inventory beginning in 2004.
2. The COP, by its decision 13/CP.9, completed the tables of the common reporting format (CRF) for reporting on the Land Use, Land-use Change and Forestry (LULUCF) sector and decided to use these tables for a trial period covering inventory submissions due in 2005.
3. 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. The synthesis and assessment is to be prepared in two parts. Part I is to provide information to allow comparisons across Annex I Parties, as well as descriptions of common methodological issues. Part II is to provide a preliminary analysis of individual Annex I Party inventories, in particular to identify outstanding issues requiring clarification during the individual review stage of the process.
4. In accordance with decision 19/CP.8, Part I of this present 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

5. This document contains Part I of the synthesis and assessment report, covering the national GHG inventories of Annex I Parties submitted in 2005, in accordance with the UNFCCC reporting guidelines adopted by decisions 18/CP.8 and 13/CP.9 (FCCC/SBSTA/2004/8).
6. This document covers only the inventory information submitted in the CRF in 2005. It does not cover information contained in the national inventory reports, 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.
7. The completeness of this report is limited by the fact that only 38 out of 40 Annex I Parties submitted their inventory within six weeks after the due date for submissions. Accordingly, this report covers inventories submitted by: Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, Estonia, European Community, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein, Lithuania, Luxembourg, Monaco, Netherlands, New Zealand, Norway, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom and United States of America.
8. For the LULUCF sector, tables 5.2 through 5.39 covers only those Annex I Parties that have submitted information using the CRF format adopted by decision 13/CP.9. These Parties are Australia, Austria, Belgium, Canada, Denmark, Finland, Germany, Greece, Italy, Lithuania, Monaco, Netherlands, New Zealand, Norway, Portugal, Romania, Slovakia, United Kingdom and United States.
9. This synthesis and assessment report contains greenhouse gas inventory information from those Parties, compiled in tabular format. The tables provide comparisons of implied emission factors and

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

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 38 Parties for both the base year and for the year 2003. For some sectors and categories, however, trend comparisons across all Parties were not possible due to the lack of data for some or all of these years.

10. The inventory data were analyzed according to the sectors, subsectors and source 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 IPCC Guidelines).

11. To facilitate the analysis of the inventory data, the secretariat considers, for each individual Party, those source 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 7 “Methodological choice and recalculations” of the *IPCC Good Practice Guidance and Uncertainty Management* (hereinafter referred to as the IPCC good practice guidance).² This identification has been performed at the level of detail recommended in that guidance. The LULUCF sector has not been included in the calculation of the key source assessments.

B. Explanatory notes to the tables

12. Blank cells in a main table indicate that a Party did not report information for a given source 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 for this report.

13. Blank cells in a trend table indicate that a Party did not provide information for two consecutive years or that the inter-annual change between two consecutive years is zero. Very small inter-annual changes are shown as zero in this report.

14. 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.

15. 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), Romania (1989) and Slovenia (1986).

16. Key sources identified by the secretariat’s analysis are indicated by “L” for level and “T” for trend assessments in the “key source” columns.

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

² For some Parties, identification of key sources at that level of detail was not possible due to insufficient reporting of disaggregated data. For these Parties, key sources have been identified at the level of category disaggregation provided in Summary table 1.A of the CRF (corresponding to summary Table 7A of the IPCC Guidelines).

18. 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/CP/2002/8), are as follows:

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

19. 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 the United States reported energy data on a GCV basis. The IEFs included in this table for these Parties have been converted into NCV-based values and are not reflecting the reported IEFs.

20. For the LULUCF tables, the following approach was used in cases where a Party has not provided a numerical value for an inventory parameter in the sectoral and sectoral background data tables of the CRF (Tables 5.A - 5.F, Tables 5(I) - 5(V)):

(a) Where a Party has reported a numerical value (other than "0.00") for a parameter for any subcategory or subdivision in the sectoral background data tables in the CRF, the numerical value is used in this report;

(b) Where a Party has reported notation keys for a parameter for all subcategories or subdivisions, the reported notation keys are used in this report;

(c) Where a Party has reported a "0.00" value for a parameter in any subcategory or subdivision in the sectoral background data tables, "0.00" is used in this report; and

(d) Where a Party has not provided data for a parameter for any subcategory or subdivision, a blank cell is used in this report.

21. 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 |

22. 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:

| <u>Methods:</u> | | <u>Emission factors:</u> | |
|-----------------|--|--------------------------|------------------|
| D | IPCC default | D | IPCC default |
| RA | Reference approach | C or 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 |
| C or CR | CORINAIR | | |
| CS | Country specific | | |
| M | Model | | |
| OTH | Other | | |

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

| | |
|---------------------------|--|
| kg | kilogram (10^3 grams) |
| t | tonne (10^6 grams) |
| kt | kilotonne (10^9 grams) |
| Mt | megatonne (10^{12} grams) |
| Mg | megagram (10^6 grams) – same as tonne |
| Gg | gigagram (10^9 grams) |
| TJ | terajoule (10^{12} joules) |
| PJ | petajoule (10^{15} joules) |
| Gg CO ₂ equ | Gg of CO ₂ equivalent |
| ha | hectare |
| kha | thousand hectares |
| Mha | million hectares |
| MM Bbl/yr | million barrels per year |
| m ³ | cubic meter |
| bill ft ³ year | billion of cubic feet per year |
| TBtu | trillion British thermal units |

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

| | |
|-----------------|---------------------------|
| CRF | common reporting format |
| NIR | national inventory report |
| A | actual emissions |
| P | potential emissions |
| AD | activity data |
| EF | emission factor |
| IEF | implied emission factor |
| GHG | greenhouse gas |
| GWP | global warming potential |
| C | carbon |
| N | nitrogen |
| NO _x | nitrogen oxides |
| NH ₃ | ammonia |
| NCV | net calorific value |
| GCV | gross calorific value |
| yr | year |
| dm | dry matter |

| | |
|-----------------------|--|
| Frac _{FUEL} | fraction of livestock N excretion in excrements burned for fuel |
| Frac _{GRAZ} | fraction of livestock N excreted and deposited onto soil during grazing |
| Frac _{NCRBF} | fraction of N in non-N-fixing crop |
| Frac _{NCRO} | fraction of N in N-fixing crop |
| Frac _R | fraction of crop residue removed from the field as crop |
| Frac _{BURN} | fraction of crop residue burned |
| Frac _{GASF} | fraction of synthetic fertilizer N applied to soils which volatilizes as NH ₃ and NO _x |
| Frac _{GASM} | fraction of livestock N excretion that volatilizes as NH ₃ and NO _x |
| Frac _{LEACH} | fraction of N input to soils which is lost through leaching and run-off |
| L | level (key source applying the IPCC good practice guidance tier 1 level assessment) |
| LPG | liquefied petroleum gas |
| LTO | landing and take off cycle |
| NMVOC | non-methane volatile organic compounds |
| T | trend (key source applying the IPCC good practice guidance tier 1 trend assessment) |
| FAO | Food and Agriculture Organization of the United Nations |
| IEA | International Energy Agency |
| NGL | natural gas liquids |

C. List of tables in Part I

| <u>Table number</u> | <u>Table name</u> |
|---------------------|---|
| G.1 | Submissions used in the S&A report: Part I |
| G.2 | Key sources: inventory year 2003 |
| Figure G.1 | GHG emissions by gas (including LULUCF): base year and 2003 (%) |
| Figure G.2 | GHG emissions by gas (without LULUCF): base year and 2003 (%) |
| Figure G.3 | GHG emissions by sector: base year and 2003 (%) |
| G.3 | Recalculation for total CO ₂ equivalent emissions |
| G.4 | Reported recalculations for the base year and the latest year (%) |
| Figure 1.1 | Emissions and contribution of subsectors in Energy |
| 1.1 | Total CO ₂ emissions from the reference approach and the sectoral approach |
| Figure 1.2 | Differences in CO ₂ emissions from reference and sectoral approach for 1990–2003 (%) |
| 1.2 | Emissions from stationary combustion – trend information |
| | CO ₂ emissions (Gg) |
| | Relative Change (%) |
| 1.3 | Stationary combustion: liquid fuels, CO ₂ (2003) |
| 1.4 | Stationary combustion: solid fuels, CO ₂ (2003) |
| 1.5 | Stationary combustion: gaseous fuels, CO ₂ (2003) |
| 1.6 | Stationary combustion: other fuels, CO ₂ (2003) |
| 1.7 | Stationary combustion: all fuels – trend information |
| | Fuel consumption (TJ) |
| | Relative Change (%) |
| 1.8 | Stationary combustion by fuel: liquid fuels – trend information |
| | Fuel consumption (TJ) |
| | Relative Change (%) |
| 1.9 | Stationary combustion by fuel: solid fuels – trend information |
| | Fuel consumption (TJ) |
| | Relative Change (%) |
| 1.10 | Stationary combustion fuel: gaseous fuels – trend information |
| | Fuel consumption (TJ) |
| | Relative Change (%) |
| 1.11 | Stationary combustion by fuel: biomass – trend information |
| | Fuel consumption (TJ) |
| | Relative Change (%) |
| 1.12 | Stationary combustion by fuel: other fuels – trend information |
| | Fuel consumption (TJ) |
| | Relative Change (%) |
| 1.13 | Contribution of fuels in total energy consumption in stationary combustion (%) |
| 1.14 | Energy industries: all fuels – trend information |
| | CO ₂ emissions (Gg) |
| | Relative Change (%) |
| 1.15 | Energy industries: liquid fuels – trend information |
| | CO ₂ emissions (Gg) |
| | Relative Change (%) |
| 1.16 | Energy industries: solid fuels – trend information |
| | CO ₂ emissions (Gg) |
| | Relative Change (%) |
| 1.17 | Energy industries: gaseous fuels – trend information |
| | CO ₂ emissions (Gg) |
| | Relative Change (%) |

| <u>Table number</u> | <u>Table name</u> |
|---------------------|--|
| 1.18 | Contribution of fuels in CO ₂ emissions from energy industries (%) |
| 1.19 | Manufacturing industries and construction: all fuels – trend information CO ₂ emissions (Gg) Relative Change (%) |
| 1.20 | Manufacturing industries and construction: liquid fuels – trend information CO ₂ emissions (Gg) Relative Change (%) |
| 1.21 | Manufacturing industries and construction: solid fuels – trend information CO ₂ emissions (Gg) Relative Change (%) |
| 1.22 | Manufacturing industries and construction: gaseous fuels – trend information CO ₂ emissions (Gg) Relative Change (%) |
| 1.23 | Contribution of fuels in CO ₂ emissions from Manufacturing industries and construction (%) |
| 1.24 | Other sectors (Commercial/Institutional, Residential, Agriculture/Forestry/Fisheries): all fuels – trend information CO ₂ emissions (Gg) Relative Change (%) |
| 1.25 | Other sectors (Commercial/Institutional, Residential, Agriculture/Forestry/Fisheries): liquid fuels – trend information CO ₂ emissions (Gg) Relative Change (%) |
| 1.26 | Other sectors (Commercial/Institutional, Residential, Agriculture/Forestry/Fisheries): solid fuels – trend information CO ₂ emissions (Gg) Relative Change (%) |
| 1.27 | Other sectors (Commercial/Institutional, Residential, Agriculture/Forestry/Fisheries): gaseous fuels – trend information CO ₂ emissions (Gg) Relative Change (%) |
| 1.28 | Contribution of fuels in CO ₂ emissions from other sectors (%) |
| 1.29 | Transport: all fuels – trend information CO ₂ emissions (Gg) Relative Change (%) N ₂ O emissions (Gg) Relative Change (%) |
| 1.30 | Road transportation, CO ₂ , N ₂ O (2003) |
| 1.31 | Road transportation – trend information CO ₂ emissions (Gg) Relative Change (%) N ₂ O emissions (Gg) Relative Change (%) N ₂ O implied emission factors for gasoline (kg/TJ) Relative Change (%) N ₂ O implied emission factors for diesel (kg/TJ) Relative Change (%) |
| 1.32 | Civil aviation and navigation (domestic), CO ₂ (2003) |
| 1.33 | Domestic and international aviation, activity data (2003) |
| 1.34 | Domestic and international navigation, activity data (2003) |

| <u>Table number</u> | <u>Table name</u> |
|---------------------|---|
| 1.35 | Civil aviation (domestic) – trend information CO ₂ emissions (Gg) Relative Change (%) |
| 1.36 | International bunkers: aviation – trend information CO ₂ emissions (Gg) Relative Change (%) |
| 1.37 | Navigation (domestic) – trend information CO ₂ emissions (Gg) Relative Change (%) |
| 1.38 | International bunkers: marine – trend information CO ₂ emissions (Gg) Relative Change (%) |
| 1.39 | Fugitive emissions from fuels: coal mining and handling, CH ₄ (2003) |
| 1.40 | Fugitive emissions from fuels: coal mining and handling – trend information CH ₄ emissions (Gg) Relative Change (%) |
| 1.41 | Fugitive emissions from fuels: oil and natural gas, CH ₄ , CO ₂ (2003) |
| 1.42 | Fugitive emissions from fuels: oil and natural gas – trend information CO ₂ emissions (Gg) Relative Change (%) CH ₄ emissions (Gg) Relative Change (%) |
| Figure 2.1 | Emissions and contribution of subsectors in Industrial Processes |
| 2.1 | Mineral products, CO ₂ (2003) |
| 2.2 | Mineral products – trend information CO ₂ emissions (Gg) Relative Change (%) |
| 2.3 | Cement production – trend information CO ₂ emissions (Gg) Relative Change (%) CO ₂ implied emission factors (t/t) Relative Change (%) |
| 2.4 | Chemical industry, CO ₂ and N ₂ O (2003) |
| 2.5 | Chemical industry – trend information CO ₂ emissions (Gg) Relative Change (%) N ₂ O emissions (Gg) Relative Change (%) |
| 2.6 | Chemical industry: ammonia production – trend information CO ₂ emissions (Gg) Relative Change (%) CO ₂ implied emission factors (t/t) Relative Change (%) |
| 2.7 | Chemical industry: nitric acid production – trend information N ₂ O emissions (Gg) Relative Change (%) N ₂ O implied emission factors (t/t) Relative Change (%) |

| <u>Table number</u> | <u>Table name</u> |
|---------------------|---|
| 2.8 | Chemical industry: adipic acid production – trend information N ₂ O emissions (Gg) Relative Change (%) N ₂ O implied emission factors (t/t) Relative Change (%) |
| 2.9 | Metal production, CO ₂ (2003) |
| 2.10 | Metal production, CO ₂ – trend information CO ₂ emissions (Gg) Relative Change (%) |
| 2.11 | Metal production: iron and steel – trend information CO ₂ emissions (Gg) Relative Change (%) CO ₂ implied emission factors steel(t/t) Relative Change (%) |
| 2.12 | Metal production: aluminium – trend information CO ₂ emissions (Gg) Relative Change (%) CO ₂ implied emission factors (t/t) Relative Change (%) |
| 2.13 | Metal production, PFCs and SF ₆ (2003) |
| 2.14 | Metal production: aluminium – trend information CF ₄ emissions (t) Relative Change (%) |
| 2.15 | Production of halocarbons and SF ₆ (2003) |
| 2.16 | Production of halocarbons and SF ₆ , HFC-23 – trend information HFC-23 emissions (t) Relative Change (%) |
| 2.17 | Consumption of halocarbons and SF ₆ , HFCs (2003) |
| 2.18 | Consumption of halocarbons and SF ₆ – trend information HFC-134a emissions (t) Relative Change (%) SF ₆ emissions (t) Relative Change (%) |
| 3.1 | Solvent and other product use, CO ₂ and N ₂ O (2003) |
| Figure 4.1 | Emissions and contribution of subsectors in Agriculture |
| 4.1 | Enteric fermentation, CH ₄ (2003) |
| 4.2 | Enteric fermentation – trend information CH ₄ emissions (Gg) Relative Change (%) |
| 4.3 | Enteric fermentation: dairy cattle – trend information CH ₄ emissions (Gg) Relative Change (%) CH ₄ implied emission factors (kg/head/year) Relative Change (%) |
| 4.4 | Enteric fermentation: non-dairy cattle – trend information CH ₄ emissions (Gg) Relative Change (%) CH ₄ implied emission factors (kg/head/year) Relative Change (%) |
| 4.5 | Manure management, CH ₄ (2003) |
| 4.6 | Manure management, N ₂ O (2003) |

| <u>Table number</u> | <u>Table name</u> |
|---------------------|--|
| 4.7 | Manure management – trend information CH ₄ emissions (Gg) Relative Change (%) N ₂ O emissions (Gg) Relative Change (%) |
| 4.8 | Agricultural soils, N ₂ O (2003) |
| 4.9 | Agricultural soils, N ₂ O – trend information N ₂ O emissions (Gg) Relative Change (%) |
| 4.10 | Agricultural soils: parameters used (2003) |
| Figure 5.1 | Net CO ₂ emissions/removals from LULUCF |
| 5.1 | LULUCF sector – trend information Net CO ₂ emissions/removals (Gg) Relative Change (%) |
| 5.2 | Methods and emission factors used (2003) |
| 5.3 | Forest Land remaining Forest Land – AD, IEF and carbon stock change in pools (2003) |
| 5.4 | Forest Land remaining Forest Land – trend information Net CO ₂ emissions/removals (Gg) Relative Change (%) |
| 5.5 | Forest Land remaining Forest Land – trend information Area (kha) Relative Change (%) |
| 5.6 | Land converted to Forest Land – AD, IEF and carbon stock change in pools (2003) |
| 5.7 | Land converted to Forest Land – trend information Net CO ₂ emissions/removals (Gg) Relative Change (%) |
| 5.8 | Land converted to Forest Land - trend information Area (kha) Relative Change (%) |
| 5.9 | Cropland remaining Cropland – AD, IEF and carbon stock change in pools (2003) |
| 5.10 | Cropland remaining Cropland – trend information Net CO ₂ emissions/removals (Gg) Relative Change (%) |
| 5.11 | Cropland remaining Cropland – trend information Area (kha) Relative Change (%) |
| 5.12 | Land converted to Cropland – AD, IEF and carbon stock change in pools (2003) |
| 5.13 | Land converted to Cropland – trend information Net CO ₂ emissions/removals (Gg) Relative Change (%) |
| 5.14 | Land converted to Cropland – trend information Area (kha) Relative Change (%) |
| 5.15 | Forest Land converted to Cropland – AD, IEF and carbon stock change in pools (2003) |
| 5.16 | Forest Land converted to Cropland – trend information CO ₂ emissions/removals (Gg) Relative Change (%) |
| 5.17 | Forest Land converted to Cropland – trend information Area (kha) Relative Change (%) |

| Table number | Table name |
|--------------|------------|
|--------------|------------|

| | |
|------|---|
| 5.18 | Grassland remaining Grassland – AD, IEF and carbon stock change in pools (2003) |
| 5.19 | Grassland remaining Grassland – trend information Net CO ₂ emissions/removals (Gg) Relative Change (%) |
| 5.20 | Grassland remaining Grassland – trend information Area (kha) Relative Change (%) |
| 5.21 | Land converted to Grassland – AD, IEF and carbon stock change in pools (2003) |
| 5.22 | Land converted to Grassland - trend information Net CO ₂ emissions/removals (Gg) Relative Change (%) |
| 5.23 | Land converted to Grassland – trend information Area (kha) Relative Change (%) |
| 5.24 | Forest Land converted to Grassland – AD, IEF and carbon stock change in pools (2003) |
| 5.25 | Forest Land converted to Grassland – trend information CO ₂ emissions/removals (Gg) Relative Change (%) |
| 5.26 | Forest Land converted to Grassland (2003) Area (kha) Relative Change (%) |
| 5.27 | Direct N ₂ O emissions from N-fertilization (2003) – AD, IEF and N ₂ O emissions |
| 5.28 | Direct N ₂ O emissions from N fertilization (Gg) – trend information (Total for all Land-use Categories) N ₂ O emissions (Gg) Relative Change (%) |
| 5.29 | N ₂ O emissions from disturbance associated with land-use conversion to cropland – AD, IEF and N ₂ O emissions (2003) |
| 5.30 | N ₂ O emissions from disturbance associated with land-use conversion to cropland – trend information N ₂ O emissions (Gg) Relative Change (%) |
| 5.31 | Carbon emissions from agricultural lime application in cropland and grassland (2003) |
| 5.32 | Carbon emissions from agricultural lime application – trend information (All Land-use Categories) C emissions (Gg) Relative Change (%) |
| 5.33 | Biomass burning (2003). CO ₂ emissions for all Land-use Categories |
| 5.34 | CH ₄ emissions from biomass burning in Forest Land – trend CH ₄ emissions (Gg) Relative Change (%) |
| 5.35 | N ₂ O emissions from biomass burning in Forest Land – trend N ₂ O emissions (Gg) Relative Change (%) |
| 5.36 | CH ₄ emissions from biomass burning in Land converted to Cropland – trend CH ₄ emissions (Gg) Relative Change (%) |

| <u>Table number</u> | <u>Table name</u> |
|---------------------|--|
| 5.37 | N ₂ O emissions from biomass burning in Land converted to Cropland – trend N ₂ O emissions (Gg) Relative Change (%) |
| | CH ₄ emissions from biomass burning in Grasslands – trend CH ₄ emissions (Gg) Relative Change (%) |
| 5.38 | N ₂ O emissions from biomass burning in Grasslands – trend N ₂ O emissions (Gg) Relative Change (%) |
| Figure 6.1 | Emissions and contribution of subsectors in waste |
| 6.1 | Solid waste disposal on land, waste-water handling and waste incineration (2003) |
| 6.2 | Solid waste disposal on land – trend information CH ₄ emissions (Gg) Relative Change (%) Ratio: kg CH ₄ /capita Relative Change (%) |
| 6.3 | Waste-water handling – trend information CH ₄ emissions (Gg) Relative Change (%) Ratio: kg CH ₄ /capita Relative Change (%) N ₂ O emissions (Gg) Relative Change (%) Ratio: kg N ₂ O /capita Relative Change (%) |

General

Table G.1

Submissions used in the S&A report: Part I

| Party | Initial submission date | CRF for years | LULUCF | NIR | CRF submission date and version used in the S&A report | LULUCF submission date and version used in the S&A report | Sources of data for the trend tables ^a |
|--------------------|-------------------------|---------------------------------|-----------|-----|---|---|---|
| Australia | 25 May 2005 | 1990-2003 | 1990-2003 | ✓ | 27 May 2005 (v.2) | 27 May 2005 (v.1) | 1990-2002: S2005 |
| Austria | 15 April 2005 | 1990-2003 | 1990-2003 | ✓ | 2 June 2005 (v.3) | 25 May 2005 (v.2) | 1990-2002: S2005 |
| Belarus | 8 April 2005 | 2003 | | ✓ | 23 May 2005 (v.2) | | 1990-2002: T2005 |
| Belgium | 14 April 2005 | 1990-2003 | 1990-2003 | ✓ | 1990-1991, 1993, 1996-2002: 14 April 2005 (v.1); 1992, 1994, 1995, 2003: 1 June 2005 (v.3) | 14 April 2005 (v.1) | 1990-2002: S2005 |
| Bulgaria | 26 May 2005 | 1988, 1990-2003 | | ✓ | 26 May 2005 (v.1) | | 1988, 1990-2002: S2005 |
| Canada | 15 April 2005 | 1990-2003 | 1990-2003 | ✓ | 8 June 2005 (v.2) | 8 June 2005 (v.2) | 1990-2002: S2005 |
| Croatia | 6 June 2005 | 2003 | | | 6 June 2005 (v.1) | | 1990-2002: S2005 |
| Czech Republic | 14 April 2005 | 1995, 2003 | | ✓ | 25 May 2005 (v.2) | | 1990, 1992, 1996-2002: T2005, 1995: S2005 |
| Denmark | 15 April 2005 | 1990-2003 | 1990-2003 | ✓ | 15 April 2005 (v.1) | 15 April 2005 (v.1) | 1990-2002: S2005 |
| Estonia | 15 April 2005 | 2003 | | ✓ | 15 April 2005 (v.1) | | 1990-2002: T2005 |
| European Community | 15 April 2005 | 1990-2003 | | ✓ | 30 May 2005 (v.2) | | 1990-2002: S2005 |
| Finland | 8 April 2005 | 1990-2003 | 1990-2003 | ✓ | 27 May 2005 (v.2) | 8 April 2005 (v.1) | 1990-2002: S2005 |
| France | 7 January 2005 | 1990-2003 | | ✓ | 12 May 2005 (v.2) | | 1990-2002: S2005 |
| Germany | 15 April 2005 | 1990-2003 | 1990-2003 | ✓ | 15 April 2005 (v.1) | 15 April 2005 (v.1) | 1990-2002: S2005 |
| Greece | 15 April 2005 | 1990-2003 | 1990-2003 | ✓ | 15 April 2005 (v.1) | 15 April 2005 (v.1) | 1990-2002: S2005 |
| Hungary | 15 April 2005 | Average of 1985-1987, 1985-2003 | | ✓ | 26 April 2005 (v.2) | | Average of 1985-1987, 1990-2002: S2005 |
| Iceland | 23 May 2005 | 1990-2003 | | | 23 May 2005 (v.1) | | 1990-2002: S2005 |
| Ireland | 12 April 2005 | 1990-2003 | | ✓ | 12 April 2005 (v.1) | | 1990-2002: S2005 |
| Italy | 14 April 2005 | 1990-2003 | 1990-2003 | | 16 May 2005 (v.2) | 14 April 2005 (v.1) | 1990-2002: S2005 |
| Japan | 26 May 2005 | 1990-2003 | | ✓ | 26 May 2005 (v.1) | | 1990-2002: S2005 |
| Latvia | 15 April 2005 | 1990-2003 | | ✓ | 26 May 2005 (v.2) | | 1990-2002: S2005 |
| Liechtenstein | 24 May 2005 | 1990, 2003 | | | 24 May 2005 (v.1) | | |
| Lithuania | 15 April 2005 | 2003 | 2003 | ✓ | 27 May 2005 (v.3) | 15 April 2005 (v.1) | 1990-2002: T2005 |
| Luxembourg | 12 May 2005 | 2003 | | | 12 May 2005 (v.1) | | |
| Monaco | 12 May 2005 | 2003 | 2003 | ✓ | 12 May 2005 (v.1) | 12 May 2005 (v.1) | 1990-2002: T2005 |
| Netherlands | 14 April 2005 | 1990-2003 | 1990-2003 | ✓ | 1990-2002: 14 April 2005 (v.1); 2003: 26 May 2005 (v.2) | 26 May 2005 (v.2) | 1990-2002: S2005 |
| New Zealand | 15 April 2005 | 1990-2003 | 1990-2003 | ✓ | 1990-1997, 1999-2003: 27 May 2005 (v.2); 1998: 2 June 2005 (v.3) | 27 May 2005 (v.2) | 1990-2002: S2005 |
| Norway | 15 April 2005 | 1990-2003 | 1990-2003 | ✓ | 1990, 1998, 2000-2003: 29 April 2005 (v.1); 1991-1997: 20 May 2005 (v.2), 1999: 27 May 2005 (v.3) | 29 April 2005 (v.2) | 1990-2002: S2005 |
| Portugal | 8 April 2005 | 1990-2003 | 1990-2003 | ✓ | 8 April 2005 (v.1) | 8 April 2005 (v.1) | 1990-2002: S2005 |
| Romania | 11 May 2005 | 1989, 1990-2003 | 1990-2003 | ✓ | 11 May 2005 (v.1) | 11 May 2005 (v.1) | 1989-2002: S2005 |
| Slovakia | 14 April 2005 | 2003 | 1990-2003 | ✓ | 14 April 2005 (v.1) | 14 April 2005 (v.1) | 1990-2002: T2005 |
| Slovenia | 15 April 2005 | 1986, 1990-2003 | | ✓ | 10 May 2005 (v.3) | | 1986, 1990-2002: S2005 |
| Spain | 14 April 2005 | 1990-2003 | | ✓ | 14 April 2005 (v.1) | | 1990-2002: S2005 |
| Sweden | 11 April 2005 | 1990-2003 | | ✓ | 11 April 2005 (v.1) | | 1990-2002: S2005 |
| Switzerland | 14 April 2005 | 1990-2003 | | ✓ | 25 May 2005 (v.2) | | 1990-2002: S2005 |
| Ukraine | 19 May 2005 | 1990-2003 | | ✓ | 27 May 2005 (v.2) | | 1990-2002: S2005 |
| United Kingdom | 15 April 2005 | 1990-2003 | 1990-2003 | ✓ | 1 June 2005 (v.2) | 1 June 2005 (v.2) | 1990-2002: S2005 |
| United States | 8 April 2005 | 1990-2003 | 1990-2003 | ✓ | 1990-1996, 1998-2003: 27 May 2005 (v.2); 1997: 31 May 2005 (v.3) | 27 May 2005 (v.2) | 1990-2002: S2005 |

^a Data source for the year 2003 is the 2003 CRF. This column indicates the data source for the years 1990-2002.

Legend: v.1/2/3 - version of the CRF used in the S&A report; S200x - submission 200x; T200x - trend tables from submission 200x.

Table G.2

Key sources: inventory year 2003^a

| Source categories | Australia | Austria | Belarus | Belgium | Bulgaria | Canada | Croatia | Czech Republic | Denmark | Estonia | European Community | Finland | France | Germany | Greece | Hungary | Iceland | Ireland | Italy | Japan | Latvia | Liechtenstein | Lithuania | Luxembourg | Monaco | Netherlands | New Zealand | Norway | Portugal | Romania | Slovakia | Slovenia | Spain | Sweden | Switzerland | Ukraine | United Kingdom | United States | |
|---|-----------|---------|---------|---------|----------|--------|---------|----------------|---------|---------|--------------------|---------|--------|---------|--------|---------|---------|---------|-------|-------|--------|---------------|-----------|------------|--------|-------------|-------------|--------|----------|---------|----------|----------|-------|--------|-------------|---------|----------------|---------------|------|
| Energy | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stationary combustion-coal (CO ₂) | L, T | L, T | L | L, T | L, T | L, T | L | L | L, T | L | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | | L | | | L, T | L, T | L, T | L, T | L, T | L | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T |
| Stationary combustion-gas (CO ₂) | L, T | L, T | L | L, T | L, T | L, T | L | L | L, T | L | L, T | L, T | L, T | L, T | L, T | L, T | | L, T | L, T | L, T | L, T | L | L | | | L, T | L, T | L, T | L, T | L, T | L | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T |
| Stationary combustion-oil (CO ₂) | L, T | L, T | L | L, T | L, T | L, T | L | L | L, T | L | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L | L | | L | L, T | L, T | L, T | L, T | L, T | L | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T |
| Stationnary combustion - Other Fuels (CO ₂) | | L, T | | L, T | | | | L, T | | L, T | L, T | L, T | T | | | | | | T | | | | | L | L, T | | | | | | L | | T | L, T | L, T | | | T | |
| Stationary combustion-coal (CH ₄) | | | | | | | | | | | T | | | T | | | | | | | | | | | | | | | | | | T | | | | | | | |
| Stationary combustion-gas (CH ₄) | | | | | | | | | T | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stationnary combustion - Biomass (CH ₄) | T | | | | | T | | | | | | L | | | | | | | | | L, T | | | | | | | | T | | | | | T | | | | | |
| Stationary combustion-coal (N ₂ O) | | | | | L, T | | | L | | | | | | | L, T | | | | | | | | | | | | | | | | | | | | T | | | T | |
| Stationary combustion-gas (N ₂ O) | | | | | | | | | | | | | | | | L, T | | | | | | | | | | | | | | | | | | | | | | T | |
| Stationary combustion-oil (N ₂ O) | | | | L | T | | | | | | | | | | L | T | L, T | | L, T | | | | | | | | | | | | | | | | L | | | | |
| Stationary combustion-biomass (N ₂ O) | | | | | | | | | | | | | | | | | | | | | T | | | | | | | | | | | | | | L, T | | | | |
| Mobile combustion-Aircraft (CO ₂) | L, T | | | | T | L, T | | | | | L, T | | L, T | T | L, T | | | | | L, T | L, T | | | | | | L, T | L, T | | | | | L | L, T | | | T | L, T | |
| Mobile combustion-Road vehicles (CO ₂) | L, T | L, T | L | L, T | L, T | L, T | L | L | L, T | L | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L | L | | L | L, T | L, T | L, T | L, T | L, T | L | L, T | L, T | L, T | L, T | T | L, T | L, T | |
| Mobile combustion-Road vehicles (CH ₄) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mobile combustion-Road vehicles (N ₂ O) | L, T | | | T | | L, T | | T | | | L, T | L, T | L, T | T | T | T | T | T | L, T | | T | | | | | | | | L, T | L, T | | L, T | L, T | L, T | T | | L, T | T | |
| Mobile combustion-Waterborne navigation (CO ₂) | T | | | | L | | | L | | | L | L | L, T | | L, T | | T | | L | L | | | | L | | | | | L, T | T | | | L | L, T | | | L, T | L | |
| Railways (CO ₂) | | | | | L, T | | | | | | T | T | | | | | | | | | L | | L | | | | | | | | T | | | | | | | L | |
| Other Transportation (CO ₂) | | L, T | | | L, T | L | | | | | | L, T | | | | | | | | | | | | | | | | L | | T | | | | | | T | L, T | | T |
| Fugitive emissions: Coal mining & handling (CH ₄) | L, T | | | | L | T | | L | | | T | | T | L, T | L | T | | | | T | | | | | | | | | | | L, T | | L, T | T | | | L, T | L, T | L, T |
| Fugitive emissions: Oil & gas operations (CH ₄) | L, T | | L | | | L, T | L | | | L | L, T | | | L, T | | L, T | | | | L, T | | L | | | | L, T | | L, T | T | | L, T | L | | | | T | L, T | L, T | L, T |
| Fugitive emissions: Oil & gas operations (CO ₂) | L, T | | | | | L, T | L | | T | | L | T | L | | | | | | | T | | | | | | T | L, T | L, T | L, T | | | | | L, T | | | L, T | | |
| Other (Fugitive from solid fuels) (CO ₂) | | | | | | | | | | | | L | | | | | | | | | | | | | | | | | | | | | T | | L, T | | | | |
| Other (Fugitive from solid fuels) (CH ₄) | | | | | | | | | | | | | T | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Solid fuel transformation (CO ₂) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | T | |
| Industrial Processes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cement production (CO ₂) | | L, T | L | L | L | L | L | L | L, T | L | L, T | T | L, T | L | L, T | L | L, T | L, T | L | L, T | L | | L | | | | | | L, T | L, T | L | L | L, T | L, T | L | L, T | | L, T | L, T |
| Lime production (CO ₂) | | L | | L | L, T | | | | | | L | L | | L | | | | | | | T | | | | | | | | | | L | L | T | | L, T | | | | |
| Limestone and dolomite use (CO ₂) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Other (Mineral products) (CO ₂) | | L, T | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | L | | | | | | |
| Ammonia production (CO ₂) | | L | | L, T | | L | L | L | | | | | T | | | T | | | | T | | | L | | | L, T | | T | L, T | L | | | | | | | L, T | | T |
| Adipic acid production (N ₂ O) | | | | | | T | | | | | T | | L, T | T | | | | | | L, T | T | | | | | | | | | | | | | | | | T | T | |
| Nitric acid production (N ₂ O) | | L, T | | L, T | L | | L | L | L, T | | L, T | L, T | L, T | L, T | T | L, T | | | | | | | L | | | L, T | | L, T | L | L | L, T | L | | L, T | L, T | | | | |
| Carbide production (CO ₂) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | T | | | | | | | | | | |
| Other (Chemical industry) (CO ₂) | | | | T | | | | | | | | | | | | | | | | | | | | | | | T | L | | | | | | | | | | | |
| Other (Chemical industry) (N ₂ O) | | | | | | | | | | | | | T | | | | | | | | | | | | | | L, T | | | | | | | | | | | | |

^a Source: UNFCCC secretariat key source analysis.

Table G.2b

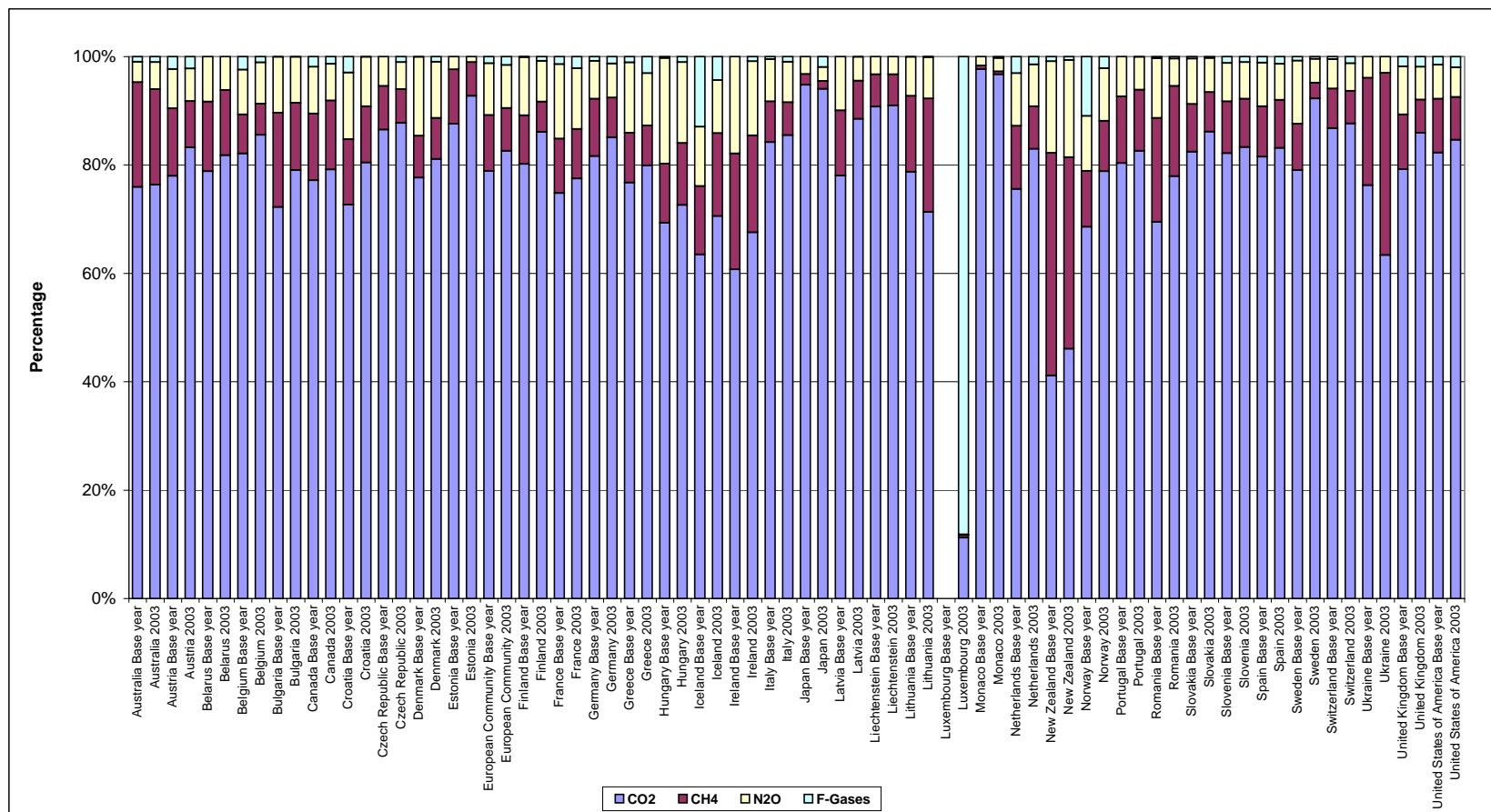
Key sources: inventory year 2003^a (continued)

| Source categories | Australia | Austria | Belarus | Belgium | Bulgaria | Canada | Croatia | Czech Republic | Denmark | Estonia | European Community | Finland | France | Germany | Greece | Hungary | Iceland | Ireland | Italy | Japan | Latvia | Liechtenstein | Lithuania | Luxembourg | Monaco | Netherlands | New Zealand | Norway | Portugal | Romania | Slovakia | Slovenia | Spain | Sweden | Switzerland | Ukraine | United Kingdom | United States |
|---|-----------|---------|---------|---------|----------|--------|---------|----------------|---------|---------|--------------------|---------|--------|---------|--------|---------|---------|---------|-------|-------|--------|---------------|-----------|------------|--------|-------------|-------------|--------|----------|---------|----------|----------|-------|--------|-------------|---------|----------------|---------------|
| Industrial Processes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Iron and steel industry (CO ₂) | L, T | L, T | | L | L, T | L, T | L | | | L | | L, T | | | | | | | | | | | | | | L, T | L | L | | L, T | L | | L, T | L, T | | L, T | T | L, T |
| Ferroalloys production (CO ₂) | | | | | | | | | | | | | | | | | L, T | | | | | | | | | | | L, T | | | | | | | | | | |
| Aluminium production (CO ₂) | | | | | | L, T | | | | | | | | | | | L | | | | | | | | | | | L, T | | | | L, T | | | T | | | |
| Aluminium production (PFCs) | T | | | | T | | | | | T | | T | | T | | L, T | | T | | | | | | | | L, T | T | L, T | | | L, T | T | T | T | | | T | |
| Magnesium production (SF ₆) | | | | | T | | | | | | | | | | | | | | | | | | | | | | | T | | | | | | | | | T | |
| Other (Metal production) (CO ₂) | | | | | | | | | | | | | | | | | | | | | | | | | | | T | | | | | | | | | | | |
| ODS substitutes (HFCs, PFCs) | L, T | L, T | | L, T | T | | | L, T | | L, T | L, T | L, T | L, T | T | T | T | | T | L, T | L, T | | | | | | L, T | T | T | | | | T | L, T | L, T | L, T | | L, T | L, T |
| HCFC production (HFC-23) | | | | | | | | | | T | | T | T | L, T | | | | | T | | | | | | | | T | | | | | | T | | | | | T |
| Other (By-product emissions - Production of halocarbons and SF ₆) | | | | T | | | | | | T | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fugitive emissions (Production of halocarbons and SF ₆) | | | | | | | | | | | | T | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Semiconductor Manufacture (HFCs, PFCs and SF ₆) | | T | | | | | | | | | | | | | | | | T | | T | | | | | | | | | | | | | | | | | | |
| Electrical equipment (SF ₆) | | | | | T | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | T |
| Other (Consumption of halocarbons and SF ₆) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | T | |
| Other sources of SF ₆ (SF ₆) | | | | | | | | | | | | | | T | | | | | | | | | | | | | | | | | | | | | | | | |
| Other (Industrial Processes) (CO ₂) | L, T | | | | | L, T | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Other (Industrial Processes) (N ₂ O) | | | | | | | | | | | | | | | | | | | | | | | | | | T | | | | | | | | | | | | |
| Solvents | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Solvent and Other Product Use (CO ₂) | | | | | | | | | | | | | | | | | | | T | | L, T | | | | | | | | | | | | | | T | | | |
| Agriculture | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Enteric fermentation (CH ₄) | L, T | L, T | L | L, T | L, T | L, T | L | L | L, T | L | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L | L | | | L, T | L, T | L, T | L, T | L | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T |
| Manure management (CH ₄) | | L, T | | L | T | | | L | L, T | | L | | L | L | | | | L | L, T | | L | | | | | L, T | L, T | L | L, T | L, T | | L, T | L | L, T | L | | T | L |
| Manure management (N ₂ O) | | L, T | | L | | L | L | | L | | L | T | L | | | T | | L | L | L, T | L | | | | | | | | L, T | | L | L, T | T | L, T | L | | | |
| Rice cultivation (CH ₄) | | | | | | | | | | | | | | | | | | | | T | | | | | | | | | T | | | | | | | | | |
| Direct N ₂ O emissions from agricultural soils | L, T | L, T | L | L, T | L, T | L, T | L | L | L, T | | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L | L | | | L | L, T | L, T | L, T | L, T | L | L | L, T | L, T | L | L | L | L |
| Indirect N ₂ O from nitrogen used in agriculture | | L, T | L | L, T | T | L | L | L | L, T | | L, T | L, T | L, T | L | L, T | L, T | L | L, T | L, T | L, T | L, T | | | | | L, T | L | L | L, T | | | L | L, T | L, T | L, T | | L, T | L, T |
| Animal production (N ₂ O) | L, T | | | | L, T | | | | | | L | | L, T | | L, T | | L | L, T | | | | | | | | T | L, T | | L, T | | | | L, T | T | | | L, T | L, T |
| Savanna burning (CH ₄) | L, T | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Other (Agricultural soils) (N ₂ O) | L, T | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | L | | | |
| Waste | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Solid waste disposal sites (CH ₄) | L, T | L, T | L | L, T | L, T | L, T | L | L | L, T | L | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L, T | L | L | | | L, T | L, T | L, T | L, T | L, T | L | L, T | L, T | L, T | L, T | L, T | L, T | L, T |
| Solid waste disposal sites (CO ₂) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Wastewater handling (CH ₄) | | | | | L, T | | | | | L | | | | T | T | | | | | | L, T | | L | | | | | | L, T | L, T | L | L | L | | | | L, T | T |
| Wastewater handling (N ₂ O) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | L | | | | | | | | | |
| Waste incineration (CO ₂) | | | | | | | | | | | | | | T | | | | | | | | | | | | | | | | | | | | | | | | |
| Other (Waste) (CH ₄) | | | | T | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Other (CO ₂) | | | | | | | | | L | | | L | | | | | | | | | | | | | | | | | | | | | | | | | | |

^a Source: UNFCCC secretariat key source analysis.

Figure G.1

GHG emissions by gas (including LULUCF): base year^a and 2003 (%)



^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).

GHG emissions by gas (without LULUCF): base year^a and 2003 (%)

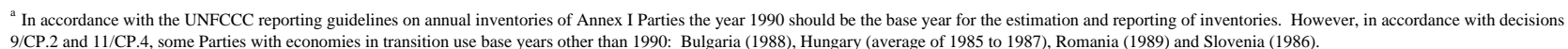
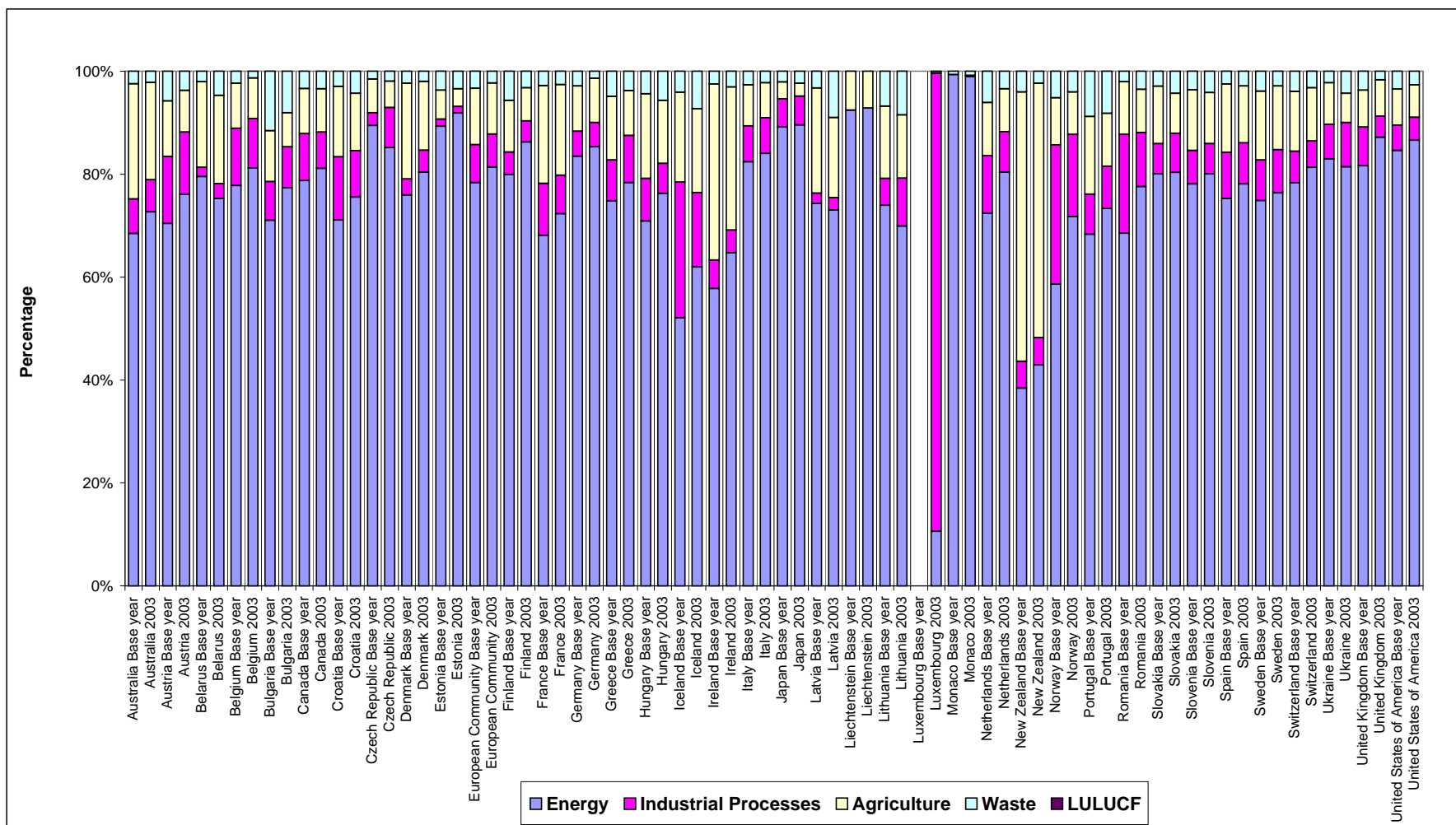


Figure G.3

GHG emissions by sector: base year^a and 2003 (%)



Note: For Land-use, land-use change and forestry data see figure 5.1.

^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 G.3**Recalculations for total CO₂ equivalent emissions without land-use, land-use change and forestry: 2003 submission data (%)**

| | Base year ^a | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|----------------------|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Australia | -1.16 | -1.19 | -1.14 | -1.20 | -1.04 | -1.35 | -1.40 | -1.57 | -1.38 | -1.45 | -1.50 | -1.33 | -2.03 |
| Austria | 1.50 | 3.24 | 1.73 | 1.49 | 1.15 | 1.40 | 0.85 | -4.49 | -6.13 | -6.46 | -7.63 | -6.82 | -2.42 |
| Belarus | | | | | | | | | | | | | |
| Belgium | -0.04 | -0.56 | 100.00 | -0.94 | -0.86 | 100.00 | -1.63 | -1.26 | -1.40 | -1.26 | -1.25 | -1.75 | -3.09 |
| Bulgaria | -2.48 | -4.60 | -4.70 | -3.42 | 3.02 | 1.54 | 1.71 | 2.82 | 1.83 | 2.47 | 3.28 | 2.33 | 1.78 |
| Canada | -0.55 | -0.57 | -0.65 | -0.84 | -0.88 | -0.82 | -1.06 | -0.81 | -0.71 | -0.68 | -0.57 | -0.49 | -1.07 |
| Croatia | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | |
| Denmark ^b | 2.84 | 2.33 | 2.48 | 1.49 | 1.40 | 1.11 | 1.04 | 0.97 | 2.16 | 2.24 | 2.82 | 2.70 | 2.81 |
| Estonia | | | | | | | | | | | | | |
| European Community | 0.17 | 0.17 | 0.27 | 0.26 | 0.20 | 0.25 | 0.17 | 0.44 | 0.23 | 0.20 | 0.24 | 0.06 | 0.07 |
| Finland | -8.27 | -7.33 | -5.93 | -6.34 | -5.73 | -6.25 | -5.98 | -5.86 | -6.76 | -6.50 | -6.51 | -6.01 | -5.77 |
| France | 0.58 | 0.58 | 0.96 | 0.41 | 0.56 | 0.51 | 0.32 | 0.57 | 0.29 | 0.23 | 0.42 | 0.37 | -0.07 |
| Germany | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Greece | 2.24 | 1.91 | 1.55 | 1.51 | 1.57 | 1.59 | 1.23 | 0.69 | 0.95 | 0.86 | -0.77 | -0.74 | -1.06 |
| Hungary | | | | | | | | | 0.97 | -2.77 | 4.85 | 6.71 | 4.02 |
| Iceland | -7.18 | -2.51 | 0.44 | -0.92 | 0.78 | -0.97 | -3.76 | -9.00 | -9.47 | -13.85 | -8.02 | -4.02 | -3.08 |
| Ireland | 1.04 | 1.05 | 1.07 | 1.08 | 1.06 | 1.04 | 1.03 | 1.00 | 1.00 | 0.95 | 1.05 | 1.03 | 0.74 |
| Italy | 0.45 | 0.39 | 0.61 | 0.85 | 0.74 | 0.57 | 0.43 | 0.36 | -0.03 | 0.61 | 1.37 | 0.34 | 0.22 |
| Japan | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.01 | -0.01 | -0.02 | -0.01 | 0.00 | -0.04 | -0.07 | -0.06 |
| Latvia | -12.15 | -2.62 | -2.31 | -2.19 | -3.06 | -10.95 | 0.00 | 0.04 | -0.21 | -0.99 | -1.64 | -0.25 | -0.19 |
| Liechtenstein | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | 36.49 |
| Netherlands | 0.15 | -0.92 | -1.05 | 0.06 | -0.55 | -0.21 | 3.66 | 3.23 | 1.22 | 0.98 | 0.27 | -0.30 | -0.14 |
| New Zealand | -0.73 | -0.86 | -0.79 | -0.86 | -1.05 | -1.35 | -1.27 | -0.29 | -0.65 | -1.01 | -1.49 | -1.93 | -2.71 |
| Norway | -3.84 | -3.48 | -3.96 | -4.01 | -3.59 | -3.96 | -3.73 | -3.33 | -3.61 | -3.02 | -2.91 | -3.20 | -3.30 |
| Portugal | 2.59 | 2.31 | 2.53 | 3.39 | 3.16 | 3.34 | 3.80 | 4.15 | 4.47 | 4.11 | 2.88 | 3.68 | 0.00 |
| Romania | 0.88 | 0.82 | -0.44 | -0.16 | -0.19 | -0.22 | -0.32 | 0.15 | 0.05 | 0.86 | 0.05 | -0.31 | -0.45 |
| Slovakia | | | | | | | | | | | | | -0.51 |
| Slovenia | -2.02 | -2.51 | -1.18 | -2.25 | -1.98 | -2.10 | -2.38 | -2.41 | -2.13 | -2.15 | -1.34 | -1.80 | -0.89 |
| Spain | -0.25 | -0.27 | -0.39 | -0.55 | -0.50 | -0.57 | -1.04 | -0.90 | -1.04 | -1.40 | -1.23 | -1.08 | -0.29 |
| Sweden | 0.10 | 0.10 | -0.15 | -0.11 | -0.26 | -0.46 | -0.03 | 0.03 | -0.27 | -0.16 | -2.42 | 0.03 | -0.17 |
| Switzerland | -1.30 | -1.47 | -1.38 | -1.79 | -2.02 | -1.98 | -2.13 | -2.00 | -2.06 | -2.10 | -2.08 | -2.37 | -2.04 |
| Ukraine | | | | | | | | | | | | | |
| United Kingdom | 0.72 | 1.17 | 1.14 | 1.25 | 0.48 | 0.66 | 0.87 | 1.00 | 0.96 | 0.69 | 0.59 | 1.11 | 1.40 |
| United States | -0.76 | -0.88 | -1.40 | -1.06 | -1.46 | -1.29 | -1.08 | -1.38 | -1.14 | -1.56 | -1.30 | -1.21 | -1.20 |

^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).

^b The percentage difference shown for the base year is a comparison of the 2004 submission which included only Denmark and the 2005 submission for the Kingdom of Denmark, which includes Denmark, Greenland and the Faroe Islands.

Table G.4

Reported recalculations for the base year and the latest year (%)

| | Energy | | | | | | Industrial Processes | | | | | | Solvents | | | | Agriculture | | | | | | Waste | | | | | |
|----------------------|------------------------|-------|------------------------|--------|------------------------|--------|------------------------|--------|------------------------|-----------|------------------------|--------|------------------------|--------|------------------------|--------|------------------------|---------|------------------------|--------|------------------------|--------|------------------------|--------|------------------------|--------|------------------------|--------|
| | CO ₂ | | CH ₄ | | N ₂ O | | CO ₂ | | CH ₄ | | N ₂ O | | CO ₂ | | N ₂ O | | CO ₂ | | CH ₄ | | N ₂ O | | CO ₂ | | CH ₄ | | N ₂ O | |
| | Base year ^a | 2002 | Base year ^a | 2002 | Base year ^a | 2002 | Base year ^a | 2002 | Base year ^a | 2002 | Base year ^a | 2002 | Base year ^a | 2002 | Base year ^a | 2002 | Base year ^a | 2002 | Base year ^a | 2002 | Base year ^a | 2002 | Base year ^a | 2002 | Base year ^a | 2002 | Base year ^a | 2002 |
| Australia | -0.04 | -0.14 | 0.05 | -4.70 | -3.23 | 7.47 | 6.60 | 9.44 | 0.00 | -0.20 | 0.03 | -7.12 | | | | | | | 0.20 | -3.52 | -8.54 | -15.14 | 0.02 | 0.00 | -34.21 | -34.54 | -0.75 | -0.57 |
| Austria | 0.58 | 0.98 | 0.29 | 0.04 | -28.98 | -34.09 | 0.75 | 9.59 | 9.10 | -9.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.22 | 0.47 | 0.07 | 3.88 | 0.00 | 0.26 | 10.19 | 13.17 | -10.52 | 258.87 |
| Belarus | -0.21 | | -60.39 | | -95.90 | | | | | | | | | | | | | | 0.00 | | | 4.69 | | | | | | |
| Belgium | 1.28 | -1.93 | 1.55 | -9.33 | 0.46 | -2.51 | -1.47 | -3.03 | 0.00 | 0.00 | 0.00 | -5.41 | | 0.00 | -0.97 | 0.00 | 0.00 | 0.00 | -0.16 | -1.46 | -14.05 | -5.53 | -63.11 | -76.22 | 0.00 | -4.94 | 113.69 | 102.95 |
| Bulgaria | -4.17 | 4.65 | -30.34 | -33.31 | -11.82 | 0.00 | 0.00 | 0.00 | 88.61 | 0.00 | 0.00 | 0.00 | | | | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 5.73 | -0.01 | 0.00 | 0.00 | 13.87 | 0.00 | 31.79 | 0.00 |
| Canada | -0.91 | -1.58 | 0.06 | -0.15 | 0.44 | -5.71 | 0.02 | -0.25 | | | | | | -0.01 | -0.17 | | | | 5.93 | 5.87 | -2.34 | -3.92 | -77.78 | -77.81 | 0.00 | 5.24 | -0.01 | -0.18 |
| Croatia | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Denmark ^b | 0.03 | 0.15 | 7.28 | 0.90 | 0.17 | 0.90 | 1.55 | 0.41 | 0.00 | 0.00 | 0.00 | 0.00 | 156.42 | 35.34 | | | 0.00 | 0.00 | 0.27 | 0.28 | 0.10 | -0.11 | 0.00 | 0.00 | 17.12 | 26.73 | 0.00 | 0.00 |
| Estonia | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| European Community | -0.13 | -0.10 | -3.75 | -4.26 | -7.76 | -6.08 | 5.11 | 8.20 | 90.40 | 122.62 | 1.83 | 2.51 | 8.82 | 5.61 | 24.68 | 28.48 | -100.00 | -100.00 | -3.74 | -2.78 | 7.44 | 5.27 | -5.16 | -14.26 | 1.97 | -0.80 | 13.43 | 4.71 |
| Finland | -5.44 | -4.19 | 14.17 | 5.66 | -28.06 | -20.40 | 14.53 | 26.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -100.00 | -100.00 | 0.78 | 0.98 | 1.78 | 3.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| France | 0.19 | -0.73 | -0.77 | -1.19 | 0.83 | 0.66 | 0.99 | 1.38 | -94.73 | -98.78 | 0.00 | 0.01 | -0.16 | -1.59 | 0.04 | -0.10 | | | -2.40 | -1.82 | 6.01 | 5.56 | -5.47 | -18.95 | -0.34 | 1.53 | 11.14 | 14.83 |
| Germany | 0.00 | -0.04 | -3.58 | 0.32 | -6.78 | -1.39 | -2.02 | 0.31 | 9,659.70 | 17,386.71 | 0.02 | 11.02 | | | 0.00 | 0.00 | | | -9.82 | -10.02 | 13.54 | 15.27 | | | 0.00 | 0.00 | 0.00 | 0.00 |
| Greece | 0.78 | 0.08 | 6.75 | -0.07 | 0.78 | -2.55 | 9.51 | 4.82 | 0.00 | 0.00 | 0.00 | -29.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -3.23 | -3.57 | 0.35 | -5.77 | 100.00 | 100.00 | 29.95 | -20.77 | -0.03 | 0.00 |
| Hungary | | 0.40 | | 17.72 | | 0.00 | | 7.53 | | -36.34 | | 48.14 | | 0.01 | | | | | | -1.32 | | 26.77 | | 0.00 | | | | |
| Iceland | 0.01 | -0.01 | 0.97 | 1.32 | 2.45 | 1.44 | 0.22 | 0.33 | 100.00 | 100.00 | 0.00 | 0.00 | | | 100.00 | 100.00 | | | 0.37 | -0.09 | 0.59 | -0.16 | -11.03 | 56.32 | -30.11 | -20.54 | 100.00 | 100.00 |
| Ireland | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.66 | 5.74 | 0.00 | 0.00 | 6.54 | 0.00 | 90.46 | 90.30 |
| Italy | -0.15 | 0.32 | -0.50 | -2.37 | 0.08 | 0.22 | 0.43 | 4.19 | -10.41 | -50.84 | 16.13 | 0.01 | 0.79 | 7.75 | 100.00 | 100.00 | 0.00 | 0.00 | 1.68 | 3.65 | -0.21 | -0.52 | -9.47 | -33.94 | 8.24 | 10.34 | -0.16 | -0.67 |
| Japan | 0.00 | 0.10 | 0.01 | 0.61 | -0.05 | -0.06 | 0.00 | -0.68 | 0.00 | 0.56 | 0.00 | 0.00 | | | 0.00 | 0.00 | | | 0.00 | -0.54 | 0.07 | -0.68 | 0.00 | -2.92 | 0.51 | 0.95 | -0.04 | -13.36 |
| Latvia | -16.37 | -0.61 | 12.19 | 0.11 | -18.77 | 3.03 | 0.99 | 25.98 | | | | | 0.00 | 0.00 | | 0.00 | | | 0.00 | 0.00 | 0.00 | -4.63 | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Liechtenstein | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Monaco | | 38.31 | | 0.00 | | -1.61 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| Netherlands | -5.36 | -4.40 | -38.78 | -47.22 | -0.01 | 7.68 | 408.83 | 240.87 | 332.80 | 558.22 | 12.62 | 11.42 | 100.00 | 100.00 | 0.00 | -1.83 | 0.00 | 0.00 | -3.02 | 6.22 | 70.09 | 42.25 | -100.00 | 0.00 | 1.26 | 3.87 | 309.51 | 101.06 |
| New Zealand | -2.75 | -4.99 | 5.91 | -12.71 | -2.64 | -5.88 | 10.76 | 9.78 | 758.10 | 0.70 | | | | | | | | | 0.77 | -0.48 | 1.23 | 0.26 | | | -15.51 | -29.59 | | |
| Norway | -0.27 | 1.44 | 11.66 | 5.47 | -0.18 | -0.77 | -2.66 | -2.75 | 0.00 | 3.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7.89 | | 0.00 | -2.01 | -15.02 | -13.72 | -98.76 | -55.90 | -35.27 | -45.48 | 0.00 | 0.02 | |
| Portugal | -1.63 | 0.46 | -6.19 | -12.97 | -1.03 | -4.66 | 3.44 | 22.43 | 0.00 | 0.00 | 0.00 | 0.00 | -1.14 | -0.41 | 0.00 | 0.00 | 0.00 | 0.00 | -1.76 | -1.53 | 6.85 | 8.41 | 0.00 | -5.55 | 63.52 | 86.87 | -0.13 | -1.21 |
| Romania | | | 1.05 | -2.07 | 0.06 | | 3.68 | -3.67 | | | | | 100.00 | 100.00 | | | | | -0.90 | -1.35 | 13.72 | 23.55 | | | -16.53 | -17.25 | | |
| Slovakia | | | | | | | | -6.50 | | | | | | | | | | | | -0.13 | | 0.25 | | | | 0.25 | | |
| Slovenia | 0.00 | 0.00 | 8.95 | 9.02 | 5.65 | 2.48 | -0.26 | 3.90 | | | | | | | | | | | -4.27 | 0.01 | -10.12 | -1.63 | | | -29.84 | -28.55 | 27.12 | 26.12 |
| Spain | 0.45 | 0.86 | 0.14 | -1.18 | -52.54 | -38.05 | 15.64 | 14.07 | 2.39 | 3.31 | 0.00 | -0.40 | -0.09 | 1.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.10 | -0.07 | 0.19 | 16.20 | 15.56 | -32.15 | -30.72 | -7.01 | -3.40 |
| Sweden | 0.29 | -0.36 | -20.83 | -14.59 | -13.40 | -10.70 | 5.98 | 5.24 | 0.00 | 0.00 | 0.00 | 0.00 | -0.08 | -5.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.62 | 0.00 | -4.12 |
| Switzerland | 1.49 | 2.67 | 0.58 | -0.69 | -46.53 | -53.61 | -0.03 | -0.04 | 0.00 | 0.00 | 0.00 | 0.00 | | | 0.00 | 0.00 | | | 0.00 | 2.36 | -0.31 | -1.12 | -29.30 | -48.67 | -42.10 | -61.88 | -21.50 | -30.54 |
| Ukraine | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| United Kingdom | 0.81 | 1.42 | 3.11 | 8.07 | -0.50 | 0.22 | -6.85 | -0.89 | -0.65 | 0.05 | 0.00 | 0.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -1.64 | -1.70 | 0.18 | 0.00 | 96.10 | 113.18 | 0.01 | 0.02 | 0.08 | 0.19 |
| United States | 0.10 | 0.18 | -0.19 | 1.59 | -11.45 | -11.38 | 1.28 | 2.85 | 0.00 | 0.32 | 0.00 | 2.05 | | | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.02 | -3.48 | -11.35 | 0.00 | 0.00 | -15.81 | -26.64 | 1.86 | 0.86 |

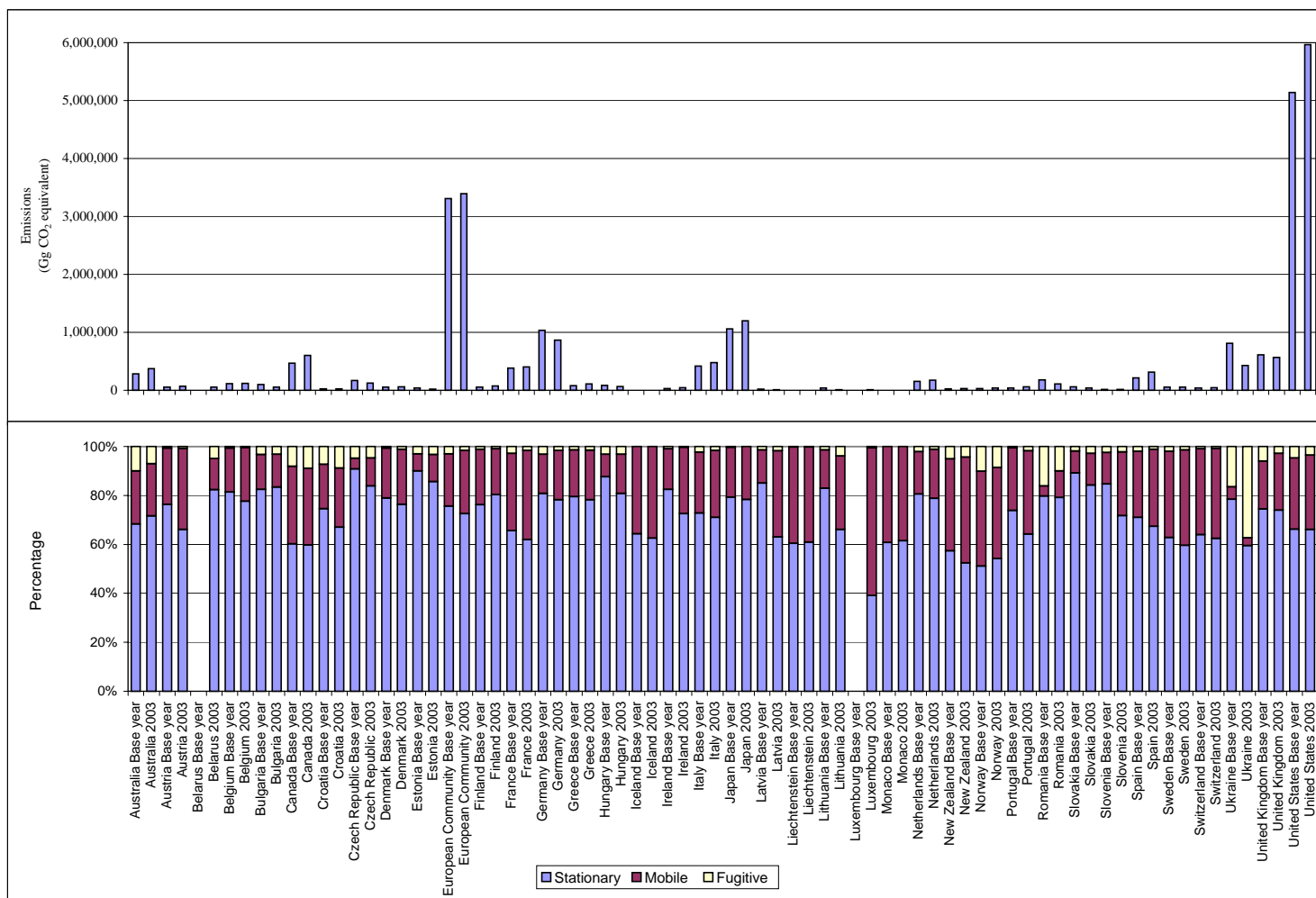
^a In accordance with the UNFCCC reporting guidelines on annual inventories of Annex I Parties the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other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

^b The percentage difference shown for the base year is a comparison of the 2004 submission which included only Denmark and the 2005 submission for the Kingdom of Denmark, which includes Denmark, Greenland and the Faroe Islands.

Energy

Figure 1.1

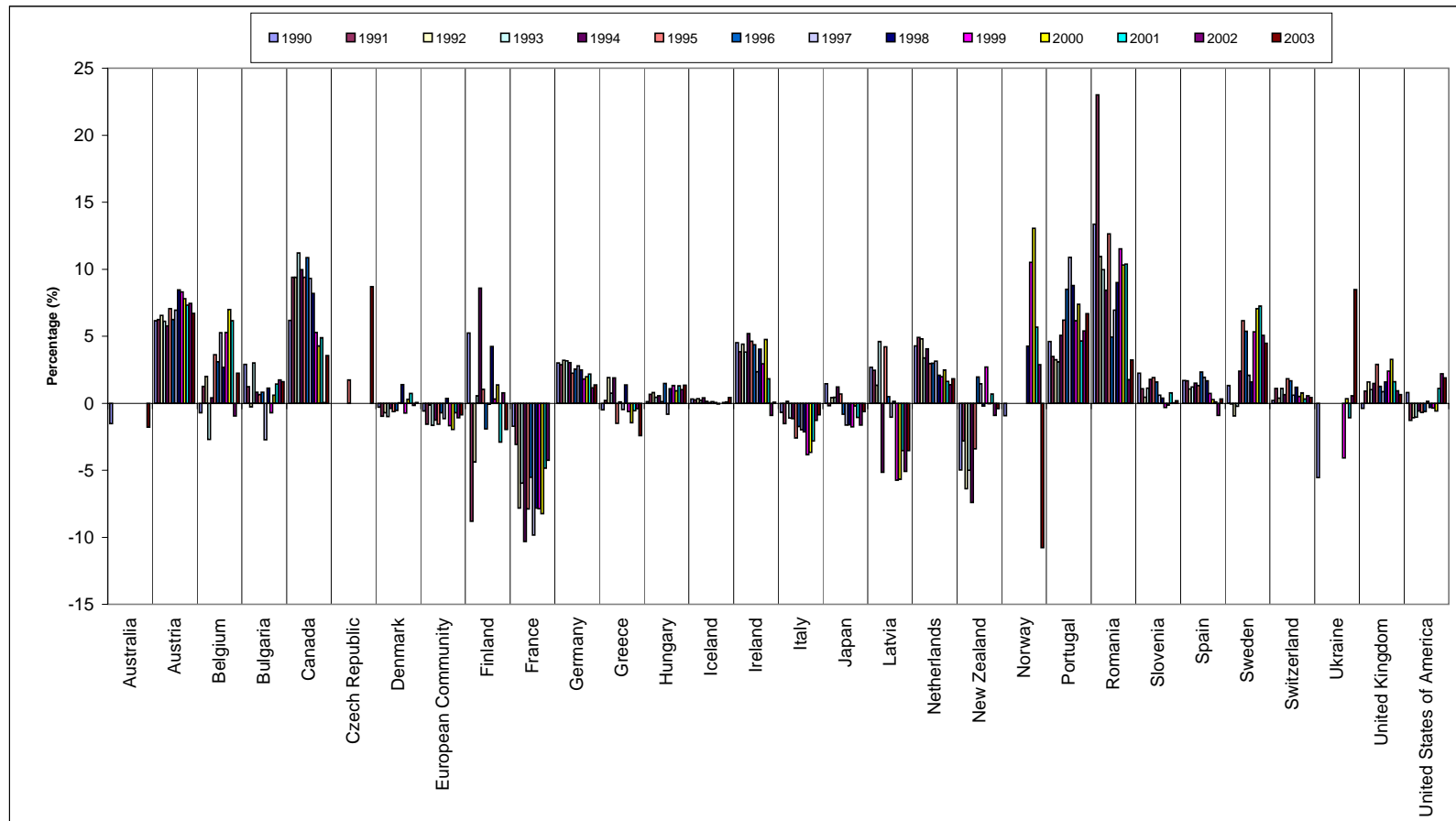
Emissions and contribution of subsectors in Energy^a



^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), Romania (1989) and Slovenia (1986).

Figure 1.2

Differences in CO₂ emissions from reference and sectoral approach for 1990–2003 (%)^a



Note: Only Parties that provided data for two or more of the years in the selected period are included in the graph.

^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 1.1**Total CO₂ emissions from the reference approach and the sectoral approach (2003)**

| | Reference approach | Sectoral approach | Difference | Explanation of the differences as reported in table 1.A(c) of the CRF |
|--------------------|-----------------------|-------------------|------------|---|
| | (Gg CO ₂) | | (%) | |
| Australia | 333,934 | 340,004 | -1.79 | Three main reasons there is a difference between the Reference Approach and the National Approach as displayed in the above table and Table 1A(b): 1) Partly an artefact caused by deficiencies in the design of Tables 1.A(b) and 1.A(d). The CRF does not allow for the subtraction of the energy content of the fuels whose carbon is sequestered. It only allows for the subtraction of the sequestered carbon and carbon emitted elsewhere, i.e. in other sectors. Therefore, the energy consumption reported using this method for the Reference Approach includes energy which is netted out of the national approach. The energy consumption for the Reference Approach and the National Approach will therefore never balance using the CRF tables in their current format. This explains why the extent of non-reconciliation is different for energy and for CO ₂ . 2) The large discrepancy for liquid fuels is caused by the unreliability of the Reference Approach figure, which in turn derives from the crude oil density values used to convert reported indigenous production and imports in volumetric units into energy units, as required by the CRF. 3) The defect described under point (1) also leads to slight discrepancies in both emission factors and oxidation factors between the two approaches for a number of individual fuel types. |
| Austria | 72,163 | 67,624 | 6.71 | Solid fuels: Energy consumption: The sectoral approach doesn't include non-energy use 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. Gaseous fuels: Energy consumption: The sectoral approach doesn't include losses and non-energy-use. 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. Liquid fuels: Energy consumption: The sectoral approach doesn't include non-energy use and energy losses in refinery. 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. Other fuels: The sectoral approach considers waste as an additional fuel type (e.g. municipal solid waste and industrial fuel waste). |
| Belarus | | 50,938 | | |
| Belgium | 118,958 | 116,267 | 2.31 | |
| Bulgaria | 49,825 | 49,035 | 1.61 | |
| Canada | 549,165 | 530,341 | 3.55 | 2003: The Fuel Consumption Difference should be 1.78% when using the formula: 100*(RA (excluding non-energy use and Feedstocks)-SA)/SA. Also, once Sectoral Approach is adjusted with Industrial Processes (see NIR) the CO ₂ emissions difference should be -2.26% . |
| Croatia | 21,307 | 20,304 | 4.94 | The National approach is based on Sectoral approach recommended by IPCC methodology. The differences between Reference and National approach, in energy consumption and CO ₂ emission from liquid and solid fuels, are relatively small and therefore acceptable. The largest difference appears in Natural Gas. The reasons are large amount of Natural Gas in non-energy consumption in Petrochemical industry and NGL plant and losses of Natural Gas in pipelines. |
| Czech Republic | 125,718 | 115,668 | 8.69 | Regarding Sectoral approach - when CO ₂ from fossil fuels in 2C1 and 2B1 is added (7576 + 705.84 Gg CO ₂), the total value for the Sectoral approach is 123949 GgCO ₂ (very close to the Reference approach result). The CO ₂ difference is then only 1.43 % |
| Denmark | 57,110 | 57,085 | 0.04 | 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. CO ₂ emission from plastic part of municipal wastes is included in the Danish National Approach. CO ₂ 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 | 17,807 | 18,830 | -5.43 | |
| European Community | 3,239,106 | 3,267,072 | -0.86 | |
| Finland | 69,034 | 70,417 | -1.96 | Secondary liquid fuels with notification 'IE' are included in Other oil in Table 1.A(b). Anthracite is included in Other bituminous coal. All biomass fuels are included in Solid biomass. The relatively high difference in liquid fuels CO ₂ emissions is due to statistical differences in national oil balance. National Approach includes REF/MSW combustion, which is not included in RA. |
| France | | 383,274 | | Anthracite is included with "other bituminous coal" Energy data relating to 2003 were not yet available with regard to the requested detail when the CRF has been elaborated |
| Germany | 853,290 | 841,692 | 1.38 | Attention: Reference approach is based on aggregated preliminary figures of the energy consumption, not on the detailed energy balance! That's why the results are only preliminary and will be recalculated and replaced after the publication of the energy balance |
| Greece | 99,175 | 101,625 | -2.41 | The difference of -2.41% between Reference approach and National approach is attributed to the high statistical difference for Liquid Fuels (higher than usual). With an average EF of 70 t CO ₂ /Tj the difference would have been estimated at -0.74%. |
| Hungary | 58,362 | 57,592 | 1.34 | |
| Iceland | 1,805 | 1,797 | 0.44 | |
| Ireland | 41,954 | 41,921 | 0.08 | Liquid fuels. Solid fuels. Gaseous fuels. |
| Italy | 452,823 | 456,755 | -0.86 | |
| Japan | 1,180,562 | 1,188,100 | -0.63 | The reason that the difference between RA and NA is over 2% is not made clear. We recognise it is necessary to examine the reason. |
| Latvia | 6,809 | 7,058 | -3.53 | Difference of the Reference approach over the National approach is due to statistical differences (for example for diesel oil it is shown 1572 TJ; RFO - 325TJ; gasoline - 836) |
| Liechtenstein | | 240 | | |
| Lithuania | 14,460 | 11,206 | 29.04 | |
| Luxembourg | | 9,955 | | |
| Monaco | 130 | 129 | 0.60 | Some little differences in the net calorific values and in the carbon emission factors between both methods. |

Table 1.1 (continued)**Total CO₂ emissions from the reference approach and the sectoral approach (2003)**

| | Reference approach | Sectoral approach | Difference | Explanation of the differences as reported in table 1.A(c) of the CRF |
|----------------|-----------------------|-------------------|-------------|--|
| | (Gg CO ₂) | | (%) | |
| Netherlands | 172,233 | 169,148 | 1.82 | In 1A but not in RA: 1A1a-other fuels: CO ₂ from fossil waste incineration (AVIs) Not in NA-1A: CO ₂ fossil fuel sources in sector 1B: 1. B. 1. b. Solid Fuel Transformation 1.B.2.c Flaring CO ₂ fossil fuel sources in sector 2: 2A4 Soda Ash Production 2B1. Ammonia production 2B5. Other chemicals, excl. activated carbon 2C1. Coke and coal inputs in blast furnace (net) 2D1. Pulp and Paper 2G. Process emissions in other economic sectors After these corrections, the differences are between -1.2% and +0.7% |
| New Zealand | 30,457 | 30,579 | -0.40 | 1.AA Fuel Combustion - Sectoral Approach: Recalculations-misreporting of certain liquid fuels for 2002. This lead to some revisions of liquid fuel consumption data. See section 9.1.1 of the NIR. 1.AB Liquid Fuels:"IE" notation used because other oil source is included under bitumen as this is the most important component of other oils. 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). The emission factors for Maui and Kapuni treated gas are based on gas composition data provided yearly by NGC. Most of the other gas emission factors are from NZEIH. |
| Norway | 30,803 | 34,524 | -10.78 | The deviation between the Reference and Sectoral Approach is probably caused by 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. Norway has 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, which makes the use of the reference approach inappropriate. End-user statistics from sales by energy commodity, sector and source that are used in the sectoral approach are considered to be more reliable. Further investigation into the matter will be undertaken. |
| Portugal | 60,708 | 56,909 | 6.68 | Differences between Sectoral and Reference approach (CO ₂ from fuel combustion): the sectoral approach CO ₂ 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. |
| Romania | 101,581 | 98,399 | 3.23 | 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. |
| Slovakia | 39,692 | 39,929 | -0.59 | National approach is based on totally independent data collection than Reference approach. The difference in fuel consumption between these two approaches can be caused by: using average NCV in RA and fuel specific NCV in NA, not full coverage of fuel consumption in NA (not appropriate reporting by sources). The Fraction of carbon oxidized in Table 1.A(b) - Reference Approach was changed for solid fuels to 0.99 and for liquid and gaseous fuels 0.995 followed the recommendations in Commission Decision 2004/156/EC. Slovakia is using RA as national total emission estimate of CO ₂ , while consistent data series since 1990 exist only for RA. |
| Slovenia | 15,090 | 15,062 | 0.18 | Difference in Energy consumption occurred due to non-energy use of natural gas |
| Spain | 304,837 | 303,879 | 0.32 | |
| Sweden | 52,681 | 50,420 | 4.48 | The Reference approach includes all fuel consumption in Sweden since it is not possible to separate fuels consumed in CRF 1B and 2 on this level. The large differences between approaches are mainly due to the fact that a lot of fuel in Sweden is consumed and thus reported in CRF 1and 2. Since this table does not take CRF 1B and 2 into account, it is not fully applicable for Swedish conditions. For more information, see chapter 3.3.6 and appendix 14 of the Swedish National Inventory Report. |
| Switzerland | 41,823 | 41,641 | 0.44 | 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). Other: Waste fuels from waste incineration (energy use) and waste fuels from cement production (energy use). In the reference approach subsumed in "Liquid fuels" (Other oil); |
| Ukraine | 290,334 | 267,629 | 8.48 | |
| United Kingdom | 543,672 | 540,235 | 0.64 | 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 0.2 % 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 and 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. The sectoral approach is based wholly on the consumption of secondary fuels where the carbon contents are known with greater certainty. In particular the carbon contents and calorific values of the primary liquid fuels are likely to vary more than those of secondary fuels. |
| United States | 5,795,457 | 5,688,362 | 1.882707915 | 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 table 1.A(b): 1) Orimulsion values refer to U.S. Inventory's "Other Liquids" which has production. The carbon stored subtracted in column P refers to "Pentanes Plus." 2) Field production of motor gasoline is included in column F with "Gasoline" Imports. An adjustment for ethanol in motor gasoline is included in column I with Stock Change. 3) Naphtha values refer to "Naphtha for Petrofeed" and "Special Naphtha." 4) Refinery Feedstocks values refer to U.S. Inventory's "Other Oil for Petrofeed" and "Still Gas." 5) Other Oil values refer to U.S. Inventory's "Waxes," "Asphalt/Road Oil," "Misc. Products," and "U.S. Terr. Misc. Products." 6) Other Bit. Coal includes U.S. Inventory's "Bituminous Coal" and "Unspecified Coal." An adjustment for coal gasification is included in column I with Stock Change. This adjustment accounts for: 1) coal converted and combusted as natural gas, which is included in Natural Gas (Dry), and 2) CO ₂ exports to Canada, which is a byproduct of gasification. 7) 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). 8) Adjustments for fuels accounted for in the Industrial Processes sector are included in the stock change column. These adjustments include petroleum coke for aluminium, 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. 9) 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 CO ₂ emissions in the CRF Reference Approach than in the U.S. Inventory Reference Approach which does not include these sources. Additional notes: 10) Table 1.A(b) - The United States Reference Approach is also provided in 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. |

Table 1.2**Emissions from stationary combustion – trend information**

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|-----------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 192,828 | 265,971 | 1.5 | 1.8 | 1.1 | 1.3 | 3.5 | 3.8 | 2.6 | 7.2 | 3.2 | 1.2 | 2.1 | 0.9 | 2.4 | 37.9 |
| Austria | 41,020 | 44,932 | 5.1 | -11.0 | 1.2 | 0.0 | 5.8 | 5.5 | 0.9 | -5.1 | -2.0 | -2.3 | 6.8 | -2.3 | 8.4 | 9.5 |
| Belarus | | 44,155 | | | | | | | | | | | | -3.6 | 0.9 | |
| Belgium | 90,187 | 90,896 | 3.6 | -3.2 | -1.2 | 2.3 | 0.6 | 4.5 | -6.2 | 4.9 | -5.9 | 0.9 | -0.5 | -1.4 | 3.2 | 0.8 |
| Bulgaria | 76,912 | 41,938 | -16.2 | -10.7 | 2.9 | -4.1 | 4.8 | -1.7 | -0.4 | -13.8 | -8.6 | -1.4 | 3.7 | -6.6 | 8.3 | -45.5 |
| Canada | 276,060 | 351,194 | -1.8 | 3.8 | -2.1 | 2.2 | 2.5 | 2.6 | 1.6 | 1.8 | 3.2 | 6.8 | -1.4 | 1.7 | 3.8 | 27.2 |
| Croatia | 16,497 | 15,020 | -28.3 | -7.6 | 5.4 | -8.8 | 5.2 | 3.3 | 5.1 | 7.1 | 1.6 | -4.8 | 6.6 | 6.5 | 6.6 | -9.0 |
| Czech Republic | 152,805 | 102,237 | | | | | -0.8 | 0.9 | 2.4 | -7.2 | -7.2 | 7.4 | -2.8 | -4.7 | -2.6 | -33.1 |
| Denmark | 40,797 | 44,300 | 24.0 | -12.0 | 4.9 | 6.8 | -6.2 | 28.0 | -16.6 | -7.9 | -7.3 | -9.5 | 4.0 | -1.1 | 11.6 | 8.6 |
| Estonia | 34,801 | 16,683 | -7.4 | -24.5 | -23.4 | 5.3 | -8.4 | 5.7 | -1.2 | -11.7 | -8.3 | 1.6 | -4.1 | -0.2 | 12.8 | -52.1 |
| European Community | 2,458,221 | 2,421,711 | 0.8 | -3.8 | -2.4 | -0.6 | 1.0 | 2.8 | -2.8 | 0.8 | -1.9 | 0.8 | 2.6 | -0.7 | 2.2 | -1.5 |
| Finland | 41,367 | 57,350 | 0.0 | -4.4 | 3.6 | 14.4 | -6.0 | 12.1 | -3.3 | -6.4 | -1.4 | -3.5 | 12.9 | 3.0 | 15.8 | 38.6 |
| France | 245,689 | 241,890 | 9.7 | -3.8 | -7.5 | -2.8 | 1.9 | 5.6 | -3.2 | 6.9 | -5.0 | -2.3 | 1.2 | -3.3 | 2.5 | -1.5 |
| Germany | 826,500 | 671,482 | -4.7 | -6.8 | -2.0 | -1.7 | -1.1 | 3.4 | -4.5 | -1.7 | -5.0 | 1.0 | 3.0 | -1.1 | 1.0 | -18.8 |
| Greece | 61,711 | 80,394 | -1.6 | 1.3 | -0.2 | 3.0 | -0.7 | 2.8 | 6.0 | 4.6 | -1.5 | 8.6 | 1.8 | -0.5 | 3.6 | 30.3 |
| Hungary | 71,728 | 48,004 | -1.9 | -9.7 | 0.9 | -2.6 | -1.7 | 2.6 | -4.1 | -2.6 | -0.9 | -5.0 | 2.7 | -3.7 | 5.4 | -33.1 |
| Iceland | 1,072 | 1,130 | -5.3 | 11.3 | 5.3 | -3.3 | 2.2 | 8.7 | 2.7 | -3.1 | 0.6 | -7.8 | -3.2 | 6.0 | -6.6 | 5.4 |
| Ireland | 24,617 | 30,528 | 1.9 | 0.6 | -1.4 | 3.8 | 1.0 | 1.8 | 5.6 | 3.2 | 3.2 | 4.2 | 3.7 | -2.8 | -2.7 | 24.0 |
| Italy | 297,224 | 330,740 | -0.7 | -2.0 | -1.4 | -2.1 | 9.2 | -2.2 | 0.6 | 2.1 | 2.0 | 1.8 | 0.5 | -0.7 | 4.1 | 11.3 |
| Japan | 837,669 | 935,169 | -0.5 | 1.0 | -1.4 | 5.7 | 0.5 | 1.5 | 0.5 | -4.3 | 3.5 | 1.4 | -2.7 | 4.7 | 1.6 | 11.6 |
| Latvia | 15,600 | 4,469 | -3.6 | -23.5 | -14.7 | -3.6 | -27.2 | 0.1 | -6.5 | -9.1 | -12.4 | -13.1 | 1.8 | -2.7 | 1.2 | -71.4 |
| Liechtenstein | 140 | 148 | | | | | | | | | | | | | | 6.2 |
| Lithuania | 30,926 | 7,656 | | | | | | | | | | | | -16.6 | 5.2 | -75.2 |
| Luxembourg | | 3,936 | | | | | | | | | | | | | | |
| Monaco | 57 | 80 | 17.4 | 2.0 | 6.8 | 0.8 | -2.6 | 8.3 | 0.0 | -3.9 | 6.9 | 0.5 | 1.3 | -2.0 | 0.0 | 39.5 |
| Netherlands | 122,390 | 134,991 | 3.9 | -1.9 | 3.4 | -1.0 | 2.7 | 5.4 | -5.4 | 1.4 | -4.7 | 1.4 | 4.4 | -0.8 | 1.8 | 10.3 |
| New Zealand | 13,399 | 16,791 | 2.2 | 10.3 | -7.3 | -4.0 | -5.9 | 7.5 | 14.6 | -10.9 | 7.7 | 0.1 | 9.8 | -3.2 | 5.5 | 25.3 |
| Norway | 14,642 | 20,820 | -2.3 | 1.5 | 2.6 | 11.0 | -3.0 | 12.8 | -0.5 | -2.6 | -1.4 | -0.7 | 11.5 | 1.1 | 7.6 | 42.2 |
| Portugal | 29,080 | 37,326 | 4.1 | 11.3 | -5.6 | -0.9 | 8.0 | -9.5 | 5.5 | 7.7 | 18.1 | -7.8 | 1.0 | 8.6 | -10.8 | 28.4 |
| Romania | 143,764 | 86,434 | -20.9 | -2.7 | 2.2 | -4.4 | 4.0 | 3.0 | -13.0 | -13.4 | -12.8 | 1.9 | 4.3 | 5.9 | 6.9 | -39.9 |
| Slovakia | | 34,786 | | | | | | | | | | | | | | |
| Slovenia | 12,959 | 11,121 | -6.6 | -0.7 | 2.2 | -5.0 | 5.2 | 2.2 | 3.5 | 3.1 | -4.3 | -0.8 | 7.4 | 0.6 | -3.5 | -14.2 |
| Spain | 149,027 | 208,380 | 3.5 | 3.9 | -5.4 | 4.2 | 6.2 | -10.1 | 12.0 | 0.0 | 11.6 | 4.6 | -1.1 | 9.1 | -1.9 | 39.8 |
| Sweden | 32,262 | 30,363 | 2.8 | -2.5 | 0.9 | 4.4 | -3.5 | 12.1 | -11.6 | 0.7 | -8.7 | -7.6 | 2.2 | 4.0 | 3.2 | -5.9 |
| Switzerland | 26,005 | 26,232 | 6.1 | -0.7 | -4.4 | -4.0 | 4.8 | 2.6 | -4.3 | 3.8 | -2.0 | -5.3 | 4.4 | -2.7 | 3.7 | 0.9 |
| Ukraine | 631,641 | 253,983 | 4.7 | -16.4 | -12.3 | -23.9 | -4.3 | -7.6 | -14.3 | -9.2 | -0.4 | -4.8 | 0.2 | -0.6 | 6.1 | -59.8 |
| United Kingdom | 448,538 | 414,261 | 2.2 | -3.6 | -3.4 | -2.1 | -2.1 | 3.9 | -5.2 | 1.0 | -2.5 | 1.6 | 4.7 | -4.2 | 2.6 | -7.6 |
| United States | 3,383,789 | 3,921,148 | -0.1 | 1.8 | 2.5 | 1.2 | 0.5 | 4.0 | 1.8 | 0.0 | 0.4 | 3.6 | -2.1 | 0.5 | 0.9 | 15.9 |

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

^a 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 1.3**Stationary combustion: liquid fuels, CO₂ (2003)**

| | Key source | Share of national total | IEF in CRF based on | Energy industries | | | | | | Manufacturing industries and construction | | | Other sectors | | | | | |
|----------------------------|------------|-------------------------|---------------------|----------------------------------|--------------|---------------------|--|--------------------|--|---|--------------|---------------------|----------------------------------|----------|---------------------|----------------------------|-------------|------------------------------------|
| | | | | Methods and EF used ^a | | CO ₂ IEF | | | | Methods and EF used ^b | | CO ₂ IEF | Methods and EF used ^c | | 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 |
| | | | | | | | | | | | | | | | | | | |
| Australia ^d | L, T | 6.5 | GCV | T2 | CS | 72.02 | 73.03 | 71.49 | 72.65 | T2 | CS | 70.61 | T1, T2 | CS | 71.13 | 71.27 | 65.87 | 72.50 |
| Austria | L, T | 17.4 | NCV | C | CS | 70.83 | 79.30 | 66.94 | 78.00 | C | CS | 76.66 | C | CS | 74.54 | 72.83 | 74.87 | 74.08 |
| Belarus | L | 10.8 | NCV | D,T1 | D | 76.40 | IE | IE | IE | D | D | 73.48 | D,T1 | D | 70.63 | 74.57 | 62.66 | 73.28 |
| Belgium | L, T | 19.7 | NCV | | | 62.83 | 76.61 | 61.44 | | | | 78.89 | | | 73.40 | 73.47 | 73.25 | 74.34 |
| Bulgaria | L, T | 6.7 | NCV | T3 | CS, D | 72.72 | 77.28 | NO | 70.27 | T2 | CS, D | 80.32 | T2 | CS, D | 71.63 | 73.93 | 63.73 | 73.50 |
| Canada ^d | L, T | 9.0 | GCV | T2 | CS | 153.35 | 79.06 | 298.01 | NA | T2 | CS | 73.82 | T2 | CS | 74.33 | 73.92 | 75.22 | 71.47 |
| Croatia | L | 27.4 | NCV | T1/T2 | D/PS | 72.86 | 76.54 | 68.34 | 73.33 | T1 | D | 81.19 | T1 | D | 72.34 | 72.97 | 71.60 | 73.07 |
| Czech Republic | L | 6.4 | NCV | T1 | D | 72.11 | 74.36 | 72.07 | 39.81 | T1 | D | 71.35 | T1 | D | 68.07 | 72.02 | 62.44 | 73.33 |
| Denmark | L, T | 13.0 | NCV | C | CS | 69.00 | 77.70 | 58.00 | 74.00 | C | CS | 79.36 | C | CS | 74.08 | 73.80 | 74.08 | 74.11 |
| Estonia | L | 4.5 | NCV | T1,CS | CS | 74.56 | 74.56 | | | T1 | D | 71.09 | T1 | D | 71.35 | 72.01 | 71.15 | 71.15 |
| European Community | L, T | 15.9 | NCV | C, CS, D, T1, T2, T3 | C, CS, D, PS | 72.08 | 76.42 | 68.95 | 68.87 | C, CS, D, T1, T2, T3 | C, CS, D, PS | 76.16 | C, CS, D, T1, T2, T3 | C, CS, D | 72.95 | 73.58 | 72.62 | 73.31 |
| Finland | L, T | 17.0 | NCV | CS (T2) | CS/PS/D | 73.56 | 76.03 | 72.05 | NO | CS (T2) | CS/PS/D | 73.44 | CS (T2, T1) | CS/D | 73.61 | 74.15 | 73.38 | 73.61 |
| France | L, T | 17.7 | NCV | C | CS | 72.35 | 77.91 | 69.22 | | C | CS | 77.80 | C | CS | 73.30 | 74.21 | 72.74 | 73.50 |
| Germany | L, T | 12.6 | NCV | CS | CS | 70.78 | 76.62 | 69.36 | 75.75 | D,CS | D,CS | 75.39 | CS | CS | 73.66 | 73.72 | 73.62 | 73.85 |
| Greece | L, T | 22.0 | NCV | C | C and CS | 74.68 | 75.68 | 72.81 | NO | C | C | 59.57 | C | C | 73.11 | 72.67 | 73.13 | 73.18 |
| Hungary | L, T | 6.9 | NCV | T3 | D | 75.96 | 75.96 | IE | IE | T1,T2 | D | 45.95 | T1 | D | 67.40 | 64.31 | 62.44 | 73.10 |
| Iceland | L, T | 36.4 | NCV | T1 | D | 73.51 | 73.51 | NO | NO | T1 | D | 74.52 | T1 | D | 73.28 | 62.44 | 70.80 | 73.36 |
| Ireland | L, T | 17.7 | NCV | T1 | PS, CS | 77.67 | 80.10 | 66.84 | | T1 | PS, CS | 79.37 | T1 | CS | 73.50 | 73.95 | 73.25 | 73.30 |
| Italy | L, T | 21.7 | NCV | T3 | CS | 76.16 | 77.34 | 74.05 | 77.47 | T2 | CS | 83.85 | T2 | CS | 71.44 | 71.64 | 70.67 | 72.91 |
| Japan ^d | L, T | 27.0 | GCV | T1, CS | D, CS | 69.81 | 73.93 | 57.36 | 95.04 | T1, CS | D, CS | 71.61 | T1, CS | D, CS | 70.34 | 71.19 | 67.83 | 72.38 |
| Latvia | L, T | 9.7 | NCV | T1 | D | 76.48 | 76.48 | | | T1 | D | 73.81 | T1 | D | 71.77 | 73.20 | 68.16 | 74.12 |
| Liechtenstein | L | 29.8 | NCV | | | | NO | NO | NO | | | 73.70 | | | 73.70 | IE | 73.70 | IE |
| Lithuania | L | 10.2 | NCV | C | CS | 77.91 | 77.96 | 77.95 | 73.68 | C | CS | 75.35 | C | CS | 68.74 | 75.43 | 65.08 | 74.03 |
| Luxembourg | | 1.0 | NCV | | | | | | | | | | | | | | | |
| Monaco | L | 26.1 | NCV | T1 | D | | | | | | | | T1 | D | 73.33 | | 73.33 | |
| Netherlands | L, T | 10.3 | NCV | T2 | PS, CS,D | 59.53 | 57.75 | 59.95 | 74.30 | T2 | PS, CS,D | 60.99 | T2 | D, CS | 73.64 | 69.51 | 71.97 | 74.24 |
| New Zealand ^d | L, T | 5.5 | GCV | D | CS | 77.98 | 72.25 | 78.05 | NO | D | CS | 70.34 | D | CS | 71.75 | 71.06 | 62.97 | 72.78 |
| Norway | L, T | 16.6 | NCV | T2 | CS | 50.06 | 73.28 | 36.76 | 121.73 | T2 | CS | 64.01 | T2 | CS | 73.41 | 73.53 | 73.05 | 73.53 |
| Portugal | L, T | 22.7 | NCV | T2 | D+C | 72.82 | 75.86 | 69.27 | | T2 | D+C | 76.01 | T2 | D+C | 68.92 | 71.93 | 62.92 | 73.04 |
| Romania | L, T | 11.2 | NCV | T1 | D | 75.48 | 75.48 | IE | IE | T1 | D | 72.14 | T1 | D | 67.56 | 70.62 | 64.23 | 73.14 |
| Slovakia | L | 4.7 | NCV | SA | D,CS | 75.72 | 75.98 | 75.57 | | SA | D,CS | 74.51 | SA | D,CS | 73.69 | 73.44 | | 73.93 |
| Slovenia | L, T | 14.8 | NCV | T1 | D,CS | 74.04 | 73.20 | 76.47 | 73.30 | T1 | D | 72.78 | T1 | D,CS | 72.22 | 73.36 | 71.56 | 72.88 |
| Spain | L, T | 19.4 | NCV | D,C,CS | D,C,PS | 70.19 | 75.99 | 65.11 | 76.16 | D,C,CS | D,C,PS | 81.78 | D,C | D,C | 71.36 | 72.59 | 69.63 | 72.54 |
| Sweden | L, T | 28.3 | NCV | T2/T3 + T1, CS | CS, D | 72.13 | 75.34 | 69.28 | 74.26 | T2/T3 + T1 | CS | 72.17 | T2/T3 + T1 | CS | 73.56 | 73.32 | 74.08 | 72.63 |
| Switzerland | L, T | 35.9 | NCV | RA, C | RA, CS | 62.96 | 73.50 | 62.28 | NO | C | CS | 73.96 | C | CS | 73.51 | 73.50 | 73.50 | 73.63 |
| Ukraine | L, T | 4.7 | NCV | T1 | D | 73.58 | 74.13 | 76.00 | 71.73 | T1 | D | 72.80 | T1 | D | 70.64 | 70.59 | 69.73 | 72.22 |
| United Kingdom | L, T | 9.4 | NCV | T2 | CS | 72.48 | 76.82 | 72.49 | 62.23 | T2 | CS | 73.01 | T2 | CS | 72.24 | 75.96 | 71.05 | 73.61 |
| United States ^d | L, T | 10.9 | GCV | T1 | CS | 80.20 | 80.20 | IE | IE | T1 | CS | 72.24 | T1 | CS | 69.69 | 71.44 | 68.83 | IE |

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

^a Information on methods and emission factors included in this table is as reported by Parties. 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 included in this table is as reported by Parties. 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 included in this table is as reported by Parties. 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 Australia, Canada, Japan, New Zealand and United States reported energy data on a gross calorific value basis. This means that reported IEFs are about 5% lower for liquid and solid fuels and biomass and about 10% 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 (2003)

| | Key source | Share of national total | IEF in CRF based on | Energy industries | | | | | Manufacturing industries and construction | | | Other sectors | | | | | |
|----------------------------|------------|-------------------------|---------------------|----------------------------------|--------------|---------------------|--|--|---|--------------|---------------------|----------------------------------|----------|---------------------|----------------------------|-------------|------------------------------------|
| | | | | Methods and EF used ^a | | CO ₂ IEF | | | Methods and EF used ^b | | CO ₂ IEF | Methods and EF used ^c | | CO ₂ IEF | | | |
| | | | | Methods | EF | Total | Public electricity and heat production | Manufacture of solid fuels and other energy industries | Methods | EF | Total | Methods | EF | Total | Commercial / Institutional | Residential | Agriculture / Forestry / Fisheries |
| | | | | | | | | | | | | | | | | | |
| Australia ^d | L, T | 36.7 | GCV | T2 | CS | 96.25 | 96.63 | 61.04 | T2 | CS | 89.17 | T1, T2 | CS | 106.03 | 106.18 | 103.41 | NA |
| Austria | L, T | 13.2 | NCV | C | CS | 97.53 | 97.53 | | C | CS | 85.64 | C | CS | 93.74 | 95.96 | 93.65 | 94.05 |
| Belarus | L | 3.7 | NCV | D,T1 | D | 95.70 | IE | IE | D | D | 104.35 | D,T1 | D | 92.75 | 92.74 | 92.76 | 92.93 |
| Belgium | L, T | 17.0 | NCV | | | 107.47 | 112.67 | 46.81 | | | 77.08 | | | 92.81 | 92.70 | 92.82 | 92.71 |
| Bulgaria | L, T | 46.3 | NCV | T3 | CS, D | 106.69 | 107.65 | 49.46 | T2 | CS, D | 134.30 | T2 | CS, D | 100.54 | 99.55 | 100.56 | 101.21 |
| Canada ^d | L, T | 16.7 | GCV | T2 | CS | 94.48 | 93.68 | 83.54 | T2 | CS | 90.91 | T2 | CS | 99.80 | NA | 99.80 | NA |
| Croatia | L | 8.5 | NCV | T1/T2 | D/PS | 92.71 | 92.71 | | T1 | D | 93.71 | T1 | D | 77.84 | 78.86 | 77.27 | |
| Czech Republic | L | 50.7 | NCV | T1 | D | 96.98 | 97.78 | 70.42 | T1 | D | 94.87 | T1 | D | 98.47 | 99.62 | 98.14 | 99.61 |
| Denmark | L, T | 30.1 | NCV | C | CS | 95.00 | 95.00 | | C | CS | 96.69 | C | CS | 95.22 | | 106.45 | 95.00 |
| Estonia | L | 66.5 | NCV | T1,CS | CS | 101.16 | 101.16 | | T1 | D | 103.32 | T1 | D | 98.58 | 101.29 | 98.44 | |
| European Community | L, T | 21.6 | NCV | C, CS, D, T1, T2, T3 | C, CS, D, PS | 101.89 | 101.66 | 106.39 | C, CS, D, T1, T2, T3 | C, CS, D, PS | 99.41 | C, CS, D, T1, T2, T3 | C, CS, D | 95.45 | 98.43 | 94.99 | 94.91 |
| Finland | L, T | 26.6 | NCV | CS (T2) | CS/PS/D | 92.08 | 92.71 | 39.69 | CS (T2) | CS/PS/D | 97.11 | CS (T2, T1) | CS/D | 91.67 | NO | 89.87 | 92.71 |
| France | L, T | 9.2 | NCV | C | CS | 105.00 | 103.99 | 106.47 | C | CS | 138.08 | C | CS | 95.00 | 95.02 | 94.99 | 95.00 |
| Germany | L, T | 36.8 | NCV | CS | CS | 103.46 | 104.10 | 94.68 | D,CS | D,CS | 95.75 | CS | CS | 99.26 | 102.42 | 98.05 | 98.05 |
| Greece | L, T | 33.0 | NCV | C | C and CS | 122.06 | 122.06 | NO | C | C | 93.26 | C | C | 95.00 | NO | 92.71 | 99.18 |
| Hungary | L, T | 19.2 | NCV | T3 | D | 96.86 | 96.86 | IE | T1,T2 | D | 105.27 | T1 | D | 96.21 | 96.69 | 95.98 | 98.40 |
| Iceland | L, T | 1.0 | NCV | T1 | D | | NO | NO | T1 | D | 92.71 | T1 | D | | NO | NO | NO |
| Ireland | L, T | 15.0 | NCV | T1 | PS, CS | 100.51 | 100.51 | | T1 | PS, CS | 95.20 | T1 | CS | 99.18 | 94.74 | 99.47 | |
| Italy | L, T | 10.8 | NCV | T3 | CS | 111.12 | 100.90 | 195.86 | T2 | CS | 75.44 | T2 | CS | 105.40 | 105.40 | 105.40 | NO |
| Japan ^d | L, T | 30.6 | GCV | T1, CS | D, CS | 92.15 | 95.42 | 65.47 | T1, CS | D, CS | 95.24 | T1, CS | D, CS | 94.86 | 95.16 | 93.17 | |
| Latvia | L, T | 3.0 | NCV | T1 | D | 100.16 | 100.16 | | T1 | D | 91.66 | T1 | D | 43.56 | 92.20 | 23.18 | 92.20 |
| Liechtenstein | | | NCV | | | | NO | NO | | | | | | | NO | NO | NO |
| Lithuania | L | 5.6 | NCV | C | CS | 77.08 | 97.03 | 102.00 | C | CS | 95.13 | C | CS | 95.76 | 95.00 | 96.76 | 95.00 |
| Luxembourg | | 0.3 | NCV | | | | | | | | | | | | | | |
| Monaco | | | NCV | T1 | D | | | | | | | T1 | D | | | | |
| Netherlands | L, T | 14.9 | NCV | T2 | PS, CS,D | 107.42 | 107.42 | NO | T2 | PS, CS,D | 131.57 | T2 | D, CS | 96.04 | 96.30 | 94.70 | NO |
| New Zealand ^d | L, T | 10.4 | GCV | D | CS | 91.95 | 91.95 | NO | D | CS | 93.77 | D | CS | 94.22 | 93.86 | 96.46 | 93.57 |
| Norway | L, T | 1.1 | NCV | T2 | CS | 89.87 | 89.87 | NO | T2 | CS | 97.16 | T2 | CS | 103.11 | NO | 103.11 | NO |
| Portugal | L, T | 15.1 | NCV | T2 | D+C | 90.16 | 90.16 | | T2 | D+C | 98.95 | T2 | D+C | | | | |
| Romania | L, T | 27.0 | NCV | T1 | D | 98.27 | 98.27 | NA | T1 | D | 103.31 | T1 | D | 98.16 | 96.97 | 98.42 | 98.80 |
| Slovakia | L | 21.1 | NCV | SA | D,CS | 93.27 | 93.27 | | SA | D,CS | 94.73 | SA | D,CS | 95.95 | 97.16 | 95.73 | 95.23 |
| Slovenia | L, T | 32.2 | NCV | T1 | D,CS | 101.80 | 101.80 | | T1 | D | 101.50 | T1 | D,CS | 102.54 | 102.55 | 102.54 | |
| Spain | L, T | 19.6 | NCV | D,C,CS | D,C,PS | 98.24 | 98.45 | 86.00 | D,C,CS | D,C,PS | 122.72 | D,C | D,C | 89.06 | 82.73 | 91.07 | NO |
| Sweden | L, T | 10.4 | NCV | T2/T3 + T1, CS | CS, D | 129.13 | 134.35 | 77.47 | T2/T3 + T1 | CS | 25.79 | T2/T3 + T1 | CS | NO | NO | NO | NO |
| Switzerland | L, T | 1.1 | NCV | RA, C | RA, CS | NO | NO | NO | C | CS | 94.13 | C | CS | 94.13 | NO | 94.13 | NO |
| Ukraine | L, T | 11.9 | NCV | T1 | D | 92.79 | 92.71 | 94.11 | T1 | D | 93.59 | T1 | D | 93.39 | 92.89 | 93.66 | 93.10 |
| United Kingdom | L, T | 22.6 | NCV | T2 | CS | 92.43 | 92.75 | 67.26 | T2 | CS | 141.66 | T2 | CS | 92.09 | 92.58 | 92.07 | 88.09 |
| United States ^d | L, T | 29.2 | GCV | T1 | CS | 93.28 | 93.28 | IE | T1 | CS | 93.21 | T1 | CS | 94.18 | 94.18 | 94.18 | IE |

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

^a Information on methods and emission factors included in this table is as reported by Parties. 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 included in this table is as reported by Parties. 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 included in this table is as reported by Parties. 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 Australia, Canada, Japan, New Zealand and United States reported energy data on a gross calorific value basis. This means that reported IEFs are about 5% lower for liquid and solid fuels and biomass and about 10% 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 (2003)**

| | Key source | Share of national total (%) | IEF in CRF based on | Energy industries | | | | | | Manufacturing industries and construction | | | Other sectors | | | | | |
|----------------------------|------------|------------------------------------|---------------------|----------------------------------|--------------|---------------------|--|--------------------|--|---|--------------|---------------------|----------------------------------|----------|---------------------|----------------------------|-------------|------------------------------------|
| | | | | Methods and EF used ^a | | CO ₂ IEF | | | | Methods and EF used ^b | | CO ₂ IEF | Methods and EF used ^c | | 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 |
| | | | | | | | | | | | | | | | | | | |
| Australia ^d | L, T | 9.3 | GCV | T2 | CS | 57.15 | 57.40 | 56.84 | 56.84 | T2 | CS | 56.90 | T1, T2 | CS | 56.90 | 56.90 | 56.89 | 56.84 |
| Austria | L, T | 17.6 | NCV | C | CS | 55.00 | 55.00 | 55.00 | 55.00 | C | CS | 55.00 | C | CS | 55.00 | 55.00 | 55.00 | 55.00 |
| Belarus | L | 46.6 | NCV | D,T1 | D | 56.65 | IE | IE | IE | D | D | 55.93 | D,T1 | D | 55.82 | 55.82 | 55.82 | 55.91 |
| Belgium | L, T | 21.0 | NCV | | | 56.03 | 56.03 | 55.82 | 55.80 | | | 55.67 | | | 55.84 | 55.85 | 55.84 | 55.82 |
| Bulgaria | L, T | 7.7 | NCV | T3 | CS, D | 55.82 | 55.82 | 55.82 | 55.82 | T2 | CS, D | 55.82 | T2 | CS, D | 55.82 | 55.82 | 55.82 | 55.82 |
| Canada ^d | L, T | 21.7 | GCV | T2 | CS | 63.20 | 55.00 | 55.00 | 69.44 | T2 | CS | 55.00 | T2 | CS | 55.00 | 55.00 | 55.00 | 55.00 |
| Croatia | L | 14.4 | NCV | T1/T2 | D/PS | 55.82 | 55.82 | 55.82 | 55.82 | T1 | D | 55.82 | T1 | D | 55.82 | 55.82 | 55.82 | 55.82 |
| Czech Republic | L | 12.4 | NCV | T1 | D | 55.82 | 55.82 | 55.82 | | T1 | D | 55.82 | T1 | D | 55.82 | 55.82 | 55.82 | 55.82 |
| Denmark | L, T | 14.8 | NCV | C | CS | 57.19 | 57.19 | | 57.19 | C | CS | 57.19 | C | CS | 57.19 | 57.19 | 57.19 | 57.19 |
| Estonia | L | 6.9 | NCV | T1,CS | CS | 55.82 | 55.82 | | | T1 | D | 19.66 | T1 | D | 55.82 | 55.82 | 55.82 | 55.82 |
| European Community | L, T | 19.6 | NCV | C, CS, D, T1, T2, T3 | C, CS, D, PS | 56.84 | 56.26 | 56.01 | 62.42 | C, CS, D, T1, T2, T3 | C, CS, D, PS | 56.07 | C, CS, D, T1, T2, T3 | C, CS, D | 56.31 | 56.26 | 56.33 | 56.18 |
| Finland | L, T | 10.9 | NCV | CS (T2) | CS/PS/D | 54.16 | 53.91 | 55.82 | NO | CS (T2) | CS/PS/D | 55.44 | CS (T2, T1) | CS/D | 55.82 | 55.82 | 55.82 | 55.82 |
| France | L, T | 14.4 | NCV | C | CS | 57.00 | 57.00 | 57.00 | | C | CS | 56.41 | C | CS | 57.00 | 57.00 | 57.00 | 57.00 |
| Germany | L, T | 16.5 | NCV | CS | CS | 55.99 | 56.00 | 56.00 | 55.86 | D,CS | D,CS | 56.00 | CS | CS | 56.00 | 56.00 | 56.00 | 56.00 |
| Greece | L, T | 3.4 | NCV | C | C and CS | 55.82 | 55.82 | NO | 55.82 | C | C | 52.45 | C | C | 55.82 | 55.82 | 55.82 | NO |
| Hungary | L, T | 34.5 | NCV | T3 | D | 55.82 | 55.82 | IE | IE | T1,T2 | D | 54.14 | T1 | D | 55.82 | 55.82 | 55.82 | 55.82 |
| Iceland | | | NCV | T1 | D | | NO | NO | NO | T1 | D | | T1 | D | | NO | NO | NO |
| Ireland | L, T | 12.5 | NCV | T1 | PS, CS | 56.70 | 56.70 | | | T1 | PS, CS | 54.94 | T1 | CS | 54.94 | 54.94 | 54.94 | |
| Italy | L, T | 25.3 | NCV | T3 | CS | 55.29 | 55.29 | 55.29 | 55.29 | T2 | CS | 55.29 | T2 | CS | 55.29 | 55.29 | 55.29 | 55.29 |
| Japan ^d | L, T | 12.3 | GCV | T1, CS | D, CS | 54.84 | 54.84 | | 53.36 | T1, CS | D, CS | 53.56 | T1, CS | D, CS | 53.36 | 53.36 | 53.36 | |
| Latvia | L, T | 29.5 | NCV | T1 | D | 55.82 | 55.82 | | | T1 | D | 55.82 | T1 | D | 55.82 | 55.82 | 55.82 | 55.82 |
| Liechtenstein | L | 26.4 | NCV | | | | NO | NO | NO | | | 55.00 | | | 55.00 | 55.00 | 55.00 | IE |
| Lithuania | L | 28.7 | NCV | C | CS | 58.47 | 56.90 | 64.98 | 56.90 | C | CS | 56.90 | C | CS | 56.90 | 56.90 | 56.90 | 56.90 |
| Luxembourg | | 2.8 | NCV | | | | | | | | | | | | | | | |
| Monaco | | 9.2 | NCV | T1 | D | 55.82 | 55.82 | | | | | | T1 | D | 55.82 | | 55.82 | |
| Netherlands | L, T | 36.9 | NCV | T2 | PS, CS,D | 56.10 | 56.10 | 56.10 | 56.10 | T2 | PS, CS,D | 56.10 | T2 | D, CS | 56.10 | 56.10 | 56.10 | 56.10 |
| New Zealand ^d | L, T | 16.3 | GCV | D | CS | 58.93 | 57.86 | 64.90 | 59.93 | D | CS | 86.53 | D | CS | 57.79 | 57.79 | 57.79 | NE |
| Norway | L, T | 20.0 | NCV | T2 | CS | 62.47 | 58.35 | NO | 62.48 | T2 | CS | 58.35 | T2 | CS | 58.35 | 58.35 | 58.35 | NO |
| Portugal | L, T | 8.1 | NCV | T2 | D+C | 55.82 | 55.82 | | | T2 | D+C | 55.82 | T2 | D+C | 55.82 | 55.82 | 55.82 | 55.82 |
| Romania | L, T | 30.4 | NCV | T1 | D | 58.86 | 58.86 | NA | NA | T1 | D | 61.16 | T1 | D | 55.82 | 55.82 | 55.82 | 55.82 |
| Slovakia | L | 24.5 | NCV | SA | D,CS | 58.63 | 58.63 | 58.63 | 58.63 | SA | D,CS | 58.50 | SA | D,CS | 58.63 | 58.63 | 58.63 | 58.63 |
| Slovenia | L, T | 9.1 | NCV | T1 | D,CS | 55.00 | 55.00 | | | T1 | D | 55.00 | T1 | D,CS | 55.00 | 55.00 | 55.00 | |
| Spain | L, T | 12.6 | NCV | D,C,CS | D,C,PS | 58.28 | 58.64 | 56.05 | 56.00 | D,C,CS | D,C,PS | 55.97 | D,C | D,C | 55.99 | 55.94 | 56.00 | 56.00 |
| Sweden | L, T | 2.6 | NCV | T2/T3 + T1, CS | CS, D | 56.50 | 56.50 | 56.50 | NO | T2/T3 + T1 | CS | 56.50 | T2/T3 + T1 | CS | 56.50 | 56.50 | 56.50 | 56.50 |
| Switzerland | L, T | 11.5 | NCV | RA, C | RA, CS | 55.00 | 55.00 | NO | NO | C | CS | 55.00 | C | CS | 55.00 | 55.00 | 55.00 | 55.00 |
| Ukraine | L, T | 31.3 | NCV | T1 | D | 56.17 | 55.82 | 63.90 | 56.33 | T1 | D | 95.44 | T1 | D | 55.82 | 55.82 | 55.82 | 55.82 |
| United Kingdom | L, T | 31.5 | NCV | T2 | CS | 58.97 | 57.27 | 57.17 | 64.57 | T2 | CS | 57.17 | T2 | CS | 57.17 | 57.17 | 57.17 | 57.17 |
| United States ^d | L, T | 16.5 | GCV | T1 | CS | 55.60 | 55.60 | IE | IE | T1 | CS | 55.60 | T1 | CS | 55.60 | 55.60 | 55.60 | IE |

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

^a Information on methods and emission factors included in this table is as reported by Parties. 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 included in this table is as reported by Parties. 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 included in this table is as reported by Parties. 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 Australia, Canada, Japan, New Zealand and United States reported energy data on a gross calorific value basis. This means that reported IEFs are about 5% lower for liquid and solid fuels and biomass and about 10% 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 (2003)**

| Key source | Share of national total (%) | IEF in CRF based on | 1.A.1 Energy industries | | | | 1.A.2 Manufacturing industries and construction | | | | 1.A.4 Other sectors | | | | | |
|----------------------------|--------------------------------|---------------------|----------------------------------|----------------------|---------------------|--|---|----------------------|---------------------|--------|----------------------------------|----------|---------------------|----------------------------|-------------|------------------------------------|
| | | | Methods and EF used ^a | | CO ₂ IEF | | Methods and EF used ^b | | CO ₂ IEF | | Methods and EF used ^c | | CO ₂ IEF | | | |
| | | | Methods | EF | Total | Public electricity and heat production | Methods | EF | Total | (t/TJ) | Methods | EF | Total | Commercial / Institutional | Residential | Agriculture / Forestry / Fisheries |
| | | | | | | | | | | | | | | | | |
| | | | | | (t/TJ) | | | | | | | | | | (t/TJ) | |
| Australia ^d | | | GCV | T2 | CS | NA | NA | T2 | CS | NA | T1, T2 | CS | NA | NA | NA | NA |
| Austria | L, T | 0.83 | NCV | C | CS | 41.24 | 41.24 | C | CS | 42.85 | C | CS | 10.00 | 10.00 | | |
| Belarus | | 0.27 | NCV | D,T1 | D | 72.60 | IE | D | D | 72.60 | D,T1 | D | 72.60 | 72.60 | 72.60 | 72.60 |
| Belgium | L, T | 3.93 | NCV | | | 125.91 | 125.91 | | | 55.45 | | | 76.06 | 80.07 | 66.00 | NO |
| Bulgaria | | | NCV | T3 | CS, D | | NO | T2 | CS, D | | T2 | CS, D | | NO | NO | NO |
| Canada ^d | | | GCV | T2 | CS | NA | NA | T2 | CS | NA | T2 | CS | NA | NA | NA | NA |
| Croatia | | | NCV | T1/T2 | D/PS | | | T1 | D | | T1 | D | | | | |
| Czech Republic | | | NCV | T1 | D | | | T1 | D | | T1 | D | | | | |
| Denmark | L, T | 0.86 | NCV | C | CS | | | C | CS | | C | CS | | | | |
| Estonia | | 0.05 | NCV | T1,CS | CS | | | T1 | D | | T1 | D | 62.44 | 62.44 | 62.44 | 62.44 |
| European Community | L, T | 0.87 | NCV | C, CS, D, T1, T2, T3 | C, CS, D, PS | 79.20 | 70.20 | C, CS, D, T1, T2, T3 | C, CS, D, PS | 56.47 | C, CS, D, T1, T2, T3 | C, CS, D | 79.05 | 79.51 | 69.28 | 104.94 |
| Finland | L, T | 12.48 | NCV | CS (T2) | CS/PS/D | 103.07 | 103.07 | CS (T2) | CS/PS/D | 98.49 | CS (T2, T1) | CS/D | 81.84 | 44.30 | 104.94 | 104.94 |
| France | L, T | 2.13 | NCV | C | CS | 122.12 | 92.44 | C | CS | 57.36 | C | CS | 57.00 | 48.66 | 57.00 | |
| Germany | T | 0.09 | NCV | CS | CS | 15.03 | 15.00 | D,CS | D,CS | 20.00 | CS | CS | | NE | NE | NE |
| Greece | | | NCV | C | C and CS | | NO | C | C | | C | C | | NO | NO | NO |
| Hungary | | 0.10 | NCV | T3 | D | NA | NA | T1,T2 | D | 6.19 | T1 | D | NO | NO | NO | NO |
| Iceland | | 0.13 | NCV | T1 | D | 52.09 | 52.09 | T1 | D | | T1 | D | | NO | NO | NO |
| Ireland | | | NCV | T1 | PS, CS | | | T1 | PS, CS | | T1 | CS | | | | |
| Italy | T | 0.23 | NCV | T3 | CS | 94.00 | 94.00 | T2 | CS | 260.40 | T2 | CS | 89.79 | 89.79 | | NO |
| Japan ^d | | | GCV | T1, CS | D, CS | | NO | T1, CS | D, CS | | T1, CS | D, CS | | NO | NO | NO |
| Latvia | | 0.23 | NCV | T1 | D | | | T1 | D | 85.00 | T1 | D | | | | |
| Liechtenstein | | | NCV | | | | NO | | | | | | | NO | NO | NO |
| Lithuania | | | NCV | C | CS | NO | NO | C | CS | NO | C | CS | NO | NO | NO | NO |
| Luxembourg | | | NCV | | | | | | | | | | | | | |
| Monaco | L | 24.64 | NCV | T1 | D | 55.57 | 55.57 | | | | T1 | D | | | | |
| Netherlands | L, T | 0.74 | NCV | T2 | PS, CS,D | 73.60 | 73.60 | T2 | PS, CS,D | | T2 | D, CS | | NO | NO | NO |
| New Zealand ^d | | | GCV | D | CS | NO | NO | D | CS | NO | D | CS | NO | NO | NO | NO |
| Norway | | 0.33 | NCV | T2 | CS | 23.91 | 23.91 | T2 | CS | 0.00 | T2 | CS | | NO | NO | NO |
| Portugal | | 0.11 | NCV | T2 | D+C | | | T2 | D+C | 71.75 | T2 | D+C | | | | |
| Romania | | | NCV | T1 | D | NA | NA | T1 | D | NA | T1 | D | NA | NA | NA | NA |
| Slovakia | L | 16.85 | NCV | SA | D,CS | 93.67 | 49.51 | SA | D,CS | 169.49 | SA | D,CS | | | | |
| Slovenia | | 0.07 | NCV | T1 | D,CS | | | T1 | D | 70.01 | T1 | D,CS | | | | |
| Spain | T | 0.20 | NCV | D,C,CS | D,C,PS | 36.21 | 36.21 | D,C,CS | D,C,PS | 81.68 | D,C | D,C | | NO | NO | NO |
| Sweden | L, T | 1.77 | NCV | T2/T3 + T1, CS | CS, D | 27.92 | 27.92 | T2/T3 + T1 | CS | 58.79 | T2/T3 + T1 | CS | NO | NO | NO | NO |
| Switzerland | L, T | 1.73 | NCV | RA, C | RA, CS | 44.31 | 44.31 | C | CS | 48.83 | C | CS | NO | NO | NO | NO |
| Ukraine | | 0.28 | NCV | T1 | D | 85.56 | 95.37 | T1 | D | 85.89 | T1 | D | 94.05 | 84.20 | 97.69 | 96.62 |
| United Kingdom | | 0.15 | NCV | T2 | CS | 30.47 | 30.47 | T2 | CS | 94.25 | T2 | CS | 30.47 | 30.47 | | |
| United States ^d | T | 0.28 | GCV | T1 | CS | 7.50 | 7.50 | T1 | CS | 0.00 | T1 | CS | 0.00 | NE | NE | IE |

Note: This table is provided for the purpose of completeness. Parties report emissions and activity data from different fuels under other fuels in the CRF and, consequently, the CO₂ IEFs may not be comparable.

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

^a Information on methods and emission factors included in this table is as reported by Parties. 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 included in this table is as reported by Parties. 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 included in this table is as reported by Parties. 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 Australia, Canada, Japan, New Zealand and United States reported energy data on a gross calorific value basis. This means that reported IEFs are about 5% lower for liquid and solid fuels and biomass and about 10% 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**Stationary combustion: all fuels – trend information**

| Fuel consumption (TJ) | | | Relative Change (%) | | | | | | | | | | | | | Base year ^a to 2003 |
|-----------------------|------------------------|------------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | |
| Australia | 2,688,874 | 3,625,551 | 0.5 | 1.3 | 2.1 | 2.0 | 4.1 | 3.1 | 3.3 | 53.4 | -28.2 | 1.1 | 1.5 | -0.2 | 1.7 | 34.8 |
| Austria | 655,695 | 797,305 | 6.1 | -7.2 | 2.2 | 0.0 | 5.9 | 6.7 | -0.3 | -2.4 | -0.9 | -3.4 | 7.2 | -1.8 | 9.0 | 21.6 |
| Belarus | | 765,888 | | | | | | | | | | | | | | |
| Belgium | 1,202,864 | 1,355,454 | 5.9 | -1.1 | -2.0 | 2.3 | 3.9 | 5.0 | -5.8 | 6.0 | -4.0 | -0.7 | 1.0 | -1.1 | 3.2 | 12.7 |
| Bulgaria | 916,095 | 479,521 | -17.0 | -11.4 | 0.3 | -4.1 | 7.2 | -2.3 | -3.8 | -12.2 | -8.5 | -0.1 | 2.0 | -5.2 | 6.5 | -47.7 |
| Canada | 4,523,051 | 5,849,057 | -1.6 | 1.5 | 1.0 | 4.3 | 1.9 | 2.7 | 0.9 | 1.8 | 4.4 | 6.6 | -2.9 | 2.0 | 3.7 | 29.3 |
| Croatia | | 233,968 | | | | | | | | | | | | | | |
| Czech Republic | | 1,258,101 | | | | | | | | | | | | | | |
| Denmark | 540,476 | 659,352 | 20.7 | -9.5 | 5.2 | 6.2 | -2.9 | 24.4 | -13.1 | -5.6 | -4.5 | -7.1 | 4.2 | 0.2 | 8.9 | 22.0 |
| Estonia | | 205,694 | | | | | | | | | | | | | | |
| European Community | 32,597,004 | 35,018,077 | 2.5 | -3.0 | -1.2 | -0.2 | 1.7 | 3.9 | -2.3 | 1.5 | -1.1 | 0.7 | 2.9 | -0.6 | 2.7 | 7.4 |
| Finland | 690,698 | 1,005,227 | 0.4 | -2.0 | 6.6 | 12.2 | -4.7 | 8.0 | 1.7 | -3.8 | 1.4 | -1.6 | 5.8 | 5.3 | 10.6 | 45.5 |
| France | 3,629,150 | 3,750,796 | 11.3 | -3.7 | -5.3 | -3.8 | 2.3 | 6.4 | -4.1 | 6.5 | -4.2 | -1.8 | 2.2 | -4.7 | 3.8 | 3.4 |
| Germany | 9,878,990 | 8,715,242 | -2.3 | -5.8 | -0.8 | -1.1 | -0.8 | 4.7 | -3.8 | -1.1 | -4.5 | 0.2 | 3.6 | -1.6 | 1.3 | -11.8 |
| Greece | 683,180 | 932,679 | -0.7 | 0.8 | -0.9 | 2.0 | 1.0 | 4.5 | 4.7 | 5.1 | -0.5 | 9.7 | 1.5 | 0.3 | 4.4 | 36.5 |
| Hungary | 1,022,142 | 774,633 | -1.9 | -8.9 | 2.3 | -1.7 | 1.9 | 2.0 | -2.7 | -0.7 | -2.8 | -3.3 | 2.9 | -3.3 | 5.9 | -24.2 |
| Iceland | 14,560 | 15,415 | -5.6 | 11.2 | 5.0 | -3.2 | 2.4 | 8.7 | 2.5 | -3.5 | 1.7 | -7.5 | -3.9 | 6.7 | -6.5 | 5.9 |
| Ireland | 305,636 | 416,844 | 2.7 | 0.9 | 0.9 | 5.4 | 1.3 | 1.3 | 5.8 | 5.5 | 3.7 | 4.3 | 3.6 | -1.8 | -1.7 | 36.4 |
| Italy | 4,287,824 | 5,001,144 | 0.3 | -1.1 | -0.9 | -2.2 | 8.2 | -1.1 | 0.8 | 2.8 | 2.4 | 1.5 | 0.5 | -0.2 | 5.0 | 16.6 |
| Japan | 12,143,772 | 13,538,772 | 0.2 | 0.9 | -1.4 | 5.6 | 0.6 | 1.4 | 0.2 | -3.6 | 3.3 | 1.1 | -2.9 | 4.4 | 1.6 | 11.5 |
| Latvia | 255,315 | 128,366 | -7.9 | -23.0 | -13.3 | -1.7 | -7.4 | 1.1 | -1.9 | -4.0 | -6.8 | -8.4 | 6.3 | 0.2 | 3.7 | -49.7 |
| Liechtenstein | | 2,430 | | | | | | | | | | | | | | |
| Lithuania | | 148,864 | | | | | | | | | | | | | | |
| Luxembourg | | 65,201 | | | | | | | | | | | | | | |
| Monaco | | 1,283 | | | | | | | | | | | | | | |
| Netherlands | 1,923,505 | 2,159,583 | 6.3 | -2.0 | 3.0 | -1.7 | 1.3 | 7.2 | -5.2 | 1.0 | -4.3 | 1.6 | 4.2 | -0.4 | 1.5 | 12.3 |
| New Zealand | 265,784 | 281,380 | -0.8 | 10.9 | -6.8 | -6.0 | -11.3 | 2.2 | 8.9 | -9.2 | 10.8 | -0.8 | 8.3 | -4.8 | 8.3 | 5.9 |
| Norway | 275,687 | 381,324 | -2.7 | 3.0 | 3.5 | 9.5 | -3.0 | 10.1 | 1.3 | -1.7 | -1.3 | 2.0 | 7.0 | 0.4 | 5.9 | 38.3 |
| Portugal | 474,841 | 620,688 | 3.5 | 8.8 | -5.1 | -1.2 | 6.7 | -7.3 | 5.4 | 7.8 | 17.4 | -7.3 | 1.9 | 8.1 | -8.1 | 30.7 |
| Romania | 2,114,289 | 1,305,311 | -20.3 | -3.9 | 1.2 | -4.0 | 11.2 | 5.0 | -15.6 | -12.0 | -11.5 | 0.9 | 0.5 | 5.9 | 8.0 | -38.3 |
| Slovakia | | 440,532 | | | | | | | | | | | | | | |
| Slovenia | 167,321 | 154,596 | -3.8 | -1.9 | 2.6 | -1.9 | 3.2 | 3.4 | 2.7 | 3.2 | -4.2 | -1.6 | 4.1 | 0.3 | -1.2 | -7.6 |
| Spain | 1,938,446 | 2,908,617 | 3.9 | 3.4 | -5.5 | 5.1 | 7.0 | -7.8 | 11.3 | 0.8 | 9.8 | 5.5 | 0.1 | 8.8 | 0.7 | 50.0 |
| Sweden | 566,797 | 630,145 | 3.0 | 0.3 | 2.2 | 6.2 | 0.0 | 10.6 | -9.7 | 0.8 | -6.1 | -6.9 | 7.3 | 0.7 | 4.3 | 11.2 |
| Switzerland | 386,149 | 414,122 | 7.2 | -0.2 | -3.4 | -3.8 | 5.4 | 3.7 | -4.3 | 3.6 | -1.5 | -4.8 | 4.6 | -2.3 | 4.0 | 7.2 |
| Ukraine | 8,074,143 | 3,400,496 | 6.7 | -17.1 | -11.6 | -19.9 | -8.7 | -5.8 | -14.6 | -6.2 | -1.1 | -5.9 | -0.9 | -1.5 | 7.4 | -57.9 |
| United Kingdom | 5,694,831 | 5,998,462 | 2.9 | -2.9 | -1.2 | -0.5 | 0.0 | 5.5 | -4.2 | 2.0 | -0.5 | 1.8 | 4.4 | -3.6 | 2.1 | 5.3 |
| United States | 54,572,508 | 62,795,839 | -0.1 | 2.5 | 2.0 | 1.7 | 1.1 | 3.6 | 1.2 | -0.5 | 0.9 | 3.1 | -2.6 | 1.1 | 0.3 | 15.1 |

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

^a 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 1.8
Stationary combustion by fuel: liquid fuels – trend information

| Fuel consumption (TJ) | | | Relative Change (%) | | | | | | | | | | | | | Base year ^a to 2003 |
|-----------------------|------------------------|------------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | |
| Australia | 401,305 | 430,199 | -1.4 | -4.0 | 3.1 | 1.1 | 5.1 | 6.7 | -6.0 | -3.1 | 0.2 | 5.9 | 1.0 | -0.1 | -0.7 | 7.2 |
| Austria | 213,993 | 215,067 | 5.3 | -6.7 | 7.7 | -3.3 | -1.2 | 6.9 | 1.3 | 0.2 | -7.9 | -9.5 | 6.4 | -5.5 | 9.3 | 0.5 |
| Belarus | | 104,764 | | | | | | | | | | | | | | |
| Belgium | 406,093 | 405,048 | 14.7 | 1.4 | -4.8 | -3.6 | -1.7 | 10.1 | -6.2 | 0.7 | -10.2 | -8.2 | 9.7 | -4.8 | 6.2 | -0.3 |
| Bulgaria | 276,792 | 59,288 | -26.3 | -29.8 | -0.7 | -3.9 | -1.2 | -12.5 | -9.3 | -10.5 | -0.8 | -19.6 | -4.2 | -0.9 | 1.8 | -78.6 |
| Canada | 738,102 | 711,599 | -9.1 | 0.0 | -5.1 | -4.8 | 0.0 | -0.2 | 2.8 | 1.2 | -5.9 | 3.4 | 5.4 | -5.7 | 16.9 | -3.6 |
| Croatia | | 113,315 | | | | | | | | | | | | | | |
| Czech Republic | | 132,025 | | | | | | | | | | | | | | |
| Denmark | 161,825 | 132,695 | 4.3 | -6.4 | 1.4 | 2.6 | 7.5 | 15.2 | -9.7 | -5.6 | -2.5 | -7.7 | 0.9 | -4.2 | -11.9 | -18.0 |
| Estonia | | 13,260 | | | | | | | | | | | | | | |
| European Community | 10,080,578 | 9,024,915 | 4.9 | -0.6 | -1.7 | -1.5 | 1.1 | 1.9 | -3.7 | -0.4 | -5.4 | -3.7 | 3.4 | -3.5 | -1.4 | -10.5 |
| Finland | 203,094 | 198,788 | 0.0 | -1.4 | -6.0 | 6.3 | -6.6 | 4.6 | -2.5 | 2.9 | -0.6 | -4.7 | 3.5 | 0.3 | 2.9 | -2.1 |
| France | 1,507,281 | 1,330,574 | 8.6 | -3.3 | -4.5 | -3.7 | 3.2 | 3.4 | -3.3 | 3.4 | -5.4 | -5.8 | 4.6 | -8.2 | 0.4 | -11.7 |
| Germany | 2,058,237 | 1,750,460 | 13.2 | -2.1 | 1.7 | -3.5 | -2.3 | 6.1 | -5.3 | -3.6 | -12.0 | -3.9 | 7.3 | -7.4 | -1.6 | -15.0 |
| Greece | 298,923 | 431,779 | 2.9 | -2.1 | -1.6 | 0.6 | 7.2 | 12.4 | 1.0 | 0.2 | -2.8 | 8.4 | 1.7 | 2.6 | 8.2 | 44.4 |
| Hungary | 254,406 | 97,321 | -2.4 | 10.6 | 0.6 | -2.0 | -12.3 | -12.4 | 7.9 | -7.4 | -13.7 | 0.5 | -10.4 | -16.0 | -9.7 | -61.7 |
| Iceland | 13,761 | 14,850 | -5.2 | 12.9 | 4.9 | -3.0 | 3.3 | 9.2 | 2.0 | -3.7 | 0.8 | -8.2 | -4.3 | 7.6 | -6.3 | 7.9 |
| Ireland | 94,664 | 157,757 | 10.1 | 3.4 | 0.2 | 20.2 | -4.7 | 2.7 | 8.3 | 10.2 | 14.6 | 0.3 | 4.0 | -7.1 | -6.2 | 66.7 |
| Italy | 2,066,007 | 1,614,956 | -2.5 | 1.1 | -2.5 | -3.6 | 6.5 | -3.3 | -1.8 | -2.0 | -4.9 | -3.3 | -2.0 | -1.3 | -4.3 | -21.8 |
| Japan | 6,444,838 | 5,384,763 | -0.8 | 1.3 | -4.6 | 6.2 | -2.1 | -2.2 | -5.3 | -4.0 | 1.2 | -2.4 | -6.3 | 4.1 | -2.1 | -16.4 |
| Latvia | 99,933 | 13,903 | -5.1 | -23.4 | -12.4 | 24.8 | -42.1 | 10.2 | -19.5 | -8.3 | -15.7 | -38.4 | -19.2 | -7.3 | -4.3 | -86.1 |
| Liechtenstein | | 1,067 | | | | | | | | | | | | | | |
| Lithuania | | 23,149 | | | | | | | | | | | | | | |
| Luxembourg | | 13,688 | | | | | | | | | | | | | | |
| Monaco | | 474 | | | | | | | | | | | | | | |
| Netherlands | 366,831 | 357,292 | -1.5 | -1.4 | 2.1 | 2.2 | -4.3 | 0.0 | -2.2 | 3.2 | -2.9 | -1.8 | 4.2 | -2.3 | 2.6 | -2.6 |
| New Zealand | 37,010 | 41,019 | -6.2 | 22.9 | -19.8 | 7.6 | 1.6 | -1.3 | -2.7 | -0.5 | 1.7 | 2.2 | -1.8 | 2.3 | 9.9 | 10.8 |
| Norway | 134,296 | 142,342 | -8.6 | 1.7 | 0.3 | 10.4 | -8.9 | 17.6 | -5.1 | 0.3 | 1.4 | -9.8 | 3.1 | 2.1 | 4.8 | 6.0 |
| Portugal | 259,798 | 253,125 | 3.0 | 15.3 | -10.7 | -3.1 | 6.9 | -10.3 | 7.1 | 11.7 | 0.2 | -10.5 | 4.1 | 6.2 | -16.5 | -2.6 |
| Romania | 378,235 | 193,146 | -24.7 | -12.3 | 5.5 | -15.8 | 0.5 | 21.4 | -2.9 | -19.6 | -18.3 | -10.9 | 9.8 | 1.1 | -5.7 | -48.9 |
| Slovakia | | 32,903 | | | | | | | | | | | | | | |
| Slovenia | 36,246 | 40,443 | -1.0 | -6.7 | 23.4 | 6.0 | 5.6 | 16.2 | -2.2 | -0.2 | 3.5 | -8.1 | 0.4 | -6.2 | -5.4 | 11.6 |
| Spain | 857,513 | 1,046,481 | 4.7 | 3.9 | -6.1 | 7.8 | 5.7 | -7.5 | 2.5 | 2.7 | 5.8 | 0.0 | 2.6 | 1.7 | -2.2 | 22.0 |
| Sweden | 307,963 | 275,583 | 0.5 | -0.9 | 2.3 | 7.0 | -3.4 | 11.7 | -12.3 | -0.2 | -8.4 | -9.1 | -1.2 | 3.5 | 2.0 | -10.5 |
| Switzerland | 273,384 | 256,203 | 7.4 | -0.5 | -6.1 | -4.9 | 3.3 | 2.6 | -4.2 | 4.3 | -3.6 | -8.3 | 4.6 | -3.1 | 3.4 | -6.3 |
| Ukraine | 1,845,006 | 350,145 | 2.7 | -37.3 | -23.9 | -22.6 | -18.1 | -11.6 | -56.7 | 110.5 | -11.6 | -18.4 | 5.0 | 1.6 | -1.5 | -81.0 |
| United Kingdom | 1,243,925 | 841,622 | 0.7 | -1.7 | -0.4 | -4.4 | -3.9 | 0.9 | -11.4 | -4.7 | -7.7 | -4.0 | 6.2 | -6.7 | 0.0 | -32.3 |
| United States | 13,075,380 | 14,309,353 | -3.1 | 2.3 | -0.6 | 2.6 | -4.8 | 5.1 | 2.1 | 0.4 | 3.0 | -1.0 | 2.1 | -2.3 | 3.8 | 9.4 |

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

^a 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 1.9**Stationary combustion by fuel: solid fuels – trend information**

| Fuel consumption (TJ) | | | Relative Change (%) | | | | | | | | | | | | | |
|-----------------------|------------------------|------------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 1,460,826 | 2,075,954 | 3.2 | 2.6 | -0.1 | 1.1 | 2.0 | 3.9 | 5.4 | 60.9 | -28.9 | -1.6 | 1.7 | 0.8 | 3.1 | 42.1 |
| Austria | 140,786 | 131,111 | 5.9 | -24.9 | -12.4 | -0.6 | 15.5 | 0.9 | 4.2 | -12.8 | -1.8 | 15.3 | 4.1 | -1.8 | 9.6 | -6.9 |
| Belarus | | 27,920 | | | | | | | | | | | | | | |
| Belgium | 422,778 | 276,806 | -2.7 | -6.4 | -3.9 | 2.8 | -3.3 | -4.4 | -8.7 | 4.8 | -14.3 | 7.1 | -9.2 | -0.2 | -1.1 | -34.5 |
| Bulgaria | 422,902 | 290,822 | -12.2 | -2.0 | 4.9 | -6.1 | 2.1 | 0.7 | 4.8 | -13.9 | -8.8 | 0.8 | 8.8 | -6.6 | 9.2 | -31.2 |
| Canada | 1,050,170 | 1,384,280 | 3.2 | 3.5 | -7.9 | 4.5 | 2.0 | 1.7 | 5.9 | 8.3 | 0.3 | 8.1 | -0.3 | -1.9 | 1.6 | 31.8 |
| Croatia | | 27,558 | | | | | | | | | | | | | | |
| Czech Republic | | 771,390 | | | | | | | | | | | | | | |
| Denmark | 254,835 | 238,987 | 35.7 | -16.7 | 4.8 | 7.5 | -16.3 | 37.4 | -25.6 | -15.1 | -16.0 | -16.2 | 5.7 | 0.2 | 36.0 | -6.2 |
| Estonia | | 140,656 | | | | | | | | | | | | | | |
| European Community | 12,045,919 | 8,920,363 | -4.4 | -7.7 | -8.1 | -1.2 | -2.4 | -2.0 | -5.2 | -0.7 | -5.1 | 3.9 | 0.6 | 0.5 | 2.9 | -25.9 |
| Finland | 166,829 | 244,048 | -2.4 | -12.5 | 13.5 | 32.4 | -16.9 | 24.0 | -6.4 | -28.0 | 0.6 | -0.5 | 12.4 | 10.2 | 32.2 | 46.3 |
| France | 647,675 | 440,582 | 11.2 | -8.6 | -24.3 | -2.0 | 0.1 | 6.3 | -10.8 | 20.1 | -10.5 | -2.3 | -13.5 | 0.4 | 4.4 | -32.0 |
| Germany | 5,520,367 | 3,666,308 | -11.6 | -10.2 | -5.8 | -3.2 | -2.8 | -0.5 | -4.2 | -2.1 | -4.4 | 4.1 | -0.1 | 0.8 | 1.0 | -33.6 |
| Greece | 340,468 | 378,813 | -3.9 | 3.7 | 0.0 | 4.2 | -4.0 | -2.6 | 7.7 | 4.5 | -3.9 | 7.5 | 2.2 | -3.4 | -0.2 | 11.3 |
| Hungary | 348,762 | 155,135 | -3.6 | -18.7 | -4.5 | -7.4 | -2.9 | 2.3 | -5.2 | -2.3 | 1.0 | -4.9 | -6.9 | -2.0 | 5.4 | -55.5 |
| Iceland | 521 | 332 | -9.1 | -30.4 | 14.7 | -2.9 | -34.0 | -24.7 | 64.0 | 27.8 | -6.2 | 3.6 | 31.4 | -25.0 | -9.3 | -36.3 |
| Ireland | 146,999 | 101,351 | -2.6 | -0.3 | -10.1 | 1.9 | -0.5 | -3.5 | 1.5 | -0.3 | -13.0 | -1.0 | 4.2 | -3.7 | -7.6 | -31.1 |
| Italy | 619,789 | 618,124 | -6.1 | -11.6 | -11.5 | 5.1 | 7.3 | -8.1 | -1.6 | 4.6 | 0.2 | 5.4 | 7.3 | 3.4 | 8.5 | -0.3 |
| Japan | 3,411,531 | 4,603,298 | -2.3 | 0.3 | 2.2 | 4.7 | 3.5 | 5.2 | 6.0 | -7.0 | 4.2 | 4.2 | -0.1 | 5.6 | 4.5 | 34.9 |
| Latvia | 30,535 | 5,689 | -19.0 | -5.9 | -7.9 | -25.1 | -28.5 | -2.7 | -12.8 | -28.6 | -26.4 | 2.6 | -6.2 | -20.4 | 45.2 | -81.4 |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | 10,862 | | | | | | | | | | | | | | |
| Luxembourg | | 3,134 | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 300,496 | 290,724 | -8.9 | 0.2 | -0.8 | 7.2 | 4.4 | -4.5 | -4.4 | 3.9 | -14.8 | 7.4 | 6.7 | 0.2 | 2.9 | -3.3 |
| New Zealand | 35,557 | 61,610 | -9.1 | 13.4 | -3.8 | -4.9 | -2.4 | -0.7 | 17.1 | -14.9 | 2.0 | -9.2 | 32.3 | -3.4 | 60.7 | 73.3 |
| Norway | 6,911 | 6,516 | 1.5 | -1.1 | 15.0 | 12.8 | 2.3 | -3.0 | 9.8 | -5.0 | -12.1 | 0.3 | -13.7 | -7.6 | -0.4 | -5.7 |
| Portugal | 108,813 | 135,218 | 6.3 | 1.9 | 6.3 | 4.9 | 10.2 | -7.1 | 1.2 | -10.3 | 22.4 | 0.3 | -11.1 | 7.7 | -5.8 | 24.3 |
| Romania | 445,060 | 343,430 | -16.0 | 21.3 | 8.5 | -1.5 | 4.2 | 1.1 | -18.2 | -17.2 | -7.2 | 10.7 | 8.5 | 7.5 | 13.3 | -22.8 |
| Slovakia | | 116,355 | | | | | | | | | | | | | | |
| Slovenia | 84,360 | 62,711 | -7.1 | 5.8 | -4.5 | -8.0 | 2.0 | -6.4 | 8.1 | 6.6 | -10.8 | 1.6 | 10.0 | 5.8 | -5.3 | -25.7 |
| Spain | 737,052 | 792,939 | 2.0 | 3.3 | -7.4 | 2.6 | 2.6 | -17.9 | 13.2 | -2.2 | 13.5 | 6.1 | -8.9 | 14.0 | -7.9 | 7.6 |
| Sweden | 99,332 | 94,840 | 2.2 | -3.7 | -6.7 | -1.6 | 4.3 | 8.6 | -9.3 | -1.5 | -8.3 | -0.4 | 8.0 | 1.1 | 4.7 | -4.5 |
| Switzerland | 16,835 | 6,135 | -21.1 | -27.0 | -12.0 | 5.1 | 3.9 | -28.5 | -23.6 | -13.2 | 2.3 | 41.7 | 3.2 | -2.7 | -4.6 | -63.6 |
| Ukraine | 2,145,814 | 672,790 | 5.5 | -9.0 | -6.2 | -20.2 | -5.6 | -16.3 | -18.1 | -31.0 | 1.9 | -8.6 | 2.2 | 0.7 | 2.1 | -68.6 |
| United Kingdom | 2,526,963 | 1,507,379 | 0.5 | -6.1 | -13.3 | -6.8 | -5.3 | -6.9 | -12.0 | 0.8 | -11.8 | 5.2 | 9.7 | -7.6 | 6.3 | -40.3 |
| United States | 19,058,079 | 22,741,574 | -0.3 | 0.9 | 4.0 | 0.5 | 0.8 | 4.8 | 2.5 | 0.8 | 0.0 | 4.6 | -3.2 | 0.6 | 2.0 | 19.3 |

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 Other.

^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 1.10

Stationary combustion by fuel: gaseous fuels – trend information

| Fuel consumption (TJ) | | | Relative Change (%) | | | | | | | | | | | | | |
|-----------------------|------------------------|------------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 647,629 | 932,822 | -4.2 | 3.9 | 4.7 | 3.6 | 8.0 | 0.3 | 2.5 | 4.6 | 4.6 | 6.0 | 3.1 | 1.1 | -0.5 | 44.0 |
| Austria | 197,550 | 292,452 | 5.5 | 0.6 | 4.4 | 5.2 | 8.5 | 8.3 | -3.6 | 1.4 | 0.5 | -4.6 | 7.1 | -0.5 | 8.4 | 48.0 |
| Belarus | | 593,414 | | | | | | | | | | | | | | |
| Belgium | 322,187 | 554,468 | 6.7 | 1.0 | 4.9 | 2.4 | 16.4 | 7.8 | -6.6 | 12.8 | 6.2 | 0.4 | -0.5 | 2.0 | 3.8 | 72.1 |
| Bulgaria | 201,521 | 94,856 | -16.3 | -11.9 | -7.2 | -0.9 | 23.0 | -1.8 | -17.0 | -15.6 | -14.4 | 6.5 | -9.5 | -10.4 | 3.9 | -52.9 |
| Canada | 2,231,811 | 3,098,880 | -1.4 | 5.0 | 3.4 | 4.1 | 3.1 | 4.6 | -1.4 | -1.3 | 7.8 | 8.0 | -5.1 | 4.6 | 2.7 | 38.9 |
| Croatia | | 77,137 | | | | | | | | | | | | | | |
| Czech Republic | | 327,668 | | | | | | | | | | | | | | |
| Denmark | 76,092 | 195,005 | 13.2 | 5.1 | 13.3 | 11.8 | 15.8 | 17.8 | 5.3 | 8.6 | 5.1 | -0.9 | 4.1 | -0.1 | 0.7 | 156.3 |
| Estonia | | 27,509 | | | | | | | | | | | | | | |
| European Community | 8,686,477 | 14,514,324 | 8.4 | -0.4 | 6.1 | 1.8 | 6.9 | 11.1 | -0.1 | 4.6 | 4.4 | 2.0 | 3.6 | 0.4 | 4.4 | 67.1 |
| Finland | 91,668 | 171,233 | 8.5 | 7.3 | -0.9 | 8.4 | 4.1 | 4.5 | -1.5 | 15.2 | 0.3 | 3.3 | 6.6 | -0.6 | 10.0 | 86.8 |
| France | 977,953 | 1,409,497 | 12.6 | -1.1 | 2.2 | -1.5 | 2.2 | 11.2 | -1.3 | 6.0 | -2.1 | 2.8 | 6.0 | -2.7 | 4.1 | 44.1 |
| Germany | 2,043,699 | 2,996,729 | 7.4 | -0.8 | 6.0 | 4.5 | 6.8 | 11.7 | -4.4 | 1.5 | 0.3 | -1.8 | 6.1 | -0.6 | 3.2 | 46.6 |
| Greece | 6,405 | 84,252 | -1.4 | -6.5 | -23.5 | -43.2 | -4.8 | 9.3 | 183.9 | 300.4 | 68.2 | 38.8 | -1.9 | 7.8 | 12.5 | 1,215.4 |
| Hungary | 383,623 | 493,534 | -0.8 | -12.1 | 7.6 | 1.0 | 8.7 | 11.6 | -5.2 | 0.7 | 1.3 | -2.5 | 10.9 | 0.3 | 9.8 | 28.7 |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | 59,411 | 150,616 | 4.0 | 0.6 | 19.1 | -2.8 | 11.1 | 9.2 | 8.6 | 5.7 | 8.7 | 16.5 | 2.1 | 7.3 | 8.4 | 153.5 |
| Italy | 1,537,487 | 2,604,377 | 6.1 | -0.4 | 4.1 | -3.1 | 10.1 | 3.6 | 3.7 | 7.9 | 8.7 | 4.1 | 0.4 | -0.6 | 10.1 | 69.4 |
| Japan | 2,089,056 | 3,356,636 | 7.2 | 1.1 | 2.3 | 5.7 | 3.4 | 4.9 | 4.3 | 2.5 | 6.1 | 3.7 | -0.1 | 3.5 | 4.0 | 60.7 |
| Latvia | 97,345 | 55,641 | 4.0 | -31.4 | -22.6 | -35.7 | 19.1 | -14.6 | 22.5 | -2.1 | -4.1 | 10.9 | 16.0 | 2.3 | 4.5 | -42.8 |
| Liechtenstein | | 1,266 | | | | | | | | | | | | | | |
| Lithuania | | 84,899 | | | | | | | | | | | | | | |
| Luxembourg | | 48,051 | | | | | | | | | | | | | | |
| Monaco | | 220 | | | | | | | | | | | | | | |
| Netherlands | 1,195,723 | 1,412,979 | 11.8 | -2.7 | 3.8 | -4.3 | 3.1 | 11.5 | -6.9 | -0.3 | -2.9 | 1.0 | 3.8 | -0.3 | 1.0 | 18.2 |
| New Zealand | 168,205 | 143,909 | 0.9 | 10.4 | -5.6 | -12.4 | -18.6 | 4.9 | 13.5 | -12.5 | 12.7 | -0.4 | 11.6 | -8.7 | -4.3 | -14.4 |
| Norway | 92,650 | 175,632 | 6.9 | 6.5 | 5.4 | 9.5 | 1.7 | 6.5 | 6.6 | -4.5 | -6.0 | 15.7 | 9.9 | 2.3 | 7.1 | 89.6 |
| Portugal | | 118,346 | | | | | | | | 755.2 | 263.0 | -18.0 | 23.4 | 23.4 | 1.1 | |
| Romania | 1,269,363 | 649,830 | -19.9 | -10.0 | -3.7 | -1.6 | 4.9 | -3.3 | -14.9 | -6.7 | -11.7 | 1.6 | -1.5 | 6.2 | 7.9 | -48.8 |
| Slovakia | | 216,510 | | | | | | | | | | | | | | |
| Slovenia | 25,591 | 32,701 | -0.1 | -14.6 | -1.6 | -1.5 | 5.5 | 5.8 | 2.0 | 3.6 | 2.4 | 2.0 | 2.4 | -2.3 | 9.7 | 27.8 |
| Spain | 190,057 | 898,154 | 11.2 | 5.5 | 0.9 | 6.2 | 29.0 | 12.6 | 33.3 | 2.5 | 15.5 | 16.1 | 7.5 | 15.8 | 13.3 | 372.6 |
| Sweden | 22,162 | 31,982 | 8.9 | 18.5 | 1.8 | -2.8 | 1.6 | 6.6 | -2.2 | -1.5 | -0.6 | -6.6 | 19.2 | 2.4 | -4.6 | 44.3 |
| Switzerland | 67,700 | 109,347 | 12.8 | 5.1 | 4.9 | -1.6 | 10.2 | 8.2 | -3.5 | 2.9 | 3.6 | -0.6 | 4.1 | -1.8 | 5.9 | 61.5 |
| Ukraine | 4,020,306 | 2,333,109 | 10.2 | -13.0 | -10.9 | -20.1 | -6.9 | 1.6 | -5.0 | -6.9 | 0.1 | -2.9 | -2.7 | -2.7 | 10.5 | -42.0 |
| United Kingdom | 1,889,760 | 3,544,846 | 7.6 | 0.0 | 12.2 | 6.6 | 5.9 | 16.3 | 2.6 | 4.6 | 6.7 | 2.0 | 1.8 | -1.3 | 0.8 | 87.6 |
| United States | 19,715,822 | 23,105,035 | 2.5 | 3.6 | 2.5 | 2.0 | 4.5 | 1.8 | 0.4 | -1.3 | 0.3 | 4.4 | -4.0 | 3.2 | -3.5 | 17.2 |

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 Other.

^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 1.11**Stationary combustion by fuel: biomass – trend information**

| Fuel consumption (TJ) | | | Relative Change (%) | | | | | | | | | | | | | Base year ^a to 2003 |
|-----------------------|------------------------|-----------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | |
| Australia | 179,114 | 186,576 | -0.6 | -7.4 | 10.7 | 5.0 | 4.3 | 0.0 | 9.7 | 273.8 | -72.2 | -1.8 | -5.3 | -15.7 | 4.5 | 4.2 |
| Austria | 94,375 | 139,820 | 9.0 | -2.5 | 5.1 | -3.6 | 6.4 | 6.6 | 0.2 | -4.8 | 10.8 | -5.8 | 11.7 | -0.9 | 10.2 | 48.2 |
| Belarus | | 37,094 | | | | | | | | | | | | | | |
| Belgium | 18,965 | 28,497 | -20.3 | 10.4 | -22.3 | 36.2 | 13.1 | 6.3 | -5.6 | 2.0 | 9.4 | -24.4 | 53.2 | 6.4 | 3.3 | 50.3 |
| Bulgaria | 14,879 | 34,555 | -0.4 | -1.4 | -9.3 | 10.2 | 21.2 | 3.2 | 4.4 | 42.9 | 0.4 | 22.5 | -2.7 | 17.9 | 0.6 | 132.2 |
| Canada | 502,969 | 654,298 | -1.1 | -16.7 | 22.0 | 15.8 | -1.3 | -0.7 | 0.3 | 3.4 | 9.0 | -0.1 | -6.0 | 6.9 | 0.4 | 30.1 |
| Croatia | | 15,958 | | | | | | | | | | | | | | |
| Czech Republic | | 27,018 | | | | | | | | | | | | | | |
| Denmark | 47,723 | 92,665 | 8.4 | 5.0 | 4.6 | -0.8 | 6.0 | 6.9 | 4.1 | -0.7 | 5.7 | 3.5 | 7.7 | 9.7 | 8.5 | 94.2 |
| Estonia | | 24,083 | | | | | | | | | | | | | | |
| European Community | 1,469,372 | 2,049,586 | 7.9 | -0.5 | 2.9 | -1.4 | 1.9 | 3.7 | 4.8 | 1.1 | 3.2 | -0.6 | 4.2 | 0.4 | 6.5 | 39.5 |
| Finland | 175,110 | 286,574 | -3.1 | 1.8 | 18.4 | 3.5 | -0.1 | -0.4 | 15.6 | 2.7 | 6.5 | 0.7 | -5.0 | 10.3 | 2.0 | 63.7 |
| France | 441,224 | 450,507 | 19.1 | -4.7 | -0.3 | -11.4 | 1.5 | 5.8 | -6.9 | 4.5 | -1.1 | -2.7 | 1.3 | -7.7 | 8.2 | 2.1 |
| Germany | 134,838 | 248,547 | 0.7 | 0.2 | 1.6 | 0.8 | -1.5 | 1.2 | 45.8 | 3.3 | 2.7 | 2.8 | 2.9 | -0.9 | 10.5 | 84.3 |
| Greece | 37,384 | 37,835 | 0.4 | 0.2 | 0.1 | -0.6 | 0.4 | 1.2 | 0.3 | -0.4 | 0.4 | 3.6 | -0.5 | 1.1 | -4.6 | 1.2 |
| Hungary | 13,095 | 19,534 | 42.8 | -0.9 | 4.2 | 1.0 | 13.4 | -8.8 | 1.5 | -7.7 | 0.3 | 9.7 | -9.3 | 7.8 | 33.9 | 49.2 |
| Iceland | 278 | 159 | -19.9 | -2.5 | -22.1 | -16.0 | -9.0 | 2.2 | -11.4 | -57.0 | 348.1 | 20.0 | -35.8 | 21.2 | -24.3 | -42.8 |
| Ireland | 4,564 | 7,120 | 0.9 | -10.9 | 5.1 | 0.0 | 72.8 | -21.3 | -0.7 | 2.2 | -4.9 | 3.7 | 28.6 | -2.3 | -3.3 | 56.0 |
| Italy | 59,621 | 149,612 | 12.4 | 6.0 | 0.2 | 9.1 | 11.2 | -0.9 | 12.2 | -10.6 | 17.4 | 4.7 | 10.4 | 9.4 | 17.5 | 150.9 |
| Japan | 198,347 | 194,076 | 0.7 | -2.4 | -4.6 | 1.4 | 3.9 | 0.4 | 3.1 | -8.1 | 4.0 | 3.3 | -8.7 | 4.2 | 2.1 | -2.2 |
| Latvia | 27,502 | 52,842 | -48.0 | 9.5 | 16.2 | 33.3 | 82.7 | 7.2 | 1.4 | 3.1 | 0.3 | -6.3 | 9.0 | 2.5 | 1.6 | 92.1 |
| Liechtenstein | | 97 | | | | | | | | | | | | | | |
| Lithuania | | 29,954 | | | | | | | | | | | | | | |
| Luxembourg | | 438 | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 52,406 | 76,913 | 24.0 | -1.7 | 5.4 | -6.6 | -18.1 | 9.0 | 11.5 | 3.0 | 0.9 | 12.7 | 3.9 | 1.9 | -0.8 | 46.8 |
| New Zealand | 25,012 | 34,841 | 7.4 | -4.7 | 1.2 | 17.6 | 1.0 | -1.8 | -5.8 | 4.4 | 23.1 | 2.2 | -13.7 | 4.9 | 3.0 | 39.3 |
| Norway | 37,657 | 48,897 | -6.5 | -1.3 | 6.3 | 7.7 | 1.3 | 2.4 | 5.0 | 0.2 | 5.1 | 1.0 | 12.0 | -8.8 | 3.8 | 29.8 |
| Portugal | 104,991 | 112,771 | 2.0 | -0.3 | -1.6 | -2.7 | 1.4 | 0.6 | 3.5 | -0.5 | 1.7 | 0.2 | 0.0 | 1.2 | 1.9 | 7.4 |
| Romania | 21,631 | 118,905 | -16.0 | 65.6 | 10.2 | 15.6 | 221.2 | 30.6 | -33.4 | -9.9 | -5.8 | -1.6 | -22.8 | 10.3 | 21.0 | 449.7 |
| Slovakia | | 5,498 | | | | | | | | | | | | | | |
| Slovenia | 20,985 | 18,533 | -2.8 | 0.5 | -0.6 | 1.3 | -1.3 | 2.1 | 1.5 | 0.9 | -12.0 | 0.8 | -2.3 | 1.9 | 6.2 | -11.7 |
| Spain | 150,722 | 152,640 | -0.6 | -1.9 | -2.4 | -0.1 | -0.2 | -2.0 | 5.5 | -2.4 | 0.5 | 1.2 | 0.8 | 1.3 | 1.9 | 1.3 |
| Sweden | 119,056 | 191,574 | 4.3 | 7.2 | 6.9 | 11.5 | 5.6 | 10.9 | -7.9 | 2.4 | -0.9 | -8.3 | 19.9 | -4.1 | 4.5 | 60.9 |
| Switzerland | 17,130 | 22,580 | 13.2 | -0.9 | 2.5 | -4.0 | 9.0 | 10.8 | -10.3 | 2.5 | -1.6 | -3.0 | 4.2 | 1.2 | 6.9 | 31.8 |
| Ukraine | 36,403 | 27,522 | -75.8 | 104.5 | -1.7 | 9.1 | -10.3 | -2.1 | 9.8 | 1.4 | -6.0 | 9.5 | 12.3 | 16.5 | 8.4 | -24.4 |
| United Kingdom | 27,815 | 74,072 | 5.1 | 12.6 | 4.0 | 31.8 | 8.2 | 3.3 | 4.8 | 1.0 | 12.9 | 3.3 | 4.6 | 3.3 | 10.3 | 166.3 |
| United States | 2,311,176 | 2,201,261 | 0.0 | 4.6 | -2.8 | 4.0 | 4.5 | 2.0 | -4.8 | -7.4 | 2.2 | 1.5 | -12.3 | 2.8 | 2.5 | -4.8 |

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 Other.

^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 1.12**Stationary combustion consumption by fuel: other fuels – trend information**

| Fuel consumption (TJ) | | | Relative Change (%) | | | | | | | | | | | | | Base year ^a to 2003 |
|-----------------------|------------------------|---------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | |
| Australia | | | | | | | | | | | | | | | | |
| Austria | 8,990 | 18,855 | 12.1 | 31.7 | -17.7 | 7.3 | 2.8 | 26.3 | -3.8 | -6.7 | 5.9 | -1.9 | 9.1 | 18.9 | 2.6 | 109.7 |
| Belarus | | 2,696 | | | | | | | | | | | | | | |
| Belgium | 32,842 | 90,635 | 15.0 | 2.5 | -0.1 | 53.4 | 10.3 | 6.1 | 18.0 | 4.6 | 6.4 | 6.6 | 0.0 | -6.8 | 0.3 | 176.0 |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | | | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | | | | | | | | | | | | | | | | |
| Estonia | | 185 | | | | | | | | | | | | | | |
| European Community | 314,659 | 508,890 | 2.8 | 1.9 | 8.3 | 13.7 | -12.4 | 4.1 | 5.7 | 4.3 | 3.8 | -0.3 | 7.8 | 3.0 | 8.5 | 61.7 |
| Finland | 53,997 | 104,585 | 8.0 | -2.1 | 11.6 | 13.0 | 9.4 | 7.3 | 2.8 | -5.8 | -6.6 | -12.8 | 38.9 | 2.6 | 10.0 | 93.7 |
| France | 55,017 | 119,637 | 3.2 | 10.5 | 3.9 | 1.7 | 3.4 | -0.7 | -0.6 | 2.9 | 12.2 | 5.5 | 0.1 | 14.4 | 26.7 | 117.5 |
| Germany | 121,849 | 53,197 | -8.4 | -0.6 | 6.1 | 12.5 | -55.3 | -2.6 | -2.5 | 10.8 | 7.7 | -6.5 | 5.8 | -2.9 | -17.3 | -56.3 |
| Greece | | | | | | | | | | | | | | | | |
| Hungary | 22,256 | 9,109 | -16.6 | -27.2 | 2.9 | 16.6 | 97.9 | -27.6 | -18.4 | 56.5 | -24.6 | -43.3 | 43.5 | -22.5 | -26.8 | -59.1 |
| Iceland | | 74 | | | | 0.0 | 24.4 | 27.5 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 4.1 | |
| Ireland | | | | | | | | | | | 53.8 | -28.1 | | | | |
| Italy | 4,920 | 14,074 | 7.7 | 17.1 | 44.7 | 21.6 | 34.3 | -27.8 | -7.5 | -10.0 | 21.3 | 17.4 | 9.7 | -7.1 | 10.1 | 186.1 |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | 291 | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | | | | |
| Luxembourg | | -110 | | | | | | | | | | | | | | |
| Monaco | | 589 | | | | | | | | | | | | | | |
| Netherlands | 8,048 | 21,674 | -0.3 | 0.1 | 18.2 | -0.9 | 16.9 | 33.3 | 19.5 | 8.2 | 6.1 | 0.3 | 0.8 | 6.6 | 0.0 | 169.3 |
| New Zealand | | | | | | | | | | | | | | | | |
| Norway | 4,174 | 7,939 | 3.3 | -0.6 | 9.5 | -3.5 | 4.0 | -1.4 | 3.6 | 8.2 | 11.6 | 5.4 | 10.2 | -0.7 | 18.6 | 90.2 |
| Portugal | 1,239 | 1,228 | -5.0 | 38.0 | -4.1 | -44.6 | 45.2 | 9.2 | 16.8 | 26.9 | 14.8 | 1.6 | -38.8 | -34.2 | 29.0 | -0.9 |
| Romania | | | | | | | | | | | | | | | | |
| Slovakia | | 69,267 | | | | | | | | | | | | | | |
| Slovenia | 139 | 208 | -37.4 | 48.4 | -50.0 | 80.4 | 31.3 | 4.3 | -7.1 | 29.7 | 59.8 | -5.9 | -26.9 | 1.4 | 36.3 | 49.6 |
| Spain | 3,103 | 18,404 | 0.8 | 34.5 | 2.8 | -7.5 | 42.7 | 37.7 | 46.0 | -0.9 | 11.9 | 1.0 | 1.4 | 12.0 | 26.2 | 493.1 |
| Sweden | 18,285 | 36,167 | 34.9 | -20.9 | 12.6 | 4.3 | -7.8 | 6.0 | 3.7 | 14.7 | -12.8 | 6.8 | 0.5 | 5.8 | 37.1 | 97.8 |
| Switzerland | 11,099 | 19,858 | 0.8 | 4.9 | 4.1 | -0.1 | 13.0 | 4.5 | 5.0 | 1.7 | 4.5 | 10.4 | 8.1 | 2.5 | 0.7 | 78.9 |
| Ukraine | 26,613 | 16,930 | -45.9 | 22.1 | 14.9 | 128.7 | -71.9 | -21.3 | 36.6 | 43.7 | -0.7 | -12.5 | -2.9 | -6.8 | 7.4 | -36.4 |
| United Kingdom | 6,368 | 30,543 | 3.1 | 12.2 | 29.7 | 68.5 | 10.4 | 3.2 | 10.7 | 28.5 | -0.8 | -1.2 | 8.3 | 8.3 | 1.7 | 379.6 |
| United States | 412,051 | 438,615 | -14.1 | 12.7 | -4.9 | 2.5 | 1.9 | 0.6 | -5.5 | -7.2 | -3.8 | 4.9 | 11.9 | 12.3 | -1.1 | 6.4 |

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

^a 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 1.13**Contribution of fuels in total energy consumption in stationary combustion (%)**

| | Liquid fuel | | Solid fuel | | Gaseous fuel | | Biomass | | Other fuel | |
|--------------------|------------------------|------|------------------------|------|------------------------|------|------------------------|------|------------------------|------|
| | Base year ^a | 2003 | Base year ^a | 2003 | Base year ^a | 2003 | Base year ^a | 2003 | Base year ^a | 2003 |
| Australia | 14.9 | 11.9 | 54.3 | 57.3 | 24.1 | 25.7 | 6.7 | 5.1 | | |
| Austria | 32.6 | 27.0 | 21.5 | 16.4 | 30.1 | 36.7 | 14.4 | 17.5 | 1.4 | 2.4 |
| Belarus | | 13.7 | | 3.6 | | 77.5 | | 4.8 | | 0.4 |
| Belgium | 33.8 | 29.9 | 35.1 | 20.4 | 26.8 | 40.9 | 1.6 | 2.1 | 2.7 | 6.7 |
| Bulgaria | 30.2 | 12.4 | 46.2 | 60.6 | 22.0 | 19.8 | 1.6 | 7.2 | | |
| Canada | 16.3 | 12.2 | 23.2 | 23.7 | 49.3 | 53.0 | 11.1 | 11.2 | | |
| Croatia | | 48.4 | | 11.8 | | 33.0 | | 6.8 | | |
| Czech Republic | | 10.5 | | 61.3 | | 26.0 | | 2.1 | | |
| Denmark | 29.9 | 20.1 | 47.2 | 36.2 | 14.1 | 29.6 | 8.8 | 14.1 | | |
| Estonia | | 6.4 | | 68.4 | | 13.4 | | 11.7 | | 0.1 |
| European Community | 30.9 | 25.8 | 37.0 | 25.5 | 26.6 | 41.4 | 4.5 | 5.9 | 1.0 | 1.5 |
| Finland | 29.4 | 19.8 | 24.2 | 24.3 | 13.3 | 17.0 | 25.4 | 28.5 | 7.8 | 10.4 |
| France | 41.5 | 35.5 | 17.8 | 11.7 | 26.9 | 37.6 | 12.2 | 12.0 | 1.5 | 3.2 |
| Germany | 20.8 | 20.1 | 55.9 | 42.1 | 20.7 | 34.4 | 1.4 | 2.9 | 1.2 | 0.6 |
| Greece | 43.8 | 46.3 | 49.8 | 40.6 | 0.9 | 9.0 | 5.5 | 4.1 | | |
| Hungary | 24.9 | 12.6 | 34.1 | 20.0 | 37.5 | 63.7 | 1.3 | 2.5 | 2.2 | 1.2 |
| Iceland | 94.5 | 96.3 | 3.6 | 2.2 | | | 1.9 | 1.0 | | 0.5 |
| Ireland | 31.0 | 37.8 | 48.1 | 24.3 | 19.4 | 36.1 | 1.5 | 1.7 | | |
| Italy | 48.2 | 32.3 | 14.5 | 12.4 | 35.9 | 52.1 | 1.4 | 3.0 | 0.1 | 0.3 |
| Japan | 53.1 | 39.8 | 28.1 | 34.0 | 17.2 | 24.8 | 1.6 | 1.4 | | |
| Latvia | 39.1 | 10.8 | 12.0 | 4.4 | 38.1 | 43.3 | 10.8 | 41.2 | | 0.2 |
| Liechtenstein | | 43.9 | | | | 52.1 | | 4.0 | | |
| Lithuania | | 15.6 | | 7.3 | | 57.0 | | 20.1 | | |
| Luxembourg | | 21.0 | | 4.8 | | 73.7 | | 0.7 | | -0.2 |
| Monaco | | 36.9 | | | | 17.1 | | | | 45.9 |
| Netherlands | 19.1 | 16.5 | 15.6 | 13.5 | 62.2 | 65.4 | 2.7 | 3.6 | 0.4 | 1.0 |
| New Zealand | 13.9 | 14.6 | 13.4 | 21.9 | 63.3 | 51.1 | 9.4 | 12.4 | | |
| Norway | 48.7 | 37.3 | 2.5 | 1.7 | 33.6 | 46.1 | 13.7 | 12.8 | 1.5 | 2.1 |
| Portugal | 54.7 | 40.8 | 22.9 | 21.8 | | 19.1 | 22.1 | 18.2 | 0.3 | 0.2 |
| Romania | 17.9 | 14.8 | 21.1 | 26.3 | 60.0 | 49.8 | 1.0 | 9.1 | | |
| Slovakia | | 7.5 | | 26.4 | | 49.1 | | 1.2 | | 15.7 |
| Slovenia | 21.7 | 26.2 | 50.4 | 40.6 | 15.3 | 21.2 | 12.5 | 12.0 | 0.1 | 0.1 |
| Spain | 44.2 | 36.0 | 38.0 | 27.3 | 9.8 | 30.9 | 7.8 | 5.2 | 0.2 | 0.6 |
| Sweden | 54.3 | 43.7 | 17.5 | 15.1 | 3.9 | 5.1 | 21.0 | 30.4 | 3.2 | 5.7 |
| Switzerland | 70.8 | 61.9 | 4.4 | 1.5 | 17.5 | 26.4 | 4.4 | 5.5 | 2.9 | 4.8 |
| Ukraine | 22.9 | 10.3 | 26.6 | 19.8 | 49.8 | 68.6 | 0.5 | 0.8 | 0.3 | 0.5 |
| United Kingdom | 21.8 | 14.0 | 44.4 | 25.1 | 33.2 | 59.1 | 0.5 | 1.2 | 0.1 | 0.5 |
| United States | 24.0 | 22.8 | 34.9 | 36.2 | 36.1 | 36.8 | 4.2 | 3.5 | 0.8 | 0.7 |

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

^a 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 1.14

Energy industries: all fuels – trend information

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|-----------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 141,806 | 208,303 | 2.5 | 2.2 | 0.9 | 0.7 | 4.0 | 4.2 | 3.7 | 9.1 | 2.4 | 1.8 | 3.0 | 1.8 | 3.1 | 46.9 |
| Austria | 13,622 | 16,030 | 5.8 | -21.3 | 0.3 | 2.3 | 8.9 | 8.6 | -2.8 | -3.5 | -5.0 | 0.1 | 9.3 | -0.6 | 20.1 | 17.7 |
| Belarus | | 32,962 | | | | | | | | | | | | -0.8 | -0.2 | |
| Belgium | 29,907 | 29,052 | -0.9 | -4.0 | -1.0 | 5.4 | -1.7 | -1.0 | -3.9 | 8.3 | -10.8 | 4.3 | -6.2 | 5.6 | 4.7 | -2.9 |
| Bulgaria | 43,217 | 28,330 | -6.3 | -8.7 | 0.7 | -9.2 | 2.0 | -2.9 | 0.9 | -12.5 | -4.9 | 1.8 | 10.8 | -8.9 | 7.0 | -34.4 |
| Canada | 144,277 | 201,896 | -0.4 | 6.0 | -5.5 | 2.2 | 3.9 | -0.5 | 5.0 | 10.8 | 3.5 | 6.7 | 1.6 | 0.1 | 1.6 | 39.9 |
| Croatia | 5,897 | 7,756 | -34.8 | 17.3 | 14.9 | -24.3 | 13.6 | -3.4 | 13.1 | 13.5 | 3.0 | -9.5 | 9.6 | 15.0 | 19.4 | 31.5 |
| Czech Republic | 59,171 | 58,924 | | | | | 4.1 | -0.4 | 2.4 | -0.8 | -8.3 | 11.7 | -1.0 | -3.0 | 2.1 | -0.4 |
| Denmark | 26,173 | 31,402 | 34.2 | -14.3 | 5.1 | 11.8 | -9.7 | 38.8 | -20.8 | -10.6 | -10.0 | -11.0 | 5.1 | 0.6 | 18.3 | 20.0 |
| Estonia | 29,753 | 15,855 | -3.7 | -23.0 | -22.9 | 4.5 | -7.9 | 4.7 | -1.6 | -12.2 | -8.9 | 3.5 | -0.1 | -0.1 | 14.0 | -46.7 |
| European Community | 1,151,697 | 1,189,920 | 0.5 | -3.3 | -4.3 | 0.5 | 0.9 | 1.2 | -3.0 | 3.1 | -2.2 | 3.1 | 2.0 | 3.2 | 2.0 | 3.3 |
| Finland | 18,517 | 36,047 | 3.2 | -8.4 | 13.9 | 23.6 | -8.9 | 22.5 | -10.3 | -13.3 | -1.7 | -5.8 | 35.1 | 8.2 | 24.5 | 94.7 |
| France | 68,016 | 63,802 | 17.7 | -9.3 | -18.2 | -6.2 | 4.9 | 7.5 | -5.5 | 20.8 | -9.4 | -2.2 | -10.2 | 8.0 | 3.5 | -6.2 |
| Germany | 413,945 | 362,582 | -3.1 | -5.5 | -2.7 | -0.9 | -2.9 | 1.6 | -5.0 | 0.7 | -4.1 | 3.9 | 1.6 | 2.1 | 1.7 | -12.4 |
| Greece | 43,194 | 56,100 | -2.7 | 4.5 | 0.6 | 4.5 | -2.7 | -1.9 | 8.0 | 5.5 | 0.6 | 8.9 | 1.0 | -0.6 | 1.8 | 29.9 |
| Hungary | 24,807 | 20,501 | 3.3 | 4.3 | 4.2 | -2.9 | -0.9 | 3.2 | -0.6 | 5.3 | -0.8 | -8.8 | 0.1 | -7.4 | 4.2 | -17.4 |
| Iceland | 21 | 14 | 7.6 | -4.4 | 5.0 | -0.6 | 10.8 | -18.8 | -23.6 | 146.5 | -45.2 | -30.2 | 0.9 | 4.0 | -7.0 | -32.0 |
| Ireland | 11,057 | 15,480 | 4.4 | 5.9 | 0.1 | 2.8 | 5.3 | 5.4 | 4.9 | 2.8 | 4.5 | 1.8 | 7.0 | -5.5 | -4.4 | 40.0 |
| Italy | 134,951 | 160,883 | -4.1 | -0.1 | -3.9 | 1.4 | 11.1 | -3.4 | 0.9 | 7.5 | -2.3 | 5.0 | 2.0 | 3.9 | 0.9 | 19.2 |
| Japan | 338,572 | 398,777 | 0.4 | 1.7 | -5.0 | 10.7 | -3.1 | 0.3 | -1.6 | -3.9 | 5.3 | 2.9 | -3.2 | 8.3 | 5.0 | 17.8 |
| Latvia | 9,863 | 2,416 | -7.9 | -24.7 | -12.0 | -20.6 | -14.1 | 7.5 | -12.9 | -8.3 | -11.1 | -13.6 | -4.0 | -5.4 | -1.8 | -75.5 |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | 16,352 | 5,360 | | | | | | | | | | | | -14.5 | 5.4 | -67.2 |
| Luxembourg | | 266 | | | | | | | | | | | | | | |
| Monaco | 28 | 33 | -1.7 | 10.0 | 9.2 | 8.3 | -0.3 | 7.3 | 12.0 | -5.8 | 1.1 | 3.1 | 5.9 | -10.2 | -16.9 | 18.9 |
| Netherlands | 51,626 | 67,347 | 1.3 | 0.1 | 4.5 | 5.0 | 6.4 | 1.8 | 1.2 | 3.8 | -5.9 | 2.8 | 6.5 | -1.0 | 1.1 | 30.5 |
| New Zealand | 6,025 | 7,582 | 1.2 | 23.7 | -13.4 | -17.5 | -13.3 | 12.1 | 30.6 | -24.4 | 23.8 | -5.7 | 19.8 | -11.3 | 18.1 | 25.8 |
| Norway | 6,514 | 12,714 | 4.9 | 8.8 | 4.2 | 9.1 | -1.8 | 10.2 | 3.9 | -3.5 | -1.2 | 9.1 | 15.5 | 1.9 | 9.2 | 95.2 |
| Portugal | 15,944 | 20,009 | 4.2 | 18.4 | -10.3 | -4.9 | 14.9 | -20.1 | 4.5 | 15.5 | 31.9 | -15.8 | 2.4 | 15.8 | -18.0 | 25.5 |
| Romania | 103,345 | 51,877 | -18.1 | -11.8 | 2.1 | -5.7 | 1.9 | 3.9 | -15.0 | -10.9 | -12.2 | 0.2 | 6.8 | 1.5 | 3.8 | -49.8 |
| Slovakia | | 13,374 | | | | | | | | | | | | | | |
| Slovenia | 6,701 | 6,160 | -14.7 | 9.7 | -1.3 | -9.2 | 6.4 | -5.0 | 7.5 | 4.2 | -11.9 | 5.3 | 13.6 | 2.7 | -3.8 | -8.1 |
| Spain | 77,493 | 105,332 | 0.9 | 9.5 | -7.0 | 0.3 | 7.7 | -14.7 | 16.6 | -1.3 | 19.1 | 4.4 | -5.7 | 14.4 | -7.2 | 35.9 |
| Sweden | 10,187 | 12,769 | 11.8 | 4.8 | -1.4 | 4.0 | -7.3 | 35.2 | -26.0 | 8.9 | -11.4 | -12.8 | 13.6 | 11.7 | 5.4 | 25.3 |
| Switzerland | 1,406 | 1,710 | 24.8 | 5.3 | -16.7 | 1.2 | 3.7 | 11.1 | -2.8 | 13.1 | -10.5 | -9.4 | 6.6 | 0.9 | -0.6 | 21.6 |
| Ukraine | 295,192 | 102,355 | -62.2 | 131.7 | -8.8 | -16.7 | -6.1 | -9.9 | -10.7 | -30.2 | 3.9 | -6.3 | -1.1 | -3.8 | 6.7 | -65.3 |
| United Kingdom | 235,786 | 212,729 | -0.2 | -4.7 | -7.9 | -2.3 | -0.8 | 0.6 | -6.3 | 3.1 | -5.2 | 6.3 | 5.5 | -1.5 | 4.5 | -9.8 |
| United States | 1,790,339 | 2,250,531 | -0.2 | 0.5 | 4.4 | 1.3 | 0.7 | 3.7 | 3.5 | 4.2 | 0.5 | 4.8 | -2.0 | 0.7 | 1.2 | 25.7 |

^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 1.15**Energy industries: liquid fuels – trend information**

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|---------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 8,779 | 9,361 | 4.9 | -9.3 | 4.6 | 0.7 | 10.1 | 3.4 | -11.5 | 7.2 | -5.2 | 1.7 | 1.1 | 2.5 | -1.4 | 6.6 |
| Austria | 3,182 | 3,168 | 6.9 | -0.3 | 24.9 | -0.2 | -11.8 | 0.2 | 9.3 | 7.6 | -12.1 | -20.8 | 3.7 | -5.7 | 5.8 | -0.4 |
| Belarus | | 4,908 | | | | | | | | | | | | | | |
| Belgium | 4,949 | 5,652 | 4.0 | 1.4 | -7.7 | 11.6 | -12.2 | 16.5 | 3.5 | 14.9 | -24.4 | -3.4 | 10.9 | -3.5 | 10.7 | 14.2 |
| Bulgaria | 8,520 | 737 | -39.9 | -22.7 | -2.2 | -14.1 | -8.2 | -11.3 | -26.8 | -69.5 | 27.5 | -27.2 | 2.6 | 5.9 | -6.1 | -91.4 |
| Canada | 28,543 | 32,216 | -8.8 | 6.4 | -7.4 | -7.0 | 3.2 | -5.0 | 8.3 | 14.0 | -7.7 | -3.3 | 10.1 | 6.5 | 6.6 | 12.9 |
| Croatia | | 4,189 | | | | | | | | | | | | | | |
| Czech Republic | | 2,017 | | | | | | | | | | | | | | |
| Denmark | 1,844 | 2,728 | 12.2 | 3.3 | 0.1 | 47.6 | 28.8 | 44.4 | -11.7 | -8.9 | -4.1 | -6.2 | 0.0 | -7.0 | -31.0 | 47.9 |
| Estonia | | 606 | | | | | | | | | | | | | | |
| European Community | 226,561 | 203,422 | 4.6 | 2.7 | -4.7 | 0.1 | 5.4 | -1.3 | -5.2 | 2.9 | -5.8 | -2.7 | 0.6 | 1.1 | -7.5 | -10.2 |
| Finland | 2,607 | 3,110 | 1.2 | -5.8 | -0.2 | 21.3 | -1.2 | 5.8 | -17.1 | 9.0 | 1.0 | -12.9 | 17.3 | 5.7 | 0.3 | 19.3 |
| France | 20,968 | 21,242 | 22.3 | -12.1 | -13.0 | 2.0 | 6.2 | 0.4 | 2.8 | 9.4 | -6.7 | -1.6 | -4.9 | -1.5 | 2.9 | 1.3 |
| Germany | 24,972 | 23,074 | 15.6 | -1.7 | -3.3 | -4.7 | -1.8 | -0.3 | -8.3 | 0.8 | -7.2 | 1.2 | -1.2 | 5.1 | 0.0 | -7.6 |
| Greece | 7,840 | 9,683 | 6.0 | -2.0 | 1.6 | 0.7 | 6.0 | 1.8 | -1.5 | -1.1 | -0.9 | 11.1 | -4.0 | 2.5 | 2.0 | 23.5 |
| Hungary | 4,430 | 1,452 | 77.8 | 32.9 | 31.8 | -6.1 | -7.2 | -16.6 | 15.1 | 0.8 | -12.5 | -20.4 | 3.0 | -49.2 | -17.0 | -67.2 |
| Iceland | 21 | 10 | 7.6 | -4.4 | -5.7 | -0.7 | 9.2 | -24.8 | -28.9 | 192.0 | -50.2 | -36.8 | 1.2 | 5.4 | -10.6 | -50.6 |
| Ireland | 1,268 | 2,364 | 46.4 | 1.9 | -1.9 | 22.5 | -4.4 | 0.3 | 31.0 | 25.5 | 28.4 | -17.8 | 13.0 | -23.3 | -27.8 | 86.5 |
| Italy | 79,633 | 66,561 | -0.3 | 9.2 | -1.6 | 0.9 | 7.5 | -3.3 | -1.8 | -1.4 | -11.4 | -0.4 | -3.1 | 1.3 | -11.3 | -16.4 |
| Japan | 153,987 | 75,608 | -4.6 | 2.4 | -16.4 | 17.4 | -15.0 | -6.5 | -13.8 | -11.8 | -1.5 | -9.6 | -23.7 | 22.2 | 2.0 | -50.9 |
| Latvia | 4,335 | 275 | -15.9 | -21.2 | -1.5 | 11.2 | -35.3 | 32.7 | -36.6 | -3.4 | -15.1 | -52.4 | -37.4 | -9.6 | -27.2 | -93.7 |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | 1,190 | | | | | | | | | | | | | | |
| Luxembourg | | 8 | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 10,207 | 11,137 | 0.5 | -8.0 | 10.2 | 3.4 | 16.8 | -3.9 | -0.5 | 2.8 | -4.7 | 2.8 | 5.3 | -13.9 | 1.5 | 9.1 |
| New Zealand | 226 | 208 | 1.5 | 77.8 | -33.3 | -38.4 | 60.9 | -25.0 | -24.4 | 24.0 | 14.9 | -22.9 | 7.2 | -5.3 | 22.0 | -7.9 |
| Norway | 1,192 | 2,024 | -0.9 | 16.0 | 0.7 | 11.6 | -12.6 | 28.2 | -5.9 | 3.7 | -3.7 | -15.3 | 22.1 | -6.7 | 29.3 | 69.9 |
| Portugal | 8,260 | 5,687 | 2.4 | 33.4 | -25.4 | -15.3 | 15.3 | -36.6 | 6.1 | 45.9 | 1.9 | -20.8 | 16.1 | 18.8 | -36.6 | -31.1 |
| Romania | 17,098 | 7,168 | -25.4 | -32.6 | 37.0 | -17.8 | 4.3 | 14.4 | 0.4 | -26.6 | -13.5 | -31.2 | 31.1 | -7.6 | -9.7 | -58.1 |
| Slovakia | | 99 | | | | | | | | | | | | | | |
| Slovenia | 309 | 53 | -6.9 | -47.8 | -4.0 | -23.8 | -13.4 | 6.3 | -0.2 | -14.8 | -57.3 | 59.0 | 74.3 | -39.0 | -17.5 | -82.7 |
| Spain | 17,055 | 22,999 | 3.8 | 17.1 | -17.9 | 7.7 | 14.1 | -8.0 | -3.9 | 10.3 | 20.3 | -1.6 | 5.4 | 5.1 | -13.9 | 34.9 |
| Sweden | 3,465 | 5,155 | 18.5 | 8.8 | 6.9 | 13.6 | -9.6 | 60.6 | -38.1 | 11.4 | -17.0 | -20.3 | 14.6 | 14.4 | 9.2 | 48.8 |
| Switzerland | 691 | 706 | 52.3 | 7.3 | -26.8 | 1.2 | -1.7 | 13.3 | -11.4 | 28.1 | -22.7 | -18.2 | 7.9 | 3.0 | -5.1 | 2.1 |
| Ukraine | 53,214 | 1,893 | -59.9 | 94.3 | -21.7 | -30.8 | -15.1 | -2.3 | -43.2 | -31.2 | -37.5 | -39.4 | 5.4 | -14.5 | -23.9 | -96.4 |
| United Kingdom | 40,273 | 20,856 | -2.8 | -6.4 | -4.0 | -9.1 | 0.6 | -2.5 | -18.1 | -5.1 | -7.3 | -6.4 | 1.7 | 1.7 | -4.4 | -48.2 |
| United States | 100,958 | 96,277 | -6.6 | -16.8 | 14.1 | -6.3 | -28.1 | 8.2 | 14.0 | 40.4 | -7.3 | -5.8 | 10.8 | -23.3 | 24.4 | -4.6 |

^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 1.16**Energy industries: solid fuels – trend information**

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|-----------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 119,873 | 177,079 | 3.9 | 2.5 | 0.0 | 0.3 | 2.8 | 4.8 | 5.0 | 51.1 | -26.2 | 1.2 | 2.8 | 1.3 | 4.0 | 47.7 |
| Austria | 6,247 | 6,913 | 9.1 | -41.2 | -23.0 | 6.2 | 38.1 | 3.7 | 6.5 | -30.1 | 8.0 | 32.4 | 19.0 | -7.5 | 25.5 | 10.7 |
| Belarus | | 865 | | | | | | | | | | | | | | |
| Belgium | 21,481 | 12,634 | -4.0 | -6.7 | -0.2 | 4.9 | -3.7 | -7.3 | -7.7 | -3.1 | -20.8 | 11.5 | -11.8 | 6.6 | -5.5 | -41.2 |
| Bulgaria | 31,318 | 25,051 | 15.4 | -4.6 | 6.0 | -8.4 | 0.3 | -1.3 | 5.4 | -5.1 | -6.7 | 3.8 | 12.8 | -9.7 | 8.4 | -20.0 |
| Canada | 85,582 | 114,774 | 4.9 | 3.8 | -7.4 | 3.8 | 3.0 | 1.5 | 6.6 | 6.4 | -0.1 | 7.8 | 0.2 | -1.3 | 1.5 | 34.1 |
| Croatia | | 2,045 | | | | | | | | | | | | | | |
| Czech Republic | | 54,693 | | | | | | | | | | | | | | |
| Denmark | 22,462 | 21,851 | 37.6 | -16.9 | 4.9 | 8.2 | -16.9 | 40.2 | -26.8 | -15.7 | -16.2 | -17.2 | 7.1 | 1.4 | 38.3 | -2.7 |
| Estonia | | 13,969 | | | | | | | | | | | | | | |
| European Community | 829,200 | 733,960 | -0.9 | -5.7 | -6.8 | -0.6 | -1.8 | -0.8 | -5.3 | 1.5 | -4.9 | 5.3 | 1.7 | 2.9 | 4.1 | -11.5 |
| Finland | 9,279 | 17,311 | -0.8 | -18.1 | 23.8 | 34.7 | -22.6 | 42.9 | -13.3 | -32.2 | 1.7 | -3.3 | 27.1 | 17.1 | 44.7 | 86.6 |
| France | 38,372 | 29,154 | 18.0 | -10.2 | -25.8 | -11.8 | 5.9 | 12.5 | -12.3 | 36.5 | -14.8 | -3.8 | -22.0 | 14.9 | 4.4 | -24.0 |
| Germany | 365,195 | 310,667 | -4.5 | -5.5 | -2.9 | -1.7 | -2.8 | 0.6 | -4.7 | 0.3 | -4.4 | 4.8 | 1.3 | 2.2 | 1.9 | -14.9 |
| Greece | 35,257 | 42,914 | -4.7 | 6.2 | 0.4 | 5.4 | -4.7 | -2.8 | 10.1 | 5.3 | -1.8 | 6.3 | 2.3 | -1.8 | 1.1 | 21.7 |
| Hungary | 14,165 | 11,322 | -6.4 | 3.2 | -4.7 | -5.1 | 3.1 | 3.4 | 2.9 | -0.6 | 1.6 | -4.9 | -6.2 | -1.5 | 6.7 | -20.1 |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | 7,909 | 7,732 | -1.4 | 8.7 | -6.2 | 3.1 | 5.4 | 2.4 | -2.8 | -5.4 | -8.5 | 8.5 | 7.5 | -3.4 | -7.9 | -2.2 |
| Italy | 38,669 | 46,647 | -7.8 | -19.2 | -14.2 | 5.8 | 20.3 | -8.9 | -1.9 | 12.2 | -0.5 | 9.0 | 15.1 | 8.1 | 9.5 | 20.6 |
| Japan | 108,096 | 212,580 | 3.3 | 2.5 | 6.3 | 6.7 | 7.4 | 3.7 | 4.9 | -2.9 | 8.8 | 10.0 | 4.5 | 7.7 | 7.2 | 96.7 |
| Latvia | 1,635 | 99 | -27.0 | 27.2 | -25.9 | -45.7 | 2.0 | -1.7 | -17.0 | -36.9 | -37.5 | 49.1 | -40.0 | -23.5 | -27.9 | -94.0 |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | 279 | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 25,776 | 27,676 | -8.1 | -0.1 | -0.1 | 12.7 | 4.8 | -4.7 | -3.5 | 5.0 | -13.7 | 6.8 | 7.2 | 0.7 | 3.1 | 7.4 |
| New Zealand | 472 | 2,801 | -53.4 | 299.4 | -51.2 | -12.8 | 44.3 | 9.6 | 95.2 | -36.0 | 47.1 | -22.4 | 52.3 | -0.9 | 120.5 | 493.6 |
| Norway | 54 | 52 | 48.7 | -4.3 | -3.5 | 28.2 | 1.4 | -16.3 | -20.3 | 2.1 | 0.9 | -8.5 | 10.0 | -4.7 | -18.2 | -3.7 |
| Portugal | 7,685 | 11,648 | 6.1 | 2.9 | 9.9 | 4.6 | 14.6 | -7.9 | 3.1 | -8.1 | 27.5 | -3.1 | -7.5 | 10.7 | -4.5 | 51.6 |
| Romania | 39,906 | 27,919 | -14.6 | 15.3 | 5.4 | 0.6 | 3.0 | 0.5 | -19.7 | -16.3 | -3.6 | 14.0 | 9.8 | 1.7 | 10.2 | -30.0 |
| Slovakia | | 6,266 | | | | | | | | | | | | | | |
| Slovenia | 6,195 | 5,826 | -13.2 | 12.9 | -1.4 | -8.9 | 5.9 | -5.9 | 9.5 | 4.6 | -11.5 | 5.1 | 13.0 | 3.7 | -5.6 | -6.0 |
| Spain | 59,635 | 72,728 | -0.5 | 7.5 | -2.5 | -1.7 | 5.5 | -18.3 | 17.6 | -1.4 | 19.0 | 5.4 | -9.3 | 14.4 | -8.5 | 22.0 |
| Sweden | 5,737 | 6,073 | 5.2 | 0.8 | -8.6 | -1.9 | -5.8 | 20.7 | -15.0 | 6.8 | -7.7 | -7.7 | 11.7 | 10.3 | 2.5 | 5.9 |
| Switzerland | 50 | NO | -79.0 | 0.0 | -50.0 | 50.0 | -33.4 | | | | | | | | | |
| Ukraine | 93,472 | 51,246 | -48.1 | 99.4 | -3.4 | -11.1 | -1.6 | -15.4 | -14.8 | -14.5 | 3.4 | -6.1 | 4.5 | -2.2 | 2.4 | -45.2 |
| United Kingdom | 185,496 | 119,632 | 0.3 | -6.6 | -16.7 | -5.5 | -5.9 | -5.7 | -13.8 | 3.9 | -15.4 | 12.5 | 10.8 | -5.9 | 10.8 | -35.5 |
| United States | 1,513,028 | 1,876,278 | -0.1 | 1.2 | 4.4 | 0.4 | 1.2 | 5.5 | 2.7 | 1.6 | 0.3 | 4.9 | -3.3 | 1.2 | 2.0 | 24.0 |

^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 1.17

Energy industries: gaseous fuels – trend information

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|---------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 13,154 | 21,863 | -12.7 | 7.9 | 7.6 | 4.7 | 10.5 | -0.3 | 2.6 | 11.0 | 6.3 | 6.2 | 5.5 | 6.2 | -1.4 | 66.2 |
| Austria | 4,075 | 5,546 | -0.5 | -8.5 | 2.8 | 2.0 | 7.3 | 20.8 | -21.2 | 18.4 | -7.0 | -10.2 | 0.8 | 13.1 | 23.9 | 36.1 |
| Belarus | | 27,028 | | | | | | | | | | | | | | |
| Belgium | 2,767 | 9,436 | 19.9 | 3.7 | 4.8 | 0.4 | 24.8 | 6.4 | 0.6 | 41.4 | 22.4 | -2.5 | -7.5 | 9.7 | 14.1 | 241.0 |
| Bulgaria | 3,379 | 2,542 | -23.6 | -11.6 | -25.5 | -8.6 | 30.5 | -4.0 | -1.1 | -22.1 | 1.0 | -3.8 | -3.8 | -4.9 | -0.8 | -24.8 |
| Canada | 30,152 | 54,905 | -7.4 | 12.8 | 1.9 | 5.3 | 6.6 | -2.4 | -1.3 | 21.1 | 20.3 | 9.4 | 0.4 | -0.4 | -0.8 | 82.1 |
| Croatia | | 1,522 | | | | | | | | | | | | | | |
| Czech Republic | | 2,215 | | | | | | | | | | | | | | |
| Denmark | 1,540 | 6,229 | 16.2 | 7.4 | 14.3 | 21.8 | 21.9 | 25.8 | 12.2 | 14.1 | 7.5 | 2.8 | 4.0 | 3.5 | -0.3 | 304.6 |
| Estonia | | 1,279 | | | | | | | | | | | | | | |
| European Community | 80,663 | 227,571 | 2.7 | 2.1 | 18.1 | 8.4 | 10.0 | 18.0 | 11.4 | 10.2 | 12.9 | 3.0 | 1.9 | 6.3 | 4.6 | 182.1 |
| Finland | 2,659 | 6,580 | 4.3 | 8.0 | 4.0 | 12.1 | 1.6 | 10.4 | 2.0 | 18.5 | 0.4 | 5.5 | 17.2 | -0.6 | 12.6 | 147.4 |
| France | 1,583 | 3,943 | 19.4 | 3.8 | 16.1 | -8.1 | -6.0 | 43.4 | -4.5 | -5.0 | -4.9 | 3.5 | 2.1 | 56.2 | -2.0 | 149.1 |
| Germany | 22,194 | 28,330 | 0.3 | -10.1 | 0.4 | 15.9 | -0.2 | 15.9 | -4.6 | 4.7 | 1.2 | -2.7 | 6.7 | -0.6 | 0.9 | 27.6 |
| Greece | 97 | 3,503 | 6.3 | -13.2 | -4.9 | 15.2 | -4.4 | 5.4 | 126.4 | 291.8 | 128.4 | 50.9 | -1.5 | 6.7 | 10.4 | 3,512.6 |
| Hungary | 6,213 | 7,727 | 0.5 | -9.6 | 1.8 | 5.1 | -2.6 | 20.7 | -16.5 | 21.7 | 3.4 | -8.4 | 9.8 | 4.0 | 5.6 | 24.4 |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | 1,881 | 5,384 | 0.6 | -1.9 | 30.5 | -13.5 | 15.5 | 20.7 | 8.8 | 2.8 | 10.0 | 13.9 | 2.1 | 8.2 | 18.9 | 186.3 |
| Italy | 16,561 | 47,535 | -13.5 | -4.9 | 3.0 | -3.8 | 16.2 | 7.2 | 20.3 | 39.6 | 23.8 | 13.1 | 0.8 | 4.7 | 14.0 | 187.0 |
| Japan | 76,489 | 110,589 | 6.6 | -0.8 | 0.2 | 6.3 | 1.5 | 4.6 | 3.7 | 2.9 | 6.2 | 2.6 | -0.6 | 1.4 | 3.1 | 44.6 |
| Latvia | 3,893 | 2,042 | 9.1 | -42.3 | -15.6 | -50.5 | 41.3 | -24.1 | 47.7 | -4.4 | -1.3 | 13.9 | 15.0 | -2.9 | 5.0 | -47.5 |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | 3,891 | | | | | | | | | | | | | | |
| Luxembourg | | 258 | | | | | | | | | | | | | | |
| Monaco | | 0 | | | | | | | | | | | | | | |
| Netherlands | 15,051 | 26,939 | 18.2 | 5.0 | 6.9 | -3.1 | 2.4 | 13.2 | 6.8 | 2.7 | 1.3 | -0.9 | 6.8 | 3.1 | -1.0 | 79.0 |
| New Zealand | 5,327 | 4,573 | 6.1 | 10.7 | -6.8 | -16.8 | -20.3 | 15.1 | 24.5 | -23.3 | 20.2 | -1.5 | 14.8 | -13.8 | -8.2 | -14.2 |
| Norway | 5,172 | 10,461 | 5.8 | 7.6 | 5.0 | 8.4 | 0.6 | 7.2 | 6.5 | -5.2 | -0.8 | 14.7 | 14.7 | 3.5 | 6.1 | 102.3 |
| Portugal | | 2,674 | | | | | | | | 1,270.8 | 360.5 | -45.1 | 15.3 | 28.8 | -17.4 | |
| Romania | 46,341 | 16,790 | -16.6 | -20.6 | -14.6 | -5.7 | -0.7 | 2.5 | -18.7 | 8.3 | -20.2 | 1.8 | -6.7 | 6.1 | 0.6 | -63.8 |
| Slovakia | | 3,268 | | | | | | | | | | | | | | |
| Slovenia | 196 | 281 | -53.5 | 22.2 | 2.4 | -7.2 | 37.4 | 12.1 | -31.2 | 3.9 | -1.3 | -3.2 | 10.7 | -5.0 | 67.7 | 42.9 |
| Spain | 683 | 9,045 | 58.2 | -6.6 | -67.5 | -14.7 | 65.5 | 159.8 | 295.2 | -44.4 | 13.7 | 31.1 | -3.0 | 78.7 | 32.6 | 1,225.2 |
| Sweden | 452 | 747 | 20.0 | 26.9 | 5.4 | -13.0 | 9.7 | -1.1 | 0.8 | -4.0 | 1.2 | -13.5 | 32.2 | 2.0 | -4.3 | 65.4 |
| Switzerland | 235 | 370 | 10.3 | -0.8 | -0.7 | 1.9 | 12.7 | 23.9 | 5.4 | -2.2 | -1.2 | -13.4 | 8.4 | -3.9 | 10.9 | 57.8 |
| Ukraine | 147,606 | 48,573 | -71.7 | 184.1 | -8.5 | -17.6 | -8.0 | -5.9 | 0.3 | -42.4 | 11.5 | -3.3 | -7.4 | -4.3 | 13.5 | -67.1 |
| United Kingdom | 9,883 | 71,369 | -0.1 | 36.9 | 93.3 | 23.9 | 19.0 | 24.0 | 20.2 | 5.3 | 14.1 | 2.4 | -1.3 | 4.6 | -2.1 | 622.1 |
| United States | 175,955 | 277,639 | 2.0 | 4.0 | 0.7 | 12.4 | 8.2 | -10.3 | 6.8 | 13.3 | 4.8 | 8.0 | 3.0 | 5.7 | -9.2 | 57.8 |

^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 1.18**Contribution of fuels in CO₂ emissions from energy industries (%)**

| | Liquid fuels | | Solid fuels | | Gaseous fuels | |
|--------------------|------------------------|------|------------------------|------|------------------------|------|
| | Base year ^a | 2003 | Base year ^a | 2003 | Base year ^a | 2003 |
| Australia | 6.2 | 4.5 | 84.5 | 85.0 | 9.3 | 10.5 |
| Austria | 23.4 | 19.8 | 45.9 | 43.1 | 29.9 | 34.6 |
| Belarus | | 14.9 | | 2.6 | | 82.0 |
| Belgium | 16.5 | 19.5 | 71.8 | 43.5 | 9.3 | 32.5 |
| Bulgaria | 19.7 | 2.6 | 72.5 | 88.4 | 7.8 | 9.0 |
| Canada | 19.8 | 16.0 | 59.3 | 56.8 | 20.9 | 27.2 |
| Croatia | | 54.0 | | 26.4 | | 19.6 |
| Czech Republic | | 3.4 | | 92.8 | | 3.8 |
| Denmark | 7.0 | 8.7 | 85.8 | 69.6 | 5.9 | 19.8 |
| Estonia | | 3.8 | | 88.1 | | 8.1 |
| European Community | 19.7 | 17.1 | 72.0 | 61.7 | 7.0 | 19.1 |
| Finland | 14.1 | 8.6 | 50.1 | 48.0 | 14.4 | 18.3 |
| France | 30.8 | 33.3 | 56.4 | 45.7 | 2.3 | 6.2 |
| Germany | 6.0 | 6.4 | 88.2 | 85.7 | 5.4 | 7.8 |
| Greece | 18.2 | 17.3 | 81.6 | 76.5 | 0.2 | 6.2 |
| Hungary | 17.9 | 7.1 | 57.1 | 55.2 | 25.0 | 37.7 |
| Iceland | 100.0 | 72.7 | | | | |
| Ireland | 11.5 | 15.3 | 71.5 | 49.9 | 17.0 | 34.8 |
| Italy | 59.0 | 41.4 | 28.7 | 29.0 | 12.3 | 29.5 |
| Japan | 45.5 | 19.0 | 31.9 | 53.3 | 22.6 | 27.7 |
| Latvia | 44.0 | 11.4 | 16.6 | 4.1 | 39.5 | 84.5 |
| Liechtenstein | | | | | | |
| Lithuania | | 22.2 | | 5.2 | | 72.6 |
| Luxembourg | | 3.1 | | | | 96.9 |
| Monaco | | | | | | 0.6 |
| Netherlands | 19.8 | 16.5 | 49.9 | 41.1 | 29.2 | 40.0 |
| New Zealand | 3.8 | 2.7 | 7.8 | 36.9 | 88.4 | 60.3 |
| Norway | 18.3 | 15.9 | 0.8 | 0.4 | 79.4 | 82.3 |
| Portugal | 51.8 | 28.4 | 48.2 | 58.2 | | 13.4 |
| Romania | 16.5 | 13.8 | 38.6 | 53.8 | 44.8 | 32.4 |
| Slovakia | | 0.7 | | 46.9 | | 24.4 |
| Slovenia | 4.6 | 0.9 | 92.5 | 94.6 | 2.9 | 4.6 |
| Spain | 22.0 | 21.8 | 77.0 | 69.0 | 0.9 | 8.6 |
| Sweden | 34.0 | 40.4 | 56.3 | 47.6 | 4.4 | 5.9 |
| Switzerland | 49.2 | 41.3 | 3.6 | | 16.7 | 21.7 |
| Ukraine | 18.0 | 1.8 | 31.7 | 50.1 | 50.0 | 47.5 |
| United Kingdom | 17.1 | 9.8 | 78.7 | 56.2 | 4.2 | 33.5 |
| United States | 5.6 | 4.3 | 84.5 | 83.4 | 9.8 | 12.3 |

^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**Manufacturing industries and construction: all fuels – trend information**

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|---------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 37,356 | 39,117 | -1.7 | -0.1 | 1.2 | 3.9 | 1.5 | 3.0 | -2.3 | 2.1 | 8.4 | -1.6 | -2.0 | -6.4 | -0.6 | 4.7 |
| Austria | 12,971 | 14,163 | 3.1 | -8.3 | 4.4 | 7.8 | 0.6 | -0.9 | 17.0 | -9.5 | -7.1 | 5.5 | -1.6 | 2.4 | -1.6 | 9.2 |
| Belarus | | 4,034 | | | | | | | | | | | | -8.5 | 16.3 | |
| Belgium | 32,882 | 30,509 | 2.2 | -5.0 | -3.1 | 2.7 | 1.6 | -2.3 | -1.9 | 5.9 | -4.1 | 3.5 | -1.7 | -4.3 | -0.3 | -7.2 |
| Bulgaria | 24,755 | 11,402 | -32.4 | -18.1 | 9.9 | 13.1 | 19.9 | -2.9 | 1.1 | -19.6 | -13.6 | -3.4 | -9.1 | -5.5 | 11.8 | -53.9 |
| Canada | 62,368 | 65,495 | -6.2 | -1.2 | -0.5 | 5.5 | 1.3 | 4.4 | 0.2 | -5.0 | -0.3 | 5.0 | -6.8 | 3.2 | 6.5 | 5.0 |
| Croatia | 6,546 | 3,284 | -27.7 | -21.2 | -1.9 | 4.3 | -5.2 | 4.0 | -1.3 | 7.9 | -7.0 | 2.0 | 2.6 | -1.7 | -14.4 | -49.8 |
| Czech Republic | 59,457 | 27,556 | | | | | -5.9 | 5.5 | -1.2 | -18.4 | -3.4 | 5.8 | -3.5 | -11.2 | -11.0 | -53.7 |
| Denmark | 5,376 | 5,404 | 7.9 | -5.1 | -1.2 | 4.8 | 3.4 | 2.1 | 0.1 | -0.8 | 0.8 | -3.9 | 0.3 | -4.2 | -2.8 | 0.5 |
| Estonia | 2,655 | 420 | -28.3 | -35.3 | -47.0 | 39.0 | -30.2 | 15.2 | -10.2 | 1.7 | -1.0 | -26.8 | 21.8 | -28.3 | -0.4 | -84.2 |
| European Community | 645,923 | 576,424 | -3.4 | -4.2 | -3.0 | 2.6 | 0.5 | -1.8 | 2.3 | -2.6 | -0.8 | 0.8 | -0.4 | -2.7 | 1.8 | -10.8 |
| Finland | 14,925 | 13,824 | -3.2 | -2.5 | -2.1 | 5.7 | -0.8 | -2.4 | 11.6 | 0.5 | -0.2 | 0.7 | -13.2 | -4.5 | 4.8 | -7.4 |
| France | 83,256 | 77,634 | 2.2 | -2.3 | -4.2 | 3.4 | -0.5 | 1.6 | 1.7 | 0.8 | -5.3 | 0.4 | -0.3 | -3.0 | -1.2 | -6.8 |
| Germany | 196,315 | 129,056 | -12.1 | -7.7 | -7.4 | 1.2 | 0.4 | -3.8 | 0.0 | -3.9 | -2.3 | 0.1 | -2.0 | -0.6 | -2.3 | -34.3 |
| Greece | 10,491 | 10,000 | -2.4 | -7.5 | -2.3 | -2.1 | 8.4 | 7.1 | 0.9 | 1.8 | -10.7 | 10.4 | 0.1 | -3.7 | -2.5 | -4.7 |
| Hungary | 22,588 | 10,564 | -14.2 | -4.6 | -4.1 | -3.7 | 1.1 | 0.7 | -10.2 | -2.5 | -9.1 | -0.2 | 0.7 | -4.8 | 4.3 | -53.2 |
| Iceland | 361 | 425 | -21.1 | 18.5 | 8.0 | -5.5 | 3.5 | 12.2 | 16.9 | -5.6 | 5.7 | -10.1 | 7.7 | 0.3 | -6.2 | 17.7 |
| Ireland | 3,833 | 4,785 | 0.2 | -5.8 | -0.6 | 3.0 | -4.9 | -0.5 | 13.5 | -1.8 | 8.2 | 11.9 | -0.4 | 3.5 | -2.2 | 24.8 |
| Italy | 84,969 | 85,035 | -2.8 | -2.7 | 1.4 | 1.9 | 5.9 | -3.8 | 4.0 | -7.7 | 6.5 | 3.0 | -4.1 | -6.5 | 6.4 | 0.1 |
| Japan | 335,047 | 350,768 | -2.9 | -0.4 | 0.0 | 4.8 | 2.0 | 3.8 | 3.4 | -8.6 | 2.7 | 0.1 | -3.5 | 2.7 | 1.4 | 4.7 |
| Latvia | 2,538 | 949 | -39.8 | -15.3 | -28.1 | 83.7 | -23.4 | -6.9 | 22.0 | -10.8 | -20.4 | -11.8 | -3.8 | 6.0 | -0.1 | -62.6 |
| Liechtenstein | 63 | 66 | | | | | | | | | | | | | | 6.3 |
| Lithuania | 5,379 | 1,155 | | | | | | | | | | | | -37.3 | 6.3 | -78.5 |
| Luxembourg | | 2,301 | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 32,768 | 27,056 | -1.6 | 1.8 | -2.4 | -4.9 | -8.5 | 2.4 | -5.1 | 0.9 | -1.0 | -1.7 | -2.5 | 2.8 | 1.5 | -17.4 |
| New Zealand | 4,539 | 5,840 | 8.9 | -7.1 | 2.5 | 9.0 | -1.8 | 10.1 | 8.2 | -0.1 | -5.3 | 3.7 | 1.7 | 5.2 | -7.4 | 28.7 |
| Norway | 3,542 | 3,970 | -5.1 | -4.4 | 7.5 | 18.8 | -7.1 | 13.9 | -0.6 | -0.8 | -6.1 | -3.5 | 1.1 | -7.9 | 9.9 | 12.1 |
| Portugal | 9,103 | 10,722 | 3.2 | 2.2 | -0.1 | 3.5 | 1.8 | 2.9 | 9.7 | -1.3 | -0.3 | 4.3 | -3.8 | -2.0 | -3.0 | 17.8 |
| Romania | 30,234 | 23,853 | -32.5 | 27.0 | 8.3 | 3.2 | 5.3 | 2.1 | -16.2 | -23.8 | -11.3 | 5.5 | 2.7 | 17.5 | 5.4 | -21.1 |
| Slovakia | | 14,588 | | | | | | | | | | | | | | |
| Slovenia | 4,119 | 2,216 | -3.8 | -12.5 | -7.3 | 4.4 | 0.2 | -4.5 | -4.4 | 3.1 | 0.3 | -1.5 | -2.0 | 1.6 | -3.3 | -46.2 |
| Spain | 45,761 | 67,235 | 4.6 | -4.7 | -4.4 | 11.7 | 7.6 | -10.1 | 12.0 | 0.5 | 3.1 | 5.9 | 5.1 | 3.9 | 6.4 | 46.9 |
| Sweden | 10,724 | 11,129 | -2.4 | -7.8 | 7.5 | 9.5 | 2.1 | 0.0 | 4.8 | -4.8 | -7.9 | -4.8 | 0.6 | 2.9 | 5.8 | 3.8 |
| Switzerland | 6,133 | 5,888 | -1.3 | -3.5 | -3.1 | 1.3 | 1.7 | -3.6 | -0.7 | 4.3 | 0.6 | -0.1 | 2.3 | -1.6 | 0.0 | -4.0 |
| Ukraine | 212,369 | 94,322 | 80.5 | -51.7 | -20.8 | -44.4 | 18.1 | -2.6 | -20.3 | 16.3 | -1.6 | 2.6 | 1.3 | -0.8 | 7.0 | -55.6 |
| United Kingdom | 97,291 | 87,720 | 0.1 | -1.9 | -0.8 | 1.1 | -3.2 | 1.8 | 0.1 | -3.1 | -0.1 | -5.0 | 6.0 | -9.6 | 5.4 | -9.8 |
| United States | 882,819 | 858,570 | -1.5 | 5.0 | -0.8 | 0.8 | 0.8 | 4.0 | 0.8 | -5.4 | -2.6 | 1.9 | -3.0 | -0.2 | -2.1 | -2.7 |

^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 1.20**Manufacturing industries and construction: liquid fuels – trend information**

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|---------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 11,539 | 10,349 | -4.7 | -3.1 | 1.7 | 0.8 | 3.3 | 11.8 | -9.7 | 4.0 | -3.4 | 7.7 | -0.3 | -14.9 | -1.1 | -10.3 |
| Austria | 3,771 | 3,452 | 11.4 | -17.1 | 13.4 | -1.4 | -5.8 | -5.8 | 28.0 | -5.2 | -17.5 | -2.9 | -0.3 | -11.8 | 16.9 | -8.5 |
| Belarus | | 362 | | | | | | | | | | | | | | |
| Belgium | 7,534 | 4,857 | 17.5 | -7.2 | -2.3 | -9.0 | -2.5 | -10.8 | -0.7 | 0.1 | -26.2 | -3.8 | 23.6 | -8.7 | -3.9 | -35.5 |
| Bulgaria | 7,740 | 3,495 | 73.3 | -28.4 | -11.5 | 3.1 | 41.5 | -9.4 | 13.6 | 32.6 | -9.5 | -16.8 | -11.9 | 7.7 | 7.9 | -54.9 |
| Canada | 14,120 | 11,139 | -13.6 | -8.8 | 0.9 | 3.9 | -7.7 | 2.9 | -1.0 | -5.6 | -5.7 | 5.6 | 9.3 | -15.7 | 17.0 | -21.1 |
| Croatia | | 1,560 | | | | | | | | | | | | | | |
| Czech Republic | | 5,445 | | | | | | | | | | | | | | |
| Denmark | 2,627 | 2,316 | 7.9 | -4.1 | -9.4 | 1.6 | 0.5 | 2.9 | -6.2 | -3.7 | 0.6 | -2.9 | 3.3 | -0.5 | -1.3 | -11.8 |
| Estonia | | 202 | | | | | | | | | | | | | | |
| European Community | 194,684 | 170,539 | 1.8 | -3.1 | -0.9 | 1.1 | -1.7 | -3.2 | 1.8 | -2.6 | -5.2 | -4.2 | 2.8 | -3.0 | 3.8 | -12.4 |
| Finland | 4,861 | 4,736 | -7.4 | -0.4 | -2.8 | 2.7 | -5.4 | -1.2 | 9.8 | 1.7 | 1.9 | -0.3 | -6.0 | -0.7 | 6.9 | -2.6 |
| France | 30,420 | 21,901 | 2.7 | -6.3 | 0.6 | -0.5 | 1.1 | 1.8 | -2.1 | 2.9 | -10.5 | -8.6 | 2.0 | -8.6 | -5.3 | -28.0 |
| Germany | 28,392 | 19,041 | 8.7 | 0.3 | -5.3 | -3.1 | -2.4 | -4.5 | -4.4 | -4.1 | -8.7 | -13.0 | -2.2 | 8.7 | -7.1 | -32.9 |
| Greece | 5,552 | 6,456 | -2.7 | 0.2 | -6.2 | -0.1 | 15.5 | 13.5 | 3.6 | -4.7 | -7.6 | 4.8 | -1.1 | 3.2 | -0.6 | 16.3 |
| Hungary | 5,084 | 2,471 | -6.2 | 5.4 | -6.9 | 5.9 | -10.9 | -2.0 | -10.3 | -17.8 | -8.7 | 3.8 | -22.6 | 11.1 | 4.9 | -51.4 |
| Iceland | 313 | 394 | -23.0 | 27.4 | 7.4 | -5.8 | 7.6 | 14.6 | 14.8 | -7.7 | 6.8 | -11.2 | 5.5 | 3.1 | -5.9 | 26.0 |
| Ireland | 2,007 | 3,136 | -1.7 | 8.1 | -0.3 | 18.2 | -5.7 | -3.6 | 20.7 | -13.7 | 6.7 | 23.3 | 1.8 | -5.4 | 4.0 | 56.3 |
| Italy | 34,353 | 29,184 | -9.7 | -8.1 | -3.6 | -0.5 | 0.4 | -3.5 | 4.6 | -5.0 | 6.5 | -0.9 | -0.6 | -4.5 | 10.7 | -15.0 |
| Japan | 137,614 | 129,406 | -0.4 | -0.6 | -0.2 | 5.6 | 2.7 | -0.2 | -2.6 | -7.4 | 3.0 | -0.6 | -4.7 | 0.2 | -0.3 | -6.0 |
| Latvia | 1,405 | 258 | -54.2 | -26.2 | -5.3 | 147.9 | -29.1 | -13.1 | 39.4 | -18.4 | -24.8 | -27.5 | -34.0 | -4.9 | -3.7 | -81.7 |
| Liechtenstein | | 23 | | | | | | | | | | | | | | |
| Lithuania | | 213 | | | | | | | | | | | | | | |
| Luxembourg | | 212 | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 8,949 | 7,371 | -2.0 | 0.0 | -2.9 | -2.1 | -24.1 | 3.9 | -10.9 | 4.1 | 6.8 | -9.5 | -1.6 | 17.7 | 8.0 | -17.6 |
| New Zealand | 728 | 739 | -3.7 | 8.1 | -16.2 | 8.0 | 2.0 | 6.4 | -5.6 | -14.7 | -8.7 | 37.2 | -2.4 | 3.3 | -2.5 | 1.5 |
| Norway | 2,822 | 2,941 | -5.8 | -5.5 | 5.1 | 22.5 | -13.8 | 18.6 | -9.2 | 3.9 | -7.6 | -5.6 | 5.5 | -4.9 | 7.7 | 4.2 |
| Portugal | 6,403 | 6,840 | 3.3 | 1.2 | 2.6 | 3.9 | 6.6 | 4.8 | 13.0 | -1.1 | -5.0 | -8.7 | -2.4 | -1.0 | -8.4 | 6.8 |
| Romania | 5,759 | 4,453 | -22.7 | 31.3 | -28.1 | 5.3 | -20.3 | 61.1 | -28.2 | -9.5 | -12.6 | 26.2 | -1.7 | 6.5 | -9.1 | -22.7 |
| Slovakia | | 2,295 | | | | | | | | | | | | | | |
| Slovenia | 1,557 | 478 | -14.3 | 6.4 | -6.9 | 17.5 | -1.3 | -12.4 | -20.6 | -3.2 | 4.2 | -5.9 | -13.0 | -10.9 | -12.2 | -69.3 |
| Spain | 24,072 | 28,810 | 3.4 | -4.7 | 0.1 | 11.7 | 6.7 | -16.2 | 14.3 | -0.3 | -3.3 | -0.5 | 2.9 | 0.0 | 7.6 | 19.7 |
| Sweden | 8,050 | 8,681 | -6.8 | -1.7 | 8.0 | 12.2 | 2.5 | -1.3 | 5.7 | -4.5 | -5.5 | -8.9 | -0.5 | 6.0 | 4.8 | 7.8 |
| Switzerland | 3,383 | 3,039 | 3.2 | -0.6 | -6.3 | -0.7 | -1.6 | -1.6 | 1.8 | 6.9 | -1.1 | -10.0 | 3.2 | -2.1 | -0.6 | -10.2 |
| Ukraine | 47,269 | 5,894 | 55.3 | -90.3 | -13.4 | -34.1 | -42.1 | 0.2 | -48.0 | 699.0 | -21.6 | -17.3 | -3.5 | -8.3 | 5.1 | -87.5 |
| United Kingdom | 26,077 | 23,546 | 6.9 | 2.9 | 2.1 | -1.6 | -9.9 | -0.1 | -7.4 | -6.7 | -8.3 | 0.5 | 17.1 | -15.2 | 14.8 | -9.7 |
| United States | 313,874 | 327,259 | -5.9 | 9.2 | -5.0 | 1.7 | -4.8 | 8.5 | 1.7 | -9.7 | 0.8 | 2.6 | 5.3 | -1.0 | 2.8 | 4.3 |

^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 1.21**Manufacturing industries and construction: solid fuels – trend information**

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|---------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 12,293 | 11,549 | -2.1 | 2.3 | -0.4 | 6.7 | -5.4 | -1.6 | -0.6 | -2.5 | 33.9 | -18.1 | -7.1 | -3.7 | -0.2 | -6.0 |
| Austria | 4,705 | 4,545 | -1.4 | -11.3 | 4.1 | 1.6 | 3.7 | -3.1 | 15.8 | -14.3 | 0.7 | 8.1 | -5.2 | 11.2 | -8.8 | -3.4 |
| Belarus | | 287 | | | | | | | | | | | | | | |
| Belgium | 15,883 | 11,719 | 0.3 | -8.1 | -8.4 | 1.8 | -3.7 | -7.1 | -7.1 | 7.1 | -1.6 | 5.9 | -4.4 | -6.1 | 3.0 | -26.2 |
| Bulgaria | 9,353 | 5,266 | -57.4 | -16.8 | 20.1 | 24.0 | 14.4 | -1.8 | 16.1 | -41.8 | -8.4 | -4.0 | -3.4 | -7.4 | 16.9 | -43.7 |
| Canada | 8,783 | 9,027 | -12.8 | 1.0 | -3.6 | 15.5 | -5.5 | 3.5 | -1.1 | -2.9 | 3.0 | 4.1 | -0.5 | -0.6 | 5.1 | 2.8 |
| Croatia | | 426 | | | | | | | | | | | | | | |
| Czech Republic | | 15,223 | | | | | | | | | | | | | | |
| Denmark | 1,444 | 720 | 9.0 | -12.2 | 6.7 | -4.0 | -1.5 | -1.1 | 1.6 | -3.7 | -13.0 | -4.7 | -12.3 | -15.9 | -12.8 | -50.2 |
| Estonia | | 182 | | | | | | | | | | | | | | |
| European Community | 268,927 | 156,733 | -9.7 | -7.7 | -8.9 | 1.8 | -3.2 | -5.2 | 1.3 | -7.3 | -1.8 | 0.2 | -2.8 | -7.4 | -1.2 | -41.7 |
| Finland | 6,410 | 5,416 | -11.1 | -4.1 | -3.0 | 10.5 | -3.4 | -4.7 | 8.8 | -1.6 | -0.8 | 4.0 | -8.2 | -3.3 | 2.3 | -15.5 |
| France | 29,184 | 21,950 | -0.6 | 2.3 | -15.0 | 13.0 | -9.2 | -2.4 | 3.9 | -3.9 | -0.6 | 0.8 | -2.5 | -9.0 | -2.1 | -24.8 |
| Germany | 120,250 | 59,417 | -21.0 | -14.0 | -12.4 | 1.0 | -0.2 | -4.7 | 2.0 | -7.3 | -3.5 | 5.3 | -3.9 | -3.1 | -3.5 | -50.6 |
| Greece | 4,770 | 2,518 | -1.8 | -16.5 | 4.1 | -2.8 | -0.5 | -2.6 | -6.9 | 0.5 | -20.5 | 21.0 | 1.5 | -18.8 | -11.5 | -47.2 |
| Hungary | 7,815 | 2,556 | -15.6 | -12.5 | -4.6 | 14.5 | -7.3 | -2.6 | -22.6 | 28.7 | -0.9 | 2.0 | -18.2 | -0.1 | -6.1 | -67.3 |
| Iceland | 48 | 31 | -9.1 | -30.4 | 14.7 | -2.9 | -34.0 | -24.7 | 64.0 | 27.8 | -6.2 | 3.6 | 31.4 | -25.0 | -9.3 | -36.3 |
| Ireland | 970 | 529 | 3.3 | -35.2 | 5.6 | -27.8 | -12.0 | 17.3 | -27.9 | 69.6 | 22.2 | -58.2 | -2.5 | -6.2 | 81.3 | -45.5 |
| Italy | 18,432 | 14,909 | -1.6 | -2.7 | -1.1 | -0.3 | 6.9 | -10.7 | 6.4 | -12.9 | 13.8 | 1.6 | -10.3 | -19.9 | 16.7 | -19.1 |
| Japan | 188,263 | 195,587 | -5.6 | -0.7 | -0.3 | 3.7 | 0.9 | 6.7 | 7.3 | -10.0 | 1.9 | -0.2 | -3.5 | 3.2 | 1.8 | 3.9 |
| Latvia | 115 | 24 | -49.5 | 20.0 | -11.9 | 72.0 | -63.4 | -20.1 | 10.0 | 7.9 | -10.1 | -29.4 | -0.8 | 0.1 | 3.5 | -79.2 |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | 343 | | | | | | | | | | | | | | |
| Luxembourg | | 304 | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 5,033 | 4,185 | -12.8 | 11.7 | 9.1 | -21.7 | 2.9 | -1.8 | -3.2 | 0.3 | -6.4 | -1.5 | 6.7 | -0.9 | 4.6 | -16.8 |
| New Zealand | 1,896 | 2,136 | 2.2 | -12.0 | 11.7 | -1.2 | -17.4 | 2.9 | 2.8 | 0.0 | -14.8 | -0.5 | 20.6 | -4.4 | 33.0 | 12.6 |
| Norway | 720 | 569 | -2.2 | -0.4 | 16.0 | 5.7 | 13.4 | -0.9 | 3.4 | -22.1 | -14.4 | 3.1 | -14.7 | -8.5 | 6.3 | -21.0 |
| Portugal | 2,615 | 596 | 3.5 | 3.8 | -6.4 | 4.5 | -11.6 | -3.2 | -6.2 | -22.7 | -11.2 | 34.1 | -34.6 | -38.6 | -26.8 | -77.2 |
| Romania | 1,759 | 6,039 | -15.9 | 301.4 | 50.4 | -3.8 | 13.2 | -0.4 | -9.9 | -14.7 | -28.9 | -10.7 | 1.6 | 59.4 | 32.9 | 243.4 |
| Slovakia | | 3,920 | | | | | | | | | | | | | | |
| Slovenia | 1,372 | 524 | -13.6 | -27.4 | -17.6 | -13.2 | 11.1 | -0.8 | 13.9 | 17.8 | 0.0 | -9.7 | 18.9 | 20.8 | -7.6 | -61.8 |
| Spain | 13,249 | 5,723 | 8.4 | -11.0 | -19.3 | 15.6 | -13.6 | -15.0 | -2.9 | -22.4 | -5.8 | -2.8 | 6.6 | 1.0 | -11.9 | -56.8 |
| Sweden | 1,870 | 1,233 | 7.0 | -24.7 | 4.5 | -4.5 | 5.4 | 2.0 | 0.6 | -11.2 | -16.6 | 16.4 | -0.1 | -6.9 | -5.3 | -34.1 |
| Switzerland | 1,474 | 565 | -20.6 | -27.0 | -12.4 | 5.7 | 4.6 | -27.2 | -24.0 | -12.2 | 2.3 | 43.2 | 3.2 | -2.7 | -4.7 | -61.6 |
| Ukraine | 54,844 | 4,542 | 210.6 | -56.8 | -9.1 | -25.9 | -9.1 | -7.3 | -35.9 | -88.4 | 18.9 | -12.0 | -2.4 | 28.6 | 11.7 | -91.7 |
| United Kingdom | 42,936 | 23,115 | -1.2 | -1.7 | -5.2 | -3.3 | -5.9 | -4.1 | -0.5 | -9.0 | -2.8 | -17.8 | 6.5 | -12.4 | -0.9 | -46.2 |
| United States | 152,637 | 123,428 | -0.5 | -1.9 | 0.8 | 2.1 | -2.1 | -2.5 | 0.6 | -5.5 | -3.9 | 0.8 | -3.3 | -6.0 | 0.6 | -19.1 |

^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 1.22**Manufacturing industries and construction: gaseous fuels – trend information**

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|---------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 13,524 | 17,219 | 1.2 | 0.2 | 2.2 | 3.8 | 6.4 | 0.4 | 2.5 | 4.2 | -1.3 | 7.6 | 0.6 | -2.2 | -0.6 | 27.3 |
| Austria | 4,256 | 5,821 | 1.7 | 1.2 | 1.9 | 21.1 | 2.9 | 4.1 | 11.1 | -8.3 | -7.6 | 8.0 | -1.3 | 3.7 | -3.6 | 36.8 |
| Belarus | | 3,366 | | | | | | | | | | | | | | |
| Belgium | 7,412 | 9,550 | -9.2 | 2.9 | 6.3 | 5.7 | 11.7 | 7.1 | -3.6 | 8.6 | 2.4 | 2.8 | -6.5 | 4.4 | -4.6 | 28.9 |
| Bulgaria | 7,661 | 2,641 | -7.2 | -12.3 | 10.8 | 4.2 | 18.1 | -0.9 | -26.3 | -10.7 | -25.9 | 16.6 | -14.7 | -15.8 | 7.6 | -65.5 |
| Canada | 39,465 | 45,329 | -2.0 | 0.7 | -0.4 | 4.1 | 5.4 | 5.0 | 0.8 | -5.3 | 0.4 | 5.0 | -11.7 | 9.4 | 4.4 | 14.9 |
| Croatia | | 1,298 | | | | | | | | | | | | | | |
| Czech Republic | | 6,888 | | | | | | | | | | | | | | |
| Denmark | 1,304 | 2,345 | 6.5 | 0.7 | 7.1 | 18.6 | 11.3 | 3.2 | 7.1 | 4.3 | 9.3 | -4.9 | 2.8 | -4.0 | 0.2 | 79.8 |
| Estonia | | 36 | | | | | | | | | | | | | | |
| European Community | 176,163 | 239,262 | 0.9 | -0.7 | 2.0 | 4.0 | 6.6 | 3.0 | 3.2 | 1.7 | 3.5 | 4.8 | -0.5 | 1.0 | 1.8 | 35.8 |
| Finland | 2,094 | 2,174 | 31.4 | | -4.8 | -9.2 | 8.0 | -5.9 | -1.6 | 12.3 | 1.9 | 2.2 | -20.1 | -3.1 | 0.9 | 3.8 |
| France | 23,651 | 31,442 | 5.1 | -3.4 | 2.9 | -1.6 | 7.6 | 5.3 | 4.0 | 3.1 | -3.8 | 8.2 | -0.4 | 3.6 | -0.8 | 32.9 |
| Germany | 45,751 | 50,214 | 0.0 | 0.1 | 0.0 | 3.5 | 4.5 | -2.2 | -0.3 | 0.9 | 2.9 | -0.8 | 0.6 | -1.0 | 1.2 | 9.8 |
| Greece | 169 | 1,026 | -5.6 | -5.3 | -31.8 | -77.5 | -11.0 | 38.0 | 426.5 | 329.5 | 11.7 | 15.4 | 3.1 | 7.3 | 11.7 | 506.8 |
| Hungary | 9,637 | 5,459 | -17.9 | -6.6 | -1.8 | -20.1 | 18.0 | 5.2 | -3.4 | -9.8 | -14.2 | -1.2 | 22.0 | -8.0 | 9.0 | -43.4 |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | 856 | 1,120 | 1.3 | -3.4 | -6.0 | -11.1 | 3.0 | -1.0 | 20.3 | 6.2 | 2.5 | 38.4 | -5.2 | 29.3 | -29.3 | 30.9 |
| Italy | 32,086 | 40,863 | 3.6 | 2.0 | 6.3 | 3.8 | 8.0 | 0.8 | 2.9 | -6.8 | 3.3 | 6.1 | -3.8 | -1.7 | 0.9 | 27.4 |
| Japan | 9,170 | 25,776 | 13.7 | 8.7 | 8.2 | 10.7 | 9.0 | 6.9 | 10.0 | -1.1 | 8.2 | 8.2 | 3.9 | 13.8 | 8.1 | 181.1 |
| Latvia | 1,018 | 643 | -18.9 | -9.3 | -44.1 | 16.6 | -1.5 | 4.3 | -1.0 | 2.5 | -14.4 | 10.7 | 22.6 | 11.4 | -2.6 | -36.9 |
| Liechtenstein | | 43 | | | | | | | | | | | | | | |
| Lithuania | | 599 | | | | | | | | | | | | | | |
| Luxembourg | | 1,785 | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 18,785 | 15,499 | 1.6 | 0.3 | -5.0 | -1.3 | -3.9 | 3.0 | -3.5 | 0.0 | -2.5 | 1.3 | -4.8 | -1.7 | -2.1 | -17.5 |
| New Zealand | 1,915 | 2,966 | 20.3 | -7.5 | 1.8 | 18.2 | 8.6 | 15.0 | 14.2 | 2.7 | -0.5 | 0.3 | -4.5 | 10.2 | -24.7 | 54.9 |
| Norway | | 461 | | | | | 580.8 | 38.2 | 362.1 | 18.8 | 24.0 | 1.8 | -0.9 | -24.9 | 32.5 | |
| Portugal | | 3,197 | | | | | | | | 415.2 | 108.7 | 63.8 | 27.3 | 16.9 | 18.4 | |
| Romania | 22,716 | 13,361 | -36.1 | 8.9 | 14.3 | 4.7 | 10.1 | -8.6 | -14.0 | -30.8 | -4.0 | 3.1 | 4.8 | 11.7 | 1.3 | -41.2 |
| Slovakia | | 3,401 | | | | | | | | | | | | | | |
| Slovenia | 1,177 | 1,200 | 10.4 | -19.0 | -3.5 | -1.4 | -1.4 | 2.2 | 3.9 | 2.2 | -2.6 | 4.7 | -2.0 | 0.5 | 2.6 | 1.9 |
| Spain | 8,440 | 32,463 | 1.8 | 5.6 | 4.7 | 7.4 | 34.7 | 5.9 | 17.3 | 13.0 | 14.9 | 15.9 | 7.0 | 8.4 | 9.0 | 284.6 |
| Sweden | 617 | 759 | -2.6 | 16.8 | -5.9 | 8.2 | -9.2 | 15.2 | -3.1 | -2.9 | -3.9 | 0.5 | 12.6 | 1.9 | -2.6 | 23.1 |
| Switzerland | 1,131 | 2,013 | 10.1 | 9.5 | 9.1 | 4.7 | 5.3 | 2.9 | 3.4 | 2.6 | 4.5 | 6.3 | 1.2 | -2.5 | 2.7 | 77.9 |
| Ukraine | 108,739 | 83,112 | 28.4 | -25.0 | -29.5 | -62.9 | 78.8 | 1.4 | -6.1 | 57.8 | 0.1 | 5.4 | 1.8 | -1.4 | 6.7 | -23.6 |
| United Kingdom | 28,278 | 41,003 | -4.2 | -7.2 | 3.0 | 10.6 | 7.2 | 10.5 | 6.4 | 4.9 | 6.9 | 1.8 | 0.1 | -4.5 | 4.2 | 45.0 |
| United States | 416,308 | 407,883 | 1.5 | 4.5 | 1.6 | -0.3 | 5.6 | 3.3 | 0.2 | -2.5 | -4.3 | 1.8 | -8.3 | 2.2 | -6.3 | -2.0 |

^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 1.23**Contribution of fuels in CO₂ emissions from Manufacturing industries and construction (%)**

| | Liquid fuels | | Solid fuels | | Gaseous fuels | |
|--------------------|------------------------|------|------------------------|------|------------------------|------|
| | Base year ^a | 2003 | Base year ^a | 2003 | Base year ^a | 2003 |
| Australia | 30.9 | 26.5 | 32.9 | 29.5 | 36.2 | 44.0 |
| Austria | 29.1 | 24.4 | 36.3 | 32.1 | 32.8 | 41.1 |
| Belarus | | 9.0 | | 7.1 | | 83.4 |
| Belgium | 22.9 | 15.9 | 48.3 | 38.4 | 22.5 | 31.3 |
| Bulgaria | 31.3 | 30.6 | 37.8 | 46.2 | 30.9 | 23.2 |
| Canada | 22.6 | 17.0 | 14.1 | 13.8 | 63.3 | 69.2 |
| Croatia | | 47.5 | | 13.0 | | 39.5 |
| Czech Republic | | 19.8 | | 55.2 | | 25.0 |
| Denmark | 48.9 | 42.9 | 26.9 | 13.3 | 24.3 | 43.4 |
| Estonia | | 48.2 | | 43.4 | | 8.5 |
| European Community | 30.1 | 29.6 | 41.6 | 27.2 | 27.3 | 41.5 |
| Finland | 32.6 | 34.3 | 42.9 | 39.2 | 14.0 | 15.7 |
| France | 36.5 | 28.2 | 35.1 | 28.3 | 28.4 | 40.5 |
| Germany | 14.5 | 14.8 | 61.3 | 46.0 | 23.3 | 38.9 |
| Greece | 52.9 | 64.6 | 45.5 | 25.2 | 1.6 | 10.3 |
| Hungary | 22.5 | 23.4 | 34.6 | 24.2 | 42.7 | 51.7 |
| Iceland | 86.6 | 92.8 | 13.4 | 7.2 | | |
| Ireland | 52.4 | 65.5 | 25.3 | 11.1 | 22.3 | 23.4 |
| Italy | 40.4 | 34.3 | 21.7 | 17.5 | 37.8 | 48.1 |
| Japan | 41.1 | 36.9 | 56.2 | 55.8 | 2.7 | 7.3 |
| Latvia | 55.3 | 27.1 | 4.5 | 2.5 | 40.1 | 67.7 |
| Liechtenstein | | 35.4 | | | | 64.6 |
| Lithuania | | 18.5 | | 29.7 | | 51.8 |
| Luxembourg | | 9.2 | | 13.2 | | 77.6 |
| Monaco | | | | | | |
| Netherlands | 27.3 | 27.2 | 15.4 | 15.5 | 57.3 | 57.3 |
| New Zealand | 16.0 | 12.6 | 41.8 | 36.6 | 42.2 | 50.8 |
| Norway | 79.7 | 74.1 | 20.3 | 14.3 | | 11.6 |
| Portugal | 70.3 | 63.8 | 28.7 | 5.6 | | 29.8 |
| Romania | 19.0 | 18.7 | 5.8 | 25.3 | 75.1 | 56.0 |
| Slovakia | | 15.7 | | 26.9 | | 23.3 |
| Slovenia | 37.8 | 21.6 | 33.3 | 23.7 | 28.6 | 54.1 |
| Spain | 52.6 | 42.8 | 29.0 | 8.5 | 18.4 | 48.3 |
| Sweden | 75.1 | 78.0 | 17.4 | 11.1 | 5.7 | 6.8 |
| Switzerland | 55.2 | 51.6 | 24.0 | 9.6 | 18.4 | 34.2 |
| Ukraine | 22.3 | 6.2 | 25.8 | 4.8 | 51.2 | 88.1 |
| United Kingdom | 26.8 | 26.8 | 44.1 | 26.4 | 29.1 | 46.7 |
| United States | 35.6 | 38.1 | 17.3 | 14.4 | 47.2 | 47.5 |

^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 1.24**Other sectors (Commercial / Institutional, Residential, Agriculture / Forestry / Fisheries): all fuels – trend information**

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|---------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 12,485 | 17,280 | 0.6 | 2.7 | 3.7 | 0.9 | 3.5 | 0.6 | 3.8 | 1.4 | 1.1 | 3.0 | 1.3 | 8.9 | 1.7 | 38.4 |
| Austria | 14,392 | 14,702 | 6.3 | -3.8 | -1.0 | -8.6 | 8.6 | 8.8 | -10.0 | -1.5 | 5.9 | -11.4 | 13.6 | -8.2 | 7.6 | 2.2 |
| Belarus | | 6,497 | | | | | | | | | | | | -4.0 | -2.4 | |
| Belgium | 27,232 | 31,239 | 10.1 | -0.5 | 0.5 | -0.9 | 2.0 | 17.2 | -11.9 | 0.9 | -3.2 | -4.7 | 6.2 | -4.4 | 5.5 | 14.7 |
| Bulgaria | 8,940 | 2,206 | -24.1 | 12.8 | -10.7 | -19.2 | -21.2 | 23.5 | -17.3 | 11.6 | -16.6 | -23.9 | -13.6 | 26.6 | 6.3 | -75.3 |
| Canada | 69,415 | 83,802 | -0.9 | 3.3 | 3.9 | -0.5 | 0.6 | 7.5 | -3.6 | -11.1 | 5.5 | 8.7 | -4.4 | 4.9 | 7.1 | 20.7 |
| Croatia | 3,616 | 3,880 | -16.9 | -16.9 | -0.4 | 3.4 | 8.2 | 12.9 | 1.4 | -2.3 | 13.1 | -4.4 | 6.5 | 2.2 | 6.1 | 7.3 |
| Czech Republic | 34,177 | 14,526 | | | | | -8.4 | 0.2 | 11.6 | -1.9 | -10.9 | -2.6 | -7.3 | 3.4 | -10.9 | -57.5 |
| Denmark | 9,129 | 7,402 | 2.8 | -6.2 | 6.8 | -8.8 | 1.8 | 7.5 | -7.8 | -2.6 | -2.6 | -7.8 | 3.1 | -4.1 | -1.1 | -18.9 |
| Estonia | 2,392 | 409 | -30.4 | -37.9 | -4.5 | -1.8 | 2.5 | 16.0 | 11.1 | -11.0 | -5.0 | -4.3 | -70.4 | 51.3 | -11.8 | -82.9 |
| European Community | 639,753 | 647,453 | 6.1 | -4.2 | 1.7 | -5.0 | 1.6 | 9.9 | -6.5 | 0.1 | -2.3 | -2.6 | 6.5 | -5.4 | 2.8 | 1.2 |
| Finland | 6,968 | 6,031 | -1.8 | 1.2 | -10.2 | 2.1 | -8.2 | 1.8 | 0.3 | 1.5 | -2.0 | -6.7 | 5.9 | 1.6 | 1.6 | -13.4 |
| France | 94,417 | 100,454 | 10.6 | -0.9 | -2.5 | -5.7 | 2.2 | 7.8 | -5.7 | 3.8 | -1.6 | -4.4 | 10.0 | -9.7 | 5.0 | 6.4 |
| Germany | 204,414 | 177,792 | 0.5 | -8.0 | 4.6 | -5.1 | 1.4 | 13.1 | -6.7 | -4.2 | -8.3 | -3.5 | 10.4 | -7.4 | 2.0 | -13.0 |
| Greece | 8,026 | 14,295 | 5.4 | -4.1 | -1.6 | 0.6 | 1.0 | 23.5 | 2.4 | 3.5 | -1.9 | 5.9 | 7.8 | 3.1 | 16.6 | 78.1 |
| Hungary | 24,333 | 16,938 | 3.0 | -25.7 | 0.9 | -1.3 | -4.8 | 3.3 | -4.0 | -13.6 | 5.7 | -2.5 | 8.1 | 2.3 | 7.7 | -30.4 |
| Iceland | 691 | 676 | 2.5 | 8.8 | 4.0 | -2.2 | 1.2 | 8.2 | -3.3 | -5.0 | 0.0 | -6.0 | -11.4 | 9.8 | -6.2 | -2.2 |
| Ireland | 9,726 | 10,263 | -0.3 | -3.2 | -3.6 | 5.5 | -2.4 | -2.4 | 3.6 | 5.9 | -0.7 | 4.7 | 0.5 | -1.1 | -0.3 | 5.5 |
| Italy | 76,262 | 84,162 | 7.3 | -4.2 | -0.3 | -11.8 | 9.8 | 2.3 | -3.5 | 3.9 | 5.2 | -4.6 | 3.4 | -3.3 | 8.0 | 10.4 |
| Japan | 164,050 | 185,625 | 2.4 | 2.1 | 3.3 | -2.1 | 5.2 | -0.5 | -1.2 | 3.9 | 1.8 | 1.2 | -0.4 | 1.8 | -4.7 | 13.2 |
| Latvia | 3,198 | 1,103 | 38.2 | -23.9 | -15.2 | 3.8 | -50.5 | -14.4 | -11.8 | -9.7 | -6.4 | -12.8 | 27.4 | -3.5 | 9.9 | -65.5 |
| Liechtenstein | 77 | 82 | | | | | | | | | | | | | | 6.2 |
| Lithuania | 6,313 | 1,141 | | | | | | | | | | | | 6.1 | 3.0 | -81.9 |
| Luxembourg | | 1,368 | | | | | | | | | | | | | | |
| Monaco | 29 | 47 | 35.4 | -3.4 | 4.9 | -5.2 | -4.8 | 9.3 | -11.5 | -1.5 | 13.4 | -2.1 | -3.6 | 7.8 | 16.8 | 59.0 |
| Netherlands | 37,431 | 40,151 | 12.5 | -7.4 | 6.9 | -5.8 | 6.0 | 12.7 | -14.5 | -2.2 | -5.7 | 1.7 | 6.1 | -2.8 | 3.5 | 7.3 |
| New Zealand | 2,835 | 3,370 | -6.5 | 11.8 | -6.8 | 5.8 | 0.6 | -4.3 | -2.6 | -0.9 | 5.7 | 5.9 | 5.6 | -0.4 | 5.4 | 18.9 |
| Norway | 4,131 | 3,964 | -10.2 | -8.5 | -1.7 | 4.3 | -0.2 | 20.9 | -10.5 | -0.6 | 2.2 | -15.8 | 8.8 | 4.4 | 8.9 | -4.0 |
| Portugal | 4,025 | 6,595 | 5.5 | 3.9 | 3.5 | 5.5 | -2.9 | 7.7 | -0.1 | 3.6 | 8.9 | 2.9 | 5.7 | 3.5 | 3.2 | 63.9 |
| Romania | 10,185 | 10,705 | -12.3 | 6.4 | -13.0 | -18.0 | 17.7 | -0.1 | 15.3 | -0.8 | -18.7 | 3.3 | -5.6 | 5.7 | 29.4 | 5.1 |
| Slovakia | | 5,683 | | | | | | | | | | | | | | |
| Slovenia | 2,139 | 2,745 | 19.1 | -11.8 | 28.6 | -4.2 | 8.0 | 27.5 | 2.5 | 1.0 | 7.2 | -10.1 | 3.0 | -4.8 | -3.0 | 28.3 |
| Spain | 25,773 | 35,813 | 9.4 | 2.6 | -2.5 | 3.8 | -0.2 | 3.4 | 0.5 | 2.7 | 5.7 | 3.2 | 2.2 | 2.7 | 0.2 | 39.0 |
| Sweden | 10,506 | 6,166 | -2.6 | -5.8 | -0.3 | 0.8 | -4.8 | 0.4 | -8.3 | -0.9 | -5.4 | -4.5 | -8.3 | -7.0 | -4.9 | -41.3 |
| Switzerland | 17,757 | 17,979 | 7.4 | -0.4 | -3.8 | -6.3 | 6.2 | 4.0 | -5.7 | 2.9 | -1.9 | -6.8 | 5.1 | -3.5 | 5.6 | 1.2 |
| Ukraine | 124,081 | 57,306 | 34.3 | -34.5 | -6.3 | -11.2 | -20.5 | -8.6 | -14.7 | 12.5 | -5.9 | -12.8 | 0.8 | 5.8 | 3.5 | -53.8 |
| United Kingdom | 110,175 | 111,020 | 10.1 | -2.6 | 2.8 | -4.1 | -3.5 | 11.8 | -7.6 | 1.3 | -0.1 | -0.5 | 2.5 | -5.1 | -2.6 | 0.8 |
| United States | 563,740 | 619,068 | 1.6 | 1.8 | 2.1 | -0.9 | -0.1 | 6.2 | -2.9 | -8.1 | 4.2 | 5.6 | -3.3 | 1.3 | 2.9 | 9.8 |

^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 1.25**Other sectors (Commercial / Institutional, Residential, Agriculture / Forestry / Fisheries): liquid fuels – trend information**

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|---------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 5,500 | 8,197 | 0.4 | 1.9 | 4.0 | 0.5 | 0.8 | 0.5 | 1.9 | 0.9 | 2.2 | 2.4 | -0.2 | 26.9 | 0.9 | 49.0 |
| Austria | 8,887 | 9,304 | 2.9 | -4.9 | -1.0 | -6.2 | 7.1 | 14.5 | -10.6 | -0.4 | -0.3 | -8.9 | 10.6 | -3.6 | 8.7 | 4.7 |
| Belarus | | 2,342 | | | | | | | | | | | | | | |
| Belgium | 17,386 | 18,511 | 6.8 | 1.0 | -1.9 | 3.8 | -0.7 | 17.0 | -11.5 | 0.2 | -4.2 | -8.0 | 4.1 | -4.0 | 6.8 | 6.5 |
| Bulgaria | 3,778 | 404 | -55.7 | -41.7 | -35.0 | 59.0 | -40.8 | -26.2 | 7.4 | 72.8 | 42.3 | -14.8 | 40.4 | -27.9 | -21.0 | -89.3 |
| Canada | 22,239 | 23,418 | -6.8 | 2.6 | -0.7 | -2.3 | -2.6 | 4.8 | -2.5 | -13.5 | 3.0 | 6.4 | -1.0 | 1.9 | 19.5 | 5.3 |
| Croatia | | 2,319 | | | | | | | | | | | | | | |
| Czech Republic | | 717 | | | | | | | | | | | | | | |
| Denmark | 7,303 | 4,645 | -1.0 | -8.3 | 4.7 | -11.0 | -0.2 | 4.7 | -8.3 | -4.2 | -2.1 | -10.3 | 1.1 | -3.6 | -4.4 | -36.4 |
| Estonia | | 163 | | | | | | | | | | | | | | |
| European Community | 303,249 | 282,196 | 7.7 | -1.9 | 0.2 | -4.0 | 0.3 | 7.5 | -5.2 | -1.2 | -4.8 | -4.2 | 6.8 | -7.4 | 0.6 | -6.9 |
| Finland | 6,714 | 5,651 | -1.6 | 1.4 | -10.7 | 1.6 | -8.0 | 1.6 | 0.2 | 1.6 | -2.2 | -6.9 | 5.9 | 1.4 | 0.0 | -15.8 |
| France | 59,889 | 55,377 | 7.4 | 0.6 | -4.1 | -7.3 | 3.2 | 4.5 | -5.4 | 1.2 | -1.5 | -7.4 | 9.6 | -8.8 | 2.3 | -7.5 |
| Germany | 91,532 | 84,959 | 17.3 | -2.0 | 5.4 | -3.9 | -2.2 | 11.2 | -4.9 | -4.6 | -13.6 | -3.2 | 12.3 | -13.4 | -0.7 | -7.2 |
| Greece | 7,889 | 14,164 | 4.8 | -4.3 | -1.8 | 0.8 | 1.0 | 23.9 | 2.5 | 3.7 | -1.3 | 5.8 | 7.9 | 2.8 | 17.5 | 79.5 |
| Hungary | 7,114 | 1,400 | -18.3 | -0.8 | -19.2 | -1.7 | -27.3 | -18.0 | -7.5 | -14.2 | -5.0 | -3.8 | -3.1 | -2.9 | -22.1 | -80.3 |
| Iceland | 691 | 676 | 2.5 | 8.8 | 4.0 | -2.2 | 1.2 | 8.2 | -3.3 | -5.0 | 0.0 | -6.0 | -11.4 | 9.8 | -6.2 | -2.2 |
| Ireland | 3,670 | 6,454 | 4.9 | 1.8 | 1.4 | 20.4 | -1.5 | 2.5 | 3.5 | 4.7 | 11.5 | 7.0 | 0.4 | -1.4 | 4.3 | 75.8 |
| Italy | 38,602 | 27,396 | -2.0 | -8.5 | -4.6 | -16.7 | 9.2 | -1.1 | -5.1 | 0.5 | 6.5 | -6.9 | 2.7 | -4.4 | -0.6 | -29.0 |
| Japan | 144,544 | 156,538 | 2.2 | 1.8 | 2.8 | -2.2 | 4.9 | -1.3 | -1.7 | 4.2 | 1.3 | 0.3 | 0.3 | 1.0 | -5.2 | 8.3 |
| Latvia | 1,570 | 489 | 76.2 | -25.4 | -27.0 | 15.5 | -62.5 | -30.2 | -8.6 | -6.8 | -0.6 | -10.2 | 33.5 | -8.5 | 15.6 | -68.8 |
| Liechtenstein | | 55 | | | | | | | | | | | | | | |
| Lithuania | | 347 | | | | | | | | | | | | | | |
| Luxembourg | | 739 | | | | | | | | | | | | | | |
| Monaco | | 35 | | | | | | | | | | | | | | |
| Netherlands | 3,998 | 3,200 | -5.1 | -2.9 | 5.7 | 0.1 | -1.6 | -5.2 | -2.9 | -0.3 | -2.9 | -2.8 | 7.2 | -8.6 | -1.7 | -20.0 |
| New Zealand | 1,593 | 1,851 | -8.5 | 21.9 | -18.8 | 15.4 | -3.7 | -1.3 | 1.0 | 3.7 | 3.6 | -6.0 | -3.1 | 2.7 | 15.2 | 16.2 |
| Norway | 4,091 | 3,936 | -10.3 | -8.5 | -1.6 | 4.5 | -0.1 | 21.1 | -10.6 | -0.6 | 2.2 | -15.9 | 8.4 | 4.2 | 9.1 | -3.8 |
| Portugal | 4,025 | 5,861 | 5.5 | 3.9 | 3.5 | 5.5 | -2.9 | 7.7 | -0.2 | 2.7 | 6.9 | 0.5 | 2.8 | 1.6 | 1.1 | 45.6 |
| Romania | 4,782 | 2,463 | -24.4 | 12.9 | -21.8 | -34.6 | 25.8 | -3.6 | 36.7 | -7.6 | -39.7 | 13.4 | -22.3 | 18.5 | 9.5 | -48.5 |
| Slovakia | | 26 | | | | | | | | | | | | | | |
| Slovenia | 814 | 2,394 | 14.4 | -6.8 | 54.9 | 2.5 | 10.8 | 32.3 | 3.4 | 1.0 | 5.3 | -9.7 | 2.1 | -3.9 | -4.0 | 194.2 |
| Spain | 22,098 | 26,155 | 6.4 | 0.4 | -1.9 | 5.4 | 1.5 | 1.9 | -1.1 | 0.7 | 4.4 | 2.8 | 0.1 | -0.1 | -3.1 | 18.4 |
| Sweden | 10,165 | 5,865 | -2.5 | -5.6 | -0.6 | 1.1 | -5.1 | 0.3 | -8.5 | -1.1 | -5.7 | -4.4 | -8.9 | -7.5 | -4.6 | -42.3 |
| Switzerland | 15,338 | 14,336 | 6.4 | -0.9 | -5.1 | -6.5 | 5.0 | 3.0 | -5.2 | 2.7 | -3.1 | -7.6 | 5.0 | -4.0 | 5.1 | -6.5 |
| Ukraine | 35,828 | 17,197 | 28.8 | -15.4 | -28.8 | -77.7 | 230.6 | -23.0 | -70.9 | 259.7 | 4.3 | -13.8 | 8.1 | 8.0 | -0.7 | -52.0 |
| United Kingdom | 20,368 | 13,917 | 4.9 | 1.3 | 1.3 | -2.3 | -3.7 | 7.1 | -8.5 | -1.1 | -9.6 | -6.4 | -0.6 | -6.4 | -11.5 | -31.7 |
| United States | 167,793 | 160,602 | -2.9 | -0.8 | -2.5 | -0.9 | -4.5 | 5.4 | -5.0 | -7.5 | 7.5 | 8.8 | -1.6 | -1.3 | 2.2 | -4.3 |

^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 1.26
Other sectors (Commercial / Institutional, Residential, Agriculture / Forestry / Fisheries): solid fuels – trend information

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|--------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 583 | 306 | -8.0 | -15.3 | -10.5 | 1.9 | -10.2 | -9.6 | -8.3 | -24.4 | -13.5 | 47.9 | 0.9 | 4.8 | -3.1 | -47.6 |
| Austria | 2,948 | 670 | 3.6 | -16.4 | -14.4 | -15.2 | -3.1 | -2.3 | -23.2 | -12.4 | -0.7 | -18.7 | -9.1 | -10.2 | -13.8 | -77.3 |
| Belarus | | 1,459 | | | | | | | | | | | | | | |
| Belgium | 1,977 | 668 | 14.5 | -10.4 | -3.8 | -38.6 | -3.6 | 13.7 | -14.6 | -16.5 | -9.4 | -14.7 | 5.8 | -16.2 | 4.1 | -66.2 |
| Bulgaria | 4,953 | 1,690 | -5.5 | 27.1 | -7.8 | -26.0 | -18.7 | 29.0 | -18.0 | 4.7 | -26.8 | -27.9 | -36.1 | 74.0 | 14.1 | -65.9 |
| Canada | 191 | 91 | -0.7 | -12.4 | -4.2 | -10.5 | 34.7 | -0.3 | -7.0 | -11.8 | -4.2 | -2.0 | -2.5 | -36.3 | -0.5 | -52.3 |
| Croatia | | 74 | | | | | | | | | | | | | | |
| Czech Republic | | 4,623 | | | | | | | | | | | | | | |
| Denmark | 320 | 146 | 26.5 | -20.8 | -6.1 | -0.2 | -25.1 | -29.5 | -13.0 | -24.0 | -24.1 | 34.2 | 14.0 | -30.3 | 71.9 | -54.4 |
| Estonia | | 79 | | | | | | | | | | | | | | |
| European Community | 105,431 | 13,339 | -20.3 | -24.6 | -8.2 | -21.2 | -14.8 | -3.0 | -15.8 | -19.0 | -7.5 | -17.6 | -0.6 | -14.3 | -20.2 | -87.3 |
| Finland | 33 | 25 | -35.1 | 70.8 | -41.5 | 187.5 | -87.0 | | 11.1 | | | -10.0 | | 11.1 | 179.9 | -24.4 |
| France | 4,401 | 375 | 0.3 | -31.4 | -13.5 | -32.8 | 43.1 | -2.5 | -40.4 | -24.1 | -28.2 | -8.9 | -9.9 | -41.1 | -2.7 | -91.5 |
| Germany | 67,078 | 4,222 | -34.5 | -35.2 | -14.5 | -28.0 | -13.2 | -7.1 | -21.0 | -35.8 | -6.0 | -23.9 | -9.6 | -8.1 | -0.8 | -93.7 |
| Greece | 120 | 22 | 43.8 | 1.5 | 10.2 | -6.7 | 0.8 | 12.2 | -6.1 | -12.5 | -32.8 | 16.8 | -5.8 | 13.2 | -83.9 | -81.2 |
| Hungary | 12,281 | 1,344 | 6.0 | -47.2 | -2.7 | -26.0 | -16.5 | 3.1 | -17.6 | -56.6 | 7.0 | -25.6 | 41.5 | 7.6 | 1.1 | -89.1 |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | 5,587 | 1,872 | -7.3 | -8.2 | -19.4 | 0.0 | -5.3 | -14.4 | 5.9 | 4.6 | -24.2 | -6.7 | -5.1 | -1.6 | -17.6 | -66.5 |
| Italy | 920 | 73 | 6.3 | 3.9 | -0.1 | -4.0 | 3.2 | -3.6 | -41.2 | -44.5 | -3.0 | -3.0 | 10.8 | -78.0 | 0.0 | -92.1 |
| Japan | 1,941 | 1,179 | -23.0 | 1.5 | -6.4 | -20.8 | -8.3 | 9.3 | -15.5 | -18.0 | 12.1 | 66.1 | -71.9 | 216.7 | -9.1 | -39.3 |
| Latvia | 1,106 | 193 | -2.9 | -41.7 | 33.4 | -4.0 | -44.8 | -1.2 | -7.6 | -21.7 | -19.0 | -25.6 | 39.9 | -20.3 | -9.0 | -82.5 |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | 348 | | | | | | | | | | | | | | |
| Luxembourg | | 8 | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 189 | 122 | -21.2 | -2.3 | 17.3 | -22.2 | -15.3 | -1.0 | -3.6 | 5.8 | 2.4 | 0.0 | 12.3 | -8.4 | 2.2 | -35.4 |
| New Zealand | 801 | 499 | -8.3 | -4.8 | 17.3 | -9.4 | 11.9 | -13.7 | -15.3 | -15.5 | -8.8 | -4.6 | 28.7 | -4.5 | -9.2 | -37.8 |
| Norway | 36 | 9 | -6.2 | -24.6 | -15.5 | -5.9 | -16.2 | -22.1 | -1.5 | 7.3 | -16.6 | -7.0 | -22.2 | 47.7 | -29.3 | -75.5 |
| Portugal | | | | | | | | | | | | | | | | |
| Romania | 2,198 | 86 | -30.8 | -27.5 | -31.4 | -64.9 | -14.1 | 109.1 | -12.9 | -85.3 | 168.7 | -12.1 | -74.9 | 269.7 | -43.5 | -96.1 |
| Slovakia | | 732 | | | | | | | | | | | | | | |
| Slovenia | 1,291 | 33 | 27.3 | -22.4 | -24.6 | -35.2 | -20.3 | -16.9 | -41.6 | -18.3 | 4.7 | -40.3 | -23.0 | -16.3 | -1.3 | -97.5 |
| Spain | 2,300 | 536 | 19.6 | 5.3 | -19.8 | -13.5 | -28.4 | -4.8 | -1.5 | -6.8 | -28.0 | -39.8 | -29.7 | 14.8 | 21.7 | -76.7 |
| Sweden | 157 | NO | -33.3 | -44.9 | -21.4 | -45.5 | -50.0 | -59.0 | 214.2 | -50.0 | | | | | | |
| Switzerland | 61 | 12 | 15.5 | -30.6 | 1.9 | -9.4 | -4.2 | -43.4 | -15.4 | -36.4 | 0.0 | -7.2 | -0.1 | 0.0 | 0.0 | -80.0 |
| Ukraine | 62,711 | 6,720 | -90.3 | 457.6 | -7.1 | -38.4 | -10.8 | -41.6 | 27.3 | -18.6 | -10.4 | -21.9 | -10.8 | 9.6 | -5.7 | -89.3 |
| United Kingdom | 19,376 | 4,599 | 6.1 | -13.4 | 7.1 | -16.6 | -26.6 | 4.7 | -9.6 | -10.0 | 1.7 | -16.5 | 8.5 | -18.0 | -38.8 | -76.3 |
| United States | 14,582 | 10,478 | -8.7 | 1.2 | 0.1 | -2.8 | -3.4 | 3.4 | 4.7 | -27.6 | 11.4 | -12.0 | 5.8 | -6.4 | 8.8 | -28.1 |

^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 1.27

Other sectors (Commercial / Institutional, Residential, Agriculture / Forestry / Fisheries): gaseous fuels – trend information

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|---------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 6,402 | 8,778 | 1.5 | 4.8 | 4.5 | 1.1 | 6.4 | 1.1 | 5.8 | 2.7 | 0.6 | 2.4 | 2.4 | -3.9 | 2.8 | 37.1 |
| Austria | 2,534 | 4,718 | 21.6 | 11.7 | 9.2 | -10.5 | 18.8 | 1.2 | -2.7 | -0.1 | 21.6 | -14.0 | 25.1 | -15.9 | 9.2 | 86.2 |
| Belarus | | 2,686 | | | | | | | | | | | | | | |
| Belgium | 7,817 | 11,980 | 17.0 | -1.1 | 6.6 | -2.2 | 7.4 | 18.1 | -12.3 | 4.1 | -0.8 | 1.8 | 9.4 | -4.3 | 3.7 | 53.2 |
| Bulgaria | 209 | 112 | -86.2 | 54.3 | -3.5 | 4.5 | 350.7 | 91.6 | -63.3 | 81.8 | 4.0 | 16.0 | 30.0 | 6.5 | 36.2 | -46.5 |
| Canada | 46,985 | 60,293 | 2.0 | 3.7 | 5.9 | 0.2 | 1.8 | 8.5 | -4.0 | -10.2 | 6.4 | 9.5 | -5.6 | 6.0 | 2.9 | 28.3 |
| Croatia | | 1,486 | | | | | | | | | | | | | | |
| Czech Republic | | 9,187 | | | | | | | | | | | | | | |
| Denmark | 1,486 | 2,578 | 15.8 | 6.2 | 16.9 | -3.2 | 11.8 | 18.9 | -6.5 | 2.6 | -3.2 | -3.8 | 6.9 | -4.4 | 2.8 | 73.5 |
| Estonia | | 155 | | | | | | | | | | | | | | |
| European Community | 230,402 | 350,445 | 16.1 | -0.6 | 5.5 | -2.6 | 5.9 | 14.3 | -6.8 | 3.4 | 0.6 | -0.1 | 6.7 | -3.1 | 5.8 | 52.1 |
| Finland | 98 | 225 | 26.1 | -3.6 | 7.5 | 5.7 | 1.2 | 7.7 | 1.9 | -3.7 | 1.9 | 1.9 | 4.1 | 7.8 | 32.8 | 128.7 |
| France | 30,057 | 44,627 | 18.4 | 0.3 | 1.2 | -1.0 | -1.3 | 14.0 | -4.1 | 8.7 | -1.0 | -0.2 | 10.9 | -10.4 | 8.5 | 48.5 |
| Germany | 45,804 | 88,611 | 18.4 | 2.3 | 12.8 | 1.6 | 11.4 | 20.1 | -6.7 | 1.0 | -1.5 | -2.0 | 9.5 | -0.4 | 5.0 | 93.5 |
| Greece | 17 | 108 | 9.2 | 14.8 | -4.7 | -12.9 | 7.6 | | 4.4 | 56.6 | -14.7 | 15.0 | 33.8 | 53.5 | 73.5 | 538.5 |
| Hungary | 4,937 | 14,194 | 21.6 | -17.9 | 21.0 | 14.1 | 11.0 | 10.2 | 0.7 | -3.6 | 7.7 | 0.1 | 7.4 | 2.5 | 12.6 | 187.5 |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | 469 | 1,937 | 30.9 | 17.2 | 17.9 | 10.6 | 4.4 | 18.3 | -2.2 | 14.6 | 12.0 | 15.6 | 8.7 | 0.3 | 5.5 | 312.9 |
| Italy | 36,417 | 55,590 | 17.3 | -0.7 | 2.8 | -8.4 | 10.4 | 4.9 | -1.7 | 6.6 | 4.4 | -3.5 | 3.5 | -2.3 | 12.8 | 52.6 |
| Japan | 17,565 | 27,908 | 6.9 | 4.7 | 7.6 | 0.0 | 7.6 | 4.6 | 2.6 | 3.1 | 4.3 | 5.1 | -0.8 | 3.6 | -1.6 | 58.9 |
| Latvia | 522 | 421 | 11.2 | 16.5 | -24.4 | -18.3 | -11.0 | -2.1 | -20.9 | 3.0 | -0.7 | -5.1 | 11.4 | 18.2 | 14.2 | -19.4 |
| Liechtenstein | | 27 | | | | | | | | | | | | | | |
| Lithuania | | 446 | | | | | | | | | | | | | | |
| Luxembourg | | 622 | | | | | | | | | | | | | | |
| Monaco | | 12 | | | | | | | | | | | | | | |
| Netherlands | 33,244 | 36,829 | 14.8 | -7.8 | 6.9 | -6.3 | 6.9 | 14.6 | -15.5 | -2.4 | -6.0 | 2.2 | 5.9 | -2.2 | 4.0 | 10.8 |
| New Zealand | 441 | 1,020 | 3.9 | 6.3 | 2.3 | 2.8 | -1.9 | 1.6 | 4.2 | 1.9 | 26.2 | 43.3 | 9.3 | -2.7 | -2.1 | 131.4 |
| Norway | | 17 | | | | | 406.3 | 32.1 | 631.2 | -20.5 | 106.4 | 6.2 | 439.8 | 9.2 | -10.4 | |
| Portugal | | 735 | | | | | | | | 1,784.3 | 221.3 | 87.5 | 59.7 | 27.1 | 23.6 | |
| Romania | 3,206 | 8,155 | 22.6 | 14.9 | 1.2 | 4.2 | 15.8 | -8.7 | 12.8 | 11.1 | -8.8 | -0.1 | 3.6 | -0.3 | 38.9 | 154.4 |
| Slovakia | | 4,924 | | | | | | | | | | | | | | |
| Slovenia | 34 | 318 | 26.6 | 6.2 | 19.2 | 7.7 | 34.3 | 25.7 | 37.5 | 10.4 | 29.3 | -5.1 | 15.7 | -10.3 | 4.8 | 838.4 |
| Spain | 1,375 | 9,123 | 40.2 | 25.0 | 12.8 | 5.3 | 5.4 | 20.4 | 12.2 | 17.7 | 21.5 | 11.6 | 13.5 | 12.7 | 9.8 | 563.6 |
| Sweden | 184 | 301 | 20.4 | 2.7 | 14.8 | -2.3 | 11.6 | 5.6 | -6.6 | 8.3 | 3.4 | -6.9 | 9.0 | 4.5 | -9.8 | 63.6 |
| Switzerland | 2,357 | 3,631 | 14.4 | 3.6 | 3.4 | -5.1 | 12.8 | 9.6 | -7.9 | 3.7 | 3.6 | -3.1 | 5.4 | -1.2 | 7.3 | 54.0 |
| Ukraine | 23,328 | 33,351 | 384.3 | -67.9 | 16.8 | 48.1 | -45.1 | 16.5 | -3.3 | -6.4 | -9.3 | -9.8 | 0.2 | 3.4 | 8.4 | 43.0 |
| United Kingdom | 70,372 | 92,463 | 12.8 | -0.8 | 2.3 | -1.6 | 1.2 | 14.0 | -7.0 | 3.4 | 1.9 | 2.4 | 2.5 | -3.6 | 2.0 | 31.4 |
| United States | 381,365 | 447,988 | 4.0 | 2.9 | 4.0 | -0.9 | 1.6 | 6.6 | -2.4 | -7.8 | 2.8 | 5.0 | -4.2 | 2.5 | 3.1 | 17.5 |

^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 1.28**Contribution of fuels in CO₂ emissions from Other sectors (%)**

| | Liquid fuels | | Solid fuels | | Gaseous fuels | |
|--------------------|------------------------|-------|------------------------|------|------------------------|------|
| | Base year ^a | 2003 | Base year ^a | 2003 | Base year ^a | 2003 |
| Australia | 44.1 | 47.4 | 4.7 | 1.8 | 51.3 | 50.8 |
| Austria | 61.8 | 63.3 | 20.5 | 4.6 | 17.6 | 32.1 |
| Belarus | | 36.1 | | 22.4 | | 41.3 |
| Belgium | 63.8 | 59.3 | 7.3 | 2.1 | 28.7 | 38.3 |
| Bulgaria | 42.3 | 18.3 | 55.4 | 76.6 | 2.3 | 5.1 |
| Canada | 32.0 | 27.9 | 0.3 | 0.1 | 67.7 | 71.9 |
| Croatia | | 59.8 | | 1.9 | | 38.3 |
| Czech Republic | | 4.9 | | 31.8 | | 63.2 |
| Denmark | 80.0 | 62.8 | 3.5 | 2.0 | 16.3 | 34.8 |
| Estonia | | 39.9 | | 19.3 | | 38.0 |
| European Community | 47.4 | 43.6 | 16.5 | 2.1 | 36.0 | 54.1 |
| Finland | 96.4 | 93.7 | 0.5 | 0.4 | 1.4 | 3.7 |
| France | 63.4 | 55.1 | 4.7 | 0.4 | 31.8 | 44.4 |
| Germany | 44.8 | 47.8 | 32.8 | 2.4 | 22.4 | 49.8 |
| Greece | 98.3 | 99.1 | 1.5 | 0.2 | 0.2 | 0.8 |
| Hungary | 29.2 | 8.3 | 50.5 | 7.9 | 20.3 | 83.8 |
| Iceland | 100.0 | 100.0 | | | | |
| Ireland | 37.7 | 62.9 | 57.4 | 18.2 | 4.8 | 18.9 |
| Italy | 50.6 | 32.6 | 1.2 | 0.1 | 47.8 | 66.1 |
| Japan | 88.1 | 84.3 | 1.2 | 0.6 | 10.7 | 15.0 |
| Latvia | 49.1 | 44.3 | 34.6 | 17.5 | 16.3 | 38.1 |
| Liechtenstein | | 67.4 | | | | 32.6 |
| Lithuania | | 30.4 | | 30.5 | | 39.1 |
| Luxembourg | | 54.0 | | 0.6 | | 45.5 |
| Monaco | | 74.2 | | | | 25.8 |
| Netherlands | 10.7 | 8.0 | 0.5 | 0.3 | 88.8 | 91.7 |
| New Zealand | 56.2 | 54.9 | 28.3 | 14.8 | 15.5 | 30.3 |
| Norway | 99.0 | 99.3 | 0.9 | 0.2 | | 0.4 |
| Portugal | 100.0 | 88.9 | | | | 11.1 |
| Romania | 46.9 | 23.0 | 21.6 | 0.8 | 31.5 | 76.2 |
| Slovakia | | 0.5 | | 12.9 | | 86.7 |
| Slovenia | 38.0 | 87.2 | 60.4 | 1.2 | 1.6 | 11.6 |
| Spain | 85.7 | 73.0 | 8.9 | 1.5 | 5.3 | 25.5 |
| Sweden | 96.8 | 95.1 | 1.5 | | 1.8 | 4.9 |
| Switzerland | 86.4 | 79.7 | 0.3 | 0.1 | 13.3 | 20.2 |
| Ukraine | 28.9 | 30.0 | 50.5 | 11.7 | 18.8 | 58.2 |
| United Kingdom | 18.5 | 12.5 | 17.6 | 4.1 | 63.9 | 83.3 |
| United States | 29.8 | 25.9 | 2.6 | 1.7 | 67.6 | 72.4 |

^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 1.29

Transport: all fuels – trend information

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|-----------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 59,724 | 74,033 | -1.1 | 1.8 | 2.0 | 2.5 | 4.1 | 3.4 | 2.0 | 0.1 | 1.3 | 3.0 | -0.1 | 2.0 | 0.7 | 24.0 |
| Austria | 12,405 | 22,692 | 12.8 | -0.4 | 1.3 | -0.3 | 2.7 | 10.9 | -6.6 | 14.7 | -3.4 | 6.9 | 6.5 | 11.1 | 8.2 | 82.9 |
| Belarus | | 6,783 | | | | | | | | | | | | 19.3 | 3.9 | |
| Belgium | 19,752 | 25,371 | 3.3 | 7.3 | 0.5 | -2.0 | 0.4 | 1.9 | 1.2 | 3.1 | 1.5 | 1.9 | 2.7 | 1.3 | 2.5 | 28.5 |
| Bulgaria | 13,814 | 7,098 | -39.9 | -1.4 | 15.7 | -12.0 | 4.5 | -7.9 | -15.7 | 21.8 | -4.1 | -5.3 | 2.2 | 5.0 | 12.4 | -48.6 |
| Canada | 141,931 | 179,147 | -3.4 | 2.5 | 2.3 | 4.8 | 2.6 | 2.4 | 3.9 | 2.1 | 2.6 | 0.8 | -0.9 | 1.3 | 2.7 | 26.2 |
| Croatia | 4,046 | 5,284 | -27.9 | -4.6 | 6.0 | 5.9 | 6.8 | 9.9 | 9.4 | 3.7 | 5.6 | 0.0 | 1.4 | 6.9 | 10.9 | 30.6 |
| Czech Republic | 7,275 | 13,431 | | | | | 25.0 | 4.1 | 15.1 | -5.4 | 11.5 | -7.5 | 8.6 | 3.0 | 8.1 | 84.6 |
| Denmark | 10,441 | 12,785 | 4.6 | 1.2 | 1.7 | 4.0 | 1.2 | 1.7 | 1.1 | 0.3 | 0.5 | -1.1 | 0.2 | 1.5 | 3.8 | 22.4 |
| Estonia | 2,693 | 2,147 | 14.3 | -51.3 | 14.4 | -11.2 | -27.5 | -5.1 | 15.7 | 11.6 | -11.0 | -14.4 | 86.5 | 13.2 | -1.3 | -20.3 |
| European Community | 689,550 | 845,361 | 2.1 | 3.6 | 1.0 | 0.4 | 1.3 | 2.2 | 1.1 | 3.1 | 2.4 | 0.2 | 1.2 | 1.2 | 0.7 | 22.6 |
| Finland | 12,316 | 13,067 | -2.5 | -0.5 | -3.7 | 3.1 | -1.7 | -0.4 | 4.6 | 1.4 | 1.9 | -0.9 | 1.0 | 1.8 | 2.0 | 6.1 |
| France | 119,100 | 141,384 | 2.1 | 3.8 | 0.0 | 0.9 | 1.5 | 1.1 | 1.7 | 1.7 | 2.3 | -0.4 | 2.4 | 0.6 | -0.3 | 18.7 |
| Germany | 162,360 | 170,209 | 2.2 | 3.4 | 2.8 | -2.1 | 2.1 | 0.1 | 0.3 | 1.8 | 3.1 | -2.0 | -2.3 | -1.1 | -3.4 | 4.8 |
| Greece | 15,355 | 21,230 | 5.0 | 0.7 | 3.3 | 0.5 | 0.6 | 2.7 | 3.4 | 9.0 | 0.9 | -2.6 | 3.7 | 1.3 | 4.8 | 38.3 |
| Hungary | 7,569 | 9,589 | -12.5 | -3.0 | -0.2 | -1.5 | 1.9 | 0.0 | 6.1 | 13.7 | 4.4 | -0.4 | 3.9 | 4.8 | 3.4 | 26.7 |
| Iceland | 600 | 667 | 1.9 | 1.7 | 0.1 | 0.4 | -3.9 | -1.6 | 2.0 | 0.5 | 3.6 | 0.4 | 1.7 | 0.6 | 3.6 | 11.1 |
| Ireland | 5,020 | 11,393 | 4.9 | 7.9 | -0.3 | 3.8 | 8.3 | 11.9 | 8.8 | 14.1 | 11.0 | 4.0 | 8.3 | 1.5 | 1.4 | 127.0 |
| Italy | 101,858 | 126,015 | 2.4 | 4.1 | 1.6 | -0.2 | 1.6 | 1.0 | 1.5 | 3.3 | 1.1 | 0.4 | 1.9 | 1.7 | 0.9 | 23.7 |
| Japan | 210,663 | 252,930 | 5.4 | 3.5 | 1.0 | 3.8 | 3.9 | 3.2 | 1.3 | -1.4 | 1.4 | -1.5 | 0.9 | -1.9 | -0.9 | 20.1 |
| Latvia | 2,445 | 2,590 | -30.6 | -6.4 | 24.9 | -12.4 | 6.6 | 9.2 | -0.1 | -1.9 | -1.7 | 8.8 | 20.8 | -0.1 | 1.2 | 5.9 |
| Liechtenstein | 88 | 92 | | | | | | | | | | | | | | 4.4 |
| Lithuania | 5,791 | 3,550 | | | | | | | | | | | | 3.3 | -1.2 | -38.7 |
| Luxembourg | | 6,019 | | | | | | | | | | | | | | |
| Monaco | 37 | 49 | 16.1 | 11.8 | -7.3 | 3.1 | -3.4 | -1.0 | -0.7 | -3.8 | 6.3 | 2.5 | 8.9 | -4.8 | 3.5 | 32.5 |
| Netherlands | 26,008 | 34,157 | 1.1 | 4.8 | 2.2 | 1.7 | 1.8 | 2.6 | 1.3 | 2.4 | 3.1 | 1.1 | 1.6 | 2.1 | 1.7 | 31.3 |
| New Zealand | 8,633 | 13,788 | 0.1 | 4.5 | 4.6 | 7.4 | 7.0 | 0.8 | 2.9 | 1.7 | 2.2 | 5.0 | 3.1 | 4.5 | 4.2 | 59.7 |
| Norway | 11,099 | 13,704 | -0.7 | 2.0 | 5.5 | -1.4 | 3.4 | 5.3 | 1.9 | 2.6 | 4.5 | -6.3 | 2.4 | -1.6 | 4.4 | 23.5 |
| Portugal | 10,137 | 19,583 | 6.0 | 7.9 | 3.7 | 4.4 | 4.9 | 4.9 | 5.0 | 11.7 | 5.6 | 10.1 | 1.4 | 2.3 | 0.2 | 93.2 |
| Romania | 7,276 | 11,964 | -12.4 | 23.2 | -11.8 | 6.4 | -8.3 | 40.9 | 1.3 | -6.2 | -21.1 | 9.1 | 16.3 | 10.2 | 0.5 | 64.4 |
| Slovakia | 5,071 | 5,143 | -15.6 | -7.8 | -1.4 | 5.9 | 6.3 | 1.5 | 3.7 | 7.5 | -2.7 | -10.4 | 13.3 | 14.2 | -8.0 | 1.4 |
| Slovenia | 1,971 | 3,941 | -5.5 | 3.0 | 15.5 | 10.3 | 9.9 | 15.9 | 1.6 | -13.6 | -4.9 | 4.2 | 3.6 | 0.4 | 3.7 | 99.9 |
| Spain | 56,513 | 95,499 | 4.0 | 6.4 | -1.2 | 4.6 | 1.5 | 6.9 | 0.9 | 9.6 | 6.0 | 3.2 | 4.8 | 2.3 | 5.0 | 69.0 |
| Sweden | 18,352 | 20,056 | -1.6 | 4.9 | -4.4 | 3.2 | 0.6 | -1.1 | 1.2 | 1.5 | 1.7 | -0.9 | 0.8 | 2.0 | 1.3 | 9.3 |
| Switzerland | 14,187 | 15,409 | 3.5 | 2.0 | -7.0 | 1.4 | -2.2 | 0.4 | 4.2 | 1.6 | 4.2 | 1.9 | -1.9 | -0.5 | 1.3 | 8.6 |
| Ukraine | 40,808 | 13,646 | -77.7 | 259.2 | -14.0 | -8.3 | 0.8 | -0.6 | 53.9 | -73.4 | -57.2 | 182.3 | -7.9 | 11.4 | 4.0 | -66.6 |
| United Kingdom | 117,209 | 125,974 | -0.5 | 1.2 | 1.1 | 0.2 | -0.8 | 3.9 | 0.9 | -0.7 | 0.6 | -0.6 | -0.4 | 1.5 | 1.0 | 7.5 |
| United States | 1,446,837 | 1,767,214 | -1.8 | 2.2 | 2.1 | 2.8 | 1.8 | 2.7 | 0.6 | 1.9 | 3.5 | 2.8 | -1.0 | 1.9 | 0.9 | 22.1 |

^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 1.29 (continued)

Transport: all fuels – trend information

| N ₂ O emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|---------------------------------|------------------------|--------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 5.26 | 16.45 | 19.5 | 13.2 | 11.8 | 11.2 | 9.5 | 8.0 | 6.4 | 7.2 | 7.4 | 7.1 | 2.8 | 11.8 | 4.2 | 212.6 |
| Austria | 0.55 | 0.91 | 38.7 | 15.0 | 11.5 | 5.0 | -0.6 | -1.9 | -6.0 | 5.0 | -7.6 | -2.4 | -1.5 | 3.5 | -0.5 | 64.4 |
| Belarus | | 0.16 | | | | | | | | | | | | 75.0 | 128.6 | |
| Belgium | 1.15 | 2.57 | 6.7 | 4.6 | 15.0 | 7.4 | 9.1 | 6.9 | 5.0 | 4.8 | 13.1 | 6.2 | 2.3 | 2.8 | 0.4 | 124.2 |
| Bulgaria | 0.33 | 0.13 | -40.2 | -4.9 | 14.3 | -16.4 | 3.1 | -7.6 | -11.8 | 9.3 | -2.7 | -9.9 | -0.1 | 3.2 | 15.8 | -59.2 |
| Canada | 20.30 | 26.03 | 2.2 | 8.2 | 9.7 | 9.8 | 3.1 | -0.1 | 2.1 | -0.7 | 1.5 | -0.9 | -4.6 | -3.5 | -0.6 | 28.2 |
| Croatia | 0.04 | 0.51 | -34.5 | -9.3 | 7.9 | 5.8 | 8.2 | 134.5 | 60.5 | 45.9 | 34.4 | 33.7 | 21.2 | 16.1 | 24.9 | 1,171.8 |
| Czech Republic | 0.26 | 2.01 | | | | | 46.9 | 114.5 | 9.5 | -27.6 | 12.4 | 5.1 | 5.7 | 9.5 | 4.4 | 672.8 |
| Denmark | 0.47 | 1.38 | 16.0 | 10.8 | 10.2 | 17.4 | 10.3 | 8.6 | 11.5 | 6.2 | 5.8 | 3.5 | 3.6 | 3.6 | 5.2 | 192.0 |
| Estonia | 0.02 | 0.02 | 4.1 | -46.9 | 13.6 | -8.4 | -26.8 | -4.4 | 17.0 | 6.7 | -7.0 | -13.9 | 74.4 | 14.1 | -1.6 | -21.3 |
| European Community | 33.71 | 79.01 | 11.4 | 10.5 | 10.2 | 8.8 | 9.6 | 7.7 | 6.2 | 7.2 | 5.9 | 2.4 | 3.5 | 3.6 | 1.5 | 134.4 |
| Finland | 0.56 | 1.71 | 13.6 | 9.8 | 8.5 | 8.4 | 9.4 | 8.8 | 11.2 | 9.7 | 9.6 | 6.8 | 6.6 | 7.5 | 7.0 | 206.1 |
| France | 5.37 | 14.02 | 7.2 | 8.0 | 7.7 | 12.6 | 11.4 | 10.3 | 7.9 | 7.1 | 7.6 | 4.2 | 8.2 | 4.2 | 3.5 | 160.9 |
| Germany | 9.93 | 13.67 | 24.2 | 16.6 | 11.1 | 2.5 | 6.9 | 2.5 | 1.1 | -0.8 | -1.8 | -5.6 | -5.6 | -5.3 | -8.3 | 37.6 |
| Greece | 0.57 | 1.49 | 3.6 | 2.1 | 1.3 | 1.5 | 9.7 | 11.4 | 10.3 | 15.6 | 8.6 | 4.7 | 12.0 | 10.3 | 10.8 | 163.9 |
| Hungary | 1.24 | 1.77 | -16.0 | -5.4 | -0.3 | 1.5 | 0.8 | -9.5 | 27.2 | 23.4 | 9.4 | -5.4 | 12.3 | 7.0 | 1.3 | 43.2 |
| Iceland | 0.02 | 0.10 | 2.5 | 1.7 | 0.2 | 0.6 | 118.5 | -0.5 | 59.5 | 2.1 | 48.9 | -0.9 | 0.9 | 0.9 | 3.2 | 476.4 |
| Ireland | 0.28 | 1.32 | 8.7 | 9.5 | 34.7 | 20.0 | 4.1 | 27.2 | 20.5 | 20.2 | 22.0 | -4.1 | 10.7 | -4.4 | 3.4 | 371.5 |
| Italy | 5.56 | 12.16 | 0.8 | 3.3 | 4.1 | 6.8 | 8.9 | 8.1 | 6.9 | 13.0 | 8.6 | 3.6 | 4.5 | 9.8 | 2.8 | 118.6 |
| Japan | 16.20 | 21.73 | 4.2 | 5.0 | -0.3 | 3.8 | 3.2 | 4.3 | 0.1 | 0.0 | 4.4 | 1.7 | 2.5 | 0.5 | 0.6 | 34.1 |
| Latvia | 0.26 | 0.26 | -6.9 | -17.7 | -4.7 | -33.0 | 17.1 | 12.9 | 10.9 | 0.6 | -4.7 | 9.4 | 23.6 | 4.6 | 5.1 | 2.2 |
| Liechtenstein | 0.01 | 0.01 | | | | | | | | | | | | | | 5.6 |
| Lithuania | 0.19 | 0.15 | | | | | | | | | | | | 7.1 | -2.0 | -22.6 |
| Luxembourg | | 0.18 | | | | | | | | | | | | | | |
| Monaco | 0.00 | 0.00 | 16.4 | 13.3 | 24.9 | 31.7 | 16.4 | 17.6 | 9.6 | 7.0 | 13.3 | 3.0 | 6.2 | 2.6 | -1.0 | 338.4 |
| Netherlands | 0.88 | 1.52 | 16.3 | 16.7 | 11.3 | 7.9 | 7.9 | 1.8 | 1.4 | 0.6 | 0.6 | -3.7 | -0.3 | 0.6 | -2.4 | 73.4 |
| New Zealand | 0.24 | 0.47 | 1.0 | 7.2 | 7.5 | 9.7 | 10.9 | 2.8 | 4.5 | 2.6 | 3.5 | 7.1 | 3.2 | 5.5 | 4.3 | 96.2 |
| Norway | 0.53 | 2.58 | 6.9 | 9.1 | 17.0 | 18.5 | 18.6 | 17.8 | 15.0 | 14.5 | 14.0 | 7.1 | 14.9 | 8.5 | 7.7 | 387.8 |
| Portugal | 0.47 | 1.71 | 4.4 | 7.4 | 20.1 | 17.7 | 13.8 | 11.6 | 11.3 | 17.2 | 9.5 | 14.3 | 4.0 | 5.6 | 1.8 | 267.0 |
| Romania | 0.06 | 0.10 | -14.1 | 24.4 | -11.4 | 4.9 | -7.9 | 35.7 | 3.0 | -6.1 | -20.3 | 8.8 | 16.1 | 9.7 | -0.3 | 57.7 |
| Slovakia | 0.25 | 0.65 | -15.9 | -7.9 | -1.1 | 110.2 | 10.7 | 9.9 | 16.9 | 1.0 | 0.4 | -7.0 | 14.2 | 10.2 | -2.4 | 165.4 |
| Slovenia | 0.08 | 0.50 | -3.1 | -7.9 | 10.5 | 45.6 | 39.9 | 37.8 | 2.1 | 3.2 | 22.4 | 6.6 | 12.5 | 8.5 | 1.5 | 493.8 |
| Spain | 2.52 | 7.78 | 5.2 | 7.7 | 7.8 | 13.8 | 9.0 | 11.9 | 8.8 | 15.2 | 10.6 | 6.4 | 8.1 | 6.6 | 7.3 | 208.5 |
| Sweden | 1.04 | 2.31 | 4.9 | 9.7 | 2.7 | 8.1 | 8.0 | 6.2 | 5.8 | 8.0 | 8.2 | 7.4 | 5.5 | 4.4 | 3.1 | 120.9 |
| Switzerland | 0.32 | 0.49 | 24.1 | 19.6 | 2.6 | 8.9 | 3.8 | 6.5 | 4.5 | -0.1 | 1.3 | -2.7 | -7.1 | -7.3 | -6.3 | 52.3 |
| Ukraine | 0.29 | 0.05 | -63.5 | 174.4 | -26.2 | -10.7 | 2.5 | -0.7 | 105.2 | -89.5 | 21.7 | 12.3 | -10.7 | -0.4 | 3.8 | -81.8 |
| United Kingdom | 4.31 | 16.28 | 3.6 | 8.4 | 18.9 | 20.6 | 17.2 | 14.8 | 12.0 | 11.8 | 10.1 | 7.2 | 6.5 | 6.4 | 3.9 | 277.4 |
| United States | 138.52 | 132.03 | 5.4 | 6.3 | 4.1 | 3.3 | 2.1 | 1.5 | 1.1 | 0.3 | -1.3 | -2.8 | -8.2 | -7.0 | -8.1 | -4.7 |

^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 1.30**Road transportation, CO₂, N₂O (2003)**

| | CO ₂ emissions | | | | | | | N ₂ O emissions | | | | | | |
|------------------------------|---------------------------|-------------------------|----------------------------------|------------------|---------------------|----------------------------|----------------------------|----------------------------|-------------------------|----------------------------------|------------------|----------------------|----------------------------|---------------------------|
| | Key source | Share of national total | Methods and EF used ^a | | CO ₂ IEF | | | Key source | Share of national total | Methods and EF used ^a | | N ₂ O IEF | | |
| | | | Methods | EF | IEF in CRF based on | Gasoline | Diesel oil | | | Methods | EF | IEF in CRF based on | Gasoline | Diesel oil |
| | | | | | | | | | | | | | | |
| 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 ^c | L, T | 12.9 | T1, T2 | CS | GCV | 68.78 | 72.63 | L, T | 0.98 | T1, T2 | D, CS | GCV | 25.75 | 2.36 |
| Austria | L, T | 23.9 | M, CS | CS | NCV | 74.07 | 73.67 | | 0.29 | M, T1 | CS | NCV | 5.80 | 1.63 |
| Belarus | L | 7.8 | D,T1 | D | NCV | 68.61 | 73.08 | | 0.02 | D,T1 | D | NCV | 0.60 | 0.59 |
| Belgium | L, T | 16.8 | | | NCV | 68.61 | 73.33 | T | 0.50 | | | NCV | 7.87 | 6.60 |
| Bulgaria | L, T | 9.1 | T2 | C, CS, D | NCV | 72.16 | 76.14 | | 0.05 | T2 | C, CS, D | NCV | 1.13 | 1.91 |
| Canada ^c | L, T | 18.2 | CS, T1, T3 | CS, D | GCV | 70.98 | 75.03 | L, T | 0.69 | CS, T1, T3 | CS, D | GCV | 11.91 | 2.31 |
| Croatia | L | 16.5 | T1/T3 | D/C | NCV | 71.39 | 73.41 | | 0.53 | T1/T3 | D/C | NCV | 7.84 | 7.14 |
| Czech Republic | L | 8.6 | T1 | D | NCV | 68.61 | 73.33 | | 0.42 | T2 | D, PS | NCV | 19.44 | 3.00 |
| Denmark | L, T | 15.7 | M/C | CS | NCV | 73.00 | 74.00 | T | 0.55 | M/C | M/C | NCV | 11.16 | 5.29 |
| Estonia | L | 8.3 | T1 | D | NCV | 68.61 | 73.33 | | 0.02 | T1 | D | NCV | 0.60 | 0.60 |
| European Community | L, T | 18.9 | C, CS, D, M, T1, T2, T2a, T3 | C, CS, D, M, T2a | NCV | 71.09 | 73.61 | L, T | 0.56 | C, CS, D, M, T1, T2, T2a, T3 | C, CS, D, M | NCV | 9.49 | 5.12 |
| Finland | L, T | 13.4 | CS (M) | CS | NCV | 72.87 | 73.55 | L, T | 0.60 | CS (M) | CS/M | NCV | 18.75 | 3.29 |
| France | L, T | 23.7 | C /CS /M | C /M /CS | NCV | 72.35 | 75.03 | L, T | 0.76 | C /CS | C /M /CS | NCV | 9.65 | 6.75 |
| Germany | L, T | 15.7 | T1,T3,CS | CS | NCV | 72.00 | 74.00 | T | 0.40 | T1,T2,T3,CS | M,CS | NCV | 8.81 | 3.11 |
| Greece | L, T | 13.1 | C, T2a | C, T2a | NCV | 68.61 | 72.71 | T | 0.31 | C, T2a | C, T2a | NCV | 6.02 | 4.02 |
| Hungary | L, T | 11.8 | T1c | D | NCV | 68.61 | 73.33 | T | 0.68 | T1c | CS | NCV | 8.00 | 18.00 |
| Iceland | L, T | 20.9 | T1 | D | NCV | 68.61 | 73.33 | T | 0.98 | T2 | D | NCV | 13.24 | 2.74 |
| Ireland | L, T | 16.3 | T1 | CS | NCV | 69.96 | 73.30 | T | 0.57 | T1 | C | NCV | 10.94 | 5.65 |
| Italy | L, T | 20.4 | D, T1, T2a, C | CS | NCV | 71.15 | 73.16 | L, T | 0.64 | D, T1, T2a, C | C, CS | NCV | 8.59 | 6.49 |
| Japan ^c | L, T | 17.0 | T1, CS | D, CS | GCV | 70.61 | 72.28 | | 0.48 | T1, T3, CS | D, CS | GCV | 8.03 | 3.80 |
| Latvia | L, T | 22.2 | T1 | D | NCV | 73.21 | 73.21 | T | 0.47 | T1 | D | NCV | 5.02 | 5.02 |
| Liechtenstein | L | 34.5 | | | NCV | 73.90 | 73.60 | | 1.24 | | | NCV | 10.94 | 2.78 |
| Lithuania | L | 19.2 | C | CS | NCV | 73.00 | 74.00 | | 0.25 | C | CS | NCV | 2.00 | 4.00 |
| Luxembourg | | | | | NCV | | | | | | | NCV | | |
| Monaco | L | 25.4 | D, T1 | D | NCV | 74.61 | 72.27 | | 1.02 | D, T1 | D | NCV | 12.32 | 3.81 |
| Netherlands | L, T | 15.6 | T2 | CS, D | NCV | 72.00 | 74.30 | | 0.22 | CS/T3(road);CS/T1(non-r) | CS(road)/D(rest) | NCV | 4.57 | 2.23 |
| New Zealand ^c | L, T | 23.0 | D | CS | GCV | 69.17 | 72.43 | | 0.25 | D | D | GCV | 1.49 | 3.89 |
| Norway | L, T | 17.5 | T1, CS/T2 | CS | NCV | 71.30 | 73.55 | L, T | 1.30 | CS, T2, CS/T2 | CS, D, C | NCV | 30.04 | 3.39 |
| Portugal | L, T | 23.1 | M | D+C | NCV | 71.10 | 72.45 | L, T | 0.64 | M | D+C+CS | NCV | 8.29 | 5.49 |
| Romania | L, T | 7.6 | T1 | D | NCV | 68.61 | 73.33 | | 0.02 | T1 | D | NCV | 0.60 | 0.60 |
| Slovakia | L | 9.4 | M | M | NCV | 73.01 | 73.83 | | 0.28 | M | M | NCV | 9.48 | 5.05 |
| Slovenia | L, T | 19.7 | T1, C | D, CS | NCV | 73.00 | 73.67 | L, T | 0.75 | T1, C | D, CS | NCV | 10.58 | 6.76 |
| Spain | L, T | 21.7 | D,C | D,C | NCV | 71.09 | 72.63 | L, T | 0.57 | D,C | D,C | NCV | 6.92 | 5.81 |
| Sweden | L, T | 26.1 | T1, T2, CS | CS | NCV | 72.60 | 72.03 | L, T | 0.94 | T1, T2, CS | CS, C | NCV | 11.12 | 3.59 |
| Switzerland | L, T | 28.8 | CS | CS | NCV | 73.90 | 73.60 | T | 0.28 | CS | CS, D | NCV | 2.67 | 1.24 |
| Ukraine | T | 0.3 | T1 | D | NCV | 68.61 | 73.02 | | 0.00 | T1 | D | NCV | 0.60 | 0.58 |
| United Kingdom | L, T | 18.4 | T3 | CS | NCV | 68.87 | 72.77 | L, T | 0.74 | T2/T3 | D | NCV | 13.04 | 5.07 |
| United States ^c | L, T | 21.2 | T1, T2 | CS | GCV | 70.04 | 72.25 | T | 0.56 | T1, T2, M | D, CS, M | GCV | 7.59 | 0.21 |

^a Information on methods and emission factors included in this table is as reported by Parties. 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 NO 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 basis. This means that reported IEFs are about 5% lower for liquid and solid fuels and biomass and about 10% 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 1.31**Road transportation – trend information**

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|-----------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 52,761 | 66,307 | -1.9 | 1.6 | 2.4 | 2.9 | 2.8 | 3.1 | 1.9 | 1.6 | 2.0 | 2.6 | -0.8 | 3.6 | 1.4 | 25.7 |
| Austria | 11,924 | 21,883 | 13.3 | -0.4 | 1.4 | -0.4 | 2.8 | 11.3 | -6.9 | 14.4 | -4.3 | 6.5 | 7.3 | 11.2 | 8.7 | 83.5 |
| Belarus | | 5,589 | | | | | | | | | | | | | | |
| Belgium | 19,270 | 24,813 | 1.0 | 3.7 | 2.5 | 2.3 | 0.3 | 2.0 | 1.2 | 3.1 | 1.5 | 1.7 | 2.8 | 1.3 | 2.2 | 28.8 |
| Bulgaria | 7,747 | 6,267 | -41.8 | 5.2 | 23.8 | -13.5 | 8.3 | -9.4 | -17.1 | 27.3 | 3.4 | -5.9 | 3.6 | 5.7 | 14.3 | -19.1 |
| Canada | 102,878 | 134,557 | -2.8 | 2.7 | 2.2 | 4.7 | 2.3 | 1.6 | 4.6 | 0.8 | 3.4 | 0.8 | 1.5 | 2.8 | 2.7 | 30.8 |
| Croatia | | 4,947 | | | | | | | | | | | | | | |
| Czech Republic | | 12,727 | | | | | | | | | | | | | | |
| Denmark | 9,351 | 11,864 | 4.4 | 1.7 | 1.3 | 5.0 | 0.9 | 1.6 | 1.9 | 1.7 | 1.2 | -1.1 | 0.4 | 1.0 | 4.2 | 26.9 |
| Estonia | | 1,782 | | | | | | | | | | | | | | |
| European Community | 638,574 | 790,731 | 2.3 | 3.7 | 1.3 | 0.7 | 1.3 | 2.1 | 1.3 | 3.0 | 2.3 | 0.2 | 1.4 | 1.4 | 0.5 | 23.8 |
| Finland | 10,800 | 11,447 | -2.8 | -0.3 | -4.5 | 3.3 | -1.4 | -0.7 | 4.9 | 0.9 | 1.8 | -0.8 | 1.7 | 2.0 | 2.2 | 6.0 |
| France | 111,403 | 132,260 | 2.4 | 4.0 | 0.1 | 0.6 | 1.0 | 0.9 | 1.8 | 1.6 | 2.2 | -0.3 | 2.7 | 0.5 | -0.3 | 18.7 |
| Germany | 150,262 | 159,842 | 2.5 | 3.8 | 2.8 | -2.1 | 2.5 | 0.0 | 0.6 | 2.1 | 3.2 | -2.2 | -2.0 | -1.1 | -3.7 | 6.4 |
| Greece | 11,873 | 18,015 | 6.8 | 2.4 | 2.3 | 1.3 | 3.0 | 4.6 | 2.4 | 4.8 | 1.8 | 1.2 | 2.3 | 3.5 | 6.1 | 51.7 |
| Hungary | 6,807 | 9,362 | -12.2 | -2.3 | 0.7 | -1.4 | 2.1 | 0.1 | 6.4 | 14.3 | 4.7 | -0.2 | 4.2 | 5.1 | 3.3 | 37.5 |
| Iceland | 509 | 628 | 3.5 | 2.6 | -0.6 | 1.4 | -1.9 | -3.7 | 6.0 | 1.4 | 4.5 | 2.1 | 1.1 | 1.4 | 4.0 | 23.4 |
| Ireland | 4,680 | 10,993 | 4.4 | 8.4 | -0.4 | 4.1 | 7.6 | 11.7 | 9.0 | 14.7 | 10.4 | 4.6 | 7.9 | 5.2 | 1.5 | 134.9 |
| Italy | 93,995 | 116,346 | 2.1 | 4.6 | 2.1 | 0.1 | 1.6 | 0.4 | 1.5 | 3.1 | 0.8 | 0.0 | 2.5 | 1.9 | 1.1 | 23.8 |
| Japan | 189,204 | 227,178 | 5.4 | 3.8 | 1.0 | 3.9 | 3.6 | 3.2 | 0.8 | -0.8 | 1.7 | -1.9 | 1.2 | -2.3 | -0.9 | 20.1 |
| Latvia | 1,909 | 2,333 | -38.6 | 0.2 | 38.3 | -6.2 | 5.6 | 10.6 | -0.8 | -0.9 | -0.1 | 9.3 | 22.7 | -0.5 | 0.0 | 22.2 |
| Liechtenstein | | 91 | | | | | | | | | | | | | | |
| Lithuania | | 3,305 | | | | | | | | | | | | | | |
| Luxembourg | | 5,993 | | | | | | | | | | | | | | |
| Monaco | | 34 | | | | | | | | | | | | | | |
| Netherlands | 25,472 | 33,433 | 1.1 | 4.9 | 2.2 | 1.6 | 1.9 | 2.7 | 1.2 | 2.4 | 2.8 | 1.1 | 1.6 | 2.1 | 1.8 | 31.3 |
| New Zealand | 7,535 | 12,095 | 1.2 | 4.5 | 4.7 | 5.6 | 8.1 | 1.7 | 4.2 | 2.3 | 2.3 | 2.6 | 1.9 | 5.8 | 3.5 | 60.5 |
| Norway | 7,850 | 9,576 | -1.0 | 1.9 | 5.8 | -2.2 | 2.7 | 5.3 | -0.2 | 2.5 | 2.4 | -5.8 | 6.2 | 0.4 | 2.7 | 22.0 |
| Portugal | 9,249 | 18,747 | 6.7 | 8.8 | 4.2 | 5.3 | 5.3 | 5.2 | 5.8 | 12.4 | 5.4 | 10.5 | 1.6 | 2.5 | -0.4 | 102.7 |
| Romania | 4,420 | 9,612 | -17.1 | 31.4 | -5.7 | 8.1 | -8.4 | 41.9 | -2.7 | -3.9 | -21.8 | 12.6 | 19.7 | 10.2 | -0.4 | 117.5 |
| Slovakia | | 4,869 | | | | | | | | | | | | | | |
| Slovenia | 1,902 | 3,902 | -5.9 | 4.0 | 16.0 | 10.4 | 10.0 | 16.1 | 1.7 | -13.7 | -4.9 | 4.2 | 3.7 | 0.3 | 3.8 | 105.1 |
| Spain | 50,442 | 87,135 | 5.7 | 6.8 | -0.9 | 5.4 | 1.4 | 6.5 | 1.0 | 9.6 | 5.2 | 2.9 | 4.9 | 2.7 | 5.0 | 72.7 |
| Sweden | 16,677 | 18,414 | -0.5 | 5.1 | -3.9 | 3.4 | 0.4 | -0.9 | 0.6 | 1.0 | 1.3 | -0.8 | 1.0 | 2.4 | 1.1 | 10.4 |
| Switzerland | 13,762 | 15,038 | 3.9 | 2.3 | -7.1 | 1.4 | -2.1 | 0.5 | 4.3 | 1.6 | 4.3 | 1.8 | -1.9 | -0.7 | 1.3 | 9.3 |
| Ukraine | 32,596 | 1,394 | -96.1 | 2,208.5 | -28.2 | -9.6 | -5.2 | -13.2 | 4.9 | -88.5 | -11.0 | -11.5 | -1.0 | -5.8 | 1.0 | -95.7 |
| United Kingdom | 110,467 | 119,548 | -0.8 | 1.4 | 1.2 | 0.5 | -0.8 | 3.8 | 1.3 | -0.6 | 0.8 | -0.6 | 0.1 | 2.1 | -0.2 | 8.2 |
| United States | 1,151,253 | 1,464,160 | -0.7 | 1.8 | 2.6 | 2.4 | 2.2 | 2.7 | 1.9 | 3.0 | 3.0 | 1.4 | 0.9 | 1.8 | 1.3 | 27.2 |

^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 1.31**Road transportation – trend information (continued)**

| N ₂ O emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|---------------------------------|------------------------|--------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 5.07 | 16.22 | 19.9 | 13.5 | 12.2 | 11.5 | 9.4 | 8.1 | 6.5 | 7.7 | 7.6 | 7.1 | 2.8 | 12.1 | 4.3 | 220.0 |
| Austria | 0.52 | 0.87 | 41.4 | 15.8 | 12.1 | 4.9 | -0.4 | -1.7 | -6.4 | 5.2 | -8.3 | -2.6 | -1.6 | 3.5 | -0.5 | 68.0 |
| Belarus | | 0.05 | | | | | | | | | | | | | | |
| Belgium | 0.96 | 2.38 | 8.6 | 8.7 | 15.5 | 11.0 | 7.7 | 7.8 | 5.3 | 4.9 | 14.3 | 5.8 | 2.6 | 2.9 | 0.5 | 148.7 |
| Bulgaria | 0.16 | 0.11 | -40.2 | 4.3 | 23.1 | -15.9 | 6.3 | -8.0 | -13.3 | 16.4 | 5.6 | -11.7 | 1.6 | 3.7 | 19.4 | -27.2 |
| Canada | 11.76 | 16.56 | 10.0 | 13.9 | 12.0 | 11.0 | 4.2 | -1.3 | 1.3 | -2.1 | 0.8 | -4.2 | -3.0 | -2.1 | -3.4 | 40.7 |
| Croatia | | 0.51 | | | | | | | | | | | | | | |
| Czech Republic | | 1.99 | | | | | | | | | | | | | | |
| Denmark | 0.42 | 1.34 | 16.7 | 12.6 | 10.6 | 19.5 | 10.7 | 8.9 | 12.9 | 7.4 | 6.4 | 3.7 | 3.8 | 3.3 | 5.4 | 216.5 |
| Estonia | | 0.02 | | | | | | | | | | | | | | |
| European Community | 30.45 | 76.15 | 12.6 | 11.5 | 11.3 | 9.7 | 10.2 | 8.1 | 6.8 | 7.5 | 6.2 | 2.4 | 3.8 | 4.1 | 1.5 | 150.1 |
| Finland | 0.51 | 1.66 | 14.8 | 10.7 | 8.9 | 8.8 | 10.1 | 9.2 | 11.6 | 9.9 | 9.9 | 7.1 | 6.9 | 7.8 | 7.2 | 223.2 |
| France | 5.14 | 13.74 | 7.6 | 8.3 | 8.1 | 12.8 | 11.5 | 10.4 | 8.2 | 7.2 | 7.8 | 4.4 | 8.5 | 4.2 | 3.6 | 167.5 |
| Germany | 9.46 | 13.20 | 25.5 | 17.4 | 11.3 | 2.7 | 7.2 | 2.6 | 1.3 | -0.8 | -1.9 | -6.4 | -5.5 | -5.4 | -8.5 | 39.6 |
| Greece | 0.40 | 1.36 | 9.3 | 2.5 | 1.8 | 1.8 | 17.2 | 14.7 | 12.1 | 14.6 | 11.8 | 7.2 | 13.0 | 12.5 | 12.2 | 243.2 |
| Hungary | 1.17 | 1.75 | -16.0 | -4.6 | 0.1 | 1.6 | 0.9 | -9.7 | 27.5 | 24.3 | 9.3 | -5.4 | 12.6 | 7.2 | 1.3 | 49.9 |
| Iceland | 0.01 | 0.09 | 4.2 | 2.6 | -0.4 | 1.4 | 138.1 | -1.3 | 64.4 | 2.3 | 50.2 | -0.6 | 0.8 | 1.1 | 3.3 | 570.4 |
| Ireland | 0.18 | 1.24 | 12.8 | 9.9 | 48.9 | 24.8 | 4.2 | 26.0 | 24.3 | 24.6 | 23.6 | -5.0 | 10.8 | 8.0 | 3.7 | 582.3 |
| Italy | 5.20 | 11.84 | 0.5 | 3.6 | 4.7 | 7.3 | 9.2 | 8.4 | 7.4 | 13.4 | 8.8 | 3.6 | 4.7 | 10.2 | 3.5 | 127.6 |
| Japan | 15.23 | 20.74 | 4.3 | 5.3 | -0.3 | 3.9 | 3.2 | 4.5 | -0.1 | 0.2 | 4.8 | 1.7 | 2.7 | 0.4 | 0.8 | 36.2 |
| Latvia | 0.04 | 0.16 | -31.7 | 7.1 | 43.3 | -7.0 | 25.0 | 38.0 | 18.8 | 12.2 | 4.3 | 14.6 | 39.1 | 4.6 | 0.0 | 290.2 |
| Liechtenstein | | 0.01 | | | | | | | | | | | | | | |
| Lithuania | | 0.14 | | | | | | | | | | | | | | |
| Luxembourg | | 0.17 | | | | | | | | | | | | | | |
| Monaco | | 0.00 | | | | | | | | | | | | | | |
| Netherlands | 0.87 | 1.52 | 16.4 | 16.8 | 11.3 | 7.9 | 8.0 | 1.8 | 1.4 | 0.6 | 0.5 | -3.7 | -0.3 | 0.6 | -2.4 | 73.6 |
| New Zealand | 0.21 | 0.42 | 2.0 | 7.5 | 7.9 | 8.3 | 12.5 | 3.9 | 5.7 | 3.3 | 3.6 | 4.9 | 2.6 | 6.9 | 3.7 | 102.2 |
| Norway | 0.30 | 2.30 | 14.6 | 16.8 | 25.7 | 19.8 | 23.4 | 24.4 | 18.4 | 18.5 | 16.0 | 9.4 | 17.6 | 10.2 | 8.6 | 675.6 |
| Portugal | 0.41 | 1.67 | 4.7 | 8.4 | 23.1 | 19.7 | 14.7 | 12.6 | 12.2 | 18.2 | 9.7 | 14.8 | 4.3 | 5.8 | 1.8 | 305.7 |
| Romania | 0.04 | 0.08 | -17.1 | 30.8 | -5.3 | 8.4 | -8.6 | 41.6 | -2.4 | -3.8 | -21.6 | 12.2 | 19.9 | 10.1 | -1.2 | 118.1 |
| Slovakia | | 0.46 | | | | | | | | | | | | | | |
| Slovenia | 0.06 | 0.48 | -7.9 | 2.3 | 17.4 | 54.1 | 44.5 | 41.8 | 2.5 | 3.5 | 23.7 | 6.8 | 13.1 | 8.6 | 1.8 | 765.1 |
| Spain | 2.19 | 7.41 | 7.0 | 8.6 | 9.8 | 15.8 | 9.5 | 12.4 | 9.3 | 15.8 | 10.7 | 6.6 | 8.3 | 7.0 | 7.5 | 239.0 |
| Sweden | 0.84 | 2.13 | 8.8 | 10.6 | 3.9 | 9.4 | 9.6 | 7.7 | 6.2 | 8.3 | 9.0 | 8.5 | 6.3 | 5.0 | 3.3 | 153.3 |
| Switzerland | 0.31 | 0.48 | 25.4 | 20.4 | 2.6 | 9.2 | 4.0 | 6.7 | 4.6 | -0.1 | 1.4 | -2.9 | -7.1 | -7.5 | -6.5 | 55.0 |
| Ukraine | 0.27 | 0.01 | -96.2 | 2,203.9 | -27.4 | -9.6 | -4.4 | -12.9 | 4.9 | -89.6 | -11.9 | -12.0 | -0.5 | -6.4 | 1.0 | -96.2 |
| United Kingdom | 3.32 | 15.62 | 3.6 | 10.4 | 25.5 | 25.7 | 20.0 | 16.8 | 14.8 | 12.9 | 11.2 | 7.9 | 7.4 | 7.6 | 3.7 | 371.1 |
| United States | 130.83 | 124.06 | 6.0 | 6.5 | 4.3 | 3.3 | 2.3 | 1.4 | 1.4 | 0.3 | -1.6 | -3.4 | -8.2 | -7.5 | -8.5 | -5.2 |

^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 1.31

Road transportation – trend information (continued)

| N ₂ O implied emission factors for gasoline (kg/TJ) | | | Relative Change (%) | | | | | | | | | | | | | |
|--|------------------------|-------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia ^b | 8.50 | 25.75 | 24.2 | 13.6 | 11.5 | 9.9 | 7.8 | 7.3 | 6.5 | 7.6 | 6.2 | 5.3 | 4.6 | 9.6 | 3.1 | 202.8 |
| Austria | 3.88 | 5.80 | 34.8 | 23.6 | 15.2 | 9.2 | 1.6 | 0.4 | -1.2 | -3.2 | -3.5 | -4.1 | -6.6 | -7.6 | -8.6 | 49.3 |
| Belarus | | 0.60 | | | | | | | | | | | | | | |
| Belgium | 1.63 | 7.87 | 23.3 | 20.8 | 45.6 | 21.0 | 12.5 | 12.8 | 9.6 | 5.4 | 2.7 | 14.0 | 3.6 | 5.9 | -2.3 | 382.3 |
| Bulgaria | 1.20 | 1.13 | -2.6 | 2.7 | -2.2 | -1.7 | -0.3 | -2.3 | 3.8 | -11.4 | 6.5 | 2.7 | -3.0 | 1.4 | 2.8 | -6.0 |
| Canada ^b | 10.41 | 11.91 | 14.4 | 11.8 | 10.2 | 7.9 | 3.8 | -2.0 | -1.9 | -4.4 | -2.5 | -4.6 | -5.4 | -5.4 | -5.2 | 14.4 |
| Croatia | | 7.84 | | | | | | | | | | | | | | |
| Czech Republic | | 19.44 | | | | | | | | | | | | | | |
| Denmark | 2.24 | 11.16 | 34.0 | 24.5 | 18.3 | 24.9 | 15.5 | 11.3 | 15.9 | 7.8 | 7.3 | 5.7 | 5.5 | 1.9 | 3.3 | 398.5 |
| Estonia | | 0.60 | | | | | | | | | | | | | | |
| European Community | 2.90 | 9.49 | -99.4 | 23,521.3 | 17.6 | 16.3 | 13.9 | 9.4 | 8.9 | 7.5 | 5.4 | 4.5 | 4.0 | 3.8 | 1.9 | 227.5 |
| Finland | 3.63 | 18.75 | 28.6 | 17.3 | 20.0 | 10.1 | 14.8 | 15.5 | 11.1 | 13.7 | 12.9 | 12.6 | 6.5 | 6.7 | 7.3 | 417.2 |
| France | 1.77 | 9.65 | 1.9 | 1.9 | 17.4 | 31.7 | 25.1 | 25.2 | 17.9 | 13.4 | 12.3 | 12.0 | 10.0 | 9.0 | 7.8 | 446.3 |
| Germany | 5.40 | 8.81 | 31.3 | 18.7 | 11.8 | 8.9 | 6.0 | 3.2 | 1.4 | -2.0 | -3.9 | -3.7 | -4.1 | -5.0 | -6.3 | 63.1 |
| Greece | 1.47 | 6.02 | -0.6 | 1.6 | 1.7 | 2.0 | 32.3 | 21.2 | 19.6 | 14.9 | 16.3 | 10.1 | 15.0 | 11.7 | 8.2 | 310.5 |
| Hungary | 8.00 | 8.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -37.5 | 60.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Iceland | 1.71 | 13.24 | 1.2 | 0.0 | 0.0 | 0.0 | 204.0 | 0.0 | 67.3 | 0.0 | 50.1 | 0.0 | 0.0 | 0.0 | 0.0 | 672.9 |
| Ireland | 1.92 | 10.94 | 10.7 | 4.2 | 102.7 | 37.6 | -0.4 | 20.6 | 22.3 | 15.4 | 18.5 | -23.6 | 4.7 | 5.9 | 3.7 | 468.1 |
| Italy | 1.83 | 8.59 | 2.5 | 1.6 | 16.6 | 41.0 | 20.0 | 15.4 | 13.5 | 19.8 | 11.7 | 7.8 | 6.8 | 9.2 | 3.8 | 370.6 |
| Japan ^b | 7.37 | 8.03 | -1.3 | 1.2 | -2.4 | 3.2 | -1.1 | 1.6 | -1.5 | 1.2 | 3.5 | 1.4 | 1.8 | 0.9 | 0.4 | 8.9 |
| Latvia | 1.52 | 5.02 | 10.6 | 8.5 | 4.7 | -0.7 | 18.7 | 25.3 | 20.0 | 13.3 | 4.5 | 5.0 | 13.7 | 5.2 | 0.0 | 230.8 |
| Liechtenstein | | 10.94 | | | | | | | | | | | | | | |
| Lithuania | | 2.00 | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | 12.32 | | | | | | | | | | | | | | |
| Netherlands | 3.33 | 4.57 | 19.0 | 16.5 | 9.1 | 6.0 | 7.9 | -1.6 | 0.4 | -2.5 | -2.8 | -6.0 | -4.4 | -0.9 | -4.9 | 37.1 |
| New Zealand ^b | 1.49 | 1.49 | 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 | 2.56 | 30.04 | 24.5 | 22.5 | 28.5 | 29.7 | 28.2 | 25.4 | 23.4 | 20.1 | 18.8 | 15.9 | 14.2 | 12.0 | 10.0 | 1,073.4 |
| Portugal | 1.62 | 8.29 | -0.1 | 0.1 | 68.7 | 32.9 | 19.8 | 14.7 | 11.8 | 10.8 | 8.8 | 7.0 | 5.8 | 4.8 | 3.7 | 410.7 |
| 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 | -0.6 | -0.6 |
| Slovakia | | 9.48 | | | | | | | | | | | | | | |
| Slovenia | 1.90 | 10.58 | -2.1 | 0.1 | 2.2 | 59.9 | 42.5 | 28.1 | -3.1 | 19.3 | 32.5 | 0.0 | 9.5 | 8.7 | 0.0 | 457.8 |
| Spain | 1.74 | 6.92 | 2.0 | 2.2 | 29.0 | 25.4 | 15.8 | 12.2 | 12.4 | 10.7 | 10.3 | 8.4 | 7.5 | 7.6 | 5.1 | 296.5 |
| Sweden | 3.78 | 11.12 | 10.1 | 11.2 | 11.0 | 9.4 | 9.0 | 10.1 | 8.4 | 11.0 | 8.5 | 10.4 | 6.2 | 3.9 | 3.8 | 194.1 |
| Switzerland | 1.85 | 2.67 | 22.4 | 17.8 | 11.3 | 9.2 | 7.5 | 4.6 | 0.3 | -1.5 | -2.8 | -4.4 | -5.6 | -7.4 | -8.3 | 44.8 |
| Ukraine | 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 |
| United Kingdom | 1.71 | 13.04 | 3.0 | 14.7 | 37.8 | 39.1 | 29.4 | 18.1 | 18.7 | 18.0 | 12.5 | 11.4 | 10.3 | 7.8 | 5.4 | 660.9 |
| United States ^b | 9.67 | 7.59 | 6.6 | 5.0 | 2.2 | 2.1 | 0.1 | -0.5 | 0.5 | -2.7 | -4.1 | -3.9 | -8.7 | -9.8 | -9.0 | -21.5 |

^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).

^b Australia, Canada, Japan, New Zealand and United States reported energy data on a gross calorific value basis. This means that reported IEFs are about 5% lower for liquid and solid fuels and biomass and about 10% 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 1.31

Road transportation – trend information (continued)

| N ₂ O implied emission factors for diesel (kg/TJ) | | | Relative Change (%) | | | | | | | | | | | | | |
|--|------------------------|-------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia ^b | 1.93 | 2.36 | 4.6 | 0.0 | 0.0 | 0.0 | 3.6 | 0.0 | 0.0 | -0.9 | 0.0 | 0.0 | -0.1 | 13.4 | 0.0 | 21.8 |
| Austria | 1.98 | 1.63 | -2.4 | -2.1 | -2.0 | -1.1 | -2.4 | -4.7 | 2.2 | -1.7 | 1.0 | -1.5 | -2.1 | -0.7 | -1.1 | -17.3 |
| Belarus | | 0.59 | | | | | | | | | | | | | | |
| Belgium | 5.09 | 6.60 | 3.1 | 0.8 | -1.0 | 2.4 | 4.5 | 1.3 | 1.1 | 0.3 | 18.4 | -0.4 | -1.2 | 0.0 | -1.5 | 29.8 |
| Bulgaria | 1.85 | 1.91 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -13.4 | 21.6 | -1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Canada ^b | 2.34 | 2.31 | -0.4 | -0.4 | -0.5 | -0.6 | -0.5 | -0.2 | 0.0 | 0.8 | 0.0 | 0.4 | 0.3 | 0.3 | 0.0 | -1.0 |
| Croatia | | 7.14 | | | | | | | | | | | | | | |
| Czech Republic | | 3.00 | | | | | | | | | | | | | | |
| Denmark | 4.54 | 5.29 | 0.2 | 0.8 | 0.0 | 0.3 | 1.0 | 0.4 | 0.5 | 0.5 | 2.1 | 3.2 | 0.8 | 4.6 | 1.1 | 16.4 |
| Estonia | | 0.60 | | | | | | | | | | | | | | |
| European Community | 4.20 | 5.12 | -99.2 | 12,326.5 | 1.0 | -0.1 | 2.1 | 1.3 | 1.3 | 1.4 | 3.0 | 1.3 | 1.9 | 3.1 | 1.9 | 22.0 |
| Finland | 3.28 | 3.29 | 2.6 | -0.6 | 3.3 | -4.9 | 2.8 | -0.9 | -3.4 | -0.8 | -1.0 | 0.1 | 0.8 | 1.4 | 1.0 | 0.2 |
| France | 5.25 | 6.75 | 2.8 | 2.6 | 2.5 | 2.9 | 2.6 | 1.5 | 0.0 | 1.3 | 1.5 | 0.5 | 3.6 | 1.2 | 2.4 | 28.5 |
| Germany | 3.09 | 3.11 | -0.3 | -0.8 | 0.6 | -1.2 | 0.3 | -0.4 | -0.4 | -0.5 | 0.1 | 0.7 | 0.8 | 0.7 | 0.7 | 0.5 |
| Greece | 3.73 | 4.02 | 2.0 | 0.3 | -1.6 | 0.0 | 1.9 | 0.8 | -1.1 | 2.6 | 0.3 | -1.3 | 0.5 | 2.0 | 1.0 | 7.7 |
| Hungary | 17.50 | 18.00 | -6.3 | -8.5 | 0.0 | 6.7 | -6.3 | 10.0 | -3.0 | 9.4 | 2.9 | -9.4 | 10.4 | 0.0 | 0.0 | 1.0 |
| Iceland | 2.74 | 2.74 | 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 |
| Ireland | 4.04 | 5.65 | 4.8 | -1.4 | 9.6 | -3.7 | -7.3 | 2.9 | 0.2 | -1.7 | -0.9 | 33.7 | 2.7 | -1.4 | 1.4 | 39.6 |
| Italy | 5.70 | 6.49 | 0.0 | 1.0 | -0.8 | -4.5 | 0.0 | 3.1 | -1.0 | 1.8 | 4.2 | -0.5 | -1.7 | 9.3 | 2.7 | 14.0 |
| Japan ^b | 3.43 | 3.80 | 0.6 | 1.6 | 1.0 | -5.5 | 1.0 | -0.5 | -0.7 | -0.6 | 0.3 | 7.3 | -1.0 | 4.5 | 2.7 | 10.6 |
| Latvia | 1.52 | 5.02 | 10.6 | 8.5 | 4.7 | -0.7 | 18.7 | 25.3 | 20.0 | 13.3 | 4.5 | 5.0 | 13.7 | 5.2 | 0.0 | 230.8 |
| Liechtenstein | | 2.78 | | | | | | | | | | | | | | |
| Lithuania | | 4.00 | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | 3.81 | | | | | | | | | | | | | | |
| Netherlands | 1.45 | 2.23 | 0.8 | 0.1 | 3.2 | 0.2 | 0.3 | 4.9 | 7.5 | 6.8 | 5.9 | 6.7 | 5.5 | 1.6 | 0.7 | 53.7 |
| New Zealand ^b | 3.89 | 3.89 | 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 | 3.08 | 3.39 | -0.2 | -0.2 | 2.4 | 0.8 | 3.2 | 1.9 | 3.9 | -0.5 | -1.3 | -0.3 | -0.1 | -0.1 | 0.2 | 9.8 |
| Portugal | 4.60 | 5.49 | -0.8 | 1.0 | 1.1 | 1.7 | 0.8 | 0.7 | 1.5 | 1.8 | 1.1 | 3.3 | 2.1 | 1.5 | 1.9 | 19.4 |
| 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 | -0.2 | -0.2 |
| Slovakia | | 5.05 | | | | | | | | | | | | | | |
| Slovenia | 2.66 | 6.76 | -1.6 | -1.2 | 0.9 | -1.4 | -1.2 | 4.6 | 25.7 | 20.5 | 17.0 | 14.5 | 12.7 | 12.9 | -1.5 | 156.5 |
| Spain | 4.61 | 5.81 | 0.3 | 2.0 | 1.7 | 1.4 | 1.1 | 1.7 | 5.3 | 1.7 | 2.0 | 0.9 | 1.1 | 2.8 | 1.5 | 26.0 |
| Sweden | 3.41 | 3.59 | 5.3 | -13.8 | -2.2 | -5.2 | 5.9 | 2.0 | -0.5 | 0.4 | 6.1 | 6.7 | 2.2 | -0.5 | 0.8 | 5.4 |
| Switzerland | 0.75 | 1.24 | -1.7 | -0.7 | -0.8 | 0.7 | -1.6 | 2.8 | 7.3 | 8.1 | 9.8 | 9.3 | 6.4 | 7.2 | 5.2 | 64.9 |
| Ukraine | 0.60 | 0.58 | 0.0 | -0.2 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | -6.2 | 0.7 | 0.8 | 1.2 | -0.9 | 1.3 | -3.3 |
| United Kingdom | 3.20 | 5.07 | 5.6 | 1.0 | 4.9 | 3.1 | 7.2 | 2.1 | 3.1 | 4.0 | 4.9 | 3.3 | 2.5 | 3.4 | 2.1 | 58.4 |
| United States ^b | 0.22 | 0.21 | -1.9 | 3.6 | 3.3 | 0.5 | 0.0 | -3.5 | 0.8 | -1.9 | -1.0 | -2.6 | -0.8 | 3.3 | -3.4 | -3.9 |

^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).

^b Australia, Canada, Japan, New Zealand and United States reported energy data on a gross calorific value basis. This means that reported IEFs are about 5% lower for liquid and solid fuels and biomass and about 10% 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 and navigation (domestic), CO₂ (2003)

| | Methods and EF used ^a | | IEF in CRF based on | Civil aviation (domestic) | | | International aviation | | Navigation (domestic) | | | | International marine | | |
|------------------------------|----------------------------------|------------------|---------------------|---------------------------|-----------------------------|---------------------|------------------------|---------------------|-----------------------|------------|-----------------------------|---------------------|----------------------|---------------------|----------------|
| | Methods | EF | | Key source | Share of national total (%) | CO ₂ IEF | | CO ₂ IEF | | Key source | 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 |
| | | | | | | | | | | | | | | | |
| IPCC default EF ^b | | | NCV | | | 72.80 | 72.10 | 72.80 | 72.10 | | | 77.60 | 73.00 | 77.60 | 75.0-77.6 |
| Australia ^c | T1, T2 | CS | GCV | L, T | 1.01 | 72.63 | 70.91 | 72.63 | NA | T | 0.19 | 76.80 | 72.47 | 76.70 | 72.63 |
| Austria | M, CS | CS | NCV | | 0.07 | 72.75 | 72.72 | 72.75 | 0.00 | | 0.09 | | 73.67 | | |
| Belarus | D,T1 | D | NCV | | 0.01 | 71.15 | 68.61 | 1000.00 | 0.00 | | 0.01 | 0.00 | 73.33 | 0.00 | 73.33 |
| Belgium | | | NCV | | 0.01 | | 69.85 | 70.79 | 70.80 | | 0.23 | 0.00 | 73.35 | 76.59 | 73.33 |
| Bulgaria | T2 | C, CS, D | NCV | T | 0.08 | 70.60 | 70.80 | 70.60 | NO | | | NO | NO | NO | 76.14 |
| Canada ^c | CS, T1, T3 | CS, D | GCV | L, T | 0.95 | 71.77 | 73.17 | 71.77 | NA | L | 0.79 | 76.53 | 75.03 | 76.53 | 75.03 |
| Croatia | T1/T3 | D/C | NCV | | 0.46 | 70.79 | 68.61 | 70.79 | 0.00 | | 0.37 | 76.59 | 73.33 | 76.59 | 186.00 |
| Czech Republic | T1 | D | NCV | | 0.06 | 70.79 | 68.60 | 70.78 | 0.00 | | 0.01 | | 73.33 | | |
| Denmark | M/C | CS | NCV | | 0.18 | 72.00 | 73.00 | 72.00 | 73.00 | L | 0.75 | 78.00 | 74.00 | 78.00 | 74.00 |
| Estonia | T1 | D | NCV | | 0.26 | 70.79 | | | | | 0.12 | | 73.33 | 76.59 | 73.33 |
| European Community | C, CS, D, M, T1, T2, T2a, T3 | C, CS, D, M, T2a | NCV | L, T | 0.54 | 76.86 | 70.24 | 71.62 | 70.79 | L | 0.49 | 77.09 | 73.72 | 77.17 | 73.74 |
| Finland | CS (M) | CS | NCV | | 0.37 | 70.79 | 71.28 | 70.78 | 0.00 | L | 0.61 | 76.63 | 73.36 | 76.63 | 73.36 |
| France | C/CS/M | C/M/CS | NCV | L, T | 0.93 | 71.59 | | 71.59 | 0.00 | L, T | 0.46 | 78.00 | 75.00 | 78.00 | 75.00 |
| Germany | T1,T3,CS | CS | NCV | T | 0.42 | 73.27 | | NE | NE | | 0.08 | NO | 74.00 | 78.00 | 74.00 |
| Greece | C, T2a | C, T2a | NCV | L, T | 0.85 | 70.64 | 68.61 | 70.64 | NO | L, T | 1.40 | 76.59 | 71.48 | 76.59 | 73.33 |
| Hungary | T1c | D | NCV | | | NO | IE | 70.79 | NO | | 0.03 | NO | 68.61 | NA | NA |
| Iceland | T1 | D | NCV | | 0.71 | 70.79 | 68.61 | 70.79 | 68.61 | T | 0.58 | | 73.33 | 76.59 | 73.33 |
| Ireland | T1 | CS | NCV | | 0.15 | 71.40 | | 71.23 | 69.91 | | 0.09 | 76.00 | 73.31 | 76.00 | 73.30 |
| Italy | D, T1, T2a, C | CS | NCV | L, T | 0.49 | 70.74 | 70.74 | 70.74 | NO | L | 1.08 | 77.36 | 73.79 | 77.36 | 73.81 |
| Japan ^c | T1, CS | D, CS | GCV | L, T | 0.83 | 70.67 | 70.61 | 74.39 | NO | L | 1.05 | IE | 72.28 | IE | NE |
| Latvia | T1 | D | NCV | | 0.04 | 70.86 | | 70.86 | NO | | | | | 76.59 | 74.00 |
| Liechtenstein | | | NCV | | 0.20 | 73.16 | NO | NO | NO | | | NO | NO | NO | NO |
| Lithuania | C | CS | NCV | | 0.01 | NO | 72.00 | 74.00 | 72.00 | | 0.08 | 78.00 | 74.00 | 78.00 | 74.00 |
| Luxembourg | | | NCV | | | | | | | | | | | | |
| Monaco | D, T1 | D | NCV | | | | | | | L | 11.55 | | 74.84 | | |
| Netherlands | T2 | CS, D | NCV | | 0.02 | 71.50 | 72.00 | 71.50 | | | 0.27 | NO | 74.30 | 77.40 | 74.30 |
| New Zealand ^c | D | CS | GCV | L, T | 2.21 | 70.97 | 67.74 | 70.97 | NO | | 0.71 | 75.94 | NE | 76.50 | 72.43 |
| Norway | T1, CS/T2 | CS | NCV | L, T | 1.74 | 73.09 | 71.30 | 73.09 | NO | L, T | 4.54 | 78.82 | 73.55 | 78.82 | 73.55 |
| Portugal | M | D+C | NCV | | 0.49 | 70.09 | 70.03 | 70.51 | 70.67 | T | 0.43 | 76.59 | 74.09 | 76.59 | 73.33 |
| Romania | T1 | D | NCV | | 0.09 | 70.79 | 68.60 | NE | NE | T | 0.28 | 76.59 | 72.60 | | |
| Slovakia | M | M | NCV | | 0.07 | 40.72 | 203.02 | 73.05 | 73.61 | | 0.24 | | 75.01 | NO | NO |
| Slovenia | T1, C | D, CS | NCV | | 0.01 | 0.00 | 71.50 | 71.50 | 0.00 | | | IE | IE | NA | NA |
| Spain | D,C | D,C | NCV | L | 1.34 | 73.05 | 73.05 | 72.73 | NO | L | 0.59 | 76.78 | 72.64 | 76.78 | 72.64 |
| Sweden | T1, T2, CS | CS | NCV | L, T | 0.83 | 73.10 | 72.30 | 73.10 | NO | L, T | 1.07 | 77.61 | 74.45 | 77.61 | 74.45 |
| Switzerland | CS | CS | NCV | | 0.19 | 73.20 | IE | 73.20 | IE | | 0.21 | IE | 73.74 | NO | NO |
| Ukraine | T1 | D | NCV | | 0.05 | 70.84 | 70.08 | | | | 0.09 | 76.59 | 73.62 | | |
| United Kingdom | T3 | CS | NCV | T | 0.32 | 232.97 | 69.60 | 71.76 | | L, T | 0.51 | 77.81 | 73.64 | 77.81 | 73.64 |
| United States ^c | T1, T2 | CS | GCV | L, T | 2.48 | 70.01 | 68.34 | 70.01 | NE | L | 0.83 | 77.83 | 71.36 | 77.83 | 72.25 |

^a Information on methods and emission factors included in this table is as reported by Parties. 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 internal 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 basis. This means that reported IEFs are about 5% lower for liquid and solid fuels and biomass and about 10% 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 (2003)**

| | Activity data in CRF based on | Civil aviation (domestic) | | | | | | International aviation | | | Total jet kerosene and aviation gasoline | | |
|----------------------------|-------------------------------------|---------------------------|------------------|------------|-------------------|------------------|------------|------------------------|------------------|------------|--|------------------|------------|
| | | Jet kerosene | | | Aviation gasoline | | | Jet kerosene | | | | | |
| | | CRF | IEA ^a | Difference | CRF | IEA ^a | Difference | CRF | IEA ^a | Difference | CRF | IEA ^a | Difference |
| | | (TJ) | | (%) | (TJ) | | (%) | (TJ) | | (%) | (TJ) | | (%) |
| Australia | GCV | 76,091 | 80,261 | 5.5 | 3,269 | 2,912 | -10.9 | 100,916 | 97,071 | -3.8 | 180,275 | 180,244 | 0.0 |
| Austria | NCV | 829 | 3,433 | 314.1 | 93 | | | 21,007 | 18,505 | -11.9 | 21,929 | 21,938 | 0.0 |
| Belarus | NCV | 42 | | | 32 | | | 282 | | | 355 | | |
| Belgium | NCV | | 3,166 | | 223 | 90 | -59.9 | 46,104 | 63,852 | 38.5 | 46,327 | 67,107 | 44.9 |
| Bulgaria | NCV | 763 | 981 | 28.5 | 35 | 45 | 28.9 | 7,232 | 6,911 | -4.4 | 8,030 | 7,937 | -1.2 |
| Canada | GCV | 104,672 | 180,944 | 72.9 | 3,351 | 3,002 | -10.4 | 129,519 | 30,187 | -76.7 | 237,542 | 214,132 | -9.9 |
| Croatia | NCV | 1,939 | | | 9 | | | 1,111 | | | 3,059 | | |
| Czech Republic | NCV | 1,193 | 2,408 | 101.8 | 136 | 134 | -1.0 | 8,876 | 8,784 | -1.0 | 10,205 | 11,326 | 11.0 |
| Denmark | NCV | 1,836 | 1,249 | -32.0 | 80 | 90 | 12.0 | 31,974 | 31,079 | -2.8 | 33,890 | 32,417 | -4.3 |
| Estonia | NCV | 786 | 803 | 2.1 | | | | | | | 786 | 803 | 2.1 |
| European Community | NCV | 289,231 | | | 4,914 | | | 1,213,766 | | | 1,507,911 | | |
| Finland | NCV | 4,411 | 6,332 | 43.6 | 56 | 224 | 298.5 | 16,013 | 15,651 | -2.3 | 20,480 | 22,207 | 8.4 |
| France ^c | NCV | 72,440 | 62,291 | -14.0 | IE | 1,030 | | 216,142 | 219,469 | 1.5 | 288,582 | 282,791 | -2.0 |
| Germany | NCV | 58,523 | 8,472 | -85.5 | IE | 806 | | NE | 301,424 | | 58,523 | 310,703 | 430.9 |
| Greece | NCV | 15,607 | 15,606 | 0.0 | 943 | | | 35,719 | 33,933 | -5.0 | 52,269 | 49,539 | -5.2 |
| Hungary | NCV | NO | | | IE | | | 8,798 | 8,740 | -0.7 | 8,798 | 8,740 | -0.7 |
| Iceland | NCV | 268 | 268 | -0.1 | 38 | 45 | 18.2 | 4,907 | 4,459 | -9.1 | 5,212 | 4,771 | -8.5 |
| Ireland | NCV | 1,436 | 1,605 | 11.8 | NE | 45 | | 33,163 | 31,569 | -4.8 | 34,598 | 33,219 | -4.0 |
| Italy | NCV | 38,522 | 5,395 | -86.0 | 694 | 672 | -3.1 | 119,850 | 155,483 | 29.7 | 159,065 | 161,551 | 1.6 |
| Japan | GCV | 172,860 | 156,286 | -9.6 | 600 | 538 | -10.4 | 303,674 | 290,411 | -4.4 | 477,133 | 447,234 | -6.3 |
| Latvia | NCV | 67 | 1,561 | 2,237.3 | NO | | | 1,592 | | | 1,658 | 1,561 | -5.9 |
| Liechtenstein ^b | NCV | 7 | | | NO | | | NO | | | 7 | | |
| Lithuania | NCV | NO | 45 | | 23 | 45 | 93.4 | 1,011 | 936 | -7.3 | 1,034 | 1,026 | -0.8 |
| Luxembourg | NCV | | | | | | | | | | | | |
| Monaco ^c | NCV | NO | | | NO | | | NE | | | | | |
| Netherlands | NCV | 230 | 2,631 | 1,042.8 | 360 | 179 | -50.2 | 144,530 | 142,106 | -1.7 | 145,120 | 144,916 | -0.1 |
| New Zealand | GCV | 17,487 | 16,676 | -4.6 | 627 | 627 | 0.0 | 34,821 | 28,002 | -19.6 | 52,935 | 45,306 | -14.4 |
| Norway | NCV | 12,910 | 13,600 | 5.3 | 156 | | | 10,766 | 9,096 | -15.5 | 23,832 | 22,696 | -4.8 |
| Portugal | NCV | 5,598 | 6,421 | 14.7 | 24 | 90 | 277.7 | 32,587 | 27,422 | -15.8 | 38,209 | 33,933 | -11.2 |
| Romania | NCV | 903 | 5,083 | 463.2 | 706 | 90 | -87.3 | NE | | | 1,609 | 5,173 | 221.5 |
| Slovakia | NCV | 873 | 1,471 | 68.6 | 10 | | | 689 | | | 1,572 | 1,471 | -6.4 |
| Slovenia | NCV | | | | 35 | 45 | 26.6 | 1,163 | 1,115 | -4.2 | 1,199 | 1,160 | -3.3 |
| Spain | NCV | 73,408 | 74,687 | 1.7 | 502 | 493 | -1.8 | 122,914 | 120,927 | -1.6 | 196,825 | 196,107 | -0.4 |
| Sweden | NCV | 7,925 | 8,249 | 4.1 | 45 | 179 | 300.0 | 22,559 | 22,161 | -1.8 | 30,529 | 30,589 | 0.2 |
| Switzerland ^b | NCV | 1,366 | 2,809 | 105.6 | IE | 224 | | 52,799 | 52,303 | -0.9 | 54,165 | 55,337 | 2.2 |
| Ukraine | NCV | 3,493 | | | 138 | 269 | 94.9 | | 16,097 | | 3,631 | 16,366 | 350.7 |
| United Kingdom | NCV | 8,467 | 147,145 | 1,637.9 | 2,045 | 1,882 | -12.6 | 413,332 | 331,389 | -23.8 | 423,844 | 480,415 | 7.8 |
| United States | GCV | 2,675,005 | 2,583,868 | -3.4 | 36,327 | 37,317 | 2.7 | 942,604 | 699,340 | -25.8 | 3,653,936 | 3,320,526 | -9.1 |

^a Source: IEA [unpublished].^b IEA data for Liechtenstein are included in the data of Switzerland.^c IEA data for Monaco are included in the data of France.

Table 1.34
Domestic and international navigation, activity data (2003)

| | Activity data in CRF based on | Navigation (domestic) | | | | | | International marine transport | | | | | | 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 | 2,858 | 9,646 | 237.5 | 1,013 | 4,247 | 319.3 | 27,250 | 26,447 | -2.9 | 5,120 | 3,467 | -32.3 | 30,107 | 36,094 | 19.9 | 6,133 | 7,713 | 25.8 |
| Austria | NCV | NO | | | 1,022 | 347 | -66.1 | | | | | | | | | | 1,022 | 347 | -66.1 |
| Belarus | NCV | 0 | | | 104 | | | 0 | | | 4 | | | | | | 109 | | |
| Belgium | NCV | | 6,672 | | 4,672 | 4,160 | -11.0 | 269,855 | 260,452 | -3.5 | 28,399 | 28,817 | 1.5 | 269,855 | 267,125 | -1.0 | 33,071 | 32,977 | -0.3 |
| Bulgaria | NCV | NO | | | NO | | | NO | | | 5,723 | 5,937 | 3.7 | | | | 5,723 | 5,937 | 3.7 |
| Canada | GCV | 51,053 | 44,534 | -12.8 | 34,084 | 31,200 | -8.5 | 19,286 | 28,899 | 49.8 | 4,072 | 7,150 | 75.6 | 70,339 | 73,433 | 4.4 | 38,156 | 38,350 | 0.5 |
| Croatia | NCV | 269 | | | 1,222 | | | 643 | | | 265 | | | 912 | | | 1,486 | | |
| Czech Republic | NCV | | | | 264 | 130 | -50.8 | NO | | | NO | | | | | | 264 | 130 | -50.8 |
| Denmark | NCV | 1,823 | 1,809 | -0.8 | 4,731 | 3,900 | -17.6 | 20,462 | 20,217 | -1.2 | 20,730 | 21,017 | 1.4 | 22,285 | 22,026 | -1.2 | 25,461 | 24,917 | -2.1 |
| Estonia | NCV | | | | 288 | | | 2,831 | 2,814 | -0.6 | 1,880 | 1,907 | 1.4 | 2,831 | 2,814 | -0.6 | 2,168 | 1,907 | -12.1 |
| European Community | NCV | 82,136 | | | 167,729 | | | 1,536,355 | | | 267,514 | | | 1,618,491 | | | 435,243 | | |
| Finland | NCV | 2,259 | 2,251 | -0.4 | 2,537 | 4,463 | 76.0 | 22,680 | 22,508 | -0.8 | 4,000 | 4,073 | 1.8 | 24,939 | 24,759 | -0.7 | 6,536 | 8,537 | 30.6 |
| France ^c | NCV | 1,910 | | | 25,238 | 21,927 | -13.1 | 95,690 | 96,142 | 0.5 | 15,324 | 20,540 | 34.0 | 97,600 | 96,142 | -1.5 | 40,562 | 42,467 | 4.7 |
| Germany | NCV | NO | | | 10,396 | 10,053 | -3.3 | 86,952 | 86,456 | -0.6 | 21,523 | 21,710 | 0.9 | 86,952 | 86,456 | -0.6 | 31,919 | 31,763 | -0.5 |
| Greece | NCV | 12,298 | 12,299 | 0.0 | 13,726 | 13,043 | -5.0 | 110,804 | 110,813 | 0.0 | 21,535 | 21,537 | 0.0 | 123,102 | 123,112 | 0.0 | 35,261 | 34,580 | -1.9 |
| Hungary | NCV | NO | | | 388 | 390 | 0.5 | NA | | | NA | | | | | | 388 | 390 | 0.5 |
| Iceland | NCV | | 80 | | 237 | 173 | -26.9 | 147 | 161 | 9.0 | 2,295 | 2,730 | 19.0 | 147 | 241 | 63.5 | 2,532 | 2,903 | 14.7 |
| Ireland | NCV | 749 | 683 | -8.7 | 53 | 43 | -18.5 | 2,533 | 2,572 | 1.6 | 4,542 | 4,637 | 2.1 | 3,281 | 3,256 | -0.8 | 4,595 | 4,680 | 1.8 |
| Italy | NCV | 34,983 | | | 37,365 | 12,220 | -67.3 | 69,640 | 103,257 | 48.3 | 1,122 | 29,337 | 2,515.2 | 104,623 | 103,257 | -1.3 | 38,487 | 41,557 | 8.0 |
| Japan | GCV | IE | 109,165 | | 7,249 | 61,143 | 743.5 | IE | 194,978 | | NE | 13,737 | | | 304,143 | | 7,249 | 74,880 | 933.0 |
| Latvia | NCV | IE | | | IE | | | 4,750 | 4,703 | -1.0 | 3,102 | 3,163 | 2.0 | 4,750 | 4,703 | -1.0 | 3,102 | 3,163 | 2.0 |
| Liechtenstein ^b | NCV | | | | | | | NO | | | NO | | | | | | | | |
| Lithuania | NCV | 4 | | | 177 | 173 | -2.1 | 3,785 | 3,778 | -0.2 | 757 | 780 | 3.0 | 3,789 | 3,778 | -0.3 | 934 | 953 | 2.1 |
| Luxembourg | NCV | | | | 80 | | | | | | | | | | | | 80 | | |
| Monaco ^c | NCV | NO | | | 190 | | | NE | | | NE | | | | | | 190 | | |
| Netherlands | NCV | NO | | | 7,805 | 11,873 | 52.1 | 491,079 | 481,194 | -2.0 | 68,492 | 81,423 | 18.9 | 491,079 | 481,194 | -2.0 | 76,296 | 93,297 | 22.3 |
| New Zealand | GCV | 5,413 | | | NE | 5,330 | | 9,227 | 7,235 | -21.6 | 2,386 | 2,557 | 7.2 | 14,639 | 7,235 | -50.6 | 2,386 | 7,887 | 230.6 |
| Norway | NCV | 3,317 | 3,296 | -0.6 | 30,119 | 31,027 | 3.0 | 10,532 | 10,651 | 1.1 | 12,933 | 13,000 | 0.5 | 13,849 | 13,947 | 0.7 | 43,052 | 44,027 | 2.3 |
| Portugal | NCV | 1,416 | 40 | -97.2 | 3,223 | 2,730 | -15.3 | 15,590 | 17,765 | 14.0 | 2,240 | 6,457 | 188.2 | 17,006 | 17,806 | 4.7 | 5,463 | 9,187 | 68.2 |
| Romania | NCV | 290 | 2,291 | 690.8 | 4,457 | 563 | -87.4 | | | | | | | 290 | 2,291 | 690.8 | 4,457 | 563 | -87.4 |
| Slovakia | NCV | | | | 1,635 | | | NO | | | NO | | | | | | 1,635 | | |
| Slovenia | NCV | IE | | | IE | | | NA | | | NA | | | | | | | | |
| Spain | NCV | 21,638 | 11,535 | -46.7 | 9,806 | 54,427 | 455.0 | 251,125 | 251,208 | 0.0 | 40,435 | 40,560 | 0.3 | 272,763 | 262,743 | -3.7 | 50,241 | 94,987 | 89.1 |
| Sweden | NCV | 2,930 | 2,733 | -6.7 | 4,553 | 4,593 | 0.9 | 64,034 | 59,808 | -6.6 | 7,406 | 7,280 | -1.7 | 66,964 | 62,541 | -6.6 | 11,959 | 11,873 | -0.7 |
| Switzerland ^b | NCV | IE | | | 1,502 | 433 | -71.1 | NO | | | NO | 433 | | | | | 1,502 | 867 | -42.3 |
| Ukraine | NCV | 591 | | | 5,823 | | | | | | | | | 591 | | | 5,823 | | |
| United Kingdom | NCV | 2,131 | 2,010 | -5.7 | 42,522 | 47,017 | 10.6 | 35,911 | 34,848 | -3.0 | 31,766 | 38,870 | 22.4 | 38,042 | 36,857 | -3.1 | 74,288 | 85,887 | 15.6 |
| United States | GCV | 419,340 | 1,889 | -99.5 | 434,716 | | | 265,458 | 547,674 | 106.3 | 91,842 | 257,097 | 179.9 | 684,798 | 549,563 | -19.7 | 526,558 | 257,097 | -51.2 |

^a Source: IEA [unpublished].

^b IEA data for Liechtenstein are included in the data of Switzerland.

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

Table 1.35**Civil aviation (domestic) – trend information**

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|---------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 2,902 | 5,197 | 23.6 | 8.2 | 4.7 | 4.7 | 15.5 | 8.7 | 4.1 | -10.8 | -5.4 | 6.2 | 9.8 | -5.5 | 0.6 | 79.1 |
| Austria | 32 | 67 | 17.2 | 14.7 | 12.9 | 11.4 | 6.5 | 10.2 | 11.0 | 9.6 | 5.0 | 1.2 | -18.7 | 12.7 | -11.3 | 108.6 |
| Belarus | | 5 | | | | | | | | | | | | | | |
| Belgium | 12 | 15 | -0.7 | -0.7 | -0.6 | -18.1 | 10.8 | -15.0 | -10.6 | 11.1 | 30.5 | 0.9 | 1.4 | 22.0 | -0.3 | 22.3 |
| Bulgaria | 612 | 56 | -14.7 | 16.3 | 0.0 | 0.8 | -13.0 | -22.5 | -14.3 | -34.5 | -70.4 | -10.1 | 45.4 | 3.1 | 17.6 | -90.8 |
| Canada | 6,216 | 7,001 | -11.3 | -2.7 | -4.8 | 3.5 | 8.7 | 3.7 | 3.3 | 2.2 | 1.7 | -0.1 | -6.2 | 9.7 | 6.4 | 12.6 |
| Croatia | | 138 | | | | | | | | | | | | | | |
| Czech Republic | | 93 | | | | | | | | | | | | | | |
| Denmark | 243 | 138 | -17.9 | -3.0 | -1.7 | 3.3 | 1.2 | 3.1 | 3.5 | -8.6 | -10.2 | -11.5 | 4.8 | -13.4 | -1.5 | -43.2 |
| Estonia | | 56 | | | | | | | | | | | | | | |
| European Community | 17,532 | 22,576 | -5.0 | 1.1 | 0.6 | -2.3 | 8.1 | 8.5 | 3.7 | 6.7 | 5.7 | 5.9 | -3.9 | -3.0 | 0.6 | 28.8 |
| Finland | 320 | 316 | -4.0 | -5.3 | -2.8 | -1.5 | 5.2 | 5.6 | -0.6 | 21.9 | -0.9 | -1.0 | -2.0 | -13.2 | 1.1 | -1.2 |
| France | 4,541 | 5,186 | -0.5 | -0.4 | -2.9 | 4.6 | 16.1 | 7.9 | 0.9 | 5.2 | -0.4 | 2.0 | -8.1 | -3.0 | -5.7 | 14.2 |
| Germany | 2,897 | 4,288 | -1.9 | 7.3 | 5.7 | 3.9 | 3.6 | 4.7 | 3.9 | 2.8 | 7.3 | 4.5 | -2.4 | -1.0 | 2.0 | 48.0 |
| Greece | 1,455 | 1,164 | -1.4 | -16.3 | 32.6 | -12.2 | -13.3 | 5.2 | -4.0 | -6.4 | -4.9 | 43.6 | -14.9 | -8.5 | -4.4 | -20.0 |
| Hungary | 1 | IE,NO | | | | | | | | | | | -13.3 | | | |
| Iceland | 32 | 21 | -3.7 | -16.3 | -2.8 | -8.0 | 29.2 | 13.1 | -6.3 | 5.0 | -3.8 | -12.1 | -12.1 | -12.3 | 0.0 | -32.5 |
| Ireland | 59 | 103 | 0.1 | -2.5 | 7.7 | -5.9 | 7.0 | 2.9 | 7.4 | 15.1 | 6.2 | 13.7 | 13.5 | -3.8 | -2.3 | 73.5 |
| Italy | 1,596 | 2,771 | -1.3 | 4.5 | 0.4 | -3.9 | 6.4 | 12.0 | 8.1 | 8.8 | 15.3 | 5.7 | -5.0 | 3.8 | 3.5 | 73.6 |
| Japan | 7,163 | 11,064 | 8.4 | 6.8 | 4.8 | 5.3 | 12.3 | -1.9 | 6.5 | -0.3 | -1.7 | 1.4 | 0.4 | 2.0 | 1.2 | 54.5 |
| Latvia | 5 | 5 | -1.2 | -48.1 | 0.5 | 20.7 | 10.9 | 3.8 | 4.2 | 14.8 | -39.7 | 73.0 | 18.8 | 33.4 | -26.3 | 4.4 |
| Liechtenstein | | 1 | | | | | | | | | | | | | | |
| Lithuania | | 2 | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 41 | 41 | 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 |
| New Zealand | 773 | 1,158 | -15.2 | -3.6 | 7.1 | 22.6 | 2.6 | -3.7 | -2.3 | 3.7 | -10.0 | 11.0 | 32.7 | -6.3 | 12.2 | 49.9 |
| Norway | 679 | 954 | 2.6 | 3.2 | -0.5 | 11.8 | 7.5 | 11.1 | 2.8 | 2.4 | 14.9 | -8.6 | 0.6 | -14.1 | 4.5 | 40.4 |
| Portugal | 245 | 394 | 4.7 | 3.2 | -3.0 | 0.2 | 9.7 | 5.6 | 2.2 | 10.9 | 9.2 | 3.2 | -2.0 | 0.6 | 4.9 | 60.8 |
| Romania | 205 | 110 | -27.3 | 55.7 | -18.6 | -25.9 | 6.3 | -68.8 | 162.6 | -12.4 | 7.7 | 0.8 | -1.3 | -3.8 | -7.0 | -46.4 |
| Slovakia | | 37 | | | | | | | | | | | | | | |
| Slovenia | 1 | 2 | -77.8 | 58.5 | 77.6 | 17.6 | -2.6 | 11.8 | 6.8 | 23.8 | -3.1 | 0.1 | -18.2 | -0.5 | 2.7 | 286.4 |
| Spain | 4,135 | 5,397 | -15.1 | 4.0 | -9.9 | -12.4 | 14.7 | 15.8 | 7.7 | 14.4 | 9.9 | 6.0 | -0.5 | -6.9 | 6.0 | 30.5 |
| Sweden | 673 | 582 | -8.9 | 3.6 | -8.5 | 5.4 | 1.4 | -3.0 | 8.3 | 2.0 | 4.7 | -7.9 | -2.9 | -4.0 | -3.0 | -13.5 |
| Switzerland | 93 | 100 | -11.0 | -22.3 | 2.1 | 7.7 | 1.0 | -12.3 | -2.7 | -2.8 | 0.0 | 38.7 | -3.6 | 22.5 | 3.1 | 7.5 |
| Ukraine | NO | 257 | | -51.7 | -63.9 | 1.4 | 18.2 | 34.8 | -86.4 | 470.6 | -16.3 | -3.8 | -54.9 | -10.1 | 28.6 | |
| United Kingdom | 1,282 | 2,115 | -2.2 | 0.6 | 6.3 | -6.3 | 6.1 | 8.6 | 3.7 | 8.8 | 10.7 | 9.1 | 4.8 | 0.4 | 2.0 | 65.0 |
| United States | 177,241 | 171,260 | -4.4 | -1.3 | 0.6 | 4.8 | -2.4 | 4.8 | -0.7 | 1.3 | 3.0 | 3.4 | -5.1 | -4.6 | -2.1 | -3.4 |

^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 1.36

International bunkers: aviation – trend information

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|---------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 4,345 | 6,615 | 4.0 | 6.1 | 8.4 | 2.9 | 9.5 | 7.8 | 3.6 | 10.6 | 0.5 | 0.9 | 11.2 | -21.6 | 3.5 | 52.2 |
| Austria | 886 | 1,452 | 12.2 | 8.4 | 5.8 | 4.0 | 12.0 | 10.5 | 4.0 | 3.5 | -2.3 | 8.6 | -1.6 | -7.4 | -4.9 | 63.9 |
| Belarus | | 268 | | | | | | | | | | | | | | |
| Belgium | 3,096 | 3,504 | -16.0 | -0.6 | -2.0 | -0.5 | 14.5 | 15.8 | 7.8 | 12.9 | 11.4 | 2.8 | -9.5 | 2.4 | -18.7 | 13.2 |
| Bulgaria | 749 | 485 | -64.1 | 76.5 | 30.7 | -14.4 | -13.1 | -14.1 | -9.4 | 14.7 | -34.9 | -15.5 | 45.8 | 1.5 | 21.5 | -35.3 |
| Canada | 6,868 | 8,389 | -9.6 | 8.7 | -3.8 | 7.0 | 6.3 | 17.4 | 2.5 | 3.2 | 6.9 | 1.4 | -10.3 | 0.7 | -6.5 | 22.2 |
| Croatia | 202 | 75 | -91.5 | 170.9 | 181.9 | 52.6 | -12.2 | -0.7 | -16.6 | 2.4 | -7.5 | -16.3 | -0.3 | -14.1 | -24.1 | -63.1 |
| Czech Republic | 617 | 597 | | | | | 30.9 | 23.6 | -11.3 | -44.8 | 139.7 | -36.3 | 28.0 | 13.2 | 20.2 | -3.2 |
| Denmark | 1,736 | 2,188 | -6.0 | 3.7 | -2.0 | 9.6 | 2.7 | 5.6 | 2.0 | 7.4 | 6.1 | 2.6 | 1.5 | -13.7 | 6.2 | 26.0 |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | 61,536 | 105,683 | 0.2 | 8.9 | 5.3 | 4.8 | 5.2 | 5.9 | 5.6 | 7.6 | 8.2 | 5.2 | -1.8 | -1.0 | 1.8 | 71.7 |
| Finland | 974 | 1,077 | -5.9 | -11.6 | -6.0 | 5.3 | 8.2 | 7.0 | 4.0 | 2.5 | 7.0 | -2.8 | 2.5 | -1.1 | 3.3 | 10.5 |
| France | 8,618 | 14,700 | -2.0 | 16.5 | 4.2 | 3.5 | -0.9 | 6.9 | 3.5 | 5.3 | 12.3 | 4.4 | 1.6 | 0.3 | 0.5 | 70.6 |
| Germany | 11,589 | 17,151 | -1.9 | 7.3 | 5.7 | 3.9 | 3.6 | 4.7 | 3.9 | 2.8 | 7.3 | 4.5 | -2.4 | -1.0 | 2.0 | 48.0 |
| Greece | 2,448 | 2,397 | -13.8 | 4.3 | 6.4 | 18.7 | -6.2 | -4.2 | -3.3 | 5.0 | 12.3 | -12.3 | -7.1 | 0.0 | 3.3 | -2.1 |
| Hungary | 431 | 592 | -20.9 | 2.7 | -6.4 | 47.4 | -1.6 | 6.8 | -5.1 | 4.6 | 7.3 | 6.3 | -15.1 | 7.2 | 2.6 | 37.1 |
| Iceland | 220 | 330 | 1.1 | -8.3 | -3.9 | 9.2 | 10.5 | 15.0 | 7.6 | 15.8 | 7.5 | 12.2 | -14.4 | -11.3 | 6.5 | 50.2 |
| Ireland | 1,059 | 2,249 | 8.7 | 7.9 | 6.1 | -16.3 | -1.7 | 11.1 | 4.3 | 3.0 | 19.0 | 1.6 | 26.9 | 13.1 | 0.2 | 112.4 |
| Italy | 4,116 | 8,054 | 20.0 | -1.0 | 2.9 | 5.3 | 6.0 | 7.2 | 2.0 | 8.7 | 9.7 | 7.1 | -10.0 | -1.4 | 15.8 | 95.7 |
| Japan | 13,183 | 20,389 | 5.5 | 2.1 | -2.5 | 8.7 | 12.3 | 9.0 | 3.8 | 2.9 | -0.5 | -15.3 | 13.0 | 13.0 | -3.6 | 54.7 |
| Latvia | 217 | 107 | 35.2 | -7.3 | -69.7 | -7.4 | 0.0 | 28.1 | 0.0 | -9.4 | 0.0 | -10.4 | 0.0 | 3.8 | 29.7 | -50.7 |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | 100 | | | | | | | | | | | | | | |
| Luxembourg | | 1,186 | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 4,540 | 9,817 | 6.7 | 16.6 | 10.0 | 5.2 | 16.1 | 6.5 | 8.2 | 9.4 | 2.8 | -0.8 | -2.2 | 4.6 | -1.6 | 116.2 |
| New Zealand | 1,341 | 2,230 | -4.4 | 2.3 | 1.4 | 7.7 | 9.6 | 4.2 | 4.5 | -0.5 | 14.2 | -9.5 | 7.0 | 2.1 | 16.2 | 66.3 |
| Norway | 619 | 747 | -9.7 | 7.7 | 5.4 | -2.9 | -5.0 | 18.1 | 11.5 | 6.6 | 14.6 | -3.1 | -8.5 | -11.5 | 1.0 | 20.7 |
| Portugal | 1,643 | 2,188 | 2.1 | 4.0 | -5.4 | 2.0 | 3.7 | -0.3 | 2.8 | 6.2 | 8.6 | 5.4 | -1.4 | -4.6 | 6.9 | 33.2 |
| Romania | NE | NE | | | | | | | | | | | | | | |
| Slovakia | NE | 48 | | | | | 0.6 | 18.0 | -11.4 | -7.8 | 0.9 | 1.7 | -5.9 | 4.9 | 30.8 | |
| Slovenia | 97 | 79 | -65.3 | 24.4 | 41.1 | 11.4 | 6.8 | -7.4 | 5.5 | -8.0 | 19.4 | 15.0 | 12.9 | 2.9 | -4.4 | -18.9 |
| Spain | 3,432 | 8,492 | 19.2 | 18.7 | 5.6 | 14.5 | 5.8 | 5.5 | 7.9 | 5.7 | 3.5 | 7.5 | 1.9 | -3.8 | 4.2 | 147.5 |
| Sweden | 1,335 | 1,567 | -18.5 | -17.3 | 36.7 | 9.8 | 6.4 | 2.7 | 5.7 | 7.2 | 12.3 | 2.5 | -2.9 | -13.9 | -2.8 | 17.3 |
| Switzerland | 3,226 | 3,672 | -2.6 | 6.8 | 3.9 | 2.8 | 6.3 | 4.0 | 3.5 | 4.5 | 7.1 | 3.9 | -5.8 | -8.7 | -10.4 | 13.8 |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | 15,665 | 29,662 | -1.4 | 10.6 | 6.5 | 4.1 | 6.3 | 6.0 | 6.3 | 11.3 | 8.7 | 10.2 | -2.5 | -1.9 | 2.5 | 89.4 |
| United States | 46,230 | 59,558 | 0.6 | 0.8 | 1.2 | 1.2 | 5.7 | 2.8 | 7.1 | 1.4 | 3.9 | 2.9 | -1.9 | 4.0 | -3.6 | 28.8 |

^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 1.37**Navigation (domestic) – trend information**

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|--------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 2,300 | 1,004 | -12.6 | 1.0 | -10.0 | -9.9 | 25.3 | 3.2 | -1.0 | -14.0 | -15.6 | 5.9 | -1.9 | -9.1 | -30.4 | -56.3 |
| Austria | 52 | 84 | -9.2 | -2.1 | 0.8 | 19.1 | -3.0 | 0.1 | 14.5 | 1.0 | 1.0 | 1.0 | 14.3 | 9.4 | 5.9 | 61.8 |
| Belarus | | 8 | | | | | | | | | | | | | | |
| Belgium | 267 | 343 | 124.9 | 141.6 | -27.1 | -78.9 | 7.2 | -0.2 | 3.0 | 2.8 | 8.1 | 16.9 | 2.2 | 3.9 | 1.0 | 28.4 |
| Bulgaria | 1088.4629 | | -93.8 | 85.6 | 37.9 | 33.8 | 2.1 | 172.3 | -84.9 | 85.6 | -13.8 | -100.0 | | | | |
| Canada | 4,733 | 5,834 | 4.3 | -3.0 | -12.5 | 3.9 | -6.6 | 2.3 | 1.4 | 14.5 | -3.7 | 2.8 | 8.4 | -0.4 | 13.2 | 23.3 |
| Croatia | | 111 | | | | | | | | | | | | | | |
| Czech Republic | | 19 | | | | | | -100.0 | | | | | | | | |
| Denmark | 551 | 565 | 19.2 | -7.5 | 9.3 | -4.1 | 5.8 | 4.1 | -10.4 | -15.0 | -7.0 | 2.0 | -1.8 | 16.7 | -2.6 | 2.6 |
| Estonia | | 26 | | | | | | | | | | | | | | |
| European Community | 19,028 | 20,332 | 4.1 | 5.6 | -4.9 | -4.7 | -5.4 | 2.7 | -1.6 | 5.1 | 1.2 | -6.8 | 2.8 | -1.2 | 11.2 | 6.9 |
| Finland | 361 | 519 | 3.9 | -1.7 | 8.7 | 9.9 | -9.4 | 6.6 | 4.4 | 3.0 | 8.8 | -3.3 | -7.9 | 13.2 | 3.6 | 43.8 |
| France | 1,873 | 2,565 | -10.6 | 0.2 | 6.2 | 8.3 | 2.6 | -7.4 | -0.8 | 1.6 | 9.4 | -9.9 | 16.8 | 13.8 | 6.0 | 36.9 |
| Germany | 2,050 | 769 | 1.0 | 6.7 | 2.2 | -2.3 | -21.0 | -8.1 | -20.9 | -8.4 | -18.5 | -7.3 | -3.6 | -12.8 | 4.3 | -62.5 |
| Greece | 1,825 | 1,923 | 1.4 | 2.6 | -8.5 | 5.3 | -4.8 | -14.3 | 21.4 | 54.1 | -1.2 | -42.8 | 35.8 | -9.7 | -0.7 | 5.4 |
| Hungary | 107 | 27 | -6.2 | -4.8 | -83.8 | 60.3 | -58.1 | 17.9 | 71.7 | -26.6 | -48.3 | 6.7 | -6.3 | 180.0 | 361.9 | -75.0 |
| Iceland | 59 | 17 | -8.6 | 2.7 | 8.1 | -4.5 | -35.7 | 17.6 | -38.9 | -23.4 | -11.2 | -30.6 | 62.2 | -9.5 | -5.6 | -70.7 |
| Ireland | 85 | 61 | -0.1 | 7.5 | 3.4 | 13.5 | -3.1 | -0.2 | 6.0 | 5.6 | 13.3 | -7.2 | 2.4 | -52.6 | 2.6 | -28.6 |
| Italy | 5,419 | 6,148 | 7.3 | -3.6 | -4.2 | -3.3 | -1.6 | 12.4 | 3.7 | 4.8 | -2.4 | 2.1 | -0.1 | -2.1 | 1.0 | 13.4 |
| Japan | 13,354 | 14,060 | 4.2 | -1.4 | -1.1 | 2.3 | 3.6 | 6.0 | 6.5 | -11.0 | -0.5 | 2.9 | -3.1 | 1.0 | -2.7 | 5.3 |
| Latvia | IE | IE | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | 13 | | | | | | | | | | | | | | |
| Luxembourg | | 6 | | | | | | | | | | | | | | |
| Monaco | | 15 | | | | | | | | | | | | | | |
| Netherlands | 403 | 580 | 0.1 | 0.7 | 1.3 | 3.1 | -4.7 | -3.6 | 9.0 | 5.4 | 26.5 | -2.6 | 1.7 | 3.3 | 0.0 | 43.7 |
| New Zealand | 248 | 371 | 4.6 | 14.9 | -3.4 | 26.4 | -9.4 | -14.4 | -26.2 | -31.3 | 50.5 | 73.6 | -13.0 | 10.9 | 2.8 | 49.7 |
| Norway | 1,929 | 2,487 | -0.2 | 3.2 | 8.1 | -7.3 | 4.2 | 5.5 | 10.4 | 4.8 | 9.2 | -8.8 | -10.1 | -3.9 | 14.0 | 28.9 |
| Portugal | 470 | 347 | -6.8 | -6.2 | 0.9 | -15.9 | -11.1 | -0.3 | -21.6 | -17.1 | 26.7 | -1.7 | -7.2 | -4.3 | 56.8 | -26.1 |
| Romania | 1,676 | 348 | 21.6 | -27.6 | -52.4 | 2.3 | -17.8 | 54.7 | 70.9 | -24.7 | -11.1 | -36.9 | -37.1 | 15.7 | 11.3 | -79.3 |
| Slovakia | | 123 | | | | | | | | | | | | | | |
| Slovenia | IE | IE | | | | | | | | | | | | | | |
| Spain | 1,500 | 2,374 | -0.9 | -1.3 | 12.9 | 10.6 | -14.6 | 3.1 | -20.2 | 0.4 | 34.0 | 4.5 | 13.3 | 11.5 | 3.8 | 58.3 |
| Sweden | 658 | 752 | -19.5 | -2.6 | -19.2 | -3.5 | 14.4 | -2.6 | 14.9 | 16.1 | 11.8 | 1.8 | -0.4 | -1.3 | 12.4 | 14.3 |
| Switzerland | 101 | 111 | -1.9 | -1.9 | -1.9 | -2.0 | -2.0 | 0.5 | 0.8 | 1.7 | 3.2 | 3.2 | 3.3 | 3.2 | 3.1 | 9.3 |
| Ukraine | 1,392 | 476 | -97.1 | 170.2 | 1,171.6 | -58.9 | -0.8 | 142.4 | -49.0 | -87.8 | 886.7 | -3.9 | 4.9 | -31.4 | -18.0 | -65.8 |
| United Kingdom | 3,511 | 3,297 | 7.4 | -4.3 | -0.5 | -7.2 | -5.5 | 10.0 | -4.4 | -7.9 | -8.7 | -3.3 | -19.5 | -18.1 | 85.7 | -6.1 |
| United States | 49,170 | 57,453 | -11.0 | 30.7 | -5.3 | -1.4 | 3.4 | -3.3 | -27.5 | -16.3 | 30.4 | 49.3 | -32.3 | 33.9 | 0.4 | 16.8 |

^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 1.38**International bunkers: marine – trend information**

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|---------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 2,056 | 2,222 | -9.6 | -3.8 | 0.0 | 12.5 | 32.9 | 1.6 | -7.3 | -12.0 | 10.5 | 13.0 | -10.6 | -10.6 | 0.5 | 8.1 |
| Austria | NO | NO | | | | | | | | | | | | | | |
| Belarus | | 0 | | | | | | | | | | | | | | |
| Belgium | 13,303 | 22,754 | 1.2 | -1.5 | 3.0 | 4.1 | -8.8 | 22.7 | 10.8 | 4.5 | -19.3 | 8.1 | 0.9 | 37.9 | 1.8 | 71.0 |
| Bulgaria | 969 | 436 | 0.5 | -0.6 | -3.3 | 0.8 | 3.8 | -17.1 | 49.3 | -6.4 | -97.5 | 704.1 | 49.0 | 9.9 | 29.6 | -55.0 |
| Canada | 2,995 | 1,608 | 3.4 | 2.7 | -10.8 | 12.4 | 3.9 | -6.9 | -1.3 | 24.0 | -10.8 | 2.3 | 7.7 | -24.2 | -42.9 | -46.3 |
| Croatia | 109 | 69 | -34.3 | 13.0 | 42.1 | 20.8 | -26.3 | 12.6 | -35.9 | 10.0 | -18.9 | -13.2 | 56.7 | -18.0 | -6.2 | -36.7 |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | 3,087 | 3,130 | -10.5 | 4.5 | 48.9 | 12.3 | 4.8 | -5.1 | -8.3 | 0.2 | -5.9 | 3.0 | -15.8 | -17.7 | 5.5 | 1.4 |
| Estonia | 0 | 355 | | | | | | 4.5 | 10.7 | 6.2 | 6.7 | -9.3 | -4.8 | 17.7 | -3.7 | |
| European Community | 102,635 | 138,875 | -0.6 | 1.0 | 3.5 | -2.9 | 1.5 | 6.6 | 9.0 | 4.7 | -4.7 | 5.4 | 3.7 | 2.9 | 1.4 | 35.3 |
| Finland | 1,798 | 2,031 | -4.7 | 26.1 | -21.7 | -22.2 | -20.7 | 13.2 | 8.6 | 28.1 | 7.0 | 15.2 | -10.5 | 12.6 | -0.6 | 13.0 |
| France | 8,137 | 8,613 | 3.7 | -3.4 | -3.7 | -10.9 | 3.1 | 4.9 | 10.0 | 10.1 | 1.6 | 3.4 | -14.8 | -3.0 | 8.2 | 5.9 |
| Germany | 7,980 | 8,375 | -15.6 | -16.6 | 25.1 | -7.8 | 0.9 | -0.9 | 6.9 | -5.1 | 1.8 | 4.2 | 1.9 | 7.0 | 10.3 | 5.0 |
| Greece | 8,028 | 10,129 | -8.2 | 14.9 | 16.6 | 6.1 | 7.5 | -12.0 | 0.3 | 11.4 | -11.0 | 15.5 | -2.9 | -10.3 | 2.4 | 26.2 |
| Hungary | NA | NO | | | | | | | | | | | | | | |
| Iceland | 99 | 180 | -62.0 | 59.2 | 62.4 | -4.0 | 54.0 | -13.9 | 20.0 | 18.7 | -7.2 | 33.4 | -31.8 | 39.1 | -13.4 | 81.4 |
| Ireland | 56 | 525 | 89.9 | -49.9 | 219.6 | -27.7 | 197.4 | 35.2 | -2.7 | 3.8 | 8.0 | -12.2 | -18.2 | -16.1 | 60.7 | 833.9 |
| Italy | 4,404 | 5,642 | -18.2 | -3.5 | 6.2 | -0.4 | 10.1 | -29.2 | 7.0 | 0.7 | 0.0 | 24.6 | 13.4 | 14.2 | 13.0 | 28.1 |
| Japan | 17,518 | 17,082 | 5.5 | 0.8 | 12.6 | -0.7 | 1.5 | -41.1 | 31.3 | 4.8 | -5.8 | 5.7 | -13.8 | 5.8 | 9.8 | -2.5 |
| Latvia | 1,652 | 593 | -72.9 | -2.1 | 76.7 | -5.6 | -34.9 | -35.3 | -27.2 | -79.0 | -33.2 | -20.0 | 2,348.5 | 5.7 | -8.9 | -64.1 |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | 351 | | | | | | | | | | | | 12.3 | 0.2 | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 34,235 | 43,445 | 3.2 | 0.8 | 3.7 | -5.2 | 1.2 | 2.1 | 6.2 | 1.1 | 3.5 | 6.3 | 10.1 | -1.2 | -6.5 | 26.9 |
| New Zealand | 1,033 | 793 | -11.6 | -5.1 | 5.6 | 44.7 | -15.1 | -5.6 | 4.6 | -3.5 | -14.7 | -18.5 | 6.0 | 33.6 | -24.9 | -23.2 |
| Norway | 1,478 | 1,781 | -15.3 | 25.1 | 7.0 | 10.1 | 22.2 | 10.0 | 21.0 | -3.4 | -5.7 | -0.8 | -3.2 | -16.4 | -18.8 | 20.5 |
| Portugal | 1,175 | 1,358 | 1.5 | 1.7 | -18.5 | -4.3 | 8.1 | 7.0 | 4.2 | 5.7 | 21.8 | 8.9 | -30.6 | 7.9 | 13.5 | 15.6 |
| Romania | NE | NA,NE | | | | | | | | | | | | | | |
| Slovakia | NO | NO | | | | | | | | | | | | | | |
| Slovenia | NA | NA | | | | | | | | | | | | | | |
| Spain | 11,528 | 22,218 | 6.0 | 1.3 | -12.6 | -9.5 | 2.8 | 46.0 | 23.3 | 5.3 | -2.4 | 2.2 | 11.9 | 2.4 | 1.9 | 92.7 |
| Sweden | 2,228 | 5,521 | 18.5 | 14.0 | 0.4 | 17.8 | -1.7 | 5.9 | 17.3 | 15.4 | -2.2 | -2.8 | -2.4 | -11.8 | 34.5 | 147.8 |
| Switzerland | NO | NO | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | 6,677 | 5,134 | -3.3 | 4.5 | -1.0 | -6.5 | 7.3 | 9.3 | 12.1 | 9.1 | -27.5 | -12.0 | 12.1 | -16.7 | -4.0 | -23.1 |
| United States | 67,272 | 24,635 | 9.0 | -14.3 | -16.8 | -4.9 | 0.5 | 0.4 | 7.7 | 7.3 | -19.8 | -12.0 | -5.8 | -28.0 | -11.1 | -63.4 |

^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 1.39**Fugitive emissions from fuels: coal mining and handling, CH₄ (2003)**

| | Key source | Share of national total (%) | Methods and EF used ^a | | Activity data | | | | | CH ₄ IEF | | | | |
|------------------------------|------------|------------------------------------|----------------------------------|----------|-------------------|---------------|-------|------------------|------------|---------------------|-------------------|------------------------|-------------------|------------------------|
| | | | Methods | EF | CRF | | | IEA ^c | Difference | Underground mines | | Surface mines | | |
| | | | | | Underground mines | Surface mines | Total | Total | | | Mining activities | Post-mining activities | Mining activities | Post-mining activities |
| | | | | | | | | | | | | | | |
| IPCC default EF ^b | | | | | | | | | | 4.50 - 16.75 | 0.60 - 2.68 | 0.20 - 1.34 | 0 - 0.13 | |
| Australia | L, T | 3.21 | T2 | CS | 82.2 | 256.5 | 338.8 | 342.3 | 1.03 | 5.16 | 0.30 | 1.32 | NE | |
| Austria | | 0.01 | T1 | D | NO | 1.8 | 1.8 | 1.2 | -36.42 | | | 0.21 | | |
| Belarus | | | D | D | NO | NO | 0.0 | | | NO | NO | NO | NO | |
| Belgium | | | | | NO | NO | | | | NO | NO | NO | NO | |
| Bulgaria | L | 1.75 | T1 | D | 2.7 | 24.6 | 27.3 | 27.2 | -0.19 | 11.73 | 1.68 | 0.80 | 0.07 | |
| Canada | T | 0.13 | CS | CS | 1.4 | 84.5 | 85.9 | 62.1 | -27.65 | 10.52 | IE | 0.38 | IE | |
| Croatia | | | T1 | D | NO | NO | | | | | | | | |
| Czech Republic | L | 3.26 | T3 | CS | 13.6 | 46.2 | 59.9 | 63.9 | 6.72 | 12.26 | 1.64 | 0.77 | 0.07 | |
| Denmark | | | D | D | | | | | | | | | | |
| Estonia | | 1.07 | | | 6.2 | 6.7 | 12.9 | 14.9 | 15.44 | 1.34 | 0.13 | 0.20 | 0.07 | |
| European Community | T | 0.36 | C, CS, D, T1, T2, T3 | C, CS, D | 55.4 | 275.7 | 331.1 | | | 10.74 | 0.80 | 0.28 | 0.00 | |
| Finland | | | CS | CS | NO | NO | | | | NO | NO | NO | NO | |
| France ^c | T | 0.16 | C | CS | 1.7 | NA | 1.7 | 1.7 | 0.00 | 24.96 | | 0.04 | IE | |
| Germany | L, T | 0.68 | T2,CS | CS | 26.0 | 179.1 | 205.0 | 207.8 | 1.36 | 11.95 | 0.58 | 0.01 | NE | |
| Greece | L | 1.05 | T1 | D | NO | 68.3 | 68.3 | 68.3 | 0.00 | NO | NO | 1.01 | IE | |
| Hungary | T | 0.58 | D | CS | 4.7 | 8.6 | 13.3 | 13.3 | 0.00 | 3.67 | 0.54 | 0.21 | 0.01 | |
| Iceland | | | NO | NO | NO | NO | | | | NO | NO | NO | NO | |
| Ireland | | | NA | NA | | | | | | | | | | |
| Italy | | 0.01 | T1 | D, C,CS | 0.3 | | 0.3 | 0.3 | 0.00 | 10.05 | 0.30 | | | |
| Japan | T | 0.01 | T2 | CS | 0.7 | 0.6 | 1.4 | | | 3.71 | 1.64 | 0.77 | 0.07 | |
| Latvia | | | NO | NO | NO | NO | NO | | | NO | NO | NO | NO | |
| Liechtenstein ^d | | | | | NO | NO | | | | NO | NO | NO | NO | |
| Lithuania | | | | | NO | NO | NO | | | NO | NO | NO | NO | |
| Luxembourg | | | | | | | | | | | | | | |
| Monaco ^c | | | | | NO | NO | | | | | | | | |
| Netherlands | | | T1 | C | | | | | | | | | | |
| New Zealand | | 0.63 | T1 | D | 0.8 | 4.4 | 5.2 | 5.2 | 0.00 | 13.37 | 1.60 | 0.77 | 0.07 | |
| Norway | | 0.06 | T1 | D | 2.9 | | 2.9 | 2.9 | 0.02 | 0.54 | IE | NO | NO | |
| Portugal | | | T2 | D+C | NO | NO | | | | | | | | |
| Romania | L, T | 2.15 | T1 | D | 8.0 | 26.5 | 34.4 | 33.1 | -3.97 | 11.72 | 1.64 | 0.77 | 0.07 | |
| Slovakia | | 0.86 | T2 | CS | 3.1 | NO | 3.1 | 3.1 | 0.71 | 6.26 | 0.60 | NO | NO | |
| Slovenia | L, T | 1.37 | D | CS | 4.8 | NO | 4.8 | 4.8 | 0.01 | 1.84 | 0.84 | NO | NO | |
| Spain | T | 0.25 | C,CS | C,CS | 10.8 | 13.4 | 24.2 | 20.6 | -15.15 | 3.16 | 0.93 | 0.18 | 0.03 | |
| Sweden | | | T2/T3 | CS | NO | NO | NO | | | NO | NO | NO | NO | |
| Switzerland ^d | | | | | NO | NO | NO | | | NO | NO | NO | NO | |
| Ukraine | L, T | 5.32 | T1 | D | 79.6 | 0.7 | 80.3 | | | 15.43 | 1.33 | 0.94 | 0.16 | |
| United Kingdom | L, T | 0.73 | T2 | CS | 16.6 | 12.1 | 28.8 | 27.8 | -3.48 | 12.28 | 1.16 | 0.34 | | |
| United States | L, T | 0.78 | T2, T3 | CS | 320.0 | 651.3 | 971.3 | 971.3 | 0.00 | 5.59 | 0.95 | 0.62 | 0.10 | |

^a Information on methods and emission factors included in this table is as reported by Parties. 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).

^c Source: IEA [unpublished].

^d IEA data for Liechtenstein are included in the data of Switzerland.

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

Table 1.40**Fugitive emissions from fuels: coal mining and handling – trend information**

| CH ₄ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|-------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 753 | 787 | 1.0 | 3.9 | 0.0 | 4.7 | 0.5 | 1.8 | 2.2 | 10.3 | -5.4 | 3.5 | -6.1 | -5.4 | -5.3 | 4.5 |
| Austria | 1 | 0 | -15.0 | -16.1 | -3.2 | -19.1 | -5.2 | -14.6 | 2.0 | 0.9 | -0.2 | 10.3 | -4.8 | 51.7 | | -26.0 |
| Belarus | | 0 | | | | | | | | | | | | | | |
| Belgium | NE | | | | | | | | | | | | | | | |
| Bulgaria | 95 | 58 | -14.1 | 9.8 | -0.2 | -6.5 | 3.7 | -2.7 | -9.9 | 5.0 | -12.1 | 1.9 | 1.1 | 1.4 | -1.6 | -39.3 |
| Canada | 91 | 47 | 9.0 | -12.1 | 0.0 | -3.7 | -3.0 | 3.1 | -7.2 | -16.8 | -20.7 | -12.2 | 4.3 | | | -48.3 |
| Croatia | | NO | | | | | | | | | | | | | | |
| Czech Republic | | 228 | | | | | | | | | | | | | | |
| Denmark | | | | | | | | | | | | | | | | |
| Estonia | | 11 | | | | | | | | | | | | | | |
| European Community | 2,404 | 717 | -4.3 | -1.8 | -9.2 | -18.6 | 4.6 | -10.7 | -5.9 | -10.1 | -8.6 | -13.0 | -18.6 | -2.7 | -13.8 | -70.2 |
| Finland | | | | | | | | | | | | | | | | |
| France | 170 | 43 | -7.8 | 6.7 | 6.4 | 4.8 | | -26.4 | -14.6 | -0.6 | -4.3 | | -36.5 | -10.0 | -31.7 | -74.4 |
| Germany | 1,221 | 327 | -8.5 | -4.3 | -14.2 | -11.7 | 3.2 | -11.7 | -6.4 | -9.3 | -4.9 | -18.9 | -24.6 | -5.2 | -5.4 | -73.2 |
| Greece | 52 | 69 | 1.5 | 4.5 | -0.4 | 3.4 | 1.7 | 3.7 | -1.6 | 3.5 | 1.9 | 3.0 | 3.8 | 6.2 | -3.1 | 31.6 |
| Hungary | 73 | 22 | -3.8 | -24.1 | -11.5 | -4.3 | 1.0 | 3.0 | -1.5 | -6.2 | -5.6 | -10.3 | 6.9 | -15.3 | -11.0 | -70.1 |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | NO | NO | | | | | | | | | | | | | | |
| Italy | 3 | 3 | -11.9 | 13.4 | -44.9 | -48.0 | -35.6 | -17.6 | -39.5 | -86.6 | -20.8 | 4,730.7 | 17.0 | 17.3 | 53.4 | -0.9 |
| Japan | 134 | 4 | -9.6 | -10.7 | -8.5 | -17.5 | -21.5 | -3.5 | -22.4 | -13.3 | -0.8 | -11.2 | -25.9 | -79.2 | -20.7 | -96.7 |
| Latvia | NO | NO | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | NO | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | NO | NO | | | | | | | | | | | | | | |
| New Zealand | 13 | 16 | -32.6 | 3.5 | -4.8 | 18.3 | 32.3 | 3.5 | -2.2 | 19.3 | 3.6 | -3.9 | 4.8 | -0.7 | -6.2 | 22.1 |
| Norway | 0 | 2 | 8.9 | 8.8 | -25.4 | 12.5 | -3.0 | -21.4 | 68.3 | -15.1 | 23.1 | 56.4 | 182.9 | 19.2 | 38.1 | 872.1 |
| Portugal | 3 | | -3.2 | -6.8 | -7.0 | -25.4 | | | | | | | | | | |
| Romania | 304 | 129 | -12.1 | 12.2 | 2.7 | 4.6 | 1.4 | 4.6 | -19.0 | -22.8 | -13.0 | 19.3 | 8.2 | -6.0 | -0.4 | -57.6 |
| Slovakia | | 21 | | | | | | | | | | | | | | |
| Slovenia | 17 | 13 | -6.7 | 8.3 | -8.2 | -4.5 | 1.5 | -4.5 | 7.2 | -1.2 | -6.7 | -1.8 | -7.7 | 13.4 | 3.1 | -24.3 |
| Spain | 84 | 47 | -11.9 | 0.6 | -3.6 | -6.8 | 0.3 | 1.9 | -1.6 | -10.1 | -7.7 | 0.8 | -11.9 | -3.9 | -1.1 | -44.0 |
| Sweden | NO | NO | | | | | | | | | | | | | | |
| Switzerland | NO | NO | | | | | | | | | | | | | | |
| Ukraine | 2,635 | 1,335 | -8.7 | -3.3 | -16.9 | -8.5 | -18.9 | -4.1 | -1.7 | | -0.5 | 0.3 | 3.5 | -1.6 | -2.8 | -49.3 |
| United Kingdom | 870 | 228 | 2.8 | -0.9 | -6.9 | -33.7 | 9.5 | -7.2 | -4.2 | -14.7 | -16.2 | -12.5 | -9.5 | 0.0 | -24.5 | -73.8 |
| United States | 3,900 | 2,561 | -3.5 | -2.5 | -15.4 | 0.0 | 1.0 | -4.0 | -0.8 | 0.2 | -6.2 | -4.5 | -1.1 | -5.7 | 2.6 | -34.3 |

^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 1.41

Fugitive emissions from fuels: oil and natural gas, CH₄, CO₂ (2003)

| | CH ₄ | | | | CO ₂ | | | | Oil | | | | | | | | | | | |
|------------------------------|-----------------|-----------------------------|----------------------------------|--------------|-----------------|-----------------------------|----------------------------------|---------------------|---------------|-------------|----------------------------------|--|---------------|-----------|----------------------------------|-----------------------------------|--------------------------------|-------------|----------|-------------------------|
| | Key source | Share of national total (%) | Methods and EF used ^a | | Key source | Share of national total (%) | Methods and EF used ^a | | Production | | | Transport | | | Refining (R) / Storage (S) | | | | | |
| | | | Methods | EF | | | CH ₄ IEF ^b | CO ₂ IEF | 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 |
| IPCC default EF ^c | | | | | | | | | 300 - 5,000 | | PJ | Oil produced | 745 | | PJ | Oil tankered | 20 - 250 (S) 90 - 1,400 (R) | | PJ | Oil refined |
| Australia | L, T | 0.79 | T2 | CS | L, T | 1.12 | T2 | CS | 930 | NA | PJ | Crude oil and ORF produced | 745 | NA | PJ | Quantity shipped | 1,240 | 139,669 | PJ | Oil refined |
| Austria | | 0.34 | T1, CS | CS, D | | 0.25 | T1, CS | D, CS, | 3,862,069 | 131,034,483 | Mt | Oil throughput | | | | | 32 | | Mt | Oil refined (SNAP 040) |
| Belarus | L | 3.71 | D | D | | | D | D | 2,650 | NE | PJ | PJ of oil produced | NO | NO | | PJ oil loaded in tankers | 431 | NE | PJ | PJ oil refined |
| Belgium | | 0.24 | | | | 0.10 | | | NO | NO | | (e.g. PJ of oil produced) | NO | NO | | (e.g. PJ oil loaded in tankers) | 0 | NO | | (e.g. PJ oil refined) |
| Bulgaria | | 0.75 | T1 | D | | | NE | NE | 2,650 | NE | PJ | (e.g. PJ of oil produced) | 745 | NE | PJ | (e.g. PJ oil loaded in tankers) | 745 | NE | PJ | (e.g. PJ oil refined) |
| Canada | L, T | 5.10 | CS | CS | L, T | 2.06 | CS | CS | 5,769 | 428 | 10 ³ m ³ | Conventional Oil, Heavy Oil and Crude Oil Production | NA | NA | | Liquid Product Transport | NE | NE | | NA |
| Croatia | L | 4.35 | T1 | D | L | 2.28 | CS | CS | 2,650 | | PJ | (e.g. PJ of oil produced) | 745 | | PJ | (e.g. PJ oil loaded in tankers) | 745 | | PJ | (e.g. PJ oil refined) |
| Czech Republic | | 0.34 | T1, T3 | D, CS | | | NE | | 5,287 | | PJ | (e.g. PJ of oil produced) | | | | (e.g. PJ oil loaded in tankers) | 1,150 | | PJ | (e.g. PJ oil refined) |
| Denmark | | 0.11 | C | C | T | 0.73 | C | C | 173 | | 10 ³ m ³ | Oil produced | | | 10 ³ m ³ | Oil transported by pipelines | | | | (e.g. PJ oil refined) |
| Estonia | L | 1.99 | | | | | | | 4,000 | | | (e.g. PJ of oil produced) | 745 | | | (e.g. PJ oil loaded in tankers) | | | | (e.g. PJ oil refined) |
| European Community | L, T | 0.57 | C, CS, D, T1, T2, T3 | D, M, PS, T1 | L | 0.38 | C, CS, MB ^d , T1, | C, CS, D, PS | NE | NE | | | NE | NE | | | NE | NE | | |
| Finland | | 0.07 | CS/T1 | CS/T1 | T | 0.07 | CS | PS | NO | NO | | (e.g. PJ of oil produced) | NO | NO | kt | (e.g. PJ oil loaded in tankers) | 37 | IE | kt | kt oil refined |
| France | | 0.34 | C | CS | L | 0.69 | C | CS | | | PJ | PJ Produced | | | PJ | PJ Loaded | 51 | 857,941 | PJ | PJ Refined |
| Germany | L, T | 0.72 | T2,T3,CS | M,CS | | | IE | IE | NE | NE | | (e.g. PJ of oil produced) | NE | NE | | (e.g. PJ oil loaded in tankers) | 0 | NE | t | (crude oil & products) |
| Greece | | 0.15 | T1 | D | | | | | 2,650 | NE | PJ | Crude oil and NGL production | 745 | NE | PJ | Crude oil imports | 880 | NA | PJ | and NGL) |
| Hungary | L, T | 1.94 | CS, D | OTH | | | | | 54,847 | NO | PJ | oil produced | 6 | IE | 10 ³ m ³ | pipeline and tankers | 1,400 | NO | PJ | oil refined |
| Iceland | | | NE | NE | | | NE | NE | NO | NO | | (e.g. PJ of oil produced) | NO | NO | | (e.g. PJ oil loaded in tankers) | NO | NO | | (e.g. PJ oil refined) |
| Ireland | | 0.12 | T1 | CS | | 0.09 | T1 | CS | | | | (e.g. PJ of oil produced) | | | | (e.g. PJ oil loaded in tankers) | | | | (e.g. PJ oil refined) |
| Italy | L, T | 0.88 | T2, T3 | CS | T | 0.44 | T2 | CS | 227 | | Gg | (Gg of oil produced) | | | | | 24 | 22,658 | Gg | (Gg oil refined) |
| Japan | | 0.04 | T1 | D | | 0.00 | T1 | D | 1 | 0 | 10 ³ l | oil produced | 0 | 0 | 10 ³ l | oil produced | 91 | NE | PJ | oil refined |
| Latvia | L | 1.25 | CS | PS | | | NE | NE | | | | (e.g. PJ of oil produced) | | | | (e.g. PJ oil loaded in tankers) | | | | (e.g. PJ oil refined) |
| Liechtenstein | | 0.26 | | | | | | | NO | NO | | | NO | NO | | | NE | NO | | |
| Lithuania | L | 2.70 | C | C | | | C | C | 300 | NE | PJ | (e.g. PJ of oil produced) | NE | NE | NE | (e.g. PJ oil loaded in tankers) | 1,150 | NE | PJ | (e.g. PJ oil refined) |
| Luxembourg | | 0.06 | | | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | (e.g. PJ of oil produced) | | | | (e.g. PJ oil loaded in tankers) | | | | (e.g. PJ oil refined) |
| Netherlands | L, T | 0.48 | CS/T3 | CS | T | 0.19 | CS/T3 | CS | IE | IE | 10 ⁶ m ³ | oil produced | NE | NE | | (e.g. PJ oil loaded in tankers) | 129 | IE | PJ | NGL |
| New Zealand | | 0.79 | D | D | L, T | 1.24 | D | CS | NE | NE | | (e.g. PJ of oil produced) | 1 | NE | TJ | (e.g. PJ oil loaded in tankers) | 1 | NE | TJ | (e.g. PJ oil refined) |
| Norway | L, T | 1.12 | T2 | CS | L, T | 4.96 | T2 | CS | IE | IE | | | | | | | 179 | 1,530,386 | PJ | Oil refined |
| Portugal | T | 0.35 | C+T2 | D+C | L, T | 0.93 | MB ^d | C+CS | | | | | 60,000 | 1,100,000 | Mt | Consumption of crude | 78,564 | 28,723,844 | Mt | other materials) |
| Romania | L, T | 6.64 | T1 | D | | | | | 300 | | PJ | (e.g. PJ of oil produced) | 745 | | PJ | (e.g. PJ oil loaded in tankers) | 110 | | PJ | (e.g. PJ oil refined) |
| Slovakia | L | 1.43 | T1 | D,CS | | | NA | NA | 1,500 | NO | kt | production | 5 | NO | kt | transport of crude oil (transfer) | 5 | NO | kt | refinin/storage |
| Slovenia | | 0.07 | T1 | D | | | | | NO | NE | TJ | (e.g. PJ of oil produced) | NO | NO | TJ | (e.g. PJ oil loaded in tankers) | | NE | TJ | (e.g. PJ oil refined) |
| Spain | | 0.20 | C,CS | C,PS | L, T | 0.48 | C,CS | C,PS | 0 | NE | Mg | Crude oil produced | 27 | NE | Gg | Transport of crude oil | 1 | 29,617 | Gg | Oil refined |
| Sweden | | 0.00 | T1 + T2 | CS | | 0.11 | T1 + T2 | CS, D | NO | NO | | | NE | NE | | (e.g. PJ oil loaded in tankers) | NE | NE | | (e.g. PJ oil refined) |
| Switzerland | T | 0.48 | C | CS | | 0.15 | C | CS | NO | NO | | | NO | NO | | | 1,042 | NO | PJ | Crude oil used |
| Ukraine | L, T | 25.08 | T1 | D | | | NE | NE | 4,498 | | PJ | (e.g. PJ of oil produced) | 136 | | PJ | (e.g. PJ oil loaded in tankers) | 1,000 | | PJ | (e.g. PJ oil refined) |
| United Kingdom | L, T | 0.95 | T3 | CS | L, T | 0.80 | T3 | CS | 543 | 133,650 | PJ | Oil and gas produced. | 76 | | Gg | Offshore loading of oil only | 1 | | PJ | Oil refinery throughput |
| United States | L, T | 2.08 | M | M | | 0.09 | T2 | CS | 373,434 | NE | US) | (e.g. PJ of oil produced) | 940 | NE | (oil US) | (e.g. PJ oil loaded in tankers) | 4,905 | NE | (oil US) | (e.g. PJ oil refined) |

^a Information on methods and emission factors included in this table is as reported by Parties. 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.

^b 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.

^c Source of emissions factors: IPCC Guidelines, vol. 3, pages 1.119–1.121. For updated detailed emission factors on C₂H₆ and implied emissions factors on C₂H₄ and N₂O see the IPCC good practice guidance, table 2.16, pages 2.86–2.87.

^d Mass balance is indicated by MB.

Table 1.41**Fugitive emissions from fuels: oil and natural gas, CH₄, CO₂ (2003) (continued)**

| | Natural Gas | | | | | | | | | | | | | | | |
|------------------------------|--|---------------------|---------------------------------|--|----------------------------------|---------------------|---------------------------------|-----------------------------------|----------------------------------|---------------------|---------------------------------|--------------------------------|----------------------------------|---------------------|--------------------------------|------------------------|
| | Production (P)/processing (Pr) | | | | Transmission | | | | Distribution | | | | Other leakage | | | |
| | CH ₄ IEF ^b | CO ₂ IEF | Activity data | | CH ₄ IEF ^b | CO ₂ IEF | 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 |
| IPCC default EF ^c | 15,000-314,000 (P) 288,000-628,000 (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 | 1,121 | NE | PJ | Gas produced | 11,326 | 649 | PJ | Gas transmitted | 177,781 | 9,992 | PJ | Utility sales | NE | NE | | NE |
| Austria | | 49,261 | 10 ⁶ m ³ | Gas throughput (a) | 2,900 | 25 | km | Pipelines length (km) | 736 | | 10 ⁶ m ³ | Gas Consumption | | | PJ | (e.g. PJ gas consumed) |
| Belarus | 288,000 | NE | PJ | PJ gas produced | 118,000 | NE | PJ | PJ gas consumed | NE | NE | | PJ gas consumed | 84,238 | NE | PJ | PJ gas consumed |
| Belgium | NE | NE | | (e.g. PJ gas produced) | 0 | 0 | | (e.g. PJ gas consumed) | 25,195 | NA | PJ | consumption | 0 | 0 | | (e.g. PJ gas consumed) |
| Bulgaria | 83,682 | NE | PJ | (e.g. PJ gas produced) | 12,606 | NE | PJ | (e.g. PJ gas consumed) | 4,847 | NE | PJ | (e.g. PJ gas consumed) | 274,704 | 0 | PJ | (e.g. PJ gas consumed) |
| Canada | 2,844 | 116 | 10 ⁶ m ³ | Gross New Production of Natural Gas (also includes oil and Gas Well Drilling and Servicing) | 3,230 | 24 | km | Pipeline Distance | 744 | NE | km | Pipeline Distance - leakage | NA | NA | | (specify) |
| Croatia | 458,000 | 8,903,293 | PJ | (e.g. PJ gas produced) | | | PJ | (e.g. PJ gas consumed) | | | PJ | (e.g. PJ gas consumed) | | | PJ | (e.g. PJ gas consumed) |
| Czech Republic | 88,572 | | PJ | (e.g. PJ gas produced) | 4,736 | | PJ | (e.g. PJ gas consumed) | 108,210 | | PJ | (e.g. PJ gas consumed) | 14,762 | | PJ | (e.g. PJ gas consumed) |
| Denmark | | | 10 ⁶ m ³ | Gas produced | 21 | | 10 ⁶ m ³ | Gas transmission | 11 | | 10 ⁶ m ³ | Gas distributed | | | | Incl. in transmission |
| Estonia | 458,000 | | | (e.g. PJ gas produced) | 458,000 | | | (e.g. PJ gas consumed) | | | | | | | | (e.g. PJ gas consumed) |
| European Community | NE | NE | | | NE | NE | | | NE | NE | | | | | | (e.g. PJ gas consumed) |
| Finland | NO | NO | | (e.g. PJ gas produced) | 3,345 | NO | PJ | PJ gas consumed | 257,453 | NO | PJ | PJ gas distributed via | | | | (e.g. PJ gas consumed) |
| France | 613 | 2,444,725 | PJ | PJ Production | 54,256 | | PJ | PJ Consumed | | | | | | | | (e.g. PJ gas consumed) |
| Germany | 62 | NE | TJ | (natural gas from crude oil extraction) | 9 | NE | TJ | (total amount of gas consumed) | 452 | NE | km | (distribution net) | 42 | NO | TJ | (gas consumed) |
| Greece | 21,000 | NE | PJ | Natural gas production | IE | NE | PJ | Natural gas consumption | 102,500 | NE | PJ | Natural gas | NE | NE | | (e.g. PJ gas consumed) |
| Hungary | 97,022 | NO | PJ | gas produced | 118,249 | NO | PJ | gas consumed | IE | NO | | (e.g. PJ gas consumed) | NO | NO | | (e.g. PJ gas consumed) |
| Iceland | NO | NO | | (e.g. PJ gas produced) | NO | NO | | (e.g. PJ gas consumed) | NO | NO | | (e.g. PJ gas consumed) | NO | NO | | (e.g. PJ gas consumed) |
| Ireland | 18,300 | 2,581,412 | PJ | PJ of Gas produced | | | | (e.g. PJ gas consumed) | 59,716 | | PJ | PJ of gas consumed | | | | (e.g. PJ gas consumed) |
| Italy | 178 | | 10 ⁶ m ³ | (Mm3 gas produced) | 305 | | 10 ⁶ m ³ | (Mm3 gas transported) | 7,166 | | 10 ⁶ m ³ | (Mm3 gas transported) | | | | |
| Japan | 4 | 0 | 10 ³ m ³ | gas produced | 3,500 | 25 | km | Pipelines length | 905 | NE | PJ | LNG & NG | NE | NE | | |
| Latvia | | | | (e.g. PJ gas produced) | | | | (e.g. PJ gas consumed) | | | | (e.g. PJ gas consumed) | | | | (e.g. PJ gas consumed) |
| Liechtenstein | NO | NO | | | IE | NO | | | | NO | | | | | | (e.g. PJ gas consumed) |
| Lithuania | NE | NE | | (e.g. PJ gas produced) | NE | NE | | (e.g. PJ gas consumed) | 218,000 | NE | PJ | (e.g. PJ gas consumed) | NE | NE | | (e.g. PJ gas consumed) |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | (e.g. PJ gas produced) | | | | (e.g. PJ gas consumed) | | | | (e.g. PJ gas consumed) | | | | (e.g. PJ gas consumed) |
| Netherlands | IE | 62,990 | PJ | gas produced | 1,474 | 45 | PJ | gas transported | 210,646 | 6,405 | 10 ³ km | natural gas distribution | IE | IE | | |
| New Zealand | NE | NE | | (e.g. PJ gas produced) | IE | IE | TJ | (e.g. PJ gas consumed) | 249 | 22 | TJ | (e.g. PJ gas consumed) | NE | NE | | (e.g. PJ gas consumed) |
| Norway | IE | IE | | | IE | IE | | | IE | IE | | | | | | (e.g. PJ gas consumed) |
| Portugal | | | | | | | TJ | Gas consumed | | | | | | | | |
| Romania | 288,000 | | PJ | (e.g. PJ gas produced) | 364,300 | | PJ | (e.g. PJ gas consumed) | | | | | 143,848 | | PJ | (e.g. PJ gas consumed) |
| Slovakia | 20,870 | NO | 10 ⁶ m ³ | production | 2,900 | NO | km | transfer | 710 | NO | km | distribution | 0 | 0 | 10 ⁶ m ³ | consumed |
| Slovenia | 227 | NE | TJ | (e.g. PJ gas produced) | 273 | NE | km | (e.g. PJ gas consumed) | 230 | NE | km | (e.g. PJ gas consumed) | 0 | NE | | (e.g. PJ gas consumed) |
| Spain | 70,889 | NE | PJ | PJ gas produced (NCV) | 11,776 | 150 | PJ | PJ gas (NCV) | 28,473 | 355 | PJ | PJ gas consumed | NE | NE | | (e.g. PJ gas consumed) |
| Sweden | NO | NO | | | NO | NO | TJ | Pressure levelling losses | NE | NE | | (e.g. PJ gas consumed) | NE | NE | | |
| Switzerland | NO | NO | | | NA | NA | | See documentation box | IE | IE | | | IE | IE | | IE |
| Ukraine | 2,148,651 | | PJ | (e.g. PJ gas produced) | 801,005 | | PJ | (e.g. PJ gas consumed) | 573,900 | | PJ | (e.g. PJ gas consumed) | | | | (e.g. PJ gas consumed) |
| United Kingdom | | | | (e.g. PJ gas produced) | | | | (e.g. PJ gas consumed) | 73,389 | | PJ | Gas consumed | | | NE | (e.g. PJ gas consumed) |
| United States | 144,714 | NE | 10 ⁹ ft ³ | (e.g. PJ gas produced) | 88,061 | IE | 10 ⁹ ft ³ | (e.g. PJ gas consumed) | 59,461 | NE | 10 ⁹ ft ³ | (e.g. PJ gas consumed) | IE | IE | NA | (e.g. PJ gas consumed) |

^a Information on methods and emission factors included in this table is as reported by Parties. 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.^b 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.^c 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 see the IPCC good practice guidance, table 2.16, pages 2.86–2.87.

Table 1.41**Fugitive emissions from fuels: oil and natural gas, CH₄, CO₂ (2003) (continued)**

| | Venting and flaring | | | | | | | | | | | | | | | | |
|------------------------------|----------------------------------|--------------------------------|------------------------|----------------------------------|--------------------------------|------------------------|----------------------------------|---------------------|--------------------------------|---------------------------|----------------------------------|---------------|----------------------|----------------------------------|---------------------|--------------------------------|-------------------------------------|
| | Oil | | | Gas | | | | | | Combined | | | | | | | |
| | Venting ^a | | | Venting ^a | | | Flaring ^a | | | Venting ^a | | | Flaring ^a | | | | |
| | CH ₄ IEF ^b | 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 | |
| | 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 | 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 | | NA | 52,558 | PJ | PJ gas produced | IE | IE | IE | NA | | NA | 9,809 | 791,500 | PJ | PJ gas and oil produced | |
| Austria | | | (e.g. PJ oil produced) | | | (e.g. PJ gas produced) | | | (e.g. PJ gas consumption) | | | | | | | | |
| Belarus | IE | PJ | PJ oil produced | IE | PJ | PJ gas produced | IE | NE | PJ | PJ gas consumption | IE | | | IE | NE | | |
| Belgium | NA | | (e.g. PJ oil produced) | NA | | (e.g. PJ gas produced) | NE | IE | | (e.g. PJ gas consumption) | NA | | | NE | - | | |
| Bulgaria | 2,000 | PJ | (e.g. PJ oil produced) | 18,000 | PJ | (e.g. PJ gas produced) | 329 | NE | PJ | (e.g. PJ gas consumption) | NE | PJ | | NE | NE | PJ | |
| Canada | NE | | NA | NE | | NA | IE | IE | NA | NE | 10 ⁶ m ³ | | | 145 | 34,264 | 10 ⁶ m ³ | Gross New Production of Natural Gas |
| Croatia | | PJ | (e.g. PJ oil produced) | 18,000 | PJ | (e.g. PJ gas produced) | | | PJ | (e.g. PJ gas consumption) | | PJ | | | | PJ | |
| Czech Republic | | | (e.g. PJ oil produced) | | | (e.g. PJ gas produced) | | | | (e.g. PJ gas consumption) | | | | | | | |
| Denmark | | | (e.g. PJ oil produced) | | | Incl. in transmission | 0.0 | 57 | GJ | Gas consumption | | | | | | | |
| Estonia | 4,000 | | (e.g. PJ oil produced) | 18,000 | | (e.g. PJ gas produced) | | | | (e.g. PJ gas consumption) | | | | | | | |
| European Community | NE | | (e.g. PJ oil produced) | NE | | (e.g. PJ gas produced) | NE | NE | | (e.g. PJ gas consumption) | NE | | | NE | NE | | |
| Finland | NO | kt | kt oil refined | NO | | (e.g. PJ gas produced) | NO | NO | | (e.g. PJ gas consumption) | NO | | | NO | NO | | |
| France | | | (e.g. PJ oil produced) | | | (e.g. PJ gas produced) | | | | | | | | 701,068 | 56,939,502 | PJ | PJ Consumed |
| Germany | IE | | (e.g. PJ oil produced) | IE | | (e.g. PJ gas produced) | IE | IE | (natural gas) | IE | | | | IE | IE | | |
| Greece | 2,000 | PJ | Crude oil and NGL | NE | PJ | Natural gas production | NE | NE | PJ | Natural gas production | NO | | | NO | NO | | |
| Hungary | 2,150 | PJ | (e.g. PJ oil produced) | 24,557 | PJ | (e.g. PJ gas produced) | NE | NE | | (e.g. PJ gas consumption) | NA | | | NA | NA | | |
| Iceland | NO | | (e.g. PJ oil produced) | NO | | (e.g. PJ gas produced) | NO | NO | | (e.g. PJ gas consumption) | NO | | | NO | NO | | |
| Ireland | | | (e.g. PJ oil produced) | | | (e.g. PJ gas consumed) | | | kt | quantity of gas flared | | | | | | | |
| Italy | IE | | | IE | | | | | | | | | | | | | |
| Japan | 1 | 10 ³ l | oil produced | NE | 10 ³ m ³ | gas produced | NE | NE | 10 ³ m ³ | gas produced | IE | | | NE | NE | | |
| Latvia | | | (e.g. PJ oil produced) | | | (e.g. PJ gas produced) | | | | (e.g. PJ gas consumption) | | | | | | | |
| Liechtenstein | NO | | (e.g. PJ oil produced) | NO | | (e.g. PJ gas produced) | NO | NO | | (e.g. PJ gas consumption) | NO | | | NO | NO | | |
| Lithuania | NE | | (e.g. PJ oil produced) | NE | | (e.g. PJ gas produced) | NE | NE | | (e.g. PJ gas consumption) | NE | | | NE | NE | | |
| Luxembourg | | | | | | | | | | | | | | | | | |
| Monaco | | | (e.g. PJ oil produced) | | | (e.g. PJ gas produced) | | | | (e.g. PJ gas consumption) | | | | | | | |
| Netherlands | IE | 10 ⁶ m ³ | oil produced | 9,448 | PJ | gas produced | 148 | 42,048 | PJ | gas produced | NA | | | NA | NA | | |
| New Zealand | IE | | (e.g. PJ oil produced) | IE | | (e.g. PJ gas produced) | 413 | 222,188 | TJ | (e.g. PJ gas consumption) | IE | | | IE | IE | TJ | venting & flaring from oil & gas |
| Norway | IE | | (e.g. PJ oil produced) | IE | | (e.g. PJ gas produced) | 7,606 | 59,605,202 | PJ | Gas flared | 1,440 | PJ | Oil and gas | IE | IE | | |
| Portugal | 8 | Mt | Oil refined | | | | | | | | | | | | | | |
| Romania | | PJ | (e.g. PJ oil produced) | 18,000 | PJ | (e.g. PJ gas produced) | IE | NE | | (e.g. PJ gas consumption) | | | | | | | |
| Slovakia | 270 | kt | production | 1,200 | km | transfer | 498 | NO | 10 ⁶ m ³ | production | NO | | | NO | NO | | |
| Slovenia | NE | | (e.g. PJ oil produced) | NE | | (e.g. PJ gas produced) | NE | NE | | (e.g. PJ gas consumption) | NE | | | NE | NE | | |
| Spain | NE | | (e.g. PJ oil produced) | NE | | (e.g. PJ gas produced) | 5,410 | 56,291,602 | PJ | (e.g. PJ gas consumption) | NE | | | NE | NE | | |
| Sweden | NE | | (e.g. PJ oil produced) | NE | | (e.g. PJ gas produced) | NE | NE | | (e.g. PJ gas consumption) | NE | | | NE | NE | | |
| Switzerland | IE | | IE | IE | | IE | NO | NO | | NO | NO | | NO | NO | NO | | NO |
| Ukraine | | | (e.g. PJ oil produced) | | | (e.g. PJ gas produced) | | | | (e.g. PJ gas consumption) | | | | | | | |
| United Kingdom | | | (e.g. PJ oil produced) | | | (e.g. PJ gas produced) | | | | (e.g. PJ gas consumption) | | | | 249,933 | 65,388,254 | PJ | Gas consumption |
| United States | IE | | (e.g. PJ oil produced) | IE | | (e.g. PJ gas produced) | IE | IE | | (e.g. PJ gas consumption) | IE | | | IE | 54,706,667 | 10 ¹² Btu | |

^a Information on methods and emission factors included in this table is as reported by Parties. 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.^b 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.^c 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 good practice guidance, table 2.16, pages 2.86–2.87.

Table 1.42**Fugitive emissions from fuels: oil and natural gas – trend information**

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|--------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 5,963 | 5,766 | -3.6 | 1.7 | 0.1 | -4.7 | 2.5 | -8.1 | -3.9 | 4.8 | 8.4 | 13.1 | 6.7 | -6.7 | -10.7 | -3.3 |
| Austria | 102 | 233 | 8.8 | 8.1 | -6.7 | 13.8 | -0.4 | -44.1 | 69.7 | 17.7 | 20.2 | -3.5 | 11.1 | -8.6 | 39.5 | 128.4 |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | 281 | 145 | -1.5 | -0.4 | -0.7 | -0.8 | -0.9 | 2.2 | -1.2 | 0.2 | 1.2 | 16.9 | -8.2 | -1.8 | -49.9 | -48.3 |
| Bulgaria | NE | NE | | | | | | | | | | | | | | |
| Canada | 9,833 | 15,242 | 2.9 | 5.3 | 6.4 | 4.6 | 9.4 | 3.9 | 1.1 | 1.1 | 4.4 | 2.6 | 3.4 | 1.5 | -1.7 | 55.0 |
| Croatia | 416 | 684 | 9.6 | 4.7 | 41.6 | -10.5 | 15.2 | -7.6 | -6.9 | -1.8 | -10.8 | 20.5 | 8.6 | -3.2 | 2.8 | 64.5 |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | 263 | 550 | 96.6 | 3.1 | -12.3 | -0.2 | -21.9 | 9.6 | 41.1 | -25.3 | 112.6 | -33.8 | 6.6 | -15.5 | 2.7 | 108.7 |
| Estonia | | NO | | | | | | | | | | | | | | |
| European Community | 17,826 | 15,931 | 1.8 | 1.7 | 4.7 | 2.7 | -1.7 | 1.9 | -8.9 | -2.4 | -3.4 | -2.9 | -0.1 | -4.6 | 0.9 | -10.6 |
| Finland | 123 | 63 | -6.5 | 5.2 | 42.1 | -58.1 | 12.5 | -11.1 | 69.4 | -41.8 | -14.1 | 6.6 | -10.8 | 17.2 | -7.4 | -48.8 |
| France | 4,306 | 3,861 | 6.8 | -4.6 | 4.8 | -1.9 | -13.0 | 2.1 | 5.8 | -2.2 | -3.6 | 2.0 | 3.2 | -7.0 | -1.3 | -10.3 |
| Germany | IE | IE | | | | | | | | | | | | | | |
| Greece | 0 | 0 | | | | | | | | | | | | | | |
| Hungary | IE,NA,NE,NO | NO | | | | | | | | | | | | | | |
| Iceland | NE | NE | | | | | | | | | | | | | | |
| Ireland | 139 | 59 | 2.5 | -1.1 | 13.6 | 1.7 | 2.5 | -3.6 | -12.3 | -23.5 | 8.5 | -39.5 | 89.2 | -51.2 | -10.0 | -57.6 |
| Italy | 3,048 | 2,499 | -1.9 | -2.1 | 5.4 | -5.5 | -2.4 | -5.3 | 6.8 | -3.7 | -24.4 | 9.9 | -5.0 | -11.7 | 29.6 | -18.0 |
| Japan | 1 | 1 | 20.4 | 1.7 | -1.1 | -2.8 | -0.3 | -1.8 | 4.8 | -5.8 | -0.5 | 5.0 | -2.0 | 6.7 | 4.5 | 29.9 |
| Latvia | NE/NO | NE/NO | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | NE | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | 0 | 0 | | | | | | | | | | | | | | |
| Netherlands | 839 | 405 | -3.3 | -10.5 | -22.4 | -1.1 | -18.8 | 5.9 | -43.6 | 7.4 | 39.1 | 0.0 | 1.5 | -0.3 | -0.9 | -51.7 |
| New Zealand | 621 | 650 | 14.0 | -4.7 | -6.0 | 6.9 | -6.2 | 2.1 | 8.1 | -3.9 | -6.6 | -6.7 | 7.0 | -2.1 | 5.6 | 4.6 |
| Norway | 2,622 | 2,716 | -1.9 | -7.7 | 4.7 | 4.9 | -1.1 | 12.7 | -5.8 | -2.4 | 29.1 | 6.7 | -12.4 | -15.9 | 0.0 | 3.6 |
| Portugal | 118 | 754 | 1.7 | 17.8 | 12.8 | 148.7 | 35.8 | -9.7 | 23.1 | -3.8 | -6.2 | -2.1 | 22.4 | 3.9 | 12.6 | 541.9 |
| Romania | NE | NE | | | | | | | | | | | | | | |
| Slovakia | | | | | | | | | | | | | | | | |
| Slovenia | 0 | 0 | | | | | | | | | | | | | | |
| Spain | 1,743 | 1,915 | -2.2 | 6.0 | 8.4 | 9.3 | -11.2 | -1.8 | 2.8 | 4.8 | -3.0 | 12.5 | -5.9 | 4.0 | -10.9 | 9.9 |
| Sweden | 100 | 80 | -28.4 | 21.4 | 2.5 | -21.8 | 17.8 | -25.2 | 33.0 | -12.3 | -26.8 | 47.5 | 5.2 | 1.9 | -3.4 | -20.0 |
| Switzerland | 75 | 80 | -8.0 | -2.7 | 7.9 | 12.7 | 2.3 | 10.5 | -3.2 | 2.4 | 1.8 | -4.5 | 4.7 | -1.2 | -12.7 | 7.2 |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | 6,764 | 5,226 | -1.1 | 7.4 | 6.9 | 6.1 | 7.3 | 6.4 | -25.8 | -1.6 | -4.1 | -11.3 | -2.1 | -2.5 | -5.3 | -22.7 |
| United States | 5,805 | 5,970 | 1.2 | -9.6 | 27.9 | 1.1 | 31.0 | -5.1 | -7.7 | -16.6 | 5.7 | -16.9 | 5.6 | 2.3 | -4.2 | 2.8 |

^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 1.42

Fugitive emissions from fuels: oil and natural gas – trend information (continued)

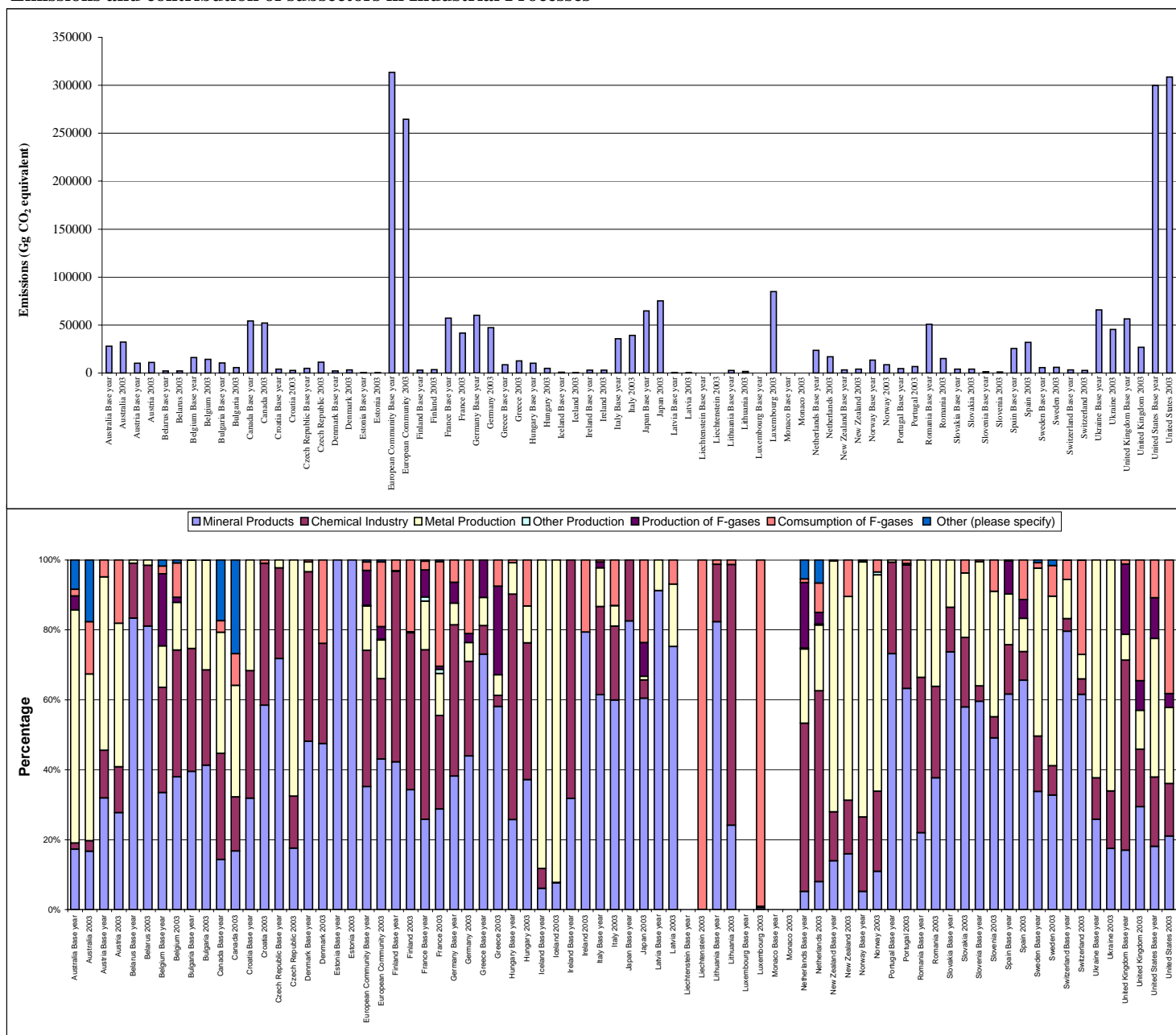
| CH ₄ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | Base year ^a to 2003 |
|--------------------------------|------------------------|-------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | |
| Australia | 331 | 194 | -10.1 | 6.3 | -12.8 | 1.3 | 19.8 | -8.6 | 4.1 | -3.0 | -17.0 | 8.2 | 0.4 | -10.6 | -22.0 | -41.3 |
| Austria | 13 | 15 | 2.0 | -0.1 | 2.8 | -1.4 | 4.2 | 7.3 | -0.7 | -0.2 | 1.4 | -3.0 | 1.2 | 0.0 | 2.8 | 17.4 |
| Belarus | 101 | 127 | | | | | | | | | | | | | | 26.0 |
| Belgium | 25 | 17 | -0.7 | -2.5 | -0.1 | -0.9 | -2.5 | -1.1 | -2.1 | -2.8 | -0.8 | -5.6 | -4.2 | -1.9 | -12.1 | -32.0 |
| Bulgaria | 61 | 25 | -6.2 | -12.8 | 1.6 | 10.6 | 14.8 | 1.3 | -11.9 | -8.7 | -15.7 | 33.9 | -8.0 | -9.1 | 2.9 | -59.6 |
| Canada | 1,247 | 1,797 | 4.7 | 9.1 | 4.3 | 5.8 | 6.3 | 6.8 | 0.1 | -0.7 | 0.1 | 2.6 | 1.1 | -1.9 | -0.6 | 44.1 |
| Croatia | 56 | 62 | -8.6 | 1.2 | 9.9 | -9.8 | 1.0 | 4.5 | 6.0 | -13.0 | 0.3 | 4.7 | 11.7 | 4.1 | 0.8 | 9.8 |
| Czech Republic | 32 | 24 | | | | | 1.3 | -15.2 | 8.4 | -19.4 | 2.1 | 0.0 | -19.1 | -0.5 | 2.7 | -26.1 |
| Denmark | 2 | 4 | 21.7 | -4.9 | 10.4 | 4.2 | 18.5 | -3.9 | 11.4 | -0.3 | 14.5 | 6.9 | 0.7 | 2.6 | 2.5 | 118.0 |
| Estonia | 38 | 20 | -0.3 | -41.7 | -51.0 | 44.4 | 15.3 | 10.6 | -2.6 | -5.5 | -2.6 | 14.8 | 7.5 | -16.1 | 10.3 | -46.3 |
| European Community | 1,452 | 1,130 | -0.2 | 1.7 | 0.8 | -2.5 | -4.2 | -1.0 | -4.0 | -0.2 | -2.9 | -2.2 | 0.9 | -1.7 | -8.8 | -22.1 |
| Finland | 1 | 3 | 273.6 | 34.8 | 29.2 | 10.7 | -0.5 | 3.4 | -13.2 | 1.8 | -19.0 | -6.8 | 23.2 | -15.8 | 7.9 | 453.2 |
| France | 118 | 90 | -3.6 | -3.9 | -4.1 | -4.0 | -4.2 | -4.5 | 0.0 | -0.1 | -0.5 | 0.1 | -0.7 | -0.5 | -0.6 | -23.8 |
| Germany | 334 | 350 | 5.4 | 10.6 | 10.4 | -4.8 | -12.2 | 4.1 | -3.0 | -0.8 | -1.2 | -1.5 | 1.9 | -1.8 | 0.0 | 4.9 |
| Greece | 2 | 10 | -7.2 | -0.6 | -20.1 | -7.1 | 5.8 | 16.4 | 33.7 | 111.9 | 41.0 | 38.0 | -1.6 | 5.7 | 10.9 | 435.2 |
| Hungary | 56 | 73 | 4.8 | 3.3 | 13.3 | 5.1 | 7.2 | 2.7 | 1.4 | 1.2 | 0.0 | -3.3 | 0.3 | 0.8 | -4.7 | 29.7 |
| Iceland | NE | NE | | | | | | | | | | | | | | |
| Ireland | 7 | 4 | -3.2 | -3.9 | -1.4 | -3.5 | -2.6 | -2.9 | -3.4 | -11.1 | -2.4 | -3.6 | 1.3 | -20.3 | -4.7 | -47.9 |
| Italy | 316 | 238 | -2.7 | -0.7 | -3.2 | -4.0 | -4.7 | -2.6 | -0.1 | 1.6 | -2.6 | -1.8 | -4.5 | -3.1 | 0.6 | -24.7 |
| Japan | 18 | 24 | 7.4 | 0.7 | 1.7 | 1.8 | 0.7 | 0.4 | 3.0 | -0.4 | 1.4 | 3.7 | 0.8 | 6.7 | 2.0 | 34.0 |
| Latvia | 13 | 6 | -3.7 | -8.8 | -4.4 | -2.3 | -2.6 | -3.6 | -6.7 | -4.1 | -4.7 | -7.5 | -3.0 | 4.3 | -21.8 | -51.9 |
| Liechtenstein | 0 | 0 | | | | | | | | | | | | | | 8.3 |
| Lithuania | 26 | 22 | | | | | | | | | | | | 33,316.7 | 10.3 | -15.3 |
| Luxembourg | | 3 | | | | | | | | | | | | | | |
| Monaco | 0 | 0 | | | | | | | | | | | | | | |
| Netherlands | 97 | 49 | -0.1 | -1.0 | -0.9 | -1.1 | -0.7 | -5.9 | -29.4 | -4.2 | -10.8 | -5.2 | -0.6 | -0.6 | -0.7 | -49.2 |
| New Zealand | 15 | 20 | -4.5 | -4.5 | -1.9 | 5.5 | -3.3 | -0.1 | 16.3 | 6.5 | 12.1 | -3.0 | 6.3 | -0.7 | 1.9 | 32.0 |
| Norway | 17 | 29 | 12.8 | 27.3 | 7.2 | 7.5 | 0.9 | -1.3 | 11.0 | -8.3 | -6.6 | 18.3 | 15.1 | -11.2 | -8.0 | 74.4 |
| Portugal | 2 | 14 | -8.5 | 17.6 | -4.1 | 24.8 | -4.6 | -8.6 | 20.3 | 108.8 | 141.5 | -15.5 | 19.0 | 16.6 | 2.0 | 713.9 |
| Romania | 1,091 | 398 | -16.2 | -22.4 | -5.5 | -8.8 | 1.2 | 0.1 | -18.9 | -2.1 | -6.6 | -1.3 | -3.5 | -0.5 | 4.5 | -63.5 |
| Slovakia | 24 | 35 | -0.6 | -0.3 | 3.5 | 6.0 | 9.6 | 2.1 | 0.8 | 6.8 | -0.1 | 6.5 | 2.3 | -3.2 | 4.3 | 43.9 |
| Slovenia | 1 | 1 | -5.0 | 0.4 | -3.0 | 0.0 | 18.2 | -0.3 | 5.7 | -3.7 | 2.1 | 1.0 | 3.9 | -3.6 | -3.6 | -47.0 |
| Spain | 28 | 39 | 5.5 | -1.1 | -3.1 | 17.2 | 5.8 | 2.6 | 17.6 | 7.2 | -23.5 | 14.5 | 19.5 | 9.5 | -25.3 | 39.0 |
| Sweden | 0 | 0 | -27.7 | 22.6 | 3.0 | -21.9 | 18.0 | -22.1 | 34.9 | -15.8 | -27.2 | 49.4 | 6.6 | -1.1 | -4.0 | -17.9 |
| Switzerland | 15 | 12 | -1.2 | -2.2 | -2.6 | -3.6 | -3.9 | -0.5 | -0.9 | -0.8 | -0.8 | -1.0 | -0.7 | -0.8 | -1.0 | -18.3 |
| Ukraine | 3,748 | 6,295 | 0.1 | -0.4 | 1.7 | 1.7 | 1.2 | 6.3 | 0.7 | -4.4 | 0.2 | 3.6 | 23.1 | 4.7 | 17.6 | 67.9 |
| United Kingdom | 508 | 294 | -2.2 | -0.9 | -2.8 | -1.0 | 1.0 | -2.9 | -5.0 | -1.8 | -4.0 | -4.6 | 2.1 | -3.3 | -24.9 | -42.1 |
| United States | 7,063 | 6,812 | 1.3 | -0.6 | 2.1 | 0.3 | -0.5 | 0.8 | -0.6 | -1.4 | -3.4 | 3.0 | -0.2 | -1.0 | -3.2 | -3.6 |

^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).

Industrial Processes

Figure 2.1

Emissions and contribution of subsectors in Industrial Processes^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), Romania (1989) and Slovenia (1986).

Table 2.1
Mineral products, CO₂ (2003)

| | Methods and EF used ^a | | Cement production | | | | | | Lime production | | | |
|------------------------------|----------------------------------|------------------|-------------------|-------------------------|---|---------|------------------------|---------------------|-----------------|-------------------------|---------------------|-------------------------|
| | Methods | EF | Key source | Share of national total | Activity data (production) | | | CO ₂ IEF | Key source | Share of national total | CO ₂ IEF | |
| | | | | | Description ^b | CRF | UN ^c (2002) | | | | | Difference ^d |
| | | | | | | (kt) | | | | | | (%) |
| | | | | (%) | | | | | | (%) | (t/t) | |
| IPCC default EF ^e | | | | | | | | | 0.499 (cement) | | | |
| IPCC default EF ^f | | | | | | | | | 0.51 (clinker) | | | 0.59-0.86 |
| Australia | T2 | CS | | 0.7 | Clinker production | 6565.8 | 7517.0 | 14.5 | 0.5 | | 0.2 | 0.7 |
| Austria | T2 | D, CS | L, T | 1.9 | Clinker Production [kt] | 3118.2 | 3800.0 | | 0.6 | L | 0.6 | 0.8 |
| Belarus | D,T1 | D | L | 1.6 | Used clincer production data | 2239.8 | 2171.0 | | 0.5 | | 0.7 | 0.8 |
| Belgium | | | L | 2.0 | (e.g. cement or clinker production) | 5582.8 | 8000.0 | | 0.5 | L | 1.5 | 0.8 |
| Bulgaria | T2,D | D | L | 1.7 | Klinker - kt | 2285.3 | 2173.0 | | 0.5 | L, T | 1.3 | 0.8 |
| Canada | D, T2 | D | L | 0.9 | Clinker Production Data | 13178.1 | 13081.0 | | 0.5 | | 0.2 | 0.8 |
| Croatia | T2 | D | L | 4.6 | (e.g. cement or clinker production) | 2745.9 | 3378.0 | | 0.5 | | 0.5 | 0.9 |
| Czech Republic | T1 | D | L | 1.2 | (e.g. cement production) | 3575.0 | 3249.0 | | 0.5 | | | |
| Denmark | CS | CS | L, T | 1.8 | Production of Cement | 2546.3 | 2698.0 | | 0.5 | | 0.1 | 0.2 |
| Estonia | | | L | 1.2 | (e.g. cement or clinker production) | 506.3 | 466.0 | | 0.5 | | 0.1 | 0.8 |
| European Community | C, CS, D, T1, T2 | C, CS, D, PS, T2 | L, T | 2.0 | (e.g. cement or clinker production) | NE | | | NE | L | 0.4 | NE |
| Finland | T2/D | PS/CS | T | 0.6 | (clinker production) | 940.2 | 1198.0 | | 0.5 | L | 0.6 | 0.7 |
| France | C | CS | L, T | 1.5 | kt of Clinker | 16313.0 | 20244.0 | | 0.5 | | 0.4 | 0.8 |
| Germany | D,CS; NE | D,CS | L | 1.3 | (clinker production) | 25232.9 | 32012.0 | | 0.5 | L | 0.5 | 0.8 |
| Greece | T1, T2 | D | L, T | 4.6 | clinker production | 11754.7 | 15500.0 | | 0.5 | | 0.4 | 0.7 |
| Hungary | T2, D | D, PS | L | 1.8 | clinker production | 2694.5 | 3510.0 | | 0.5 | | 0.4 | 0.8 |
| Iceland | T2, T1 | D, PS | L, T | 1.1 | clinker production | 60.4 | 130.0 | | 0.5 | | | NO |
| Ireland | D | D | L, T | 3.2 | Clinker production | 3967.1 | 2500.0 | | 0.5 | | 0.3 | 0.7 |
| Italy | D, T2 | CS, PS | L | 3.0 | (clinker production) | 32077.1 | 42050.0 | | 0.5 | | 0.4 | 0.8 |
| Japan | D, CS | D, CS | L, T | 2.3 | Consumption of limestone for cement production. | 74198.3 | 71828.0 | | 0.4 | | 0.3 | 0.4 |
| Latvia | D/T1/T2/C | D/PS/C | L | 1.3 | (e.g. cement or clinker production) | C | | | | T | 0.0 | |
| Liechtenstein | | | | | (e.g. cement or clinker production) | NO | | | NO | | | NO |
| Lithuania | T1 | D | L | | | 684.0 | 606.0 | | 0.5 | | | 0.8 |
| Luxembourg | | | | | | | 729.0 | | | | | |
| Monaco | | | | | (e.g. cement or clinker production) | NO | | | | | | |
| Netherlands | T2(clincer)/T1/CS/D | PS,CS,D | | 0.2 | Clinker production | 803.6 | 3400.0 | | 0.5 | | | NE |
| New Zealand | T2 | PS | | 1.0 | Cement production | 1239.6 | 950.0 | | 0.4 | | 0.2 | 0.7 |
| Norway | D | CS | L, T | 1.6 | (e.g. cement or clinker production) | 1855.2 | 1850.0 | | 0.5 | | 0.1 | |
| Portugal | D | D+C+CS | L, T | 4.4 | Total clinker production | 6979.6 | 9761.0 | | 0.5 | | 0.5 | 0.7 |
| Romania | CS,CR,D,OTH,T2 | CR,D,PS | L | 2.2 | (e.g. cement production) | 5259.0 | 5680.0 | | 0.5 | L | 1.8 | 0.8 |
| Slovakia | T1 | D | L | 1.8 | Clinker Production | 1754.7 | 3141.0 | | 0.5 | L | 1.1 | 0.7 |
| Slovenia | T1 | D | L, T | 2.3 | Clinker produced | 853.8 | 1495.0 | | 0.5 | T | 0.5 | 0.8 |
| Spain | D,T2,CS | D,T2,C,CS | L, T | 4.1 | Clinker production | 30316.6 | 42500.0 | | 0.5 | | 0.4 | 0.8 |
| Sweden | T2, CS, D | CS, D, PS | L | 1.7 | Produced amount of clinker | 2235.0 | 2669.0 | | 0.5 | L, T | 0.8 | 0.5 |
| Switzerland | C | CS | L, T | 3.1 | clinker production | 3,081 | 4,000 | | 0.53 | | 0.07 | 0.37 |
| Ukraine | T1,T2 | D,CS | | 0.7 | (e.g. cement or clinker production) | 6,784 | 7,157 | | 0.55 | | 0.76 | 0.82 |
| United Kingdom | T2 | D | L, T | 0.8 | clinker production kt | 10,616 | 12,000 | | 0.50 | | 0.14 | 0.44 |
| United States | D,CS | D,CS | L, T | 0.6 | clinker production | 83,214 | 89,732 | | 0.52 | | 0.19 | 0.68 |

^a Information on methods and emission factors is included in this table as reported by Parties. It may not reflect the actual method used or type of emission factor 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 Cement production from the United Nations Industrial Commodity Production Statistics Database (as of 10 June 2004 and updated 20 May 2005), United Nations, Department of Economic and Social Affairs, Statistics Division, New York Data are for the year 2002, except for Australia for which data are for 2003.

^d Only for Australia the difference is calculated as activity data for the other Parties are for 2002. As the United Nations data given in this table are for cement production, they are likely to differ from the CRF data specified as clinker.

^e Source of default emission factors: IPCC Guidelines, volume 3, pages 2.6

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

Table 2.2**Mineral products – trend information**

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|---------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 4,826 | 5,384 | -6.6 | -4.0 | 4.8 | 15.4 | -3.6 | 0.9 | -1.3 | 8.3 | -1.6 | -3.7 | -0.2 | 1.3 | 3.2 | 11.6 |
| Austria | 3,243 | 3,060 | -4.4 | 0.6 | -2.1 | 3.7 | -10.8 | -3.1 | 7.3 | -5.2 | -0.5 | 5.7 | 0.6 | 3.7 | 0.2 | -5.6 |
| Belarus | 1,856 | 1,657 | -4.0 | -3.2 | -8.5 | -31.4 | -16.6 | 9.1 | 26.7 | 15.2 | -2.3 | -9.1 | -3.0 | 12.8 | 18.5 | -10.8 |
| Belgium | 5,382 | 5,401 | -1.6 | 0.2 | -0.2 | 4.1 | 3.3 | -7.4 | 3.9 | 1.4 | -1.1 | 5.7 | -6.7 | 1.7 | -2.0 | 0.3 |
| Bulgaria | 4,114 | 2,279 | -42.1 | -19.6 | -15.1 | 6.5 | 22.7 | 3.9 | -16.3 | -33.2 | 52.4 | 14.6 | 4.0 | -0.8 | 11.1 | -44.6 |
| Canada | 7,777 | 8,692 | -9.6 | -1.0 | 1.6 | 9.2 | 4.4 | 1.0 | 3.5 | 17.6 | -6.1 | -3.1 | -5.4 | 1.3 | 0.6 | 11.8 |
| Croatia | 1,213 | 1,580 | -36.3 | 10.7 | -14.5 | 21.0 | -23.9 | 9.0 | 19.0 | 7.5 | 27.4 | 16.1 | 14.3 | -0.2 | -0.1 | 30.3 |
| Czech Republic | 3,380 | 1,980 | | | | | -5.9 | -5.0 | 0.8 | 6.5 | -11.2 | -4.7 | -11.1 | -10.4 | 10.5 | -41.4 |
| Denmark | 1,037 | 1,486 | 16.6 | 9.7 | 0.8 | -0.1 | 0.0 | 5.6 | 11.8 | 0.0 | -5.1 | 2.5 | 1.7 | 2.7 | -7.1 | 43.2 |
| Estonia | 614 | 276 | 0.2 | -49.0 | -38.4 | 11.3 | 3.1 | -6.5 | 9.2 | 62.7 | -5.7 | 2.2 | 0.4 | -4.2 | -18.8 | -55.0 |
| European Community | 110,115 | 113,901 | -4.9 | -1.7 | -3.3 | 4.6 | 4.0 | -3.7 | 3.4 | 1.9 | 1.3 | 2.0 | -1.6 | 0.3 | 1.7 | 3.4 |
| Finland | 1,286 | 1,181 | -14.3 | -10.2 | -9.8 | 5.8 | -3.3 | 4.1 | 2.3 | 1.0 | 8.7 | 4.9 | 1.1 | -0.5 | 4.7 | -8.2 |
| France | 14,734 | 11,993 | -4.4 | -8.9 | -6.1 | 3.5 | -1.1 | -2.1 | -2.4 | 5.5 | -3.7 | 1.6 | 0.1 | 0.4 | -1.9 | -18.6 |
| Germany | 22,970 | 20,758 | -9.4 | 3.4 | 1.1 | 6.1 | 2.1 | -5.2 | 2.5 | 0.2 | 1.1 | -1.8 | -8.7 | -3.7 | 3.6 | -9.6 |
| Greece | 6,330 | 7,307 | -1.1 | 1.1 | 2.7 | 0.3 | 6.9 | 0.4 | 3.4 | -3.4 | 1.9 | 3.8 | 0.2 | -2.7 | 1.4 | 15.4 |
| Hungary | 2,613 | 1,802 | -37.4 | -14.5 | 11.8 | 11.9 | 2.7 | -6.3 | 2.7 | 2.9 | 3.3 | 3.8 | 0.9 | -4.7 | -0.1 | -31.0 |
| Iceland | 52 | 33 | -6.9 | -6.1 | -13.1 | -5.7 | 1.4 | 10.3 | 11.4 | 16.8 | 12.9 | 6.6 | -10.4 | -31.0 | -18.4 | -36.8 |
| Ireland | 941 | 2,360 | -1.9 | 4.1 | -3.1 | 16.4 | -1.6 | 1.2 | 10.2 | 0.2 | 7.3 | 37.7 | 4.1 | 20.2 | 7.1 | 150.6 |
| Italy | 21,875 | 23,483 | -0.6 | 3.5 | -10.7 | -2.5 | 9.6 | -8.3 | 1.7 | 1.1 | 3.9 | 4.2 | 3.4 | -0.4 | 4.0 | 7.4 |
| Japan | 53,465 | 45,368 | 3.1 | 0.9 | -1.4 | 1.4 | 0.0 | -0.4 | -2.5 | -9.1 | -1.4 | 2.1 | -4.2 | -3.3 | -0.9 | -15.1 |
| Latvia | 460 | 187 | -25.9 | -54.3 | -74.8 | 326.8 | -15.0 | 9.1 | 1.5 | 1.9 | 22.2 | -26.8 | 14.4 | 8.5 | 4.9 | -59.3 |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | 2,203 | 388 | | | | | | | | | | | | 12.6 | 12.0 | -82.4 |
| Luxembourg | | 461 | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 1,216 | 1,349 | 3.1 | -2.1 | 2.5 | 18.9 | -4.6 | -6.6 | -4.3 | 3.9 | 5.4 | -3.0 | 8.0 | -4.3 | -3.5 | 10.9 |
| New Zealand | 448 | 639 | -2.5 | 14.5 | 10.5 | 2.3 | 3.5 | -0.9 | 3.1 | -4.1 | 11.2 | -1.3 | -0.3 | 3.9 | -2.1 | 42.5 |
| Norway | 697 | 950 | -8.2 | 9.1 | 26.7 | 1.3 | 4.9 | -0.4 | 6.7 | -5.4 | -1.3 | 0.8 | -4.5 | 1.7 | 4.0 | 36.2 |
| Portugal | 3,375 | 4,198 | 3.6 | -3.0 | 2.7 | 4.0 | 5.6 | -1.8 | 5.3 | 0.8 | 7.8 | 0.9 | -3.6 | 6.5 | -5.7 | 24.4 |
| Romania | 11,142 | 5,655 | -26.2 | -13.2 | -3.8 | -1.1 | 10.7 | -2.0 | 2.6 | -10.1 | -7.7 | 2.1 | 5.2 | 3.8 | 4.7 | -49.2 |
| Slovakia | 2,942 | 2,282 | -27.5 | 3.4 | -6.2 | 5.7 | 7.1 | -3.9 | 3.6 | 30.1 | 0.7 | -17.4 | 2.7 | 0.2 | -12.1 | -22.5 |
| Slovenia | 778 | 571 | -16.4 | -13.3 | -19.4 | 28.3 | 3.1 | 3.9 | 3.1 | 2.4 | 0.1 | 0.6 | 3.9 | -11.2 | 2.0 | -26.6 |
| Spain | 15,669 | 20,962 | -4.3 | -9.3 | -4.0 | 14.7 | 8.4 | -2.4 | 4.9 | 7.7 | 4.8 | 2.5 | 2.4 | 3.5 | 2.8 | 33.8 |
| Sweden | 1,917 | 1,924 | -9.9 | -5.0 | 1.2 | 4.9 | 12.0 | -4.5 | -6.9 | 3.1 | -2.9 | 13.5 | 2.2 | -1.5 | -3.0 | 0.4 |
| Switzerland | 2,568 | 1,653 | -12.7 | -6.2 | -9.1 | 10.0 | -5.7 | -9.8 | -10.1 | 0.0 | -0.1 | 7.3 | 1.9 | -3.7 | -2.1 | -35.6 |
| Ukraine | 16,944 | 7,937 | -7.4 | -2.6 | -24.2 | -21.9 | -24.8 | -25.7 | 11.5 | 1.2 | -3.3 | -0.7 | 15.7 | 6.8 | 17.3 | -53.2 |
| United Kingdom | 9,554 | 7,866 | -14.6 | -6.6 | 0.3 | 11.8 | 1.6 | 3.2 | 9.3 | -0.5 | -5.3 | -5.7 | -9.0 | -2.5 | 1.9 | -17.7 |
| United States | 54,191 | 64,816 | -3.0 | 1.2 | 3.8 | 4.4 | 6.3 | 2.1 | 1.6 | 2.0 | 1.3 | -1.7 | -0.9 | 1.8 | -0.6 | 19.6 |

^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 2.3

Cement production – trend information

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|--------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 3,214 | 3,401 | -8.0 | -7.8 | 3.0 | 15.2 | -4.0 | -3.4 | -1.9 | 9.6 | 2.2 | 2.9 | -2.0 | -1.1 | 3.3 | 5.8 |
| Austria | 2,033 | 1,736 | -1.4 | 5.0 | -3.5 | 3.5 | -22.4 | 0.2 | 7.8 | -9.2 | 0.5 | 6.5 | 0.5 | 0.9 | | -14.6 |
| Belarus | | 1,136 | | | | | | | | | | | | | | |
| Belgium | 2,824 | 2,939 | 2.0 | 7.2 | -0.2 | 3.1 | 2.4 | -7.6 | 5.1 | 0.4 | -1.9 | 5.0 | -11.1 | 1.1 | | 4.1 |
| Bulgaria | 2,737 | 1,189 | -49.6 | -10.2 | -5.9 | -4.8 | 8.4 | 3.2 | -22.6 | 5.3 | 18.2 | 7.3 | -5.5 | 2.4 | 12.5 | -56.5 |
| Canada | 5,583 | 6,815 | -13.7 | -2.2 | 5.6 | 12.4 | 4.7 | 2.6 | 3.3 | 2.6 | 4.2 | 1.5 | -2.8 | 3.0 | 1.1 | 22.1 |
| Croatia | | 1,392 | | | | | | | | | | | | | | |
| Czech Republic | | 1,782 | | | | | | | | | | | | | | |
| Denmark | 882 | 1,370 | 23.3 | 9.6 | 1.2 | -1.2 | 1.0 | 6.5 | 12.4 | 0.8 | -6.0 | 3.0 | 1.8 | 1.4 | -5.6 | 55.2 |
| Estonia | | 252 | | | | | | | | | | | | | | |
| European Community | 79,823 | 81,631 | -5.2 | -1.4 | -4.9 | 4.3 | 3.8 | -3.7 | 3.2 | 3.1 | 1.8 | 1.8 | -2.0 | 0.4 | 1.7 | 2.3 |
| Finland | 786 | 500 | -21.9 | -16.9 | -23.5 | -1.3 | 2.3 | 2.0 | 17.9 | 1.1 | 7.5 | 5.2 | -0.4 | -4.3 | -3.4 | -36.4 |
| France | 10,948 | 8,564 | -5.0 | -10.0 | -8.0 | 2.1 | -1.6 | -2.3 | -3.8 | 7.1 | -3.5 | 2.1 | 1.1 | -0.1 | -1.0 | -21.8 |
| Germany | 15,146 | 13,373 | -10.2 | 5.1 | 0.6 | 5.6 | 1.4 | -4.8 | 3.1 | 1.8 | 1.5 | -3.3 | -11.5 | -5.0 | 5.3 | -11.7 |
| Greece | 5,778 | 6,386 | -0.8 | 2.5 | 0.2 | 0.7 | 7.4 | 0.3 | 0.5 | -0.4 | -0.3 | 2.7 | 0.4 | -3.8 | 0.9 | 10.5 |
| Hungary | 1,719 | 1,426 | -41.5 | -16.6 | 19.0 | 12.6 | 3.7 | -4.7 | 5.7 | 2.7 | 1.6 | 9.7 | 0.9 | 6.0 | -0.8 | -17.0 |
| Iceland | 52 | 32 | -6.9 | -6.0 | -13.4 | -6.4 | 0.8 | 10.8 | 11.4 | 17.0 | 13.6 | 6.7 | -10.5 | -31.7 | -18.5 | -37.7 |
| Ireland | 750 | 2,157 | | 6.7 | -6.3 | 20.0 | | | 11.1 | | 12.5 | 40.0 | 4.8 | 22.5 | 6.7 | 187.7 |
| Italy | 16,084 | 17,322 | -1.0 | 4.7 | -14.4 | -1.9 | 11.0 | -8.6 | 1.8 | 2.1 | 5.1 | 3.8 | 3.6 | -0.4 | 4.2 | 7.7 |
| Japan | 37,006 | 30,766 | 4.3 | 3.3 | -1.0 | 2.7 | -0.3 | 1.1 | -6.1 | -11.4 | -0.9 | 0.7 | -4.3 | -3.7 | -1.6 | -16.9 |
| Latvia | 346 | 137 | -27.5 | -52.1 | -84.4 | 558.4 | -19.0 | 11.7 | 1.7 | -2.8 | 32.0 | -36.3 | 25.0 | 6.4 | 10.4 | -60.5 |
| Liechtenstein | | NO | | | | | | | | | | | | | | |
| Lithuania | | 341 | | | | | | | | | | | | | | |
| Luxembourg | | 405 | | | | | | | | | | | | | | |
| Monaco | | 0 | | | | | | | | | | | | | | |
| Netherlands | 507 | 434 | -4.9 | -6.9 | 2.0 | 1.1 | -7.6 | -26.2 | 19.0 | 14.9 | 19.7 | -9.3 | 1.9 | 2.3 | -11.2 | -14.5 |
| New Zealand | 367 | 527 | -6.4 | 18.1 | 13.8 | 5.6 | 3.4 | -0.1 | 0.1 | -4.9 | 8.8 | -0.2 | 0.8 | 3.4 | -2.6 | 43.9 |
| Norway | 653 | 885 | -8.6 | 10.3 | 28.2 | 1.1 | 3.8 | -1.6 | 7.2 | -5.6 | -0.7 | 1.5 | -5.8 | 2.6 | 2.9 | 35.6 |
| Portugal | 3,107 | 3,538 | 3.0 | -4.1 | 1.9 | 3.0 | 5.1 | -2.1 | 5.1 | -0.7 | 8.2 | -0.5 | -4.8 | 7.9 | -7.5 | 13.9 |
| Romania | 5,572 | 2,771 | -28.0 | -9.2 | -2.5 | -2.2 | 10.0 | -1.2 | 6.4 | -15.4 | -3.1 | 5.4 | -6.3 | -0.9 | 8.4 | -50.3 |
| Slovakia | | 905 | | | | | | | | | | | | | | |
| Slovenia | 515 | 462 | -11.4 | -7.7 | -25.0 | 32.6 | 6.1 | 7.4 | 1.2 | 4.2 | 0.9 | 5.6 | 3.1 | -12.1 | 1.5 | -10.2 |
| Spain | 12,534 | 16,371 | -4.7 | -10.8 | -5.0 | 16.0 | 7.5 | -2.0 | 5.3 | 8.3 | 4.5 | 2.1 | 1.9 | 3.4 | 3.3 | 30.6 |
| Sweden | 1,245 | 1,181 | -10.6 | -4.2 | 0.3 | 1.6 | 16.8 | -5.5 | -9.8 | 2.5 | 0.5 | 13.0 | 3.4 | -3.8 | -5.8 | -5.2 |
| Switzerland | 2,524 | 1,618 | -12.9 | -6.3 | -9.2 | 10.3 | -5.7 | -10.0 | -10.3 | 0.0 | -0.1 | 7.4 | 1.9 | -3.8 | -2.2 | -35.9 |
| Ukraine | 9,548 | 3,711 | -5.1 | -2.9 | -26.1 | -22.0 | -31.6 | -36.5 | 12.0 | 15.6 | -9.1 | -10.6 | 9.6 | 13.9 | 28.2 | -61.1 |
| United Kingdom | 6,659 | 5,356 | -17.8 | -9.0 | 1.3 | 15.3 | -1.3 | 2.1 | 4.6 | 1.9 | -4.5 | -3.0 | -7.7 | 2.5 | -2.0 | -19.6 |
| United States | 33,278 | 43,030 | -2.2 | 0.8 | 5.6 | 4.2 | 2.1 | 0.6 | 3.4 | 2.3 | 2.0 | 3.0 | 0.4 | 3.7 | 0.3 | 29.3 |

^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 2.3**Cement production – trend information (continued)**

| CO ₂ implied emission factors (t/t) | | | Relative Change (%) | | | | | | | | | | | | | |
|--|------------------------|------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 0.52 | 0.52 | | | | | | | | | | | | | 0.0 | 0.0 |
| Austria | 0.55 | 0.56 | 0.2 | -0.1 | 0.3 | 0.4 | 0.4 | 0.7 | 1.2 | -1.8 | -0.2 | 0.9 | 0.2 | -0.9 | | 1.1 |
| Belarus | | 0.51 | | | | | | | | | | | | | | |
| Belgium | 0.53 | 0.53 | 0.2 | 0.6 | 0.0 | 0.0 | 0.0 | -0.2 | 0.1 | 0.0 | -0.1 | 0.1 | -2.3 | 0.3 | | -1.4 |
| Bulgaria | 0.52 | 0.52 | | | | | | | | | | | | | | |
| Canada | 0.52 | 0.52 | | | | | | | | | | | | | | |
| Croatia | | 0.51 | | | | | | | | | | | | | | |
| Czech Republic | | 0.50 | | | | | | | | | | | | | | |
| Denmark | 0.54 | 0.54 | -0.1 | -1.1 | -0.2 | -1.1 | -0.4 | 0.1 | 0.0 | -0.5 | 1.1 | 0.9 | | | | -1.2 |
| Estonia | | 0.50 | | | | | | | | | | | | | | |
| European Community | NE | NE | | | | | | | | | | | | | | |
| Finland | 0.53 | 0.53 | 0.2 | -0.1 | 0.2 | -1.8 | -1.6 | 1.1 | -0.2 | 1.5 | 0.6 | -0.2 | -0.2 | -0.5 | 0.4 | -0.6 |
| France | 0.53 | 0.53 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Germany | 0.53 | 0.53 | | | | | | | | | | | | | | |
| Greece | 0.54 | 0.54 | 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 | 0.1 |
| Hungary | 0.54 | 0.53 | -5.5 | 3.8 | -0.2 | -0.4 | 0.0 | 2.4 | 0.1 | -0.4 | 1.2 | -1.6 | 1.3 | -0.5 | -1.1 | -2.3 |
| Iceland | 0.53 | 0.53 | | | | | | | | | | | | | | |
| Ireland | 0.50 | 0.54 | | | | | | | | | | | | | 8.8 | 8.8 |
| Italy | 0.54 | 0.54 | | | | | | | | | | | | | | |
| Japan | 0.41 | 0.41 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | -0.5 | 0.0 | 0.0 | 0.1 |
| Latvia | 0.53 | | | | | | | | | | | | | | | |
| Liechtenstein | | NO | | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 0.54 | 0.54 | | | -0.2 | 0.0 | 0.1 | -0.2 | 0.2 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 | -0.1 |
| New Zealand | 0.51 | 0.43 | | | | | 0.0 | 0.0 | -3.0 | -1.2 | 0.2 | -0.2 | -1.4 | -4.4 | -7.6 | -16.6 |
| Norway | 0.52 | 0.48 | -0.9 | 0.4 | 0.6 | 0.1 | 0.0 | 0.1 | -0.1 | 0.0 | 0.0 | 3.3 | -3.3 | 0.0 | -9.3 | -9.1 |
| Portugal | 0.51 | 0.51 | | | | | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | | | |
| Romania | 0.53 | 0.53 | -0.1 | -0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | -0.3 | 0.0 | -0.1 | 0.0 | 0.0 |
| Slovakia | | 0.52 | | | | | | | | | | | | | | |
| Slovenia | 0.54 | 0.54 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| Spain | 0.54 | 0.54 | | | | | | | | | | | | | | |
| Sweden | 0.53 | 0.53 | 0.0 | 0.2 | 0.1 | 0.0 | -0.8 | 0.8 | -0.6 | -0.3 | 0.0 | 0.4 | -0.3 | 0.0 | 0.1 | -0.4 |
| Switzerland | 0.53 | 0.53 | 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 | 0.55 | 0.55 | 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 |
| United Kingdom | 0.50 | 0.50 | | | 0.0 | | | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | | |
| United States | 0.52 | 0.52 | | | | | | | | | | | | | | |

^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 2.4

Chemical industry, CO₂ and N₂O (2003)

| | Methods and EF used ^a | | CO ₂ | | | | | | | Methods and EF used ^a | | N ₂ O | | | | | | | | | |
|------------------------------|----------------------------------|--------------|--------------------------|-------------------------|----------------------------|-------------------------|--------------------------|------------|---------------------|----------------------------------|--------------|------------------------------|-------------------------|----------------------------|-------------------------|--------------------------|------------------------------|----------------------|------------|-------------------------|----------------------|
| | | | 2.B.1 Ammonia production | | | | | | | | | 2.B.2 Nitric acid production | | | | | 2.B.3 Adipic acid production | | | | |
| | Methods | EF | Key source | Share of national total | Activity data (production) | | | | CO ₂ IEF | Methods | EF | Key source | Share of national total | Activity data (production) | | | | N ₂ O IEF | Key source | Share of national total | N ₂ O IEF |
| | | | | | CRF (2003) ^b | CRF (2002) ^b | UN ^{b,c} (2002) | Difference | | | | | | CRF (2003) ^b | CRF (2002) ^b | UN ^{b,c} (2002) | Difference | | | | |
| | | | | | (%) | (kt) | | | | | | | | (%) | (t/t) | (%) | (kt) | | | | |
| IPCC default EF ^d | | | | | | | | 1.5 - 1.6 | | | | | | | | | 0.002 - 0.019 | | | 0.3 | |
| Australia | T1, T2 | CS,D | | | C | C | 857.5 | | IE | T1 | D | | | C | C | 1177.0 | | IE | | | NO |
| Austria | PS | PS | L | 0.5 | 510.9 | 464.0 | 550.0 | 15.6 | 1.0 | PS | PS | L, T | 1.0 | 558.2 | 522.4 | | | 0.005 | | | |
| Belarus | D,T1 | D | | 0.0 | 932.4 | | 1160.0 | | 1.5 | D,T1 | CS | | 0.5 | 225.7 | | | | 0.010 | | | NO |
| Belgium | | | L, T | 0.8 | C | C | 1075.0 | | C | | | L, T | 2.0 | 1716.1 | 1672.8 | 1143.0 | -46.3 | 0.005 | | | NO |
| Bulgaria | T1b | D | | 0.5 | 390.8 | 368.7 | 465.0 | 20.7 | 0.9 | D | D | L | 1.7 | C | C | 250.0 | | C | | | NO |
| Canada | CS | CS | L | 0.8 | 3954.7 | 4001.1 | 5626.3 | 28.9 | 1.6 | T2, T3 | CS, OTH | | 0.1 | 1104.7 | 1142.7 | 100.0 | -1,042.7 | 0.002 | T | 0.1 | C |
| Croatia | CS | D | L | 1.4 | 321.6 | | 357.5 | | 1.3 | T1 | D | L | 2.2 | 235.6 | | | | 0.009 | | | |
| Czech Republic | IE | | L | 0.5 | 293.0 | | 277.5 | | 2.4 | T2 | PS | L | 0.6 | 500.6 | | | | 0.006 | | | |
| Denmark | | | | | NO | NO | 2.5 | | | | | L, T | 1.2 | 386.0 | 334.0 | | | 0.007 | | | |
| Estonia | | | | 0.0 | | | 16.3 | | | | | | 0.0 | 0.0 | | 9.0 | | | | | |
| European Community | C, CS, D, MB, PS, T1, T1a, T2 | C, CS, D, PS | | 0.3 | NE | NE | | | NE | C, CS, D, PS, T1, T2 | C, CS, D, PS | L, T | 0.7 | NE | NE | | | NE | T | 0.4 | NE |
| Finland | CS | PS | | | NO | NO | 108.8 | | | D | PS | L, T | 1.6 | 476.7 | 447.6 | | | 0.009 | | | NO |
| France | C | CS/ PS | T | 0.4 | 1406.1 | 1429.3 | 1483.8 | 3.7 | 1.5 | C | CS/ PS | L, T | 0.8 | 2702.5 | 2436.1 | | | 0.005 | L, T | 0.7 | 0.09 |
| Germany | CS | CS | | 0.2 | 2895.2 | 2652.6 | 1285.0 | -106.4 | 0.7 | PS, CS | D, PS, CS | L, T | 0.6 | 3864.3 | 2350.3 | | | 0.006 | T | 0.4 | C |
| Greece | D | D | | | 94.1 | 94.1 | 72.5 | -29.8 | IE | D | D | T | 0.3 | 287.5 | 287.5 | | | 0.005 | | | NO |
| Hungary | T2 | PS, D | T | 0.7 | 281.8 | 289.4 | 366.3 | 23.1 | 2.0 | T2 | PS, D | L, T | 1.7 | 308.2 | 296.8 | | | 0.014 | | | NO |
| Iceland | CS | PS | | | NO | NO | | | NO | NE | NE | | | NO | NO | | | NO | | | NO |
| Ireland | D,T1a | D | | | 0.0 | 352.0 | 500.0 | | | D | CS | | | 0.0 | 130.0 | 612.0 | 78.8 | | | | |
| Italy | D | C, PS | T | 0.1 | 578.1 | 474.3 | 488.8 | 3.0 | 1.2 | D | D, PS | T | 0.1 | 554.0 | 535.9 | | | 0.004 | L, T | 1.1 | 0.30 |
| Japan | D | CS | | 0.2 | 1291.0 | 1414.8 | 1812.5 | 21.9 | 1.9 | D | CS, PS | | 0.1 | 637.1 | 637.1 | | | 0.004 | T | 0.0 | C |
| Latvia | NO | NO | | | NO | NO | | | | NO | NO | | | NO | NO | | | | | | |
| Liechtenstein | | | | | NO | | | | NO | | | | | NO | | | | NO | | | NO |
| Lithuania | T1 | D | L | | 462.0 | | 586.3 | | 1.5 | | | L | | 163.1 | | | | 0.007 | | | NE |
| Luxembourg | | | | | | | | | | | | | | | | | | | | | |
| Monaco | | | | 0.0 | NO | | | | | | | | 0.0 | NO | | | | | | | |
| Netherlands | CS/T2/T1 | CS | L, T | 1.3 | C | C | 2462.5 | | C | CS/T2/T1 | PS,D,CS | L, T | 2.4 | C | C | | | C | | | NO |
| New Zealand | T2 | PS | | | IE | IE | 136.3 | | IE | NA | NA | | | NO | NO | | | NO | | | NO |
| Norway | D | CS,D | T | 0.3 | 429.8 | 407.0 | 412.5 | 1.3 | 0.4 | CS/T2 | PS | L, T | 3.1 | 618.6 | 600.1 | | | 0.009 | | | NO |
| Portugal | MB+D | D+C | L, T | 2.0 | C | C | 237.5 | | | D | D+C | L | 0.7 | C | C | 180.0 | | | | | |
| Romania | T1b | D | L | 1.7 | 1445.0 | 1137.0 | 1421.3 | 20.0 | 1.5 | D | D | L, T | 1.3 | 288.1 | 235.1 | 144.0 | -63.2 | 0.019 | | | NO |
| Slovakia | NO | NO | | | 353.7 | | 407.5 | | IE | T1 | PS | L | 1.5 | 454.7 | | 481.0 | | 0.006 | | | NO |
| Slovenia | T1 | D | | | NO | NO | | | NO | T1 | D | | 0.0 | 0.0 | 0.0 | | | 0.005 | | | NO |
| Spain | D,C | D,C | | 0.1 | 524.6 | 520.8 | 518.8 | -0.4 | 0.9 | DC | C,CS | L, T | 0.5 | 905.7 | 892.8 | | | 0.007 | | | NO |
| Sweden | D | PS | | | NO | NO | 5 | | NO | T2, CS | PS | L, T | 0.6 | 258 | 263 | 4 | -6,472.9 | 0.005 | | | NO |
| Switzerland | C | CS | | | | | 41 | | NO | C | CS | | 0.2 | 65 | 65 | | | 0.005 | | | NO |
| Ukraine | T1 | D | L, T | 1.4 | 4,786 | 4,489 | 5,611 | 20.0 | 1.50 | T1 | D | | | NE | NE | | | NE | | 0.0 | 0.02 |
| United Kingdom | T1 | CS | | 0.2 | 32 | 35 | 1,046 | 96.7 | 35.87 | PS | CS | | 0.4 | 1,625 | 1,566 | | | 0.005 | T | 0.1 | 0.01 |
| United States | D | D | T | 0.2 | 10,468 | 12,577 | 13,500 | 6.8 | 1.49 | D | CS,PS | | 0.2 | 6,388 | 6,939 | 7,657 | | 0.008 | T | 0.1 | 0.02 |

^a Information on methods and emission factors is included in this table as reported by Parties. It may not reflect the actual method or type of emission factor used for all subcategories within the category 2.B Chemical industry.^b As United Nations data for the year 2003 were not available for all Parties, except Hungary, at the time of preparation of this synthesis and assessment report, for the comparisons of United Nations and CRF data in this table, data for the years 2003 and 2002 from the CRF are provided together with the respective United Nations data for 2003 or 2002.^c Source of data: Industrial Commodity Production Statistics Database (as of 10 June 2004 and updated 20 May 2005), Department of Economic and Social Affairs, Statistics Division, United Nations, New York. Data are for 2002, except for ammonia data are for 2003 for Hungary.^d 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.^e Mass balance is indicated by MB.

Table 2.5**Chemical industry – trend information**

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | Base year ^a to 2003 |
|--------------------------------|------------------------|--------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | |
| Australia | 504 | 952 | -5.1 | 32.7 | 4.7 | 1.3 | 18.7 | 4.8 | 4.8 | 23.3 | -28.1 | 14.2 | 14.6 | -8.1 | 1.7 | 89.0 |
| Austria | 464 | 559 | 1.6 | -4.4 | 4.3 | -8.6 | 19.9 | 0.4 | -1.8 | 9.4 | -5.5 | 1.4 | -4.4 | 0.2 | 9.5 | 20.3 |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | 909 | 2,024 | -5.9 | -15.0 | -19.4 | 155.3 | 12.9 | 5.9 | 2.1 | -4.2 | -16.8 | 31.1 | 1.4 | 2.4 | 2.2 | 122.7 |
| Bulgaria | 1,246 | 345 | -18.0 | -18.0 | -3.7 | 12.0 | 20.6 | -0.8 | -17.4 | -46.0 | -28.7 | 68.4 | -11.1 | -35.8 | 6.1 | -72.3 |
| Canada | 5,008 | 6,169 | -1.4 | 3.5 | 11.4 | 2.1 | 11.5 | 0.6 | 2.3 | -1.0 | 3.6 | 0.0 | -13.5 | 5.4 | -1.2 | 23.2 |
| Croatia | 492 | 432 | -4.1 | 28.7 | -22.3 | 0.7 | -2.5 | 8.6 | 8.7 | -25.0 | 26.7 | 1.2 | -18.9 | -9.9 | 12.5 | -12.2 |
| Czech Republic | | 706 | | | | | | | | | | | | | | |
| Denmark | 2 | 3 | | | | | | 0.0 | 7.4 | -23.8 | 23.6 | 52.4 | 15.5 | 0.8 | -14.5 | 53.5 |
| Estonia | | NO | | | | | | | | | | | | | | |
| European Community | 16,572 | 14,529 | -3.3 | -6.6 | -6.0 | 10.8 | 5.9 | -2.5 | 2.1 | 1.8 | -10.1 | 6.7 | -1.3 | -3.5 | -4.9 | -12.3 |
| Finland | 60 | 147 | 28.3 | -14.3 | 18.2 | 44.9 | -16.8 | 16.0 | 1.8 | -4.5 | -1.9 | 12.5 | -3.4 | 13.3 | 14.8 | 145.0 |
| France | 3,537 | 2,063 | -2.6 | -14.3 | 2.3 | -3.0 | -3.1 | 5.9 | -1.6 | -0.3 | -3.0 | 2.6 | -10.7 | -12.6 | -9.8 | -41.7 |
| Germany | 2,191 | 2,014 | -28.8 | -1.6 | -3.3 | 2.6 | 19.2 | -1.3 | -0.7 | 0.4 | -3.5 | 6.6 | -1.3 | 1.9 | 9.1 | -8.1 |
| Greece | | | | | | | | | | | | | | | | |
| Hungary | 1,996 | 566 | -40.8 | -32.9 | 22.2 | 18.9 | -1.1 | 11.6 | -4.1 | -11.4 | -10.8 | 23.8 | -5.8 | -28.7 | -0.5 | -71.6 |
| Iceland | 0 | 0 | -13.1 | -19.0 | -4.6 | 45.6 | 29.2 | -11.8 | 8.3 | -8.9 | 8.6 | -5.4 | 20.7 | -7.7 | 5.5 | 32.8 |
| Ireland | 989 | | 4.2 | -2.7 | -5.7 | 11.7 | -7.8 | -5.2 | 16.5 | -1.5 | -10.9 | -6.3 | 17.4 | -22.0 | | |
| Italy | 2,186 | 1,243 | -4.4 | -1.8 | -28.8 | -18.1 | 2.2 | -21.3 | 7.6 | 0.6 | -7.9 | 10.8 | -2.6 | 4.6 | 15.0 | -43.1 |
| Japan | 3,544 | 2,618 | -1.3 | 0.7 | -5.2 | 6.9 | 1.5 | 0.8 | -2.3 | -10.6 | 9.8 | -3.1 | -6.8 | -7.5 | -10.5 | -26.1 |
| Latvia | NO | NO | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | 693 | | | | | | | | | | | | 82.7 | -53.3 | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 3,538 | 2,935 | 9.1 | 1.5 | -3.3 | 5.0 | 1.8 | -3.6 | 3.3 | -5.6 | -1.4 | 0.9 | -15.0 | -2.8 | -6.1 | -17.1 |
| New Zealand | 427 | 572 | 3.5 | -8.7 | 5.4 | 5.8 | -5.6 | -3.2 | 6.0 | 10.3 | 9.8 | -2.6 | 8.4 | -3.2 | 6.1 | 34.2 |
| Norway | 792 | 278 | 1.8 | -7.9 | 7.0 | 3.9 | 2.2 | -3.4 | 3.7 | -1.5 | -45.2 | 47.7 | -2.7 | -48.9 | -17.1 | -64.9 |
| Portugal | 633 | 1,736 | -19.6 | -21.9 | -12.2 | 142.9 | 50.4 | -17.3 | 43.0 | 25.3 | -50.1 | 10.0 | 48.4 | 6.4 | 6.0 | 174.4 |
| Romania | 5,142 | 2,202 | -36.6 | 24.9 | -6.4 | -11.2 | 25.6 | 2.2 | -47.4 | -49.4 | 70.6 | 48.9 | -7.9 | -1.5 | 26.1 | -57.2 |
| Slovakia | | | | | | | | | | | | | | | | |
| Slovenia | 54 | 64 | -21.0 | -16.9 | -5.2 | 34.3 | -4.6 | 0.3 | 14.8 | 7.6 | 1.0 | 5.4 | 20.4 | -2.9 | 14.5 | 19.1 |
| Spain | 673 | 593 | 8.2 | -12.8 | -24.2 | 27.5 | 2.5 | 1.8 | 3.2 | -4.8 | -3.4 | -0.6 | 0.1 | -2.2 | 0.4 | -11.9 |
| Sweden | 69 | 48 | 1.1 | -23.4 | 2.8 | 4.3 | 1.1 | 2.0 | -0.9 | -7.5 | -0.7 | -11.0 | -2.1 | 7.0 | -4.5 | -30.6 |
| Switzerland | 13 | 13 | | | | | | | | -2.1 | | | | | | -2.1 |
| Ukraine | 7,437 | 7,188 | -6.0 | 3.9 | -18.3 | -7.1 | 3.5 | 6.0 | 3.1 | -3.8 | 13.3 | -3.7 | 3.4 | -0.3 | 6.6 | -3.4 |
| United Kingdom | 1,322 | 1,164 | 0.2 | 1.7 | 0.2 | 0.1 | 0.2 | 0.2 | -34.4 | 25.0 | 0.2 | 16.9 | 5.6 | -10.2 | -5.6 | -11.9 |
| United States | 25,224 | 23,000 | -0.8 | 4.8 | 1.6 | 4.4 | -2.3 | -0.6 | 2.7 | 5.5 | -4.7 | -3.7 | -12.8 | 9.8 | -10.6 | -8.8 |

^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 2.5**Chemical industry – trend information (continued)**

| N ₂ O emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|---------------------------------|------------------------|-------------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | IE | IE | | | | | | | | | | | | | | |
| Austria | 2.9 | 2.8 | 1.7 | -9.7 | 4.9 | -6.1 | 3.9 | 2.0 | -1.3 | 4.0 | 3.0 | 3.0 | -17.4 | 2.6 | 9.4 | -3.1 |
| Belarus | 1.1 | 1.1 | -5.4 | -4.7 | -5.9 | -6.3 | -5.6 | 4.8 | 4.5 | 3.3 | 4.2 | 2.0 | 3.0 | 16.3 | -6.6 | 0.9 |
| Belgium | 12.7 | 10.1 | -2.6 | -70.7 | 235.1 | 13.9 | 8.4 | 9.7 | -6.1 | 1.3 | -3.0 | -2.7 | -3.8 | -9.5 | -21.0 | -20.3 |
| Bulgaria | 7.8 | 3.7 | -27.9 | -18.6 | -14.4 | 18.1 | 43.6 | 2.1 | -17.7 | -40.0 | -24.4 | 79.5 | -1.5 | -15.9 | 6.5 | -52.1 |
| Canada | 37.1 | 6.1 | -6.3 | -0.4 | -8.1 | 19.0 | -1.9 | 6.6 | -13.0 | -45.3 | -56.6 | -33.0 | -6.0 | 29.1 | -8.4 | -83.6 |
| Croatia | 3.0 | 2.1 | -12.2 | 30.8 | -24.6 | 8.1 | -3.8 | -6.9 | 5.1 | -24.7 | 18.0 | 17.7 | -15.9 | -2.9 | -5.7 | -29.1 |
| Czech Republic | 3.9 | 3.1 | | | | | 13.6 | -8.7 | 8.3 | 7.1 | -16.5 | 12.6 | -1.1 | -12.4 | -0.3 | -19.7 |
| Denmark | 3.4 | 2.9 | -8.4 | -11.7 | -5.8 | 1.5 | 12.1 | -7.7 | 1.7 | -4.9 | 17.8 | 5.6 | -11.8 | -12.6 | 15.6 | -14.2 |
| Estonia | | NO | | | | | | | | | | | | | | |
| European Community | 337.8 | 146.6 | -2.0 | -3.7 | -5.4 | 6.3 | -1.7 | 2.9 | -2.8 | -24.0 | -30.2 | -2.0 | -1.5 | -11.6 | 2.7 | -56.6 |
| Finland | 5.1 | 4.5 | -12.1 | -10.5 | 3.9 | 3.5 | 3.3 | 0.0 | 0.6 | -5.8 | 0.3 | -0.3 | -4.7 | 4.0 | 6.5 | -12.6 |
| France | 77.9 | 29.3 | 0.8 | 1.7 | -0.2 | 2.6 | 3.3 | 0.5 | -1.1 | -28.3 | -30.8 | -11.1 | -0.2 | -21.0 | 0.6 | -62.4 |
| Germany | 75.8 | 33.5 | 0.4 | 11.1 | -8.8 | 12.3 | -6.8 | 4.5 | -10.1 | -56.9 | -42.6 | -4.5 | 32.3 | 7.1 | 32.0 | -55.8 |
| Greece | 2.3 | 1.3 | -17.6 | 4.6 | -5.0 | -2.8 | -0.5 | 14.2 | -12.2 | -17.7 | 3.8 | 2.4 | -16.0 | -3.7 | | -43.7 |
| Hungary | 14.7 | 4.3 | -49.5 | -45.3 | 51.2 | 51.2 | -33.7 | 42.9 | -3.7 | -16.0 | -12.4 | 31.7 | 8.6 | -35.7 | 5.6 | -70.8 |
| Iceland | 0.2 | | -3.2 | -10.6 | 5.2 | 0.7 | -4.9 | 16.9 | -16.6 | -12.8 | 1.0 | -48.5 | -13.3 | | | |
| Ireland | 3.3 | | -21.5 | | | | | | | 0.0 | | 0.0 | -28.1 | -50.0 | | |
| Italy | 21.8 | 22.8 | 5.6 | -7.5 | 0.6 | -6.1 | 14.8 | -3.5 | 0.7 | 1.6 | 2.9 | 7.4 | 0.0 | -4.3 | -5.4 | 4.6 |
| Japan | 23.9 | 3.9 | -8.7 | -1.1 | -2.0 | 13.5 | -1.0 | 12.1 | 5.6 | -11.8 | -75.8 | 128.3 | -68.5 | -11.5 | 2.0 | -83.7 |
| Latvia | NO | NO | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | 1.4 | 1.6 | | | | | | | | | | | | -56.7 | -43.4 | 16.4 |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 24.4 | 19.4 | 1.2 | 0.8 | 7.2 | -4.5 | -4.9 | -0.2 | | -0.4 | -3.6 | -0.9 | -7.8 | -4.7 | -4.1 | -20.5 |
| New Zealand | IE,NA,NE,NO | IE,NA,NE,NO | | | | | | | | | | | | | | |
| Norway | 6.7 | 5.5 | -8.3 | -31.7 | 20.9 | 6.6 | -1.5 | -1.1 | -8.6 | 14.0 | 11.2 | -7.7 | -2.3 | 12.9 | -10.5 | -17.0 |
| Portugal | 1.8 | 1.9 | -5.7 | -6.1 | -36.1 | 52.5 | 22.6 | 5.4 | 1.4 | -30.0 | 66.6 | -41.8 | 33.8 | 1.3 | 1.3 | 5.4 |
| Romania | 56.1 | 5.5 | -53.7 | 11.4 | -5.1 | -25.0 | 10.5 | -8.6 | -30.9 | -28.5 | 14.5 | 54.0 | -39.0 | -21.5 | 22.5 | -90.3 |
| Slovakia | 1.6 | 2.5 | -6.1 | -9.1 | -16.0 | 57.9 | 9.7 | 18.8 | 3.6 | -6.4 | 4.9 | -7.5 | 13.7 | -22.8 | 26.8 | 54.3 |
| Slovenia | | 0.0 | | | | | | | | 26.4 | -11.8 | 69.6 | | | -11.6 | |
| Spain | 9.3 | 6.3 | -10.4 | -14.9 | -17.3 | 19.1 | 10.0 | 2.4 | -3.3 | -7.8 | 9.4 | -2.1 | -10.5 | -7.1 | 1.5 | -31.9 |
| Sweden | 2.7 | 1.4 | 5.2 | -3.7 | -2.8 | -3.3 | -8.3 | -3.9 | -1.2 | 12.3 | -11.3 | -4.9 | -23.9 | -8.0 | -2.1 | -46.2 |
| Switzerland | 0.3 | 0.3 | | | | | | | | | | | | | | |
| Ukraine | 0.8 | 0.7 | 3.2 | -42.8 | -49.1 | | -7.1 | 7.7 | 67.1 | 1.4 | -23.0 | 12.5 | 98.4 | -12.0 | 15.3 | -11.2 |
| United Kingdom | 94.4 | 10.3 | -6.3 | -19.1 | -14.7 | 10.9 | -9.5 | 6.8 | 2.3 | -11.3 | -69.5 | 11.3 | -13.8 | -43.0 | 4.3 | -89.1 |
| United States | 106.6 | 70.5 | -1.1 | -4.1 | 3.8 | 6.4 | 7.1 | 1.8 | -16.5 | -14.8 | -4.7 | 0.1 | -18.7 | 10.9 | -5.5 | -33.9 |

^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 2.6

Chemical industry: ammonia production – trend information

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|--------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | IE | IE | | | | | | | | | | | | | | |
| Austria | 396 | 494 | 3.0 | -9.1 | 8.6 | -5.3 | 22.8 | -0.6 | -1.8 | 9.7 | -5.8 | -1.9 | -4.5 | 0.7 | 10.9 | 24.6 |
| Belarus | | 0 | | | | | | | | | | | | | | |
| Belgium | 694 | 1,247 | -8.9 | -20.3 | -18.4 | 222.5 | 11.7 | -3.7 | 0.3 | -4.6 | -17.5 | 38.6 | -3.2 | -17.1 | -0.5 | 79.7 |
| Bulgaria | 1,157 | 337 | -16.5 | -17.2 | -2.2 | 12.5 | 20.9 | -0.7 | -17.7 | -46.4 | -28.2 | 71.1 | -10.4 | -36.4 | 6.0 | -70.9 |
| Canada | 5,008 | 6,169 | -1.4 | 3.5 | 11.4 | 2.1 | 11.5 | 0.6 | 2.3 | -1.0 | 3.6 | 0.0 | -13.5 | 5.4 | -1.2 | 23.2 |
| Croatia | | 432 | | | | | | | | | | | | | | |
| Czech Republic | | 706 | | | | | | | | | | | | | | |
| Denmark | NO | NO | | | | | | | | | | | | | | |
| Estonia | | 0 | | | | | | | | | | | | | | |
| European Community | 14,392 | 12,416 | -0.6 | -7.1 | -5.5 | 11.1 | 5.3 | -4.0 | 2.4 | 3.6 | -10.5 | 6.9 | -1.6 | -6.3 | -6.0 | -13.7 |
| Finland | NO | NO | | | | | | | | | | | | | | |
| France | 3,357 | 2,044 | -2.0 | -14.8 | 2.1 | -2.8 | -3.2 | 6.4 | -1.3 | -0.3 | -3.0 | 2.9 | -10.9 | -12.2 | -7.0 | -39.1 |
| Germany | 1,747 | 1,998 | -16.2 | -0.5 | 0.2 | 2.5 | 19.5 | -1.1 | -0.7 | 0.4 | -3.4 | 6.6 | -1.2 | 1.9 | 9.1 | 14.3 |
| Greece | IE | IE | | | | | | | | | | | | | | |
| Hungary | 1,996 | 566 | -40.8 | -32.9 | 22.2 | 18.9 | -1.1 | 11.6 | -4.1 | -11.4 | -10.8 | 23.8 | -5.8 | -28.7 | -0.5 | -71.6 |
| Iceland | NO | NO | | | | | | | | | | | | | | |
| Ireland | 989 | NO | 4.2 | -2.7 | -5.7 | 11.7 | -7.8 | -5.2 | 16.5 | -1.5 | -10.9 | -6.3 | 17.4 | -22.0 | | |
| Italy | 1,710 | 680 | -4.3 | -2.4 | -34.8 | -30.8 | -3.3 | -32.9 | 12.2 | -8.3 | -10.3 | 12.7 | 4.0 | 10.3 | 21.9 | -60.3 |
| Japan | 3,377 | 2,410 | -1.5 | 0.9 | -5.1 | 6.5 | 1.2 | 0.7 | -2.5 | -11.2 | 10.0 | -3.2 | -7.0 | -8.1 | -11.4 | -28.6 |
| Latvia | NO | NO | | | | | | | | | | | | | | |
| Liechtenstein | | NO | | | | | | | | | | | | | | |
| Lithuania | | 693 | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | 0 | | | | | | | | | | | | | | |
| Netherlands | 3,058 | 2,686 | 12.7 | 1.7 | -2.7 | 4.5 | -0.9 | -5.3 | 5.2 | 1.6 | -0.7 | 0.6 | -16.0 | -4.2 | -6.4 | -12.2 |
| New Zealand | IE | IE | | | | | | | | | | | | | | |
| Norway | 500 | 180 | -11.7 | -12.5 | 16.3 | 7.6 | 7.9 | -6.5 | 8.2 | -3.3 | -65.7 | 124.1 | -7.2 | -64.7 | 40.5 | -63.9 |
| Portugal | 569 | 1,622 | -21.5 | -25.2 | -15.9 | 175.4 | 54.8 | -18.7 | 46.9 | 24.9 | -52.9 | 10.9 | 53.4 | 6.5 | 6.1 | 184.9 |
| Romania | 5,006 | 2,168 | -36.9 | 26.0 | -6.5 | -10.9 | 25.4 | 1.8 | -48.3 | -50.8 | 78.2 | 50.5 | -8.0 | -1.6 | 27.1 | -56.7 |
| Slovakia | | IE | | | | | | | | | | | | | | |
| Slovenia | NO | NO | | | | | | | | | | | | | | |
| Spain | 550 | 481 | 13.5 | -13.5 | -25.9 | 26.2 | 0.1 | 2.7 | 5.2 | -6.2 | -5.0 | 2.7 | -1.2 | -3.5 | 1.0 | -12.5 |
| Sweden | NO | NO | | | | | | | | | | | | | | |
| Switzerland | NO | NO | | | | | | | | | | | | | | |
| Ukraine | 7,411 | 7,178 | -6.0 | 3.8 | -18.3 | -7.2 | 3.5 | 6.2 | 3.1 | -3.8 | 13.3 | -3.6 | 3.4 | -0.2 | 6.6 | -3.1 |
| United Kingdom | 1,322 | 1,164 | 0.2 | 1.7 | 0.2 | 0.1 | 0.2 | 0.2 | -34.4 | 25.0 | 0.2 | 16.9 | 5.6 | -10.2 | -5.6 | -11.9 |
| United States | 19,306 | 15,560 | -0.7 | 4.3 | 2.1 | 3.4 | -3.1 | -0.8 | 1.8 | 6.2 | -6.0 | -4.8 | -14.8 | 11.1 | -16.2 | -19.4 |

^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 2.6**Chemical industry: ammonia production – trend information (continued)**

| CO ₂ implied emission factors (t/t) | | | Relative Change (%) | | | | | | | | | | | | | |
|--|------------------------|-------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | IE | IE | | | | | | | | | | | | | | |
| Austria | 0.86 | 0.97 | 0.0 | | | | 15.3 | -3.1 | -0.7 | 8.6 | -7.0 | -0.3 | 2.7 | -2.7 | 0.7 | 12.5 |
| Belarus | | 1.50 | | | | | | | | | | | | | | |
| Belgium | C | C | | | | | | | | | | | | | | |
| Bulgaria | 0.86 | 0.86 | | | | | | | | | | | | | | |
| Canada | 1.56 | 1.56 | | | | | | | | | | | | | | |
| Croatia | | 1.34 | | | | | | | | | | | | | | |
| Czech Republic | | 2.41 | | | | | | | | | | | | | | |
| Denmark | | | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | NE | NE | | | | | | | | | | | | | | |
| Finland | | | | | | | | | | | | | | | | |
| France | 1.74 | 1.45 | -2.9 | -3.0 | -3.1 | -3.2 | -3.3 | 1.3 | 1.3 | 1.3 | 1.3 | -3.6 | -1.3 | 3.2 | -5.4 | -16.5 |
| Germany | 0.69 | 0.69 | | | | | | | | | | | | | | |
| Greece | IE | IE | | | | | | | | | | | | | | |
| Hungary | 2.11 | 2.01 | 5.5 | 5.0 | -5.0 | -5.4 | -3.7 | -0.6 | -1.7 | 4.2 | -1.5 | -8.2 | 2.2 | -2.8 | 2.2 | -4.6 |
| Iceland | NO | NO | | | | | | | | | | | | | | |
| Ireland | 2.30 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| Italy | 1.18 | 1.18 | | | | | | | | | | | | 0.0 | 0.0 | 0.0 |
| Japan | 1.84 | 1.87 | -2.7 | 4.7 | -0.7 | 6.2 | -5.4 | 1.8 | -1.7 | -4.6 | 7.5 | -2.4 | 1.7 | 0.7 | -2.9 | 1.3 |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | NO | | | | | | | | | | | | | | |
| Lithuania | | 1.50 | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | C | C | | | | | | | | | | | | | | |
| New Zealand | IE | IE | | | | | | | | | | | | | | |
| Norway | NA | 0.42 | | -1.1 | -0.2 | 2.3 | 0.9 | -2.3 | 20.8 | 48.6 | -43.9 | -18.2 | -4.1 | -65.9 | 33.1 | |
| Portugal | | | | | | | | | | | | | | | | |
| Romania | 1.50 | 1.50 | | | | | | | | | | | | | | |
| Slovakia | | IE | | | | | | | | | | | | | | |
| Slovenia | NO | NO | | | | | | | | | | | | | | |
| Spain | 0.91 | 0.92 | 0.0 | 0.0 | 0.0 | 0.3 | -0.3 | 0.4 | -0.2 | 0.1 | -0.2 | 0.1 | 0.0 | -0.2 | 0.2 | 0.3 |
| Sweden | | NO | | | | | | | | | | | | | | |
| Switzerland | | NO | | | | | | | | | | | | | | |
| Ukraine | 1.50 | 1.50 | | | | | | | | | | | | | | |
| United Kingdom | 29.87 | 35.87 | -1.4 | 0.8 | 0.8 | -0.3 | 0.2 | 0.1 | -18.9 | 13.2 | -7.0 | 9.5 | 33.1 | -5.2 | 1.6 | 20.1 |
| United States | 1.25 | 1.49 | -1.7 | -0.1 | 6.4 | -0.5 | -0.5 | -3.7 | 2.0 | 2.9 | 0.2 | 4.4 | 10.2 | -2.0 | 0.7 | 18.8 |

^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 2.7

Chemical industry: nitric acid production – trend information

| N ₂ O emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|---------------------------------|------------------------|------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | IE | IE | | | | | | | | | | | | | | |
| Austria | 2.9 | 2.8 | 1.7 | -9.7 | 4.9 | -6.1 | 3.9 | 2.0 | -1.3 | 4.0 | 3.0 | 3.0 | -17.4 | 2.6 | 9.4 | -3.1 |
| Belarus | | 1.1 | | | | | | | | | | | | | | |
| Belgium | 11.5 | 9.4 | -2.9 | -89.1 | 797.7 | 15.4 | 9.2 | 10.6 | -4.7 | 2.1 | -2.7 | -5.6 | -4.3 | -8.6 | -20.7 | -18.0 |
| Bulgaria | 7.8 | 3.7 | -27.9 | -18.6 | -14.4 | 18.1 | 43.6 | 2.1 | -17.7 | -40.0 | -24.4 | 79.5 | -1.5 | -15.9 | 6.5 | -52.1 |
| Canada | 2.5 | 2.6 | -1.4 | 1.3 | 0.1 | -1.5 | 2.2 | 1.3 | -0.8 | -1.9 | 1.9 | 1.8 | -0.5 | 2.3 | -1.0 | 3.7 |
| Croatia | | 2.1 | | | | | | | | | | | | | | |
| Czech Republic | | 2.9 | | | | | | | | | | | | | | |
| Denmark | 3.4 | 2.9 | -8.4 | -11.7 | -5.8 | 1.5 | 12.1 | -7.7 | 1.7 | -4.9 | 17.8 | 5.6 | -11.8 | -12.6 | 15.6 | -14.2 |
| Estonia | | 0.0 | | | | | | | | | | | | | | |
| European Community | 119.4 | 93.5 | -5.0 | -4.1 | -3.5 | 0.3 | 0.8 | 1.0 | -1.0 | -0.6 | 4.8 | -0.7 | -13.2 | -9.5 | 8.7 | -21.6 |
| Finland | 5.1 | 4.5 | -12.1 | -10.5 | 3.9 | 3.5 | 3.3 | 0.0 | 0.6 | -5.8 | 0.3 | -0.3 | -4.7 | 4.0 | 6.5 | -12.6 |
| France | 21.2 | 14.8 | 1.4 | -1.4 | -15.1 | 15.0 | -9.2 | | 2.7 | -0.5 | -3.5 | 3.0 | -16.1 | -11.4 | 4.5 | -30.0 |
| Germany | 15.1 | 21.3 | -20.7 | -7.9 | -0.3 | 1.5 | 14.0 | -4.8 | 0.3 | -0.6 | 4.1 | 6.9 | -12.2 | 9.9 | 64.4 | 41.0 |
| Greece | 2.3 | 1.3 | -17.6 | 4.6 | -5.0 | -2.8 | -0.5 | 14.2 | -12.2 | -17.7 | 3.8 | 2.4 | -16.0 | -3.7 | | -43.7 |
| Hungary | 14.7 | 4.3 | -49.5 | -45.3 | 51.2 | 51.2 | -33.7 | 42.9 | -3.7 | -16.0 | -12.4 | 31.7 | 8.6 | -35.7 | 5.6 | -70.8 |
| Iceland | NO | NO | | | | | | | | | | | | | | |
| Ireland | 3.3 | NO | -21.5 | | | | | | | 0.0 | | 0.0 | -28.1 | -50.0 | | |
| Italy | 7.0 | 2.1 | -4.7 | -5.2 | -22.6 | -26.6 | 10.6 | -7.4 | 2.7 | -14.3 | -10.0 | 28.9 | -31.4 | -26.7 | 10.1 | -70.3 |
| Japan | 2.5 | 2.6 | -0.4 | 0.8 | -1.6 | 2.5 | -1.6 | -2.4 | -3.3 | 9.9 | -3.1 | 4.1 | -8.2 | 2.9 | 6.8 | 5.0 |
| Latvia | NO | NO | | | | | | | | | | | | | | |
| Liechtenstein | | NO | | | | | | | | | | | | | | |
| Lithuania | | 1.6 | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | 0.0 | | | | | | | | | | | | | | |
| Netherlands | 20.4 | 16.3 | 1.4 | 1.0 | 8.6 | -5.3 | -5.8 | -0.3 | | -0.5 | -4.3 | -1.1 | -9.4 | -5.8 | 0.6 | -20.1 |
| New Zealand | NO | NO | | | | | | | | | | | | | | |
| Norway | 6.7 | 5.5 | -8.3 | -31.7 | 20.9 | 6.6 | -1.5 | -1.1 | -8.6 | 14.0 | 11.2 | -7.7 | -2.3 | 12.9 | -10.5 | -17.0 |
| Portugal | 1.8 | 1.9 | -5.7 | -6.1 | -36.1 | 52.5 | 22.6 | 5.4 | 1.4 | -30.0 | 66.6 | -41.8 | 33.8 | 1.3 | 1.3 | 5.4 |
| Romania | 53.9 | 5.5 | -56.3 | 16.8 | -10.2 | -28.3 | 10.6 | -10.5 | -46.4 | -46.9 | 52.8 | 71.6 | -37.4 | 9.1 | 22.5 | -89.9 |
| Slovakia | | 2.5 | | | | | | | | | | | | | | |
| Slovenia | NO | 0.0 | | | | | | | | 26.4 | -11.8 | 69.6 | | | -11.6 | |
| Spain | 9.3 | 6.3 | -10.4 | -14.9 | -17.3 | 19.1 | 10.0 | 2.4 | -3.3 | -7.8 | 9.4 | -2.1 | -10.5 | -7.1 | 1.5 | -31.9 |
| Sweden | 2.6 | 1.4 | 5.3 | -3.8 | -2.9 | -3.4 | -8.5 | -4.0 | -1.2 | 12.7 | -12.3 | -3.7 | -25.0 | -8.0 | -2.2 | -47.0 |
| Switzerland | 0.3 | 0.3 | | | | | | | | | | | | | | |
| Ukraine | NE | NE | | | | | | | | | | | | | | |
| United Kingdom | 13.3 | 8.4 | 1.1 | 1.8 | 0.4 | -24.0 | -5.1 | 2.8 | -5.4 | 15.2 | 43.5 | -7.0 | -21.9 | -33.1 | 8.5 | -36.7 |
| United States | 57.6 | 51.1 | -0.1 | 2.6 | 1.5 | 5.6 | 1.4 | 4.1 | 2.5 | -1.6 | -3.7 | -2.7 | -18.8 | 8.2 | -7.9 | -11.2 |

^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 2.7**Chemical industry: nitric acid production – trend information (continued)**

| N ₂ O implied emission factors (t/t) | | | Relative Change (%) | | | | | | | | | | | | | |
|---|------------------------|-------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | IE | IE | | | | | | | | | | | | | | |
| Austria | 0.006 | 0.005 | 0.7 | -0.4 | -0.8 | -4.0 | 7.7 | -0.4 | 0.0 | 0.7 | 1.4 | -1.0 | -13.6 | 0.4 | 2.4 | -8.0 |
| Belarus | | 0.010 | | | | | | | | | | | | | | |
| Belgium | 0.032 | 0.005 | 20.6 | -79.0 | 302.0 | 31.6 | -13.1 | -22.6 | -72.4 | -1.6 | -1.3 | 0.5 | -1.7 | -5.9 | -22.7 | -82.6 |
| Bulgaria | C | C | | | | | | | | | | | | | | |
| Canada | 0.003 | 0.002 | 4.3 | -3.7 | -0.4 | 4.5 | -6.2 | -3.5 | 2.3 | 5.7 | -5.3 | -4.6 | 1.4 | -5.7 | 2.5 | -9.4 |
| Croatia | | 0.009 | | | | | | | | | | | | | | |
| Czech Republic | | 0.006 | | | | | | | | | | | | | | |
| Denmark | 0.007 | 0.007 | 0.0 | 0.0 | | | | | | | | | | 0.0 | 0.0 | 0.0 |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | NE | NE | | | | | | | | | | | | | | |
| Finland | 0.009 | 0.009 | 0.4 | 0.3 | -0.1 | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | -0.1 | 0.0 | 0.7 |
| France | 0.007 | 0.005 | 4.3 | 7.3 | -1.7 | -1.0 | -9.8 | -9.3 | 8.8 | 2.0 | -2.6 | -2.4 | -3.7 | -2.8 | -5.8 | -17.1 |
| Germany | 0.006 | 0.006 | | | | | | | | | | | | | | |
| Greece | 0.005 | 0.005 | | | | | | | | | | | | | | |
| Hungary | 0.014 | 0.014 | -2.2 | -2.3 | 2.9 | 2.2 | -1.9 | -2.1 | 0.8 | 2.6 | 0.2 | -1.8 | -0.5 | -1.2 | 1.7 | -4.0 |
| Iceland | NO | NO | | | | | | | | | | | | | | |
| Ireland | 0.010 | 0.000 | 2.2 | | | | | | | 0.0 | 0.0 | 0.0 | -28.1 | | | |
| Italy | 0.007 | 0.004 | | | | | | | | | | | -27.5 | -28.0 | 6.4 | -44.4 |
| Japan | 0.004 | 0.004 | -0.7 | 1.1 | 1.7 | -0.8 | -1.1 | 1.9 | -4.2 | 18.1 | -4.9 | 1.9 | -0.3 | -2.6 | 6.8 | 16.2 |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | NO | | | | | | | | | | | | | | |
| Lithuania | | 0.007 | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | C | C | | | | | | | | | | | | | | |
| New Zealand | NO | NO | | | | | | | | | | | | | | |
| Norway | NA | 0.009 | | | 0.6 | 3.8 | -5.2 | -0.4 | -7.2 | 11.6 | 15.1 | -9.8 | -1.3 | 10.5 | -13.2 | |
| Portugal | | | | | | | | | | | | | | | | |
| Romania | 0.019 | 0.019 | | | | | | | | | | | | | -0.1 | -0.1 |
| Slovakia | | 0.006 | | | | | | | | | | | | | | |
| Slovenia | NO | 0.005 | | | | | | | | | | 2.8 | 6.7 | 15.4 | -23.4 | |
| Spain | 0.007 | 0.007 | | | | | | | 0.0 | 0.0 | 0.0 | 0.0 | | | | |
| Sweden | 0.007 | 0.005 | -0.3 | | | -5.4 | -17.2 | 0.0 | 1.4 | 9.9 | -8.5 | -13.1 | 12.9 | -1.3 | -0.4 | -23.3 |
| Switzerland | 0.005 | 0.005 | | | | | | | | | | | | | | |
| Ukraine | NE | NE | | | | | | | | | | | | | | |
| United Kingdom | 0.006 | 0.005 | 0.2 | 0.9 | -0.4 | -24.7 | -1.5 | 1.2 | -1.7 | 3.8 | 53.6 | 11.8 | -4.0 | -29.4 | 4.6 | -6.2 |
| United States | 0.008 | 0.008 | | | | | | | | | | | | | | |

^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 2.8**Chemical industry: adipic acid production – trend information**

| N ₂ O emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|---------------------------------|------------------------|------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | NO | NO | | | | | | | | | | | | | | |
| Austria | NO | NO | | | | | | | | | | | | | | |
| Belarus | | NO | | | | | | | | | | | | | | |
| Belgium | NE | NO | | | | | | | | | | | | | | |
| Bulgaria | NO | NO | | | | | | | | | | | | | | |
| Canada | 34.6 | 3.5 | -6.7 | -0.5 | -8.8 | 20.8 | -2.2 | 6.9 | -13.8 | -48.8 | -65.5 | -48.6 | -10.8 | 55.7 | -13.2 | -89.9 |
| Croatia | | NO | | | | | | | | | | | | | | |
| Czech Republic | | NO | | | | | | | | | | | | | | |
| Denmark | NO | NO | | | | | | | | | | | | | | |
| Estonia | | 0.0 | | | | | | | | | | | | | | |
| European Community | 204.3 | 48.1 | -1.0 | -3.0 | -6.1 | 9.7 | -4.1 | 4.8 | -3.4 | -38.8 | -63.7 | -4.6 | 34.5 | -11.2 | -2.9 | -76.4 |
| Finland | NO | NO | | | | | | | | | | | | | | |
| France | 47.8 | 13.4 | -2.1 | 6.5 | 8.9 | -2.7 | 4.6 | 2.8 | -0.9 | -44.2 | -53.2 | -29.6 | 51.0 | -17.8 | 4.0 | -72.0 |
| Germany | 60.7 | 12.2 | 5.6 | 14.6 | -10.1 | 14.1 | -9.9 | 6.3 | -11.8 | -67.7 | -70.0 | -27.5 | 165.6 | 4.3 | -1.8 | -79.9 |
| Greece | NO | NO | | | | | | | | | | | | | | |
| Hungary | NO | NO | | | | | | | | | | | | | | |
| Iceland | NO | NO | | | | | | | | | | | | | | |
| Ireland | NO | NO | | | | | | | | | | | | | | |
| Italy | 14.8 | 20.7 | 10.5 | -8.4 | 10.3 | | 15.7 | -2.7 | 0.3 | 4.8 | 5.1 | 4.4 | 5.4 | -1.7 | -6.8 | 40.1 |
| Japan | 21.5 | 1.3 | -9.7 | -1.4 | -2.1 | 14.9 | -1.0 | 13.8 | 6.5 | -13.7 | -84.1 | 215.2 | -82.4 | -28.9 | -6.2 | -93.9 |
| Latvia | NO | NO | | | | | | | | | | | | | | |
| Liechtenstein | | NO | | | | | | | | | | | | | | |
| Lithuania | | NE | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | 0.0 | | | | | | | | | | | | | | |
| Netherlands | NO | NO | | | | | | | | | | | | | | |
| New Zealand | NO | NO | | | | | | | | | | | | | | |
| Norway | NO | NO | | | | | | | | | | | | | | |
| Portugal | | | | | | | | | | | | | | | | |
| Romania | 2.2 | NO | -14.9 | -29.0 | 57.7 | -1.8 | 10.3 | 0.8 | 39.7 | 3.7 | -19.7 | 24.1 | -42.6 | | | |
| Slovakia | | NO | | | | | | | | | | | | | | |
| Slovenia | NO | NO | | | | | | | | | | | | | | |
| Spain | NO | NO | | | | | | | | | | | | | | |
| Sweden | NO | NO | | | | | | | | | | | | | | |
| Switzerland | NO | NO | | | | | | | | | | | | | | |
| Ukraine | 0.8 | 0.7 | 3.2 | -42.8 | -49.1 | | -7.1 | 7.7 | 67.1 | 1.4 | -23.0 | 12.5 | 98.4 | -12.0 | 15.3 | -11.2 |
| United Kingdom | 81.1 | 1.9 | -7.5 | -22.9 | -18.3 | 21.1 | -10.3 | 7.6 | 3.8 | -15.8 | -95.6 | 148.0 | 8.8 | -63.2 | -11.3 | -97.7 |
| United States | 49.0 | 19.4 | -2.3 | -12.1 | 7.1 | 7.5 | 14.5 | -1.0 | -39.5 | -41.9 | -8.5 | 10.2 | -18.5 | 19.9 | 1.8 | -60.5 |

^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 2.8

Chemical industry: adipic acid production – trend information (continued)

| N ₂ O implied emission factors (t/t) | | | Relative Change (%) | | | | | | | | | | | | | |
|---|------------------------|------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | NO | NO | | | | | | | | | | | | | | |
| Austria | | | | | | | | | | | | | | | | |
| Belarus | | NO | | | | | | | | | | | | | | |
| Belgium | NE | NO | | | | | | | | | | | | | | |
| Bulgaria | NO | NO | | | | | | | | | | | | | | |
| Canada | C | C | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | | | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | NE | NE | | | | | | | | | | | | | | |
| Finland | | NO | | | | | | | | | | | | | | |
| France | 0.48 | 0.09 | -1.1 | 7.5 | 14.7 | -17.0 | 0.0 | 4.7 | -8.3 | -42.8 | -56.5 | -40.4 | 59.5 | -24.2 | 2.7 | -82.1 |
| Germany | C | C | | | | | | | | | | | | | | |
| Greece | NO | NO | | | | | | | | | | | | | | |
| Hungary | NO | NO | | | | | | | | | | | | | | |
| Iceland | NO | NO | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | 0.30 | 0.30 | | | | | | | | | | | | | | |
| Japan | C | C | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | NO | | | | | | | | | | | | | | |
| Lithuania | | NE | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | NO | NO | | | | | | | | | | | | | | |
| New Zealand | NO | NO | | | | | | | | | | | | | | |
| Norway | NO | NO | | | | | | | | | | | | | | |
| Portugal | | | | | | | | | | | | | | | | |
| Romania | 0.30 | NO | | | | | | | | -0.1 | 0.2 | 0.0 | -0.1 | | | |
| Slovakia | | NO | | | | | | | | | | | | | | |
| Slovenia | NO | NO | | | | | | | | | | | | | | |
| Spain | NO | NO | | | | | | | | | | | | | | |
| Sweden | | NO | | | | | | | | | | | | | | |
| Switzerland | NO | NO | | | | | | | | | | | | | | |
| Ukraine | 0.01 | 0.02 | 0.1 | 0.0 | -0.1 | -0.1 | 0.1 | -0.1 | -0.1 | 0.1 | 0.2 | -0.1 | 0.0 | 0.0 | 0.1 | 0.1 |
| United Kingdom | 0.31 | 0.01 | -8.0 | 0.0 | 8.5 | 9.2 | 0.2 | 8.9 | 0.9 | -20.5 | -94.9 | 111.4 | 23.8 | -71.6 | -9.6 | -96.7 |
| United States | 0.07 | 0.02 | 1.4 | -14.0 | 0.8 | 0.7 | 13.2 | -2.0 | -41.7 | -41.3 | -13.0 | 8.1 | -9.7 | 8.7 | | -69.0 |

^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 2.9
Metal production, CO₂ (2003)

| | Methods and EF used ^a | | Iron & steel ^b | | | | | | | | | | | | Aluminium production | | | | | | | |
|------------------------------|----------------------------------|--------------|---------------------------|-------------------------|---------------------|----------------------------|------------|-------------------------|------------|---------------------|------------------------|------------|---------|--------|----------------------|-------------------------|----------------------------|-------|-------|-------|---------------------|------|
| | | | Key source | Share of national total | CO ₂ IEF | Steel | | | | CO ₂ IEF | Pig iron | | | | Key source | Share of national total | Activity data (production) | | | | CO ₂ IEF | |
| | Activity data (production) | | | | | Activity data (production) | | | | | | | | | | | | | | | | |
| | CRF (2002) ^f | CRF (2003) | | | | UN ^d (2002) | Difference | CRF (2002) ^f | CRF (2003) | | UN ^e (2002) | Difference | | | | | | | | | | |
| | | | | | | | | | | | | | (%) | (t/t) | | | (%) | (t/t) | (%) | (t/t) | | |
| | Methods | EF | | (%) | (t/t) | | (kt) | | (%) | (t/t) | | (kt) | | (%) | (t/t) | | (%) | (kt) | | (%) | (t/t) | |
| IPCC default EF ^g | | | | | 1.5 - 1.6 | | | | | | | | | | | | | | | | 1.5 - 1.8 | |
| Australia | T2 | CS | L, T | 2.1 | 1.7 | 5933.0 | 6282.0 | 7527.0 | 21.2 | NA | 22.9 | 33.5 | 6106.0 | 99.6 | 51.2 | | 0.6 | 1,809 | 1,855 | 1,855 | 2.5 | 1.63 |
| Austria | C, T2 | D, CS, PS | L, T | 4.9 | | 6185.6 | 6275.2 | 1447.0 | -327.5 | 0.1 | 4712.5 | 4676.7 | 4607.0 | -2.3 | 0.8 | | | NO | NO | | | |
| Belarus | IE | IE | | | | | IE | 1484.0 | | | | IE | | | | | | | NO | | NO | |
| Belgium | | | L | 1.3 | | 7354.0 | 7700.3 | 11316.0 | 35.0 | 0.1 | 7954.5 | 7704.3 | 7992.0 | 0.5 | 0.1 | | | | | | NO | |
| Bulgaria | D | C,D | L, T | 2.4 | 0.9 | C | C | 1860.0 | | C | C | C | 1072.0 | | NA | | 0.0 | 2 | 2 | | | 1.65 |
| Canada | CS, T2 | OTH | L, T | 1.0 | 0.3 | 15906.7 | 15831.5 | 16300.0 | 2.4 | 0.0 | 8670.3 | 8554.1 | 8670.0 | 0.0 | 0.8 | L, T | 0.6 | 2,709 | 2,792 | 2,709 | 0.0 | 1.64 |
| Croatia | T1 | D | | 0.0 | 0.0 | | 42.2 | 0.0 | | 0.0 | | NO | | | | | | | NO | 15 | | |
| Czech Republic | T1 | D | L | 5.1 | | | 6783.3 | 2333.0 | | 1.1 | | 5207.0 | 4819.0 | | | | | | NO | | | |
| Denmark | | | | | | NO/NE | NO | 5.0 | | | NO | NO | | | | | | NO | NO | 31 | | |
| Estonia | | | | | | | | 1.0 | | | | | | | | | | | 0 | | | |
| European Community | C, CS, D, T1, T2, T3 | C, CS, D, PS | L | 0.4 | NE | NE | NE | | | NE | NE | NE | | | NE | | 0.1 | NE | NE | | | NE |
| Finland | NO | NO | | | | NA | NA | 4004.0 | | IE | NA | NA | 8178.0 | | IE | | | NO | NO | 30 | | NO |
| France | C | CS | L, T | 0.5 | | 20468.5 | 19975.9 | 20258.0 | -1.0 | 0.1 | 13424.0 | 12956.0 | 12600.0 | -6.5 | 0.1 | | 0.1 | 463 | 445 | 463 | 0.0 | 1.46 |
| Germany | T3,CS | D,CS | | | NE | 45015.0 | 44809.0 | | | IE | 29427.0 | 29481.0 | 29427.0 | 0.0 | IE | | 0.1 | 1,319 | 1,341 | 650 | -102.9 | 0.67 |
| Greece | T1 | D | | 0.3 | | 1839.8 | 1700.9 | 1835.0 | -0.3 | 0.2 | NO | NO | | | NO | | 0.2 | C | C | 164 | | C |
| Hungary | CS, T2 | D | | 0.3 | 0.1 | 2052.0 | 1989.0 | 2045.0 | 2.7 | 0.1 | 1334.6 | 1334.0 | 1335.0 | 0.0 | IE | | 0.1 | 35 | 35 | 35 | -0.8 | 1.80 |
| Iceland | T1 | D | | | NO | NO | NO | | | NO | NO | NO | | | NO | L | 4.5 | 264 | 267 | 264 | -0.2 | 0.51 |
| Ireland | NA | NA | | | | | | | | | | | | | | | | 0 | 0 | | | |
| Italy | D | C, CS | | 0.2 | | 26301.4 | 26832.1 | 26302.0 | 0.0 | 0.1 | 9746.0 | 10123.0 | 9775.0 | 0.3 | | | 0.1 | 190 | 191 | 190 | 0.0 | 1.55 |
| Japan | - | - | | | IE,NA,NO | NE | NE | 107376.0 | | IE | NE | NE | 80513.0 | | IE | | | NE | NE | 40 | | IE |
| Latvia | T1 | D | | 0.4 | | NE | NE | 520.0 | | | NE | NE | | | | | | NO | NO | | | |
| Liechtenstein | | | | | NO | | NO | | | NO | | NO | | | NO | | | | NO | | | NO |
| Lithuania | | | | | NO | | NO | | | NO | | NO | | | NO | | | | NO | | | NO |
| Luxembourg | | | | | | | | 2719.0 | | | | | | | | | | | | | | |
| Monaco | | | | | | | NO | | | | | NO | | | | | | | NO | | | |
| Netherlands | T2 (carbon inputs)/T1 | CS | L, T | 0.7 | 0.2 | 6150.0 | 6590.0 | 6119.0 | -0.5 | 0.0 | | | 5367.0 | | | | 0.2 | 284 | 283 | 300 | 5.2 | 1.45 |
| New Zealand | T2 | D, PS | L | 3.3 | 2.0 | 777.9 | 845.3 | 765.0 | -1.7 | 2.0 | IE | IE | 617.0 | | IE | | 1.0 | 334 | 334 | 335 | 0.4 | 1.62 |
| Norway | T2 | CS, PS | L | 0.6 | | | | 689.0 | | NO | 100.6 | 111.4 | 108.0 | 6.9 | 2.9 | L, T | 3.5 | 1,047 | 1,186 | 1,095 | 4.4 | 1.59 |
| Portugal | D | D+C+CS | | 0.0 | 26.8 | IE | IE | 800.0 | | | NO | NO | 100.0 | | | | | NO | NO | | | |
| Romania | T1b, T2 | D | L, T | 3.6 | 1.1 | | | 5490.0 | | | 3979.0 | 4101.0 | 3964.0 | -0.4 | 1.0 | | 0.2 | 190 | 205 | 187 | -1.6 | 1.50 |
| Slovakia | IE | | L | 1.0 | | | 4382.9 | 11.0 | | 0.1 | | 3892.4 | 3533.0 | | IE | | 0.3 | | 112 | 112 | | 1.50 |
| Slovenia | T1 | D | | 0.1 | | 481.2 | 541.4 | 481.0 | 0.0 | 0.0 | NO | NO | | | NO | L, T | 1.0 | 107 | 118 | 0 | -121,067.0 | 1.73 |
| Spain | D,C | D,C,CS,PS | L, T | 0.4 | | 16530.3 | 15719.4 | 16410.0 | -0.7 | 0.1 | 4145.5 | 3837.1 | 4021.0 | -3.1 | 0.1 | | 0.2 | C | C | 380 | | C |
| Sweden | T1,T2,CS | CS, PS | L, T | 2.9 | | IE | IE | 4,155 | | | 4,667 | 6,008 | 1,452 | -221.4 | 0.30 | | 0.2 | 102 | 101 | 101 | -1.2 | 1.44 |
| Switzerland | C | CS | | 0.1 | 0.08 | 960 | 974 | 1,100 | 12.7 | 0.08 | IE | IE | | | IE | T | 0.1 | 40 | 44 | 36 | -11.7 | 1.60 |
| Ukraine | T2 | D | L, T | 5.7 | | 34,546 | 37,524 | 34,543 | 0.0 | NE | 27,633 | 29,529 | 27,633 | 0.0 | NE | | | C | C | 112 | | C |
| United Kingdom | T3/T2 | CS | T | 0.2 | | 2,623 | 2,550 | 11,670 | 77.5 | 0.01 | 8,561 | 10,229 | 8,561 | 0.0 | | | 0.1 | 344 | 343 | 340 | -1.3 | 1.54 |
| United States | D | D,CS | L, T | 0.8 | NA | 46,125 | 47,804 | 91,600 | 49.6 | 0.00 | 2,674 | -661 | 40,200 | 93.3 | 0.15 | | 0.1 | 2,705 | 2,704 | 2,707 | 0.1 | 1.56 |

^a Information on methods and emission factors is included in this table as reported by Parties. 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 only Belgium and Spain; CO₂ emission estimates from coke (2.C.1.4) were reported by only Australia, Latvia, Ukraine and the United States.

^c As UN data for 2003 were not available for all Parties, except steel for Hungary, at the time of preparation of this synthesis and assessment report, for the comparisons of UN and CRF data in this table, data for the years 2003 and 2002 from the CRF are provided along with the respective UN data for 2003 or 2002.

^d Source of data for crude steel: UN Industrial Commodity Product Statistics Database (as of 10 June 2004 and updated 20 May 2005). Department of Economic and Social Affairs, Statistics Division, United Nations, New York. Data are for 2002, except for Hungary for which data are for 2003.

^e Source of data for pig iron: UN Industrial Commodity Production Statistics Database (as of 10 June 2004 and updated 20 May 2005). Department of Economic and Social Affairs, Statistics Division, United Nations, New York. Data are for 2002.

^f Source of data for aluminium: UN Industrial Commodity Production Statistics Database (as of 10 June 2004 and updated 20 May 2005), Department of Economic and Social Affairs, Statistics Division, United Nations, New York. Data are for 2002. Data are for primary production, except for Denmark, Finland and Hungary where only total production data were available.

⁸² Source of default emission factors: IPCC Guidelines, Volume 3, pages 2.28 and 2.33.

Table 2.10**Metal production: CO₂ – trend information**

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|----------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 14,666 | 13,866 | -0.5 | -14.1 | -1.2 | 9.0 | 2.1 | 1.3 | -0.6 | -0.7 | 4.5 | -4.4 | -3.1 | -4.5 | 8.9 | -5.5 |
| Austria | 3,725 | 4,532 | -1.0 | -14.4 | -0.5 | 8.1 | 15.0 | -5.5 | 10.5 | -4.8 | -3.5 | 11.6 | -1.0 | 11.9 | -2.3 | 21.7 |
| Belarus | | 0 | | | | | | | | | | | | | | |
| Belgium | 1,873 | 1,908 | -13.4 | -2.7 | -10.7 | 24.6 | 7.8 | -10.6 | -6.1 | 8.7 | 6.8 | -12.9 | -8.1 | 30.6 | -1.1 | 1.9 |
| Bulgaria | 2,485 | 1,662 | -24.3 | -5.7 | 24.8 | 29.9 | 8.9 | -9.5 | 7.5 | -16.9 | -8.9 | -13.3 | -4.1 | -6.7 | 25.3 | -33.1 |
| Canada | 9,695 | 11,618 | 16.4 | 3.6 | 2.1 | -5.7 | 1.6 | 0.8 | -1.3 | 1.5 | 2.3 | -0.2 | -2.6 | 0.5 | 0.7 | 19.8 |
| Croatia | 306 | 0 | -15.8 | -54.7 | -56.4 | 57.0 | -57.6 | -59.5 | 129.5 | -51.1 | | | -97.7 | | | -99.9 |
| Czech Republic | IE | 7,576 | | | | | | | | | | | | 3.6 | 189.8 | |
| Denmark | 28 | | 0.0 | | 8.9 | 8.2 | 15.1 | -8.8 | -0.5 | 20.5 | 2.0 | -5.4 | 14.6 | | | |
| Estonia | | NO | | | | | | | | | | | | | | |
| European Community | 24,939 | 22,800 | -10.4 | -9.9 | -0.8 | 6.2 | 7.3 | -6.8 | 5.1 | -2.9 | -1.9 | -0.2 | -2.9 | 5.9 | 4.9 | -8.6 |
| Finland | IE | IE | | | | | | | | | | | | | | |
| France | 4,519 | 3,512 | -23.2 | -6.8 | -2.6 | 22.9 | 18.4 | -26.4 | 15.9 | -3.3 | -11.1 | -11.9 | -1.7 | 14.0 | 5.8 | -22.3 |
| Germany | 1,012 | 904 | -6.8 | -12.6 | -8.5 | -8.9 | 14.3 | 0.2 | -0.7 | 7.0 | 3.6 | 1.6 | 1.2 | 0.2 | 1.2 | -10.7 |
| Greece | 435 | 657 | 0.4 | -2.5 | 1.9 | -7.7 | 3.6 | -9.2 | 12.9 | 12.6 | -2.6 | 8.4 | 13.7 | 21.4 | -5.6 | 51.2 |
| Hungary | 642 | 320 | -34.3 | -31.8 | 11.8 | 9.8 | -1.9 | 1.4 | -7.1 | 5.8 | -0.3 | 2.9 | 3.8 | 4.7 | -2.7 | -50.1 |
| Iceland | 340 | 340 | -8.7 | 2.0 | 16.9 | 0.8 | 4.2 | -1.2 | 14.0 | -20.0 | 37.7 | -11.5 | -20.3 | 0.0 | 0.0 | 0.0 |
| Ireland | NE | NO | | | | | | | | | | | | | | |
| Italy | 2,205 | 1,810 | -6.6 | -8.7 | 3.2 | -0.4 | 7.9 | -2.1 | 0.7 | -1.2 | -8.5 | 8.3 | -5.0 | -7.3 | 2.1 | -17.9 |
| Japan | IE,NA,NO | IE,NA,NO | | | | | | | | | | | | | | |
| Latvia | 44 | 44 | -75.1 | -49.5 | 259.5 | 63.4 | -17.0 | -5.4 | 73.1 | 6.6 | -3.3 | -0.6 | -2.2 | 0.0 | -0.8 | -0.1 |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | NO | | | | | | | | | | | | | | |
| Luxembourg | | 263 | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 2,909 | 1,968 | -12.4 | -23.3 | -3.3 | 15.9 | -0.2 | -2.3 | 14.5 | -13.7 | -5.4 | -11.5 | -1.6 | 4.8 | 8.1 | -32.3 |
| New Zealand | 1,787 | 2,259 | 6.8 | 4.2 | 3.6 | -6.5 | 4.2 | -0.6 | -7.0 | 7.3 | 2.7 | -1.3 | 2.6 | -0.9 | 10.1 | 26.4 |
| Norway | 4,396 | 4,515 | -8.1 | -0.3 | 7.6 | 5.0 | 0.6 | 3.7 | 1.7 | 9.0 | 2.5 | -0.1 | -3.6 | -11.8 | -1.5 | 2.7 |
| Portugal | 29 | 26 | 5.0 | 19.2 | 7.5 | 3.0 | -2.4 | -0.9 | 16.7 | 0.3 | 5.9 | 6.4 | -26.5 | -39.0 | 12.0 | -11.2 |
| Romania | 16,278 | 4,857 | -35.1 | 11.1 | -9.4 | 10.9 | 18.9 | -6.7 | 5.5 | -5.5 | -44.8 | -3.7 | -13.1 | 25.2 | -7.4 | -70.2 |
| Slovakia | 542 | 703 | -9.0 | -6.7 | -2.6 | 1.0 | -3.3 | 17.0 | 3.2 | 0.0 | 7.5 | 2.2 | 4.8 | 6.8 | 8.3 | 29.7 |
| Slovenia | 187 | 299 | -13.1 | -3.6 | -13.8 | 11.8 | -8.4 | -7.1 | -5.6 | -12.2 | 6.7 | 7.3 | 3.2 | 33.5 | 17.1 | 59.8 |
| Spain | 2,785 | 2,843 | -2.3 | -8.9 | 8.2 | 2.5 | -19.4 | -2.3 | -8.9 | 9.0 | 3.9 | 6.7 | 12.5 | -2.0 | 4.6 | -5.1 |
| Sweden | 2,266 | 2,533 | 3.3 | -1.6 | 1.2 | 6.7 | -4.7 | 1.2 | -3.7 | -0.7 | -7.4 | -1.3 | 10.2 | -4.2 | 14.6 | 11.8 |
| Switzerland | 259 | 148 | -6.3 | -7.2 | -32.5 | -21.4 | -11.3 | 9.8 | 1.0 | 7.6 | 2.7 | 2.1 | 1.7 | 5.4 | 4.2 | -42.8 |
| Ukraine | 40,971 | 30,051 | -18.5 | -3.3 | -23.4 | -25.5 | -10.9 | -1.1 | 15.7 | 28.4 | 7.7 | 8.9 | -4.3 | -2.6 | 13.9 | -26.7 |
| United Kingdom | 2,304 | 1,844 | -27.1 | -13.7 | -5.8 | 20.0 | 18.2 | 14.7 | -11.7 | -8.9 | 17.0 | -5.2 | -25.0 | -21.0 | 57.2 | -20.0 |
| United States | 93,707 | 59,356 | -9.9 | -1.6 | -6.9 | 4.2 | 1.1 | -6.9 | 4.8 | -5.4 | -4.0 | 1.2 | -12.0 | -5.9 | -2.0 | -36.7 |

^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 2.11**Metal production: iron and steel – trend information**

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|----------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 12,648 | 10,844 | -0.5 | -16.4 | -2.3 | 10.6 | 2.9 | -0.5 | -0.3 | -3.8 | 4.8 | -5.8 | -5.0 | -6.7 | 11.1 | -14.3 |
| Austria | 3,546 | 4,513 | -1.1 | -12.4 | 1.6 | 8.2 | 15.1 | -5.5 | 10.6 | -4.8 | -3.5 | 11.7 | -1.0 | 11.9 | -2.3 | 27.3 |
| Belarus | | 0 | | | | | | | | | | | | | | |
| Belgium | 1,873 | 1,908 | -13.4 | -2.7 | -10.7 | 24.6 | 7.8 | -10.6 | -6.1 | 8.7 | 6.8 | -12.9 | -8.1 | 30.6 | -1.1 | 1.9 |
| Bulgaria | 2,360 | 1,640 | -26.1 | -4.0 | 25.1 | 28.3 | 9.4 | -9.8 | 7.0 | -14.8 | -9.2 | -12.6 | -4.6 | -6.2 | 25.7 | -30.5 |
| Canada | 7,058 | 7,041 | 17.8 | 2.2 | -3.7 | -7.9 | 4.5 | -1.7 | -2.5 | 1.8 | 2.7 | 0.0 | -7.8 | -2.3 | -1.0 | -0.2 |
| Croatia | | 0 | | | | | | | | | | | | | | |
| Czech Republic | | 7,576 | | | | | | | | | | | | | | |
| Denmark | 28 | | 0.0 | | 8.9 | 8.2 | 15.1 | -8.8 | -0.5 | 20.5 | 2.0 | -5.4 | 14.6 | | | |
| Estonia | | 0 | | | | | | | | | | | | | | |
| European Community | 19,859 | 17,985 | -11.7 | -10.4 | -0.5 | 9.0 | 7.7 | -9.9 | 7.0 | -4.9 | -2.5 | -1.4 | -3.8 | 8.2 | 6.7 | -9.4 |
| Finland | IE | IE | | | | | | | | | | | | | | |
| France | 4,007 | 2,863 | -24.6 | -14.6 | -3.8 | 31.8 | 22.8 | -30.8 | 18.6 | -4.5 | -14.5 | -13.6 | -3.4 | 17.8 | 8.3 | -28.6 |
| Germany | IE | IE | | | | | | | | | | | | | | |
| Greece | 203 | 399 | -1.3 | -6.0 | 8.7 | -8.9 | 13.6 | -18.0 | 26.4 | 14.8 | -13.5 | 16.0 | 27.6 | 37.1 | -9.7 | 96.9 |
| Hungary | 470 | 257 | -34.9 | -20.2 | 13.8 | 10.6 | -4.0 | 0.6 | -9.1 | 7.4 | -0.3 | 3.5 | 4.2 | 5.3 | -3.1 | -45.3 |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | NE | 0 | | | | | | | | | | | | | | |
| Italy | 1,346 | 1,384 | -0.6 | -3.6 | 8.0 | 1.2 | 6.5 | -12.6 | 6.1 | -1.0 | -2.5 | 4.9 | -2.7 | -1.9 | 2.7 | 2.8 |
| Japan | IE,NA,NO | IE,NA,NO | | | | | | | | | | | | | | |
| Latvia | 44 | 44 | -75.1 | -49.5 | 259.5 | 63.4 | -17.0 | -5.4 | 73.1 | 6.6 | -3.3 | -0.6 | -2.2 | 0.0 | -0.8 | -0.1 |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | NO | | | | | | | | | | | | | | |
| Luxembourg | | 263 | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 2,514 | 1,558 | -13.9 | -25.6 | -3.7 | 20.5 | 0.0 | -3.5 | 16.8 | -18.1 | -8.5 | -15.9 | -1.2 | 7.4 | 10.6 | -38.0 |
| New Zealand | 1,329 | 1,717 | 9.3 | 7.8 | 1.8 | -8.4 | 5.4 | -2.3 | -10.0 | 7.3 | 4.1 | -0.8 | 4.5 | -3.5 | 13.6 | 29.1 |
| Norway | 201 | 328 | -12.9 | -3.5 | | 45.2 | 2.7 | 8.5 | -24.6 | 16.9 | 4.1 | 2.6 | 20.1 | -4.2 | 11.0 | 63.2 |
| Portugal | 27 | 23 | 5.6 | 21.0 | 8.1 | 3.3 | -2.6 | -1.0 | 17.9 | 0.3 | 6.3 | 6.8 | -27.9 | -42.0 | 13.5 | -12.3 |
| Romania | 15,855 | 4,550 | -35.8 | 12.5 | -9.6 | 11.0 | 18.9 | -6.8 | 5.3 | -5.8 | -46.1 | -4.1 | -13.9 | 26.7 | -8.3 | -71.3 |
| Slovakia | | 535 | | | | | | | | | | | | | | |
| Slovenia | 40 | 25 | -42.0 | 6.5 | -8.7 | 21.1 | -3.9 | -19.1 | 15.9 | 2.0 | 1.9 | 15.0 | -0.5 | 5.6 | 9.4 | -37.5 |
| Spain | 1,835 | 1,697 | -1.2 | -6.8 | 7.6 | 1.6 | -33.9 | -8.3 | 15.4 | 6.3 | 10.2 | 19.9 | -4.6 | 7.0 | -8.4 | -7.6 |
| Sweden | 1,776 | 2,060 | 2.3 | -0.9 | 0.9 | 9.2 | -6.6 | -0.5 | -0.6 | -3.3 | -9.7 | -2.9 | 16.6 | -7.3 | 22.7 | 16.0 |
| Switzerland | 111 | 78 | -7.2 | -6.8 | -8.3 | -8.0 | -9.9 | 1.4 | | 1.4 | | 1.3 | 1.3 | 1.3 | | -29.7 |
| Ukraine | 40,971 | 30,051 | -18.5 | -3.3 | -23.4 | -25.5 | -10.9 | -1.1 | 15.7 | 28.4 | 7.7 | 8.9 | -4.3 | -2.6 | 13.9 | -26.7 |
| United Kingdom | 1,853 | 1,316 | -33.9 | -12.6 | -7.1 | 28.7 | 22.5 | -33.9 | 18.0 | -14.7 | -12.2 | 20.6 | -9.6 | -36.4 | -33.0 | -29.0 |
| United States | 85,413 | 53,763 | -10.7 | -1.6 | -6.9 | 5.4 | 1.0 | -8.1 | 5.2 | -6.2 | -4.5 | 2.0 | -10.4 | -6.5 | -2.4 | -37.1 |

^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 2.11**Metal production: iron and steel – trend information (continued)**

| CO ₂ implied emission factors steel (t/t) | | | Relative Change (%) | | | | | | | | | | | | | |
|--|------------------------|------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | NA | NA | | | | | | | | | | | | | | |
| Austria | 0.12 | 0.11 | 1.6 | -4.4 | -4.5 | 1.9 | 2.8 | -0.6 | -1.1 | -0.5 | -1.3 | 0.5 | -1.6 | 1.2 | -1.1 | -6.9 |
| Belarus | | 0.00 | | | | | | | | | | | | | | |
| Belgium | 0.12 | 0.09 | 0.2 | 8.9 | -13.7 | -2.2 | 0.5 | 563.3 | -87.1 | 5.9 | 0.1 | -8.0 | 1.0 | -7.1 | -2.3 | -29.4 |
| Bulgaria | C | C | | | | | | | | | | | | | | |
| Canada | 0.05 | 0.04 | 7.1 | 1.6 | -2.1 | -4.4 | 3.2 | 4.0 | -5.7 | -6.2 | -2.5 | -2.3 | -8.7 | 3.0 | -3.3 | -16.2 |
| Croatia | | 0.00 | | | | | | | | | | | | | | |
| Czech Republic | | 1.12 | | | | | | | | | | | | | | |
| Denmark | 0.05 | | 0.0 | | 0.0 | 0.0 | 16.1 | -1.4 | -19.1 | 31.4 | -4.3 | 19.6 | 0.2 | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | NE | NE | | | | | | | | | | | | | | |
| Finland | | IE | | | | | | | | | | | | | | |
| France | 0.08 | 0.08 | 7.8 | -17.5 | 9.4 | -9.8 | 0.2 | -12.6 | -2.8 | 0.0 | -2.0 | -26.2 | 20.8 | 1.5 | 51.8 | 0.6 |
| Germany | IE | IE | | | | | | | | | | | | | | |
| Greece | 0.20 | 0.23 | 0.6 | -0.3 | 2.5 | 5.2 | 2.6 | -4.9 | 0.8 | 5.3 | 0.7 | 0.0 | 10.0 | -4.5 | -2.4 | 15.7 |
| Hungary | 0.13 | 0.13 | | 0.0 | 0.0 | | | | 0.7 | -0.1 | -0.2 | 0.3 | -0.3 | 0.3 | -0.1 | 0.7 |
| Iceland | NO | NO | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | 0.05 | 0.05 | 0.8 | -2.4 | 3.7 | 0.3 | | | | -1.0 | 1.4 | -2.3 | -2.3 | -1.1 | 0.6 | -2.4 |
| Japan | IE | IE | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | NO | | | | | | | | | | | | | | |
| Lithuania | | NO | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 0.01 | 0.01 | | 0.0 | 0.0 | 0.0 | | | | | 0.0 | -27.7 | 33.5 | 36.1 | -23.8 | 0.0 |
| New Zealand | 1.92 | 2.03 | 0.8 | 7.3 | -8.5 | -4.4 | 0.4 | 3.6 | -2.0 | 6.2 | 1.4 | 3.1 | -4.8 | -0.7 | 4.6 | 6.0 |
| Norway | NO | NO | | | | | | | | | | | | | | |
| Portugal | | | | | | | | | | | | | | | | |
| Romania | | | | | | | | | | | | | | | | |
| Slovakia | | 0.12 | | | | | | | | | | | | | | |
| Slovenia | 0.02 | 0.05 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | -2.8 | 186.3 |
| Spain | 0.08 | 0.07 | -3.0 | -1.6 | 2.3 | -1.8 | -12.3 | 1.1 | 2.5 | -1.6 | 13.4 | 7.8 | -1.4 | 1.2 | -12.0 | -8.0 |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | 0.09 | 0.08 | -1.3 | -0.5 | -1.6 | -9.5 | 7.3 | 0.6 | -0.8 | 0.5 | -1.0 | 0.8 | 0.0 | 0.2 | -1.4 | -7.1 |
| Ukraine | NE | NE | | | | | | | | | | | | | | |
| United Kingdom | 0.01 | 0.01 | 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 | 0.00 | 0.00 | | | | | | | | | | | | | | |

^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 2.12

Metal production: aluminium – trend information

| CO ₂ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|-------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 2,018 | 3,022 | 0.1 | -0.2 | 4.5 | 1.0 | -2.2 | 11.6 | -2.1 | 15.1 | 3.3 | 1.7 | 4.3 | 3.9 | 1.5 | 49.7 |
| Austria | 158 | NO | | -60.2 | | | | | | | | | | | | |
| Belarus | | NO | | | | | | | | | | | | | | |
| Belgium | NO | NO | | | | | | | | | | | | | | |
| Bulgaria | 12 | 3 | -54.9 | 31.0 | -31.8 | 140.8 | 2.4 | -2.3 | -18.8 | 86.4 | -37.3 | -23.9 | -50.8 | 31.5 | -3.4 | -72.6 |
| Canada | 2,636 | 4,577 | 12.7 | 7.6 | 17.7 | -0.9 | -4.2 | 6.3 | 1.1 | 0.8 | 1.5 | -0.7 | 7.8 | 5.2 | 3.5 | 73.6 |
| Croatia | | NO | | | | | | | | | | | | | | |
| Czech Republic | | NO | | | | | | | | | | | | | | |
| Denmark | NO | NO | | | | | | | | | | | | | | |
| Estonia | | 0 | | | | | | | | | | | | | | |
| European Community | 3,861 | 3,832 | -4.0 | -6.6 | -4.0 | -5.4 | 3.6 | 1.9 | 1.3 | 4.6 | 4.0 | 2.0 | 2.2 | 0.7 | -0.3 | -0.7 |
| Finland | NO | NO | | | | | | | | | | | | | | |
| France | 512 | 649 | -12.2 | 46.0 | 2.0 | -9.9 | -5.1 | 4.3 | 3.2 | 3.5 | 5.5 | -4.9 | 4.6 | 1.2 | -3.9 | 26.9 |
| Germany | 1,012 | 904 | -6.8 | -12.6 | -8.5 | -8.9 | 14.3 | 0.2 | -0.7 | 7.0 | 3.6 | 1.6 | 1.2 | 0.2 | 1.2 | -10.7 |
| Greece | 232 | 258 | 1.8 | 0.5 | -3.6 | -6.5 | -5.2 | 0.0 | 1.3 | 10.1 | 9.5 | 1.7 | -0.3 | 1.2 | 1.5 | 11.2 |
| Hungary | 133 | 63 | -16.3 | -57.3 | 4.0 | 6.3 | 7.6 | 4.9 | 0.6 | 0.1 | -0.2 | 0.6 | 2.2 | 2.0 | -0.7 | -52.5 |
| Iceland | 136 | 136 | 2.0 | -3.6 | 3.6 | 6.5 | 1.9 | 4.1 | 20.4 | -16.5 | 47.1 | -3.8 | -38.9 | 0.0 | | 0.0 |
| Ireland | NE | 0 | | | | | | | | | | | | | | |
| Italy | 359 | 297 | -6.0 | -26.3 | -3.2 | 12.9 | 1.3 | 3.7 | 1.8 | -0.4 | 0.1 | 1.4 | -1.2 | 1.5 | 0.5 | -17.4 |
| Japan | IE | IE | | | | | | | | | | | | | | |
| Latvia | NO | NO | | | | | | | | | | | | | | |
| Liechtenstein | | NO | | | | | | | | | | | | | | |
| Lithuania | | NO | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | 0 | | | | | | | | | | | | | | |
| Netherlands | 395 | 410 | -3.1 | -10.8 | -1.5 | -5.3 | -1.7 | 5.2 | 2.0 | 14.3 | 8.5 | 5.0 | -2.8 | -3.0 | -0.5 | 4.0 |
| New Zealand | 458 | 542 | -0.6 | -7.0 | 10.2 | 0.2 | 0.5 | 4.9 | 2.2 | 7.4 | -1.2 | -2.8 | -3.0 | 7.1 | 0.3 | 18.4 |
| Norway | 1,431 | 1,891 | -1.6 | 0.2 | 2.7 | -3.1 | -1.7 | 2.2 | 7.5 | 8.5 | 3.3 | 2.0 | 1.0 | -1.5 | 9.6 | 32.1 |
| Portugal | | | | | | | | | | | | | | | | |
| Romania | 423 | 308 | -6.2 | -28.1 | -3.3 | 5.2 | 18.0 | 0.7 | 13.1 | 6.7 | -0.6 | 4.0 | 1.1 | 3.8 | 7.9 | -27.3 |
| Slovakia | | 167 | | | | | | | | | | | | | | |
| Slovenia | 89 | 205 | -16.6 | -7.0 | -1.6 | 0.8 | 4.2 | -7.1 | -0.3 | -0.3 | -0.3 | 1.1 | -0.2 | 47.5 | 9.3 | 128.8 |
| Spain | 610 | 641 | -0.4 | 0.6 | -1.4 | -5.5 | 7.0 | -0.2 | 0.6 | -1.1 | 0.9 | 0.8 | 1.7 | 1.9 | 0.4 | 5.0 |
| Sweden | 133 | 146 | 0.2 | -25.1 | 20.5 | -0.8 | 7.9 | 6.1 | -0.5 | 2.1 | 0.6 | 3.5 | -4.2 | 5.1 | 0.0 | 9.7 |
| Switzerland | 139 | 70 | -5.9 | -7.9 | -51.7 | -33.7 | -14.2 | 28.3 | 2.7 | 18.3 | 6.6 | 3.2 | 2.1 | 10.7 | 9.2 | -49.6 |
| Ukraine | C | C | | | | | | | | | | | | | | |
| United Kingdom | 450 | 528 | 1.3 | -16.7 | -2.3 | -3.3 | 2.8 | 0.9 | 3.2 | 4.3 | 4.2 | 12.5 | 11.7 | 1.0 | -0.5 | 17.2 |
| United States | 6,315 | 4,219 | 1.8 | -1.9 | -8.6 | -10.7 | 2.3 | 6.0 | 0.7 | 3.1 | 1.8 | -2.9 | -28.1 | 2.6 | 0.0 | -33.2 |

^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 2.12**Metal production: aluminium – trend information (continued)**

| CO ₂ implied emission factors (t/t) | | | Relative Change (%) | | | | | | | | | | | | | |
|--|------------------------|------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 1.63 | 1.63 | | | -0.9 | -4.7 | 5.0 | 7.7 | -6.6 | 1.0 | -2.7 | -1.5 | 1.6 | 2.7 | -1.0 | -0.3 |
| Austria | 1.80 | | | 0.0 | | | | | | | | | | | | |
| Belarus | | NO | | | | | | | | | | | | | | |
| Belgium | NO | NO | | | | | | | | | | | | | | |
| Bulgaria | 1.65 | 1.65 | | | | | | | | | | | | | | |
| Canada | 1.68 | 1.64 | -3.1 | -0.6 | 0.5 | 1.5 | -0.6 | 1.2 | -0.8 | -1.2 | 0.8 | 0.0 | -1.0 | 0.3 | 0.5 | -2.5 |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | | | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | NE | NE | | | | | | | | | | | | | | |
| Finland | | NO | | | | | | | | | | | | | | |
| France | 1.57 | 1.46 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -1.8 | -1.8 | -1.8 | -1.8 | 0.0 | 0.0 | 0.0 | -7.0 |
| Germany | 0.79 | 0.67 | -3.2 | -5.5 | 8.6 | -7.0 | 8.2 | 0.3 | -1.8 | -3.0 | -0.2 | -4.0 | -3.4 | -3.2 | -0.4 | -14.8 |
| Greece | C | C | | | | | | | | | | | | | | |
| Hungary | 1.80 | 1.80 | | | | | | | | | | | | | 0.0 | 0.0 |
| Iceland | 1.55 | 0.51 | 0.5 | -4.5 | -1.0 | 1.7 | 0.2 | 0.9 | 0.7 | -40.6 | 15.2 | -5.7 | -43.3 | -7.6 | -0.9 | -67.1 |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | 1.55 | 1.55 | | | | | | | | | | | | | | |
| Japan | IE | IE | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | NO | | | | | | | | | | | | | | |
| Lithuania | | NO | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 1.45 | 1.45 | | | | | | | | | | | | | | |
| New Zealand | 1.73 | 1.62 | | -0.1 | -0.1 | -0.1 | 0.0 | 0.1 | -6.3 | 5.1 | -4.3 | -3.1 | -1.5 | 4.1 | 0.3 | -6.3 |
| Norway | 1.64 | 1.59 | -3.0 | 2.7 | 1.3 | -0.9 | -0.3 | -0.2 | 1.5 | -0.7 | 2.3 | -0.3 | 0.3 | -2.3 | -3.3 | -3.1 |
| Portugal | | | | | | | | | | | | | | | | |
| Romania | 1.50 | 1.50 | | | | | | | | | | | | | | |
| Slovakia | | 1.50 | | | | | | | | | | | | | | |
| Slovenia | 2.01 | 1.73 | -4.2 | 0.9 | -2.1 | 1.3 | 4.4 | -3.9 | -3.9 | 0.5 | -1.8 | 0.0 | -0.1 | 4.6 | -1.5 | -14.1 |
| Spain | C | C | | | | | | | | | | | | | | |
| Sweden | 1.38 | 1.44 | -0.4 | -5.9 | 13.0 | -2.6 | -4.8 | 2.2 | -0.6 | 4.8 | -2.5 | 1.6 | -4.6 | 5.1 | 0.6 | 4.3 |
| Switzerland | 1.60 | 1.60 | | | | | | | | | | | | | | |
| Ukraine | C | C | | | | | | | | | | | | | | |
| United Kingdom | 1.55 | 1.54 | 0.0 | 0.2 | -0.3 | 0.0 | -0.1 | 0.0 | -0.1 | 0.0 | -0.1 | -0.5 | | | | -0.9 |
| United States | 1.56 | 1.56 | | | | | | | | | | | | | | |

^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 2.13
Metal production, PFCs and SF₆ (2003)

| | PFCs | | | | | | | | | | SF ₆ | | | | | | | | |
|------------------------------|----------------------------------|----------------|-----------------------------------|-------------------------|--------------------------------------|------------------------------|-----------------|------------|-----------------|-------------------------------|---|---------|---|------------|-------------------------|-------------------------------------|---------|----------------------|--|
| | Methods and EF used ^a | | 2.C.3 Aluminium production - PFCs | | | | | | | | Methods and EF used ^b | | 2.C.4.2 SF ₆ used in magnesium foundries | | | | | | |
| | Methods | EF | Key source | Share of national total | Activity data (Aluminium production) | | | | IEF | | Ratio IEF CF ₄ / IEF C ₂ F ₆ | Methods | EF | Key source | Share of national total | Activity data | | SF ₆ -IEF | Actual emissions SF ₆ ^h |
| | | | | | CRF (2002) ^{c,d} | CRF (2003) ^{c,d} | UN ^e | Difference | CF ₄ | C ₂ F ₆ | | | | | | Description | Value | | |
| (%) | | | | | | | | | | | | | | | | | | | |
| IPCC default EF ^f | | | | (%) | (kt) | | (%) | (kg/t) | | | | (%) | | | | | | | |
| Australia | T1c | CS | T | 0.3 | 1809.0 | 1855.0 | 1855.0 | 2.5 | 0.1 | 0.0 | 7.7 | NE | NE | | | (SF6 consumption) | NO | NE | |
| Austria | NA | NA | | | NO | NO | | | | | | NA | NA | | | cast Magnesium [t] | 3,600 | NO | |
| Belarus | NO | NO | | | NO | NO | | | NO | NO | | NO | NO | | | NO | NO | NO | |
| Belgium | | | | 0.0 | NO | NO | | | NO | NO | | | | | | NO | NO | NO | |
| Bulgaria | D | D | | 0.0 | 2.1 | 2.0 | | | 1.4 | 0.1 | 10.0 | NO | NO | | | NO | NO | NO | |
| Canada | CS | OTH | T | 0.4 | 2708.9 | 2791.9 | 2708.9 | 0.0 | 0.1 | 0.0 | 13.4 | T3 | PS | T | 0.3 | Primary Magnesium Capacity | 75,000 | 93.4 | |
| Croatia | | | | | | NO | 15.0 | | | | | | | | | NO | | NO | |
| Czech Republic | | | | | | NO | | | | | | | | | | NO | | NO | |
| Denmark | | | | | NO | NO | 30.5 | | | | | | | | | NO | | NO | |
| Estonia | | | | | | | | | | | | | | | | | | NO | |
| European Community | C, CS, PS, T1, T2, T3 | C, CS, PS, T3a | T | 0.1 | NE | NE | | | NE | NE | | NE | NE | | 0.1 | | NE | 92.0 | |
| Finland | NO | NO | | | NO | NO | 30.0 | | NO | NO | | T2, T1a | NA | | | NO | NO | NO | |
| France | C/ T2 | PS | T | 0.1 | 463.0 | 444.9 | 463.0 | 0.0 | 0.2 | 0.0 | 10.0 | C | CS | | 0.1 | (SF6 consumption) | 31 | 30.9 | |
| Germany | T3 | CS | | 0.0 | 654.5 | 654.5 | 650.0 | -0.7 | 0.1 | 0.0 | 10.0 | D | D | | 0.0 | Consumption Mg-Production | 16 | 15.9 | |
| Greece | PS | PS | T | 0.1 | C | C | 164.0 | | C | C | | | | | | NO | NO | NO | |
| Hungary | | | | 0.2 | 35.3 | 35.0 | 35.0 | -0.8 | 0.7 | 0.1 | 10.0 | | | | 0.0 | NO | NO | NO | |
| Iceland | T2 | D | L, T | 2.0 | 264.1 | 266.6 | 263.7 | -0.2 | 0.0 | 0.0 | 7.8 | NO | NO | | | NO | NO | NO | |
| Ireland | NA | NA | | | NO | NO | | | | | | NA | NA | | | | | NO | |
| Italy | T1, T2 | PS | T | 0.0 | 190.6 | 191.7 | 190.4 | -0.1 | 187.9 | 24.2 | 7.8 | D | PS | | 0.0 | (SF6 consumption) | 6 | 5.7 | |
| Japan | - | - | | 0.0 | 6.4 | 6.5 | 40.4 | 84.1 | 0.3 | 0.0 | 10.2 | - | - | | 0.1 | SF6 consumption | 31 | 31.0 | |
| Latvia | NO | NO | | | NO | NO | | | NO | NO | | NO | NO | | | NO | NO | NO | |
| Liechtenstein | | | | | | NO | | | NO | NO | | | | | | NO | NO | NO | |
| Lithuania | | | | | | NO | | | NO | NO | | | | | | NO | NO | NO | |
| Luxembourg | | | | | | | | | | | | | | | | | | | |
| Monaco | | | | | | NO | | | | | | | | | | NO | | 0.0 | |
| Netherlands | CS/T2 | M, PS | L, T | 0.6 | 284.4 | 283.0 | 300.0 | 5.2 | 0.6 | 0.1 | 10.0 | NO | | | | NO | NO | NO | |
| New Zealand | NA | NA | T | 0.2 | 333.5 | 333.7 | 335.0 | 0.4 | 0.0 | 0.0 | 11.0 | NA | NA | | | SF6 consumption | NO | NA | |
| Norway | T2 | | L, T | 1.3 | 1047.0 | 1186.1 | 1095.0 | 4.4 | 0.1 | 0.0 | 24.3 | | | T | 0.3 | 7 | 1,000.0 | 7.2 | |
| Portugal | | | | | NO | NO | | | | | | | | | | | | | |
| Romania | | | | 0.5 | 190.0 | 205.0 | 187.1 | -1.6 | 0.4 | 0.0 | 10.0 | | | | | 0.0 | NE | NE | |
| Slovakia | | | | 0.0 | | 111.6 | 112.0 | | 0.0 | 0.0 | 10.0 | | | | | | NO | NO | |
| Slovenia | T1 | D | L, T | 0.6 | 106.6 | 118.3 | 0.1 | -121067.0 | 134.4 | 14.4 | 9.4 | | | | | | NO | NO | |
| Spain | T2 | T2 | T | 0.0 | C | C | 380.0 | | C | C | | NE | | | | NO | NO | NO | |
| Sweden | T2 | PS | T | 0.40 | 102 | 101 | 101 | -1.2 | 372.0204 | 40.3039 | 9.2 | D | D | | 0.05 | SF6 consumption | 1 | 1.5 | |
| Switzerland | T3 | PS | T | 0.02 | 40 | 44 | 36 | -11.7 | 0.0360 | 0.0040 | 9.0 | T2 | M | | 0.05 | | C | 1.2 | |
| Ukraine | NE | NE | | | | | 112 | | | | | NE | NE | | | | | | |
| United Kingdom | T2/PS | CS | | 0.03 | 344 | 343 | 340 | -1.3 | 0.0877 | | | T2/PS | CS | T | 0.14 | SF6 consumption | 38 | 38.0 | |
| United States | T2, T3 | PS | T | 0.06 | 2,705 | 2,704 | 2,707 | 0.1 | 0.1865 | 0.0208 | 8.9 | T2 | CS | | 0.04 | Magnesium Production and Processing | C | 124.1 | |

^a Information on methods and emission factors is included in this table as reported by Parties. It may not reflect the actual method used or type of emission factor for PFCs for all subcategories within the category 2.C. Metal production.

^b Information on methods and emission factors is included in this table as reported by Parties. It may not reflect the actual method used or type of emission factor for SF₆ for all subcategories within the category 2.C. Metal production.

^c As United Nations data for 2003 were not available for any Party for the comparisons of United Nations and CRF data in this table, data for the years 2002 from the CRF are provided together with the respective United Nations data for 2002.

^d This column includes aluminium production data provided for CF₄ and C₂F₆ in tables 2 (II).C.E of the CRF.

^e Source of data for aluminium: UN Industrial Commodity Production Statistics Database (as of 10 June 2004 and updated 20 May 2005), Department of Economic and Social Affairs, Statistics Division, United Nations, New York. Data are for 2002.

Data are for primary production, except for Denmark, Finland and Hungary where only total production data were available.

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

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

^h IPCC good practice guidance state that emissions equal consumption (IPCC good practice, page 3.48).

Table 2.14**Metal production: aluminium – trend information**

| CF ₄ emissions (t) | | | Relative Change (%) | | | | | | | | | | | | | |
|-------------------------------|------------------------|-------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 511.8 | 191.3 | 0.1 | -0.2 | -28.0 | -34.8 | -29.1 | -7.9 | -12.8 | 33.0 | -29.7 | 12.3 | 41.0 | -3.1 | -2.3 | -62.6 |
| Austria | 137.3 | NO | | -60.2 | | | | | | | | | | | | |
| Belarus | | NO | | | | | | | | | | | | | | |
| Belgium | | NO | | | | | | | | | | | | | | |
| Bulgaria | 10.2 | 2.8 | -54.9 | 31.0 | -31.8 | 140.8 | 2.4 | -2.3 | -18.8 | 86.4 | -37.3 | -23.9 | -50.8 | 31.5 | -3.4 | -72.6 |
| Canada | 873.8 | 381.5 | -2.6 | -3.1 | -0.4 | -8.2 | 1.3 | -9.1 | -2.7 | -4.2 | -8.5 | -10.4 | -17.2 | -14.9 | 2.0 | -56.3 |
| Croatia | | NO | | | | | | | | | | | | | | |
| Czech Republic | | NO | | | | | | | | | | | | | | |
| Denmark | NO | NO | | | | | | | | | | | | | | |
| Estonia | | 0.0 | | | | | | | | | | | | | | |
| European Community | 1336.6 | 460.4 | -13.6 | -27.9 | -18.3 | -12.4 | 29.3 | -0.2 | -3.7 | -3.4 | -12.3 | -18.1 | -14.8 | 12.4 | -6.3 | -65.6 |
| Finland | NO | NO | | | | | | | | | | | | | | |
| France | 308.6 | 99.5 | -28.6 | -15.2 | -31.3 | -19.5 | -13.9 | -1.7 | 6.0 | 30.3 | 30.2 | -26.8 | -31.6 | 66.6 | -24.1 | -67.7 |
| Germany | NE | 58.1 | | | | | | -5.3 | -26.8 | 8.3 | -26.1 | -58.6 | 4.3 | 16.0 | | |
| Greece | 34.7 | 10.5 | 0.0 | -2.0 | -39.5 | -38.6 | -11.4 | -13.5 | 130.5 | 23.2 | -35.4 | 12.6 | -38.4 | -2.8 | -12.4 | -69.8 |
| Hungary | 36.2 | 25.4 | -13.7 | -42.3 | 8.1 | 9.1 | 5.0 | -4.5 | -0.3 | 7.6 | 2.4 | 20.3 | -5.8 | 1.6 | -6.7 | -29.9 |
| Iceland | 54.6 | 7.8 | -17.0 | -55.4 | -51.8 | -40.5 | 32.0 | -57.3 | 227.5 | 118.7 | -3.8 | -26.6 | -27.9 | -20.9 | -17.6 | -85.8 |
| Ireland | NO | NO | | | | | | | | | | | | | | |
| Italy | 198.3 | 36.0 | -23.5 | -47.3 | -23.9 | -55.4 | -34.5 | 3.7 | 1.8 | 0.6 | -0.7 | 37.8 | 17.8 | -15.2 | 39.3 | -81.8 |
| Japan | NE | 2.0 | | | | | | -9.2 | -8.0 | -9.8 | -39.3 | -44.8 | -11.0 | -6.8 | | |
| Latvia | NO | NO | | | | | | | | | | | | | | |
| Liechtenstein | | NO | | | | | | | | | | | | | | |
| Lithuania | | NO | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | 0.0 | | | | | | | | | | | | | | |
| Netherlands | 280.9 | 162.1 | -1.1 | -9.3 | 0.9 | -4.1 | -2.9 | 10.3 | 6.4 | -21.8 | -29.3 | 17.2 | -4.4 | -2.2 | -3.6 | -42.3 |
| New Zealand | 68.0 | 11.0 | 24.1 | -2.1 | -17.7 | -64.7 | -20.8 | 57.9 | -30.0 | -52.4 | | -23.0 | | 42.9 | | -83.8 |
| Norway | 479.1 | 102.3 | -23.0 | -20.3 | -1.4 | -13.6 | -8.6 | -6.5 | -6.3 | -8.0 | -11.3 | -20.0 | 15.7 | 7.4 | -37.2 | -78.7 |
| Portugal | NO | NO | | | | | | | | | | | | | | |
| Romania | 105.2 | 76.5 | -6.2 | -28.1 | -3.3 | 5.2 | 18.0 | 0.7 | 13.1 | 6.7 | -0.6 | 4.0 | 1.1 | 3.8 | 7.9 | -27.3 |
| Slovakia | | 2.8 | | | | | | | | | | | | | | |
| Slovenia | 37.2 | 15.9 | 17.5 | -19.7 | 3.3 | 12.1 | 1.4 | -16.2 | -18.8 | -23.2 | -30.2 | | | 10.3 | 2.7 | -57.3 |
| Spain | 122.2 | 26.4 | -6.4 | -4.8 | 4.9 | -1.7 | 1.6 | -4.9 | 2.2 | -7.5 | -9.9 | -44.8 | -48.6 | 5.0 | -4.4 | -78.4 |
| Sweden | 58.5 | 37.7 | -1.9 | -22.4 | 3.9 | -0.9 | 10.3 | -13.2 | -8.6 | -3.1 | 10.0 | -17.9 | -1.8 | 9.1 | 0.1 | -35.6 |
| Switzerland | 13.3 | 1.6 | -15.6 | -18.5 | -57.9 | -43.5 | -20.7 | 17.9 | -6.3 | 6.8 | -8.7 | -31.2 | 2.1 | 10.7 | 9.2 | -88.1 |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | 196.0 | 30.0 | -17.8 | -55.1 | -22.2 | -9.5 | -17.1 | -1.4 | -21.8 | -1.4 | -12.3 | 34.9 | -13.5 | -5.8 | -2.8 | -84.7 |
| United States | 2478.1 | 504.4 | -15.4 | -7.9 | -3.5 | -12.0 | -1.5 | 5.7 | -11.5 | -17.8 | -1.0 | 0.5 | -56.9 | 30.9 | -27.9 | -79.6 |

^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 2.15**Production of halocarbons and SF₆ (2003)**

| | HFCs | | | | | | PFCs | | SF ₆ | | |
|------------------------------|----------------------------------|------------------|-----------------------|-------------------------|------------------------------------|----------------------------|----------------------------------|------------|----------------------------------|-----------------|---------------|
| | Methods and EF used ^a | | Production of HCFC-22 | | | | Methods and EF used ^a | | Methods and EF used ^a | | |
| | Methods | EF | Key source | Share of national total | Activity data (HCFC-22 production) | | IEF | Method | EF | Method | EF |
| | | | | | CRF | International ^b | | | | | |
| (%) | | | | | (t) | (kg/t) | | | | | |
| IPCC default EF ^c | | | | | | | 40.0 | | | | |
| Australia | NO | NO | | | NA | | NO | NO | NO | NO | NO |
| Austria | NA | NA | | | | | | NA | NA | NA | NA |
| Belarus | NO | NO | | | NO | | NO | NO | NO | NO | NO |
| Belgium | | | | | | | NO | | | | |
| Bulgaria | NO | NO | | | NO | | NO | NO | NO | NO | NO |
| Canada | | | | | | X | NO | | | | |
| Croatia | | | | | | | | | | | |
| Czech Republic | NO | | | | | | | NO | | NO | |
| Denmark | NO | | | | | | | NO | | NO | |
| Estonia | | | | | | | | | | | |
| European Community | CS, D, PS, T1, T2 | C, CS, D, PS, T2 | T | 0.2 | NE | | NE | CS, PS, T2 | CS, PS | CS, T1, T2, T3b | CS, D, PS, T1 |
| Finland | NO | NO | | | NO | | NO | NO | NO | NO | NO |
| France | CS | CS/ PS | T | 0.0 | | X | | CS | CS/ PS | | |
| Germany | T1 | CS | T | | 30000.0 | X | 0.0 | NO | NO | T1 | CS |
| Greece | T1 | D | L, T | 2.3 | C | X | C | | | | |
| Hungary | | | | | | | NO | | | | |
| Iceland | | | | | NO | | NO | | | | |
| Ireland | NA | NA | | | | | | NA | NA | NA | NA |
| Italy | CS | PS | | | | X | | CS | PS | CS | PS |
| Japan | CS | CS | T | 0.4 | 77310.0 | X | 5.6 | CS | CS | CS | CS |
| Latvia | NO | NO | | | | | NO | NO | NO | NO | NO |
| Liechtenstein | | | | | NO | | NO | | | | |
| Lithuania | | | | | NO | | NO | | | | |
| Luxembourg | | | | | | | | | | | |
| Monaco | | | | | | | | | | | |
| Netherlands | CS/T2 | PS | T | 0.2 | C | X | C | NO | | NO | |
| New Zealand | NA | NA | | | | | NO | NA | NA | NA | NA |
| Norway | | | | | | | NO | | | | |
| Portugal | | | | | | | | | | | |
| Romania | | | | | | | | | | | |
| Slovakia | NO | NO | | | NO | | NO | NO | NO | NO | NO |
| Slovenia | | | | | NO | | NO | | | | |
| Spain | D,T2,CS | D,T2,PS | T | 0.4 | C | X | C | NO | | NO | |
| Sweden | NO | NO | | | NO | | NO | NO | NO | NO | NO |
| Switzerland | | | | | | | | | | | |
| Ukraine | NE | NE | | | | | | NE | NE | NE | NE |
| United Kingdom ^d | T2/PS | CS | | 0.3 | | X | | T2/PS | CS | NO | NO |
| United States | M, T2a | M, CS | T | 0.2 | 0 | X | | M, T2a | M, CS | NE | NE |

^a Information on methods and emission factors is included in this table as reported by Parties. 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 An 'X' in this column indicates that an estimate of aggregated production of HCFCs for 2003 is available from the Secretariat of the Montreal Protocol. Usually HFC-23 occurs only during the production of HCFC-22.

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

^d The United Kingdom reported aggregated HFC emissions from 2.E.1 Production and 2.E.2 Fugitive. Under that category, the activity data value was 33,538 t for 2003 and the implied emission factor was 7.13.

Table 2.16**Production of halocarbons and SF₆, HFC-23 – trend information**

| HFC-23 emissions (t) | | | Relative Change (%) | | | | | | | | | | | | | |
|----------------------|------------------------|-------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 96 | NO | | -6.4 | 37.3 | -43.9 | -11.4 | | | | | | | | | |
| Austria | NO | NO | | | | | | | | | | | | | | |
| Belarus | | NO | | | | | | | | | | | | | | |
| Belgium | | NO | | | | | | | | | | | | | | |
| Bulgaria | NO | NO | | | | | | | | | | | | | | |
| Canada | NO | NO | | | | | | | | | | | | | | |
| Croatia | | NO | | | | | | | | | | | | | | |
| Czech Republic | | NO | | | | | | | | | | | | | | |
| Denmark | NO | NO | | | | | | | | | | | | | | |
| Estonia | | NO | | | | | | | | | | | | | | |
| European Community | 834 | 468 | -5.5 | 13.3 | 7.3 | 17.1 | 40.4 | 3.7 | 3.3 | 2.7 | -14.0 | -19.7 | -43.2 | -33.6 | 3.6 | -43.9 |
| Finland | NO | NO | | | | | | | | | | | | | | |
| France | 140 | 21 | 30.3 | -6.1 | 2.1 | -56.2 | -76.2 | 73.8 | -6.7 | -37.9 | 98.7 | -19.5 | 4.4 | 3.3 | -34.4 | -85.1 |
| Germany | NE | 100 | | | | | | -27.8 | -3.8 | -4.0 | -5.8 | -55.8 | -10.0 | 11.1 | | |
| Greece | 80 | 273 | 18.4 | -17.9 | 76.9 | 33.4 | 51.7 | 15.2 | 5.7 | 10.1 | 15.2 | -25.6 | -14.8 | 0.4 | | 241.6 |
| Hungary | NO | NO | | | | | | | | | | | | | | |
| Iceland | NO | NO | | | | | | | | | | | | | | |
| Ireland | NE | NO | | | | | | | | | | | | | | |
| Italy | 30 | 0 | | | | | | | | | | | | | | |
| Japan | NE | 429 | | | | | | -8.1 | -5.8 | -6.2 | 2.3 | -12.0 | -24.7 | -34.7 | -17.6 | |
| Latvia | NO | NO | | | | | | | | | | | | | | |
| Liechtenstein | | NO | | | | | | | | | | | | | | |
| Lithuania | | NO | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | 0 | | | | | | | | | | | | | | |
| Netherlands | 379 | 39 | -22.1 | 28.1 | 11.9 | 26.9 | -8.3 | 19.6 | -2.6 | 16.1 | -55.8 | -29.6 | -81.4 | 52.2 | -32.7 | -89.6 |
| New Zealand | NO | NO | | | | | | | | | | | | | | |
| Norway | NO | NO | | | | | | | | | | | | | | |
| Portugal | NO | NO | | | | | | | | | | | | | | |
| Romania | | | | | | | | | | | | | | | | |
| Slovakia | | NO | | | | | | | | | | | | | | |
| Slovenia | NO | NO | | | | | | | | | | | | | | |
| Spain | 205 | 134 | -9.3 | 26.8 | -18.3 | 53.1 | 34.1 | 9.0 | 14.4 | -12.2 | 16.0 | 7.3 | -54.1 | -64.6 | 52.9 | -34.6 |
| Sweden | NO | NO | | | | | | | | | | | | | | |
| Switzerland | NO | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | IE | IE | | | | | | | | | | | | | | |
| United States | 2,990 | 1,054 | -12.0 | 13.3 | -8.7 | -0.7 | -14.4 | 15.2 | -3.8 | 34.0 | -24.2 | -2.1 | -33.5 | -0.1 | -37.7 | -64.7 |

^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 2.17
Consumption of halocarbons and SF₆, HFCs (2003)

| | Methods and EF ^a | | HFC-23 | | | HFC-32 | | | HFC-41 | | | HFC-431-0mee | | | HFC-125 | | | HFC-134 | | | HFC-134a | | |
|-----------------------------|--------------------------------|---------------------|---------------------------|----------------|-----------|---------------------------|--------|-----------|---------------------------|-------------|-------------|---------------------------|-------------|-----------|---------------------------|-----------|-----------|---------------------------|-------------|-------------|---------------------------|-----------|-----------|
| | Method | EF | P ^d | A ^e | Ratio P/A | P | A | Ratio P/A | P | A | Ratio P/A | P | A | Ratio P/A | P | A | Ratio P/A | P | A | Ratio P/A | P | A | 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) | | 2.F(p) | 2.F(a) | | 2.F(p) | 2.F(a) | |
| | | | (Gg CO ₂ equ.) | | | (Gg CO ₂ equ.) | | | (Gg CO ₂ equ.) | | | (Gg CO ₂ equ.) | | | (Gg CO ₂ equ.) | | | (Gg CO ₂ equ.) | | | (Gg CO ₂ equ.) | | |
| Australia | M | D | NE | NE | | NE | NE | | NE | NE | | NE | NE | | NE | 294.6 | 0.00 | NE | NE | | NE | 3,514.69 | 0.00 |
| Austria | CS | CS | 77.8 | 26.1 | 3.0 | 9.0 | 2.7 | 3.4 | | | | 335.4 | 116.2 | 2.89 | | | | | | | 1,590.65 | 960.18 | 1.66 |
| Belarus | D,T1 | D | | 0.0 | | | | | | | | | | | | | | 0.24 | 0.00 | | | 0.16 | |
| Belgium | | | 206.6 | 7.6 | 27.2 | 17.3 | 4.3 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 502.9 | 240.3 | 2.09 | 0.00 | 0.00 | 0.00 | 1,177.41 | 659.84 | 1.78 |
| Bulgaria | T1a | D | | | | 1.3 | | | | | | | | | 35.9 | | | | | | 35.89 | | |
| Canada | T2 | D | 10.8 | 6.8 | 1.6 | 0.6 | 0.4 | 1.6 | IE,NO | IE,NA,NE,NO | IE,NA,NE,NO | 2.3 | 1.9 | 1.2 | 922.3 | 501.6 | 1.84 | NO | IE,NA,NE,NO | IE,NA,NE,NO | 2,795.68 | 1,932.20 | 1.45 |
| Croatia | T1 | D | NO | NO | NO | 0.0 | NO | NO | NO | NO | NO | NO | NO | NO | 0.0 | NO | NO | NO | NO | NO | 0.00 | NO | NO |
| Czech Republic | T1 | | 2.0 | | | 7.5 | | | | | | | | | 244.0 | | | NO | NO | NO | 759.98 | | |
| Denmark | M/CS | CS | | | | 18.7 | 6.6 | 2.9 | | | | | | | 280.3 | 153.7 | 1.82 | | | | 367.60 | 348.74 | 1.05 |
| Estonia | | | NE/NO | NE | | NE/NO | NE | | NE/NO | NE | | NE/NO | NE | | NE/NO | NE | | NE/NO | NE | | NE/NO | NE | |
| European Community | C, CS, D, M, T1a, T1b, T2, T2a | C, CS, D, M, PS, T2 | NE | 63109.5 | | NE | 395.4 | | NE | 0.0 | | NE | 219.4 | | NE | 5985.4 | | NE | 0.00 | | NE | 16,877.55 | |
| Finland | T2, & T1b | D/NA | | | | 10.1 | 4.2 | 2.4 | | | | | | | 353.2 | 164.4 | 2.15 | | | | 488.31 | 204.09 | 2.39 |
| France | CS/ T2/ M | CS | | 27.6 | | 33.9 | | | | | | 219.4 | 0.0 | | 1877.5 | | | | | | | 5,379.96 | |
| Germany | M,T2 | CS,D,M | 280.8 | | 0.0 | 79.4 | 10.3 | 7.7 | NO | NO | 0.0 | C | C | 1.0 | 1574.1 | 964.8 | 1.63 | NO | NO | 0.00 | 4,781.36 | 4,385.60 | 0.00 |
| Greece | T2a | D | | | | 101.4 | | | | | | | | | 446.5 | | | | | | | 397.09 | |
| Hungary | | | 1.3 | 0.7 | 1.9 | 6.7 | 4.6 | 1.5 | NO | NA,NO | NA,NO | NO | NA,NO | NA,NO | 173.7 | 126.1 | 1.38 | NO | NA,NE,NO | NA,NE,NO | 307.03 | 181.74 | 1.69 |
| Iceland | T1 | D | | | | 0.0 | | | | | | | | | 0.0 | | | | | | 0.01 | | |
| Ireland | T2 | D, CS | 9.7 | 3.1 | 3.1 | 38.3 | 1.9 | 20.3 | | | | | | | 800.0 | 73.9 | 10.82 | | | | 602.53 | 102.08 | 5.90 |
| Italy | T2a, CS | D, CS, PS | | 16.1 | | 29.3 | 229.9 | 0.1 | | | | | | | -123.2 | 1527.5 | -0.08 | | | | 4,551.30 | 1,984.00 | 2.29 |
| Japan | CS | CS | 14942.1 | IE | | IE | 17.3 | NE | NO | IE | | NO | IE | | IE | 74.4 | NE | NO | IE | | 20,565.35 | 6,095.15 | 3.37 |
| Latvia | T2A/T2B | T2A/T2B | | 0.1 | | | | | | | | | | | | | | | | | | 12.63 | |
| Liechtenstein | | | | | | | | | | | | | | | | | | | | | | | |
| Lithuania | T1 | D | NE | NE | NE | 0.3 | NE | NE | NE | NE | NE | NE | NE | NE | 6.8 | NE | NE | NE | NE | NE | 6.55 | NE | NE |
| Luxembourg | | | | | | | | | | | | | | | | | | | | | | | |
| Monaco | T1a | D | | | | 0.0 | | | | | | | | | 0.0 | | | | | | 0.03 | | |
| Netherlands ^b | CS/T2 | CS, D | | | | | | | | | | | | | 840.0 | 175.0 | 4.80 | | | | 689.00 | 420.82 | 1.64 |
| New Zealand | T2 | CS, D | NA,NO | NA,NO | NA,NO | 1.3 | 1.2 | 1.1 | NA,NO | NA,NO | NA,NO | NA,NO | NA,NO | NA,NO | 193.9 | 66.1 | 2.93 | NA,NO | NA,NO | NA,NO | 282.17 | 234.79 | 1.20 |
| Norway | T2 | CS | | 0.2 | | 3.3 | 3.3 | 1.0 | | | | | | | 75.7 | 75.7 | 1.00 | | | | 63.67 | 83.94 | 0.76 |
| Portugal | D | D+CS | | | | | | | | | | | | | 1.9 | | | | | | 56.58 | | |
| Romania | | | NE,NO | 0.1 | NE,NO | NE,NO | 0.3 | NE,NO | NE,NO | 0.0 | NE,NO | NE,NO | NA,NA,NE,NO | NE,NO | 0.4 | NE,NO | NE,NO | NA | NA,NE,NO | | 64.64 | 1.90 | 34.07 |
| Slovakia | D | D,CS | 2.7 | 0.9 | 2.9 | 5.3 | 1.2 | 4.2 | | | | | | | 80.6 | 22.8 | 3.54 | | | | 117.90 | 78.56 | 1.50 |
| Slovenia | | | | | | | | | | | | | | | | | | | | | | 83.47 | |
| Spain | D,T2,CS | D,T2,PS | | 1023.4 | | | | | | | | | | | | 231.6 | | | | | | 1,564.02 | |
| Sweden | T2 | CS, D, PS | 0.6 | 0.4 | 1.4 | 16.7 | 0.3 | 50.1 | | | | | | | 292.9 | 11.9 | 24.54 | | NO | | 573.31 | 414.54 | 1.38 |
| Switzerland | T2 | M | 9.3 | 2.8 | 3.3 | 19.5 | 3.8 | 5.1 | NO | NO | NA | NO | NO | NA | 436.8 | 100.5 | 4.35 | NO | NO | NA | 992.72 | 308.05 | 3.22 |
| Ukraine | NE | NE | | | | | | | | | | | | | | | | | | | | | |
| United Kingdom ^c | T2 | D/CS | 14,835.81 | 8,508.31 | 1.74 | | | | IE | | | IE | | | | | IE | | IE | | | | IE |
| United States | M, T2a | M, CS | 1,023.49 | 269.05 | 3.80 | 792.49 | 351.86 | 2.25 | | | | | | | 26,053.40 | 14,690.14 | 1.77 | | | | 98,242.36 | 60,526.08 | 1.62 |

| | HFC-152a | | | HFC-143 | | | HFC-143a | | | HFC-227ea | | | HFC-236fa | | | HFC-245ca | | | Total | | |
|-----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|-----------|
| | P | A | Ratio P/A | P | A | Ratio P/A | P | A | Ratio P/A | P | A | Ratio P/A | P | A | Ratio P/A | P | A | Ratio P/A | P | A | 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) | | 2.F(p) | 2.F(a) | | 2.F(p) | 2.F(a) | |
| | (Gg CO ₂ equ.) | (Gg CO ₂ equ.) | (Gg CO ₂ equ.) | (Gg CO ₂ equ.) | (Gg CO ₂ equ.) | (Gg CO ₂ equ.) | (Gg CO ₂ equ.) | (Gg CO ₂ equ.) | (Gg CO ₂ equ.) | (Gg CO ₂ equ.) | (Gg CO ₂ equ.) | (Gg CO ₂ equ.) | (Gg CO ₂ equ.) | (Gg CO ₂ equ.) | (Gg CO ₂ equ.) | (Gg CO ₂ equ.) | (Gg CO ₂ equ.) | (Gg CO ₂ equ.) | (Gg CO ₂ equ.) | (Gg CO ₂ equ.) | |
| Australia | NE | NE | | NE | NE | | NE | 409.94 | 0.00 | NE | NE | | NE | NE | | NE | NE | | NE | 4,309.02 | 0.00 |
| Austria | 72.73 | 72.67 | 1.00 | | NO | | 403.39 | 126.19 | 3.20 | 23.56 | 4.14 | 5.69 | | NE | NO | | NO | | 2,512.56 | 1,308.22 | 1.92 |
| Belarus | | | | | | | | 0.00 | | | | | | | | | | | NE | 0.41 | |
| Belgium | 44.71 | 46.13 | 0.97 | 0.00 | 0.00 | 0.00 | 668.23 | 333.26 | 2.01 | 32.22 | 26.65 | 1.21 | 56.07 | 4.10 | 13.69 | 0.00 | 0.00 | 0.00 | 2,908.01 | 1,322.17 | 2.05 |
| Bulgaria | 0.02 | | | | | | 47.53 | | | | | | | | | | | | 120.60 | | |
| Canada | 4.56 | 6.00 | 0.76 | IE,NO | IE,NA,NE,NO | IE,NA,NE,NO | 1,060.50 | 536.85 | 1.98 | 149.49 | 102.76 | 1.45 | 0.66 | 0.52 | 1.27 | IE,NO | 0.48 | IE, NO | 4,946.83 | 3,089.55 | 1.60 |
| Croatia | NO | NO | NO | NO | NO | NO | 0.00 | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | 26.71 | 26.71 | NO |
| Czech Republic | 0.29 | | | | | | 294.65 | | | 4.41 | | | 31.06 | | | | | | 1,343.92 | | |
| Denmark | 0.47 | 0.29 | 1.63 | | | | 303.99 | 186.19 | 1.63 | | | | | | | | | | 971.08 | 695.48 | 1.40 |
| Estonia | NE/NO | NE | | NE/NO | NE | | NE/NO | NE | | NO | NE | | NO | NE | | NO | NE | | NE | NE | |
| European Community | NE | 476.31 | | NE | 0.00 | | NE | 6,845.98 | | NE | 396.11 | | NE | 15.10 | | NE | 34.36 | | NE | 41,074.79 | |
| Finland | 14.15 | 0.37 | 38.00 | | | | 454.40 | 211.83 | 2.15 | | | | | | | | | | 1,320.18 | 652.07 | 2.26 |
| France | | 63.57 | | | | | | 3,326.09 | | | 85.69 | | | | | 34.36 | | | 11,048.15 | | |
| Germany | 256.62 | 263.03 | 0.98 | NO | NO | 0.00 | 1,967.94 | 1,189.04 | 1.66 | 216.75 | 114.26 | 0.00 | C | 3.49 | 0.00 | NO | NO | 0.00 | 56,491.34 | 7,035.40 | 1.30 |
| Greece | | | | | | | | | | | | | | | | | | | 944.97 | | |
| Hungary | NO | NA,NO | NA,NO | NO | NA,NO | NA,NO | 224.13 | 165.11 | 1.36 | NO | NA,NO | NA,NO | NO | NA,NO | NA,NO | NO | NA,NO | NA,NO | 712.86 | 478.26 | 1.49 |
| Iceland | 0.00 | | | | | | 0.03 | | | | | | | | | | | | 69.35 | | |
| Ireland | | | | | | | 831.07 | 95.82 | 8.67 | 130.50 | 11.56 | 11.29 | | | | | | | 2,666.07 | 288.39 | 8.36 |
| Italy | | | | | | | 547.20 | 757.56 | 0.72 | | 37.52 | | | | | | | | 5,004.55 | 4,552.66 | 1.10 |
| Japan | IE | 55.82 | NE | NO | IE | | IE | IE | | NO | 83.23 | NE | NO | IE | | NO | IE | | 55,061.22 | 6,838.62 | 8.05 |
| Latvia | | | | | | | | | | | 0.09 | | | | | | | | | 12.83 | |
| Liechtenstein | | | | | | | | | | | | | | | | | | | | | |
| Lithuania | NE | NE | NE | NE | NE | NE | 8.29 | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | 21.93 | 21.93 | NE |
| Luxembourg | | | | | | | | | | | | | | | | | | | | 43.06 | |
| Monaco | | | | | | | | | | | | | | | | | | | 0.07 | | |
| Netherlands ^b | | | | | | | 828.40 | 255.33 | 3.24 | | | | | | | | | | 2,456.40 | 889.64 | 2.76 |
| New Zealand | 0.01 | NA,NE,NO | NA,NE,NO | NA,NO | NA,NO | NA,NO | 295.66 | 101.08 | 2.93 | 56.26 | 0.84 | 66.90 | NA,NO | NA,NO | NA,NO | NA,NO | NA,NO | NA,NO | 821.15 | 403.96 | 2.05 |
| Norway | 0.17 | 1.59 | 0.11 | | | | 74.61 | 74.61 | 1.00 | 0.96 | 0.96 | 1.00 | | | | | | | 218.40 | 240.26 | 0.91 |
| Portugal | | 0.67 | | | | | | 3.03 | | | | | | | | | | | 62.17 | | |
| Romania | NE,NO | NA | NA,NE,NO | NE,NO | NA | NA,NE,NO | NE,NO | 0.73 | NE,NO | NE,NO | NA | NA,NE,NO | NE,NO | NA | NA,NE,NO | NE,NO | NA | NA,NE,NO | 64.64 | 3.51 | 18.44 |
| Slovakia | 0.39 | 0.19 | 2.00 | | | | 90.52 | 28.06 | 3.23 | 8.44 | 0.67 | 12.54 | 13.86 | 1.39 | 10.00 | | | | 319.73 | 133.83 | 2.39 |
| Slovenia | | | | | | | | | | | | | | | | | | | 0.00 | 83.47 | |
| Spain | | | | | | | | 347.60 | | | 78.99 | | | 7.51 | | | | | | 3,253.18 | |
| Sweden | 48.25 | 29.57 | 1.63 | | | | 261.68 | 14.03 | 18.65 | 4.51 | 0.11 | 40.89 | | | | | | | 1,197.97 | 470.92 | 2.54 |
| Switzerland | 0.81 | 1.77 | 0.46 | NO | NO | NA | 506.09 | 107.91 | 4.69 | 6.85 | 4.47 | 1.53 | NO | NO | NA | NO | NO | NA | 1,972.07 | 529.26 | 3.73 |
| Ukraine | | | | | | | | | | | | | | | | | | | | | |
| United Kingdom ^c | | IE | | | IE | | | IE | | | IE | | | IE | | | IE | | 14,835.81 | 8,508.31 | 1.74 |
| United States | | | | | | | 31,423.85 | 14,568.01 | 2.16 | | | | 3,556.58 | 2,322.32 | 1.53 | | | | 181,543.74 | 99,652.84 | 1.74 |

Table 2.17 (continued)

Consumption of halocarbons and SF₆, PFCs and SF₆ (2003) (continued)

| | Methods and EF ^a | | CF ₄ | | | C ₂ F ₆ | | | C ₃ F ₈ | | | C ₄ F ₁₀ | | | c-C ₄ F ₈ | | | C ₅ F ₁₂ | | | C ₆ F ₁₄ | | | Total | | | | |
|-----------------------------|-----------------------------|---------|---------------------------|----------------|-----------|-------------------------------|----------|-------------|-------------------------------|-------------|-----------|--------------------------------|--------|-------------|---------------------------------|-------------|-----------|--------------------------------|--------|-----------|--------------------------------|-------------|-------------|---------------------------|----------|-----------|---------------------------|--------|
| | Method | EF | P ^d | A ^e | Ratio P/A | P | A | Ratio P/A | P | A | Ratio P/A | P | A | Ratio P/A | P | A | Ratio P/A | P | A | Ratio P/A | P | A | Ratio P/A | P | A | 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) | | 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 equ.) | | | (Gg CO ₂ equ.) | | | (Gg CO ₂ equ.) | | | (Gg CO ₂ equ.) | | | (Gg CO ₂ equ.) | | | (Gg CO ₂ equ.) | | | (Gg CO ₂ equ.) | | | (Gg CO ₂ equ.) | | | (Gg CO ₂ equ.) | |
| Australia | NE | NA | NE | NE | | NE | NE | | NE | NE | | NE | NE | | NE | NE | | NE | NE | | NE | NE | | NE | NE | | | |
| Austria | CS | CS | 165.4 | 44.9 | 3.7 | 203.9 | 47.3 | 4.3 | 11.2 | 10.1 | 1.1 | 0.1 | 0.4 | 0.2 | NO | NO | NO | NO | NO | NO | | NO | NO | | 380.59 | 102.54 | 3.71 | |
| Belarus | NO | NO | | | | | | | | | | | | | | | | | | | | | | NO | NO | | | |
| Belgium | D | D | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| Bulgaria | T2 | D | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Canada | | | 5.5 | 3.1 | 1.7 | 29.7 | 11.8 | 2.5 | 19.0 | 1.7 | 11.4 | 0.1 | 0.0 | 336.6 | 0.0 | 0.1 | 0.01 | 0.15 | 0.08 | 1.85 | 2.23 | 2.42 | 0.92 | 56.34 | 19.12 | 355.07 | | |
| Croatia | | | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | | |
| Czech Republic | T1 | | | | | 2.0 | | | 24.1 | | | | | | | | | | | 2.52 | | | | 28.64 | | | | |
| Denmark | M/CS | CS | | | | | | | 3.2 | 19.3 | 0.2 | | | | | | | | | | | | | 3.24 | 19.34 | 0.17 | | |
| Estonia | | | NO | NE | | NO | NE | | NO | NE | | NO | NE | | NO | NE | | NO | NE | | NO | NE | | NE | NE | | | |
| European Community | NE | NE | NE | 439.0 | | NE | 717.7 | | NE | 243.8 | | NE | 3.5 | | NE | 203.9 | | NE | 0.32 | | NE | 162.12 | | NE | 1,902.73 | | | |
| Finland | T2&T1b/T1a | D/NA | | | | | | | 17.8 | 13.8 | 1.3 | | | | | | | | | | | | | 17.82 | 14.85 | 1.29 | | |
| France | CS/T2 | CS | 138.9 | | | | 272.1 | | 6.4 | | | | | | | | | 0.32 | 0.00 | | 162.12 | | | 579.89 | | | | |
| Germany | M,T2 | D,PS,CS | 13.0 | C | 0.0 | 36.8 | 128.5 | 0.0 | 21.7 | 111.8 | 0.0 | NO | NO | 0.0 | 0.0 | C | 0.00 | NO | NO | 0.00 | NO | NO | 0.00 | 729.57 | 355.00 | 0.20 | | |
| Greece | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hungary | | | NO | NA,NO | NA,NO | NO | NA,NO | NA,NO | 2.9 | 1.3 | 2.3 | NO | NA,NO | NA,NO | NO | NA,NO | NA,NO | NO | NA,NO | NA,NO | NO | NA,NO | NA,NO | 2.94 | 1.30 | 2.26 | | |
| Iceland | NE | NE | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ireland | T2 | D,CS | 68.4 | 54.6 | 1.3 | 275.3 | 166.4 | 1.7 | | | | | | | 8.5 | 2.6 | 3.27 | | | | | | | 352.26 | 223.63 | 1.58 | | |
| Italy | CS | PS | | 117.1 | | | 97.7 | | | | | | | | | 2.0 | | | | | | | | | 216.83 | | | |
| Japan | CS | CS | 3061.5 | IE | | IE | IE | | IE | IE | | NO | IE | | IE | IE | | IE | IE | | NO | IE | | 18,029.00 | 7,995.40 | 2.25 | | |
| Latvia | NO | NO | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lithuania | | | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | | |
| Luxembourg | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Monaco | T1a | D | | | | | | | 0.0 | | | | | | | | | | | | | | | 0.04 | | | | |
| Netherlands ^b | T2 | D | | | | | | | | | | | | | | | | | | | | | | | 192.43 | | | |
| New Zealand | T2 | D | IE,NA,NO | NA,NO | IE,NA,NO | IE,NA,NO | NA,NO | IE,NA,NO | 30.6 | 4.2 | 7.3 | NA,NO | NA,NO | NA,NO | NA,NO | NA,NO | NA,NO | NA,NO | NA,NO | NA,NO | NA,NO | NA,NO | NA,NO | 30.56 | 4.20 | 7.28 | | |
| Norway | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Portugal | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Romania | | | NE,NO | NA,NA,NE,NO | NE,NO | NA,NA,NE,NO | NE,NO | NA,NA,NE,NO | NE,NO | NA,NA,NE,NO | NE,NO | NA,NA,NE,NO | NE,NO | NA,NA,NE,NO | NE,NO | NA,NA,NE,NO | NE,NO | 0.00 | NE,NO | NE,NO | NA,NA,NE,NO | NA,NA,NE,NO | NA,NA,NE,NO | NA | 0.00 | NA,NE,NO | | |
| Slovakia | D | D,CS | 0.8 | | | | | | | | | | | | | | | | | | | | | 0.78 | | | | |
| Slovenia | | | | | | | | | | | | | | | | | | | | | | | | 0.00 | 0.00 | | | |
| Spain | D,T2,CS | D,T2,PS | | | | | | | 74.0 | | | | | | 3.2 | | | | | | | | | | 77.20 | | | |
| Sweden | T2 | PS | C | 2.0 | NE | C | 5.8 | NE | C | 8.4 | NE | | | | | | | | | | | | | C | 16.21 | NE | | |
| Switzerland | T2 | M | 23.2 | 9.8 | 2.4 | 2.8 | 13.8 | 0.2 | 23.7 | 2.9 | 8.1 | 43.7 | 21.8 | 2.0 | 13.7 | 0.2 | 62.80 | NO | NO | NA | 11.10 | 5.55 | 2.00 | 118.14 | 54.15 | 2.18 | | |
| Ukraine | NE | NE | | | | | | | | | | | | | | | | | | | | | | | | | | |
| United Kingdom ^c | T2 | D/CS | 151.42 | 104.81 | 1.44 | | IE | | | IE | | | IE | | | IE | | | IE | | | IE | | 151.42 | 104.81 | 1.44 | | |
| United States | M, T2a | M, CS | 1,115.99 | 1,063.54 | 1.05 | 2,997.96 | 2,098.57 | 1.43 | 236.13 | 94.45 | 2.50 | | | | 217.51 | 65.25 | 3.33 | | | | | | | 4,567.59 | 3,321.82 | 1.38 | | |

| Total PFCs | Method and EF used ^a | | SF ₆ | | Ratio P/A |
|--------------------|------------------------------------|------------------|-----------------|-----------|-----------|
| | Method | EF | P | A | |
| | | | 2.F(p) | 2.F(a) | |
| Australia | T2 | CS | NE | 521.02 | 0.00 |
| Austria | CS | CS | 812.96 | 593.52 | 1.37 |
| Belarus | NO | NO | NO | NO | |
| Belgium | | | 113.84 | 75.05 | 1.52 |
| Bulgaria | D | D | 6.36 | 2.52 | 2.53 |
| Canada | T1 | OTH | NA,NE,NO | 1,593.72 | NE,NO |
| Croatia | | | 0.00 | NE | NO |
| Czech Republic | T1 | | 8,108,314.00 | | |
| Denmark | M/CS | CS | 44.22 | 31.37 | 1.41 |
| Estonia | | | NE | NE | |
| European Community | C, CS, D, M, T1, T1a, T1b, T2, T3c | C, CS, D, PS, T2 | NE | 5,929.72 | |
| Finland | T2&T1b/T1a | D/NA | 151.77 | 41.71 | 8.05 |
| France | CS/T2 | CS | | 846.02 | |
| Germany | M,CS,T1,T2 | D,CS | 86,255.10 | 2,563.91 | 4.25 |
| Greece | | | | | |
| Hungary | | | 172.25 | 161.92 | 1.06 |
| Iceland | | | 128,522.25 | | |
| Ireland | T2 | D,CS | 171.17 | 100.20 | 1.71 |
| Italy | T3c,CS | CS,PS | 3,202.60 | 350.43 | 9.14 |
| Japan | CS | CS | 25,855.02 | 2,920.32 | 8.85 |
| Latvia | T2B | D | | 4.41 | |
| Liechtenstein | | | | 0.06 | |
| Lithuania | | | NE | NE | NE |
| Luxembourg | | | | 84,128.00 | |
| Monaco | T1a | D | 5,736.00 | | |
| Netherlands | T2 | PS,CS,D | | 334.48 | |
| New Zealand | T2, T3 | CS | 52.15 | 12.38 | 0.00 |
| Norway | T2 | | 314.96 | 60.55 | 5.20 |
| Portugal | D | CS | | 7.47 | |
| Romania | | | NA | 0.00 | NE,NO |
| Slovakia | D | D,CS | 76.55 | 15.03 | 5.02 |
| Slovenia | T2 | D | 0.00 | 21.03 | |
| Spain | CS,T2 | CS,T2 | | 295.94 | |
| Sweden | T2,CS | CS,D,PS | 202.19 | 31.38 | 6.44 |
| Switzerland | T2 | M | 370.76 | 140.75 | 2.63 |
| Ukraine | NE | NE | | | |
| United Kingdom | T2 | CS | 744.46 | 651.26 | 2.54 |
| United States | T3b,CS | CS | 23,475.58 | 14,947.21 | 1.57 |

^a Information on methods and emission factors is included in this table as reported by Parties. 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 The Netherlands reported aggregated emissions of all PFCs for the industrial processes sector. They are reported as unspecified and not as c-C₄F₁₀.^c The United Kingdom reported aggregated PFCs emissions for the industrial processes sector in the CF₄ column.^d P = Potential emissions^e A = Actual emissions

Table 2.18**Consumption of halocarbons and SF₆ – trend information**

| HFC-134a emissions (t) | | | Relative Change (%) | | | | | | | | | | | | | |
|------------------------|------------------------|--------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | NO | 2,704 | | | | | 2620.7 | 164.2 | 86.4 | 57.5 | 33.2 | 22.5 | 18.4 | 13.7 | 11.4 | |
| Austria | 167 | 739 | 52.6 | 15.3 | 14.4 | 13.2 | 8.4 | 10.9 | 10.8 | 10.4 | 6.2 | 6.8 | 5.9 | 5.1 | 4.5 | 342.0 |
| Belarus | | 0 | | | | | | | | | | | | | | |
| Belgium | 189 | 508 | | | | | | 42.6 | 26.0 | 16.6 | -10.5 | -4.2 | 17.9 | 14.7 | 10.5 | 168.3 |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | NO | 1,486 | | | | | | 90.7 | 36.1 | 29.7 | 27.1 | 22.0 | | | | |
| Croatia | | NO | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | | 268 | | | 2875.3 | 41.1 | 54.1 | 35.8 | -15.4 | 22.2 | 8.0 | 10.7 | 6.7 | 4.4 | -4.4 | |
| Estonia | | NE | | | | | | | | | | | | | | |
| European Community | 363 | 12,983 | 25.3 | 9.9 | 31.4 | 62.4 | 236.4 | 45.3 | 26.4 | 20.0 | 11.6 | 12.9 | 15.0 | 5.1 | 7.7 | 3475.1 |
| Finland | | 157 | | | | | 208.0 | 158.8 | 136.6 | 1.7 | 39.2 | 90.0 | -15.6 | -36.9 | 22.7 | |
| France | 4 | 4,138 | 14.8 | 23.0 | 432.1 | 397.7 | 513.4 | 82.3 | 25.8 | 13.3 | 11.6 | 11.1 | 10.5 | 15.2 | 12.5 | 105674.7 |
| Germany | NE | 3,374 | | | | | | 19.6 | 17.2 | 14.0 | 2.4 | 13.3 | 31.9 | -4.9 | | |
| Greece | | 305 | | | | 88.7 | 125.9 | 62.9 | 46.6 | 36.7 | 38.6 | 32.1 | 25.0 | 21.3 | 16.0 | |
| Hungary | NA,NO | 140 | | | | 1590.2 | 55.7 | -10.3 | 2137.9 | 105.7 | 138.6 | -55.5 | 50.3 | 12.6 | 40.2 | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | NE | 79 | | | | | | 30.8 | 77.3 | 80.2 | 12.2 | 27.5 | 37.0 | 14.0 | 14.7 | |
| Italy | | 1,526 | | 163.5 | 83.8 | 7648.1 | 79.0 | 48.4 | 52.6 | 60.8 | 30.0 | 21.1 | 20.4 | 13.8 | 12.6 | |
| Japan | NE | 4,689 | | | | | | 38.7 | 24.6 | 11.1 | 4.9 | 6.4 | 1.5 | 5.2 | 1.7 | |
| Latvia | NO | 10 | | | | | | 575.5 | 85.5 | 83.3 | 52.6 | 26.6 | 13.9 | 20.5 | 7.1 | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | NE | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | | 324 | | | | | 101.9 | 120.0 | 56.2 | 15.7 | 0.0 | -12.3 | -28.9 | -24.5 | 0.1 | |
| New Zealand | IE,NA,NO | 181 | | | 200.0 | 282.3 | 148.1 | 79.6 | -47.1 | 200.7 | -33.5 | 39.2 | 17.6 | 55.2 | -6.1 | |
| Norway | | 65 | | 329.6 | 850.0 | 206.0 | 87.7 | 68.6 | 52.0 | 45.7 | 31.5 | 21.6 | 17.6 | 19.5 | -24.8 | |
| Portugal | | 44 | | | | | | | 304.6 | 544.5 | 97.1 | 85.5 | 53.9 | 32.9 | 26.5 | |
| Romania | NE | 1 | | | | | | 85.0 | 83.8 | 48.8 | -25.6 | -15.0 | 52.1 | 29.1 | 92.0 | |
| Slovakia | | 60 | | | | | | | | | | | | | | |
| Slovenia | | 64 | | | | | | -1.2 | 24.2 | -9.8 | 0.4 | 31.2 | 24.8 | 24.1 | 20.6 | |
| Spain | | 1,203 | | | | | | 3734.0 | 130.4 | 147.0 | 74.5 | 30.7 | 18.8 | 11.0 | 13.2 | |
| Sweden | 3 | 319 | 101.0 | 40.4 | 200.0 | 115.9 | 70.1 | 32.9 | 49.5 | 14.9 | 22.7 | 12.4 | 4.5 | 6.0 | -0.6 | 10672.9 |
| Switzerland | 0 | 237 | 1482.7 | 1729.0 | 59.6 | 118.8 | 468.2 | 11.0 | 19.6 | 30.2 | 7.5 | 9.5 | 14.8 | -1.3 | 3.2 | 1367278.9 |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | IE | IE | | | | | | | | | | | | | | |
| United States | | 46,559 | | | 253.8 | 161.6 | 189.7 | 36.0 | 27.9 | 16.8 | 15.2 | 13.5 | 9.8 | 8.1 | 6.3 | |

^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 2.18**Consumption of halocarbons and SF₆ – trend information (continued)**

| SF ₆ emissions (t) | | | Relative Change (%) | | | | | | | | | | | | | |
|-------------------------------|------------------------|-------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 22 | 22 | | | | | | | | | | | | | | |
| Austria | 10 | 25 | 50.9 | 18.2 | 16.2 | 18.7 | 13.6 | -12.7 | 26.9 | -3.5 | -11.0 | -5.5 | 0.5 | 0.7 | -6.3 | 138.1 |
| Belarus | | NO | | | | | | | | | | | | | | |
| Belgium | 4 | 3 | | | | | | 2.8 | 3.8 | 3.9 | 4.6 | -9.2 | -3.7 | -10.3 | -20.1 | -27.3 |
| Bulgaria | | 0 | | | | | | 3.7 | 33.9 | 4.4 | 2.6 | 18.8 | 2.7 | 9.3 | 0.4 | |
| Canada | 75 | 67 | 4.0 | -7.2 | 13.1 | -7.8 | -15.7 | -28.2 | 19.1 | 11.8 | -0.9 | 3.7 | 34.6 | -48.2 | 52.7 | -11.3 |
| Croatia | | NE | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | 1 | 1 | 142.3 | 79.1 | 12.5 | 17.3 | -6.7 | -28.1 | 14.2 | -27.3 | 13.9 | -22.0 | -19.8 | -17.8 | 25.4 | 134.4 |
| Estonia | | NE | | | | | | | | | | | | | | |
| European Community | 274 | 248 | 9.0 | 9.4 | 8.4 | 7.7 | 14.1 | -2.5 | 0.7 | -6.6 | -21.2 | -8.3 | -11.1 | -3.5 | 0.0 | -9.5 |
| Finland | 4 | 2 | -28.7 | -45.6 | -8.3 | 3.8 | 96.4 | 5.4 | 5.2 | -30.0 | -2.2 | -0.9 | 6.9 | -6.8 | -18.7 | -55.8 |
| France | 44 | 35 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.0 | -7.0 | -7.8 | -11.0 | -4.9 | -4.0 | -2.4 | 2.2 | -20.2 |
| Germany | 156 | 107 | 12.2 | 12.6 | 10.7 | 7.8 | 13.5 | -5.7 | -2.3 | -4.9 | -29.1 | -11.3 | -22.0 | -6.4 | | -31.2 |
| Greece | | | | | | | | | | | | | | | | |
| Hungary | 3 | 7 | 32.3 | -7.1 | 5.8 | 31.2 | 3.2 | -1.6 | -1.4 | 0.7 | 85.2 | 10.5 | -23.3 | 11.3 | 35.4 | 99.9 |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | NE | 4 | | | | | | 21.6 | 30.8 | -31.4 | -30.0 | -18.2 | 28.6 | 6.7 | 40.6 | |
| Italy | 9 | 15 | 11.0 | 0.8 | 5.1 | 18.0 | 62.7 | 29.2 | 6.8 | -19.9 | -30.8 | -12.8 | 7.5 | -2.1 | 3.6 | 64.2 |
| Japan | NE | 122 | | | | | | 9.0 | -8.8 | -9.4 | -36.2 | -28.9 | -24.3 | -11.0 | -12.1 | |
| Latvia | NO | 0 | | | | | | 14.4 | 76.9 | 39.7 | 37.7 | 30.5 | 55.0 | 71.1 | 30.5 | |
| Liechtenstein | | 0 | | | | | | | | | | | | | | |
| Lithuania | | NE | | | | | | | | | | | | | | |
| Luxembourg | | 3,520 | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 9 | 14 | -38.4 | 6.9 | 4.8 | 27.6 | 57.6 | 3.7 | 10.4 | -4.6 | -3.6 | 5.7 | 6.5 | 0.5 | -6.8 | 53.9 |
| New Zealand | 0 | 1 | 3.3 | 3.4 | 10.6 | 3.2 | 5.2 | -1.8 | 4.2 | -10.2 | -7.5 | 15.7 | 0.8 | 4.4 | -1.5 | 30.8 |
| Norway | 2 | 3 | 12.0 | 6.7 | 17.0 | 17.4 | 13.4 | 3.4 | 37.3 | 2.0 | 2.8 | 8.3 | -8.3 | -30.3 | -45.7 | 4.1 |
| Portugal | | 0 | | | | | | 3.3 | 3.2 | 3.1 | 9.2 | 8.5 | 7.8 | 7.2 | 6.7 | |
| Romania | NA,NE | 0 | | | | | | | -59.5 | -76.5 | 750.0 | -91.2 | | 316.7 | -96.0 | |
| Slovakia | | 1 | | | | | | | | | | | | | | |
| Slovenia | 0 | 1 | | | | | 253.3 | -15.1 | -2.2 | | | | | | | 193.3 |
| Spain | 3 | 12 | 8.7 | 3.9 | 5.1 | 10.5 | 20.4 | 7.5 | 18.1 | 14.1 | 29.3 | 13.2 | 1.0 | 12.4 | 16.1 | 341.0 |
| Sweden | 3 | 1 | 2.9 | -0.3 | -13.7 | 2.9 | 35.5 | -22.7 | 44.7 | -46.9 | 2.0 | -36.4 | 39.3 | -36.5 | -10.6 | -62.4 |
| Switzerland | 7 | 6 | 1.1 | 1.1 | -18.8 | -15.2 | -17.7 | -5.1 | -0.8 | -1.3 | -1.5 | 69.1 | 16.5 | -15.0 | -11.2 | -21.3 |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | 25 | 27 | 8.0 | 7.0 | 6.2 | 2.1 | 7.4 | 3.4 | -5.2 | -0.8 | -6.6 | -4.6 | -5.1 | -1.0 | -1.6 | 7.8 |
| United States | 1,244 | 625 | -4.6 | -9.3 | 17.3 | -8.7 | -18.0 | 11.9 | -9.7 | -19.5 | -3.5 | -5.5 | -3.4 | -4.8 | -2.9 | -49.7 |

^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).

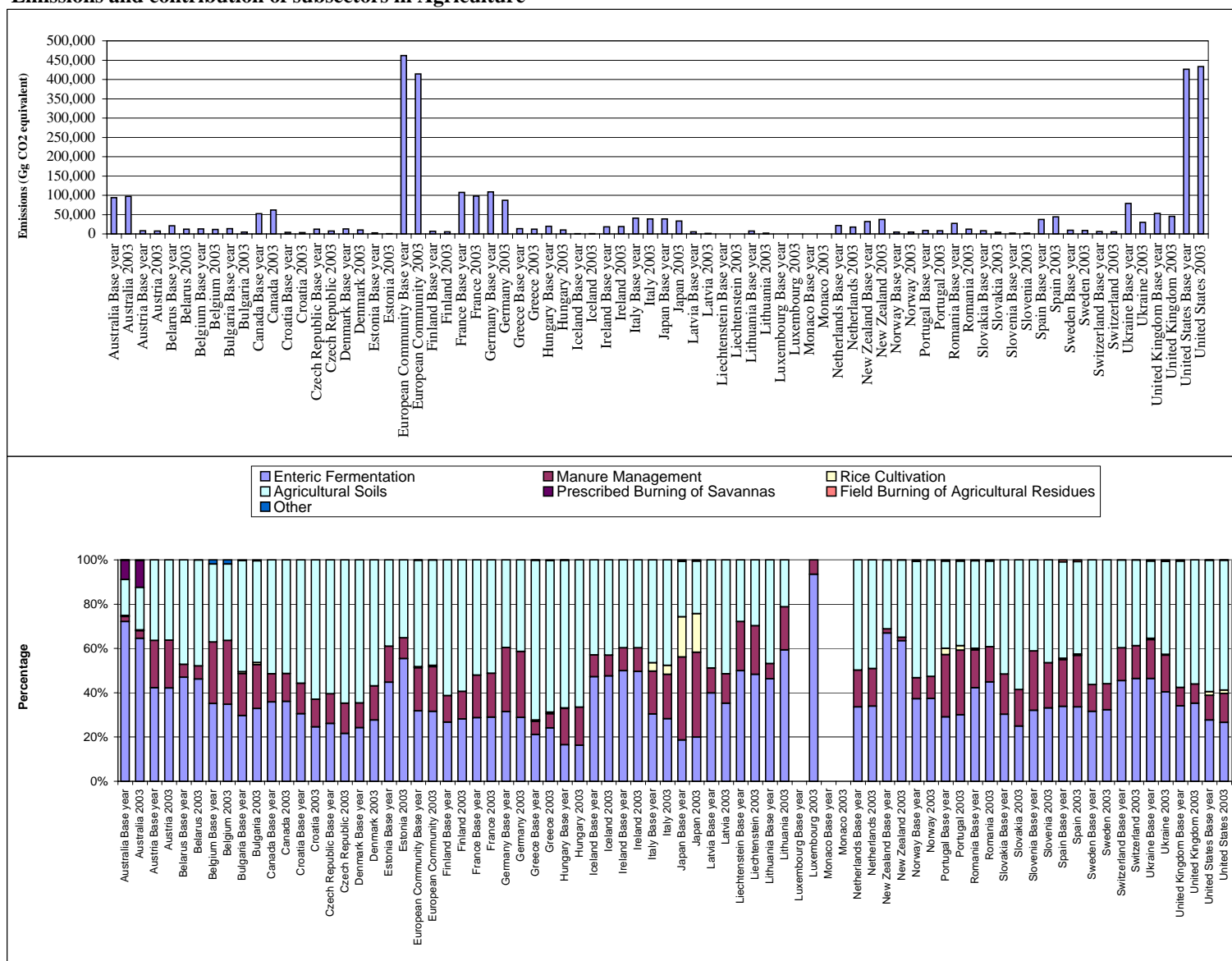
Table 3.1**Solvent and other product use, CO₂ and N₂O (2003)**

| | Methods and EF used | | Methods and EF used | | Key source | Paint application | | Degreasing and dry cleaning | | | |
|--------------------|---------------------|-------|---------------------|-----|------------|-------------------------|---------------------|-----------------------------|---------------------|-------------------------|----------------------|
| | CO ₂ | | N ₂ O | | | CO ₂ | | CO ₂ | | N ₂ O | |
| | Method | EF | Method | EF | | Share of national total | CO ₂ IEF | Share of national total | CO ₂ IEF | Share of national total | N ₂ O IEF |
| | | | | | | | | | | | |
| Australia | NE | NE | NE | NE | | | NA | | NA | | NA |
| Austria | C, CS | CS | CS | CS | | 0.1 | 1.1 | 0.0 | 1.4 | | |
| Belarus | | | | | | | NE | | NE | | NE |
| Belgium | | | | | | | 0.0 | | 0.0 | | 0.0 |
| Bulgaria | NO | NO | NO | NO | | | NE | | NE | | NA |
| Canada | | | T1 | CS | | | NA | | NA | | NA |
| Croatia | | | | | | | | | | | |
| Czech Republic | C | C, CS | D | D | | 0.1 | 3.1 | 0.0 | 3.1 | | |
| Denmark | | | | | | 0.2 | 0.2 | 0.0 | 0.3 | | |
| Estonia | | | T1 | D | | | | | | | |
| European Community | NE | NE | NE | NE | | 0.1 | NE | 0.0 | NE | | NE |
| Finland | NO | NO | D | D | | | | | | | |
| France | C | CS | | | | 0.1 | 2.8 | 0.0 | 1.2 | | |
| Germany | NE | NE | CS | CS | | | NE | | NE | | NE |
| Greece | C | C | | | | 0.0 | 0.0 | 0.0 | 0.0 | | NE |
| Hungary | CS | CS | CS, T2 | PS | | 0.1 | 0.6 | 0.0 | 0.4 | | NO |
| Iceland | NE | NE | CS | CS | | | NE | | NE | | NA |
| Ireland | CS, C | CS, C | NA | NA | | 0.0 | 3.2 | 0.0 | 3.2 | | |
| Italy | C | C, CS | CS | CS | T | 0.1 | 0.7 | 0.0 | 2.4 | | NO |
| Japan | - | - | CS | CS | | | NO | | NE | | NA |
| Latvia | D | D | T1 | D | L, T | 0.8 | 1.6 | 0.1 | 0.0 | | |
| Liechtenstein | | | | | | | NE | | NE | | NO |
| Lithuania | | | | | | | NE | | NE | | NE |
| Luxembourg | C/D | C/D | C/D | C/D | | | | | | | |
| Monaco | | | | | | | | | | | |
| Netherlands | CS | CS | CS | CS | | 0.0 | | 0.0 | | | NO |
| New Zealand | NA | NA | T2 | D | | | NE | | NE | | NE |
| Norway | M | CS | CS | | | 0.0 | 3.0 | 0.0 | 3.0 | | NE |
| Portugal | MB | | | | | 0.1 | 0.5 | 0.0 | 3.1 | | |
| Romania | CR | CR | | | | 0.1 | | 0.0 | | | NE |
| Slovakia | | | | | | | | | | | |
| Slovenia | | | | | | 0.2 | 1.1 | | NE | | NE |
| Spain | D | D | CS | CS | | 0.2 | 0.7 | 0.0 | 2.8 | | NO |
| Sweden | CS | CS | CS | CS | T | 0.1 | 0.4 | 0.0 | 3.1 | | NA |
| Switzerland | CS | CS | CS | CS | | | NO | | NO | | NO |
| Ukraine | NE | NE | NE | NE | | | | | | | |
| United Kingdom | T2 | CS | NE | | | | | | | | |
| United States | NE | NE | NE | NE | | | NE | | NE | | NE |

Agriculture

Figure 4.1

Emissions and contribution of subsectors in Agriculture^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), Romania (1989) and Slovenia (1986).

Table 4.1
Enteric fermentation, CH₄ (2003)

| | Key source | 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) | | | CH ₄ IEF | Activity data (population size) | | | CH ₄ IEF |
| | | | Methods | EF | CRF | FAO ^b | Difference | CH ₄ IEF | | CRF | FAO ^b | Difference | CH ₄ IEF (kg CH ₄ /head/yr) | CRF | FAO ^b | Difference | CH ₄ IEF (kg CH ₄ /head/yr) |
| | | | | | (thousands of head) | (%) | | (kg CH ₄ /head/yr) | (thousands of head) | (%) | (thousands of head) | | | (%) | | | |
| IPCC default EF ^c | | | | | | | | 56 - 118 ^d | 44 - 56 ^d | | | | 8.0 | | | | 1.5 |
| Australia | L, T | 12.2 | CS,T1 | CS, D | 27,267 | 26,664 | -2.2 | 114 | 79 | 102,709 | 99,300 | -3.3 | 6.8 | 2,799 | 2,770 | -1.0 | 1.4 |
| Austria | L, T | 3.4 | T1, T2 | D, CS | 2,052 | 2,067 | 0.7 | 105 | 53 | 325 | 304 | -6.5 | 8.0 | 3,245 | 3,305 | 1.8 | 1.5 |
| Belarus | L | 7.9 | D,T1 | D | 3,924 | 4,005 | 2.1 | 81 | 56 | 63 | 73 | 15.4 | 8.0 | 3,287 | 3,329 | 1.3 | 1.5 |
| Belgium | L, T | 2.7 | | | 2,839 | 2,778 | -2.2 | 105 | 48 | 121 | 146 | 20.6 | 8.2 | 4,822 | 6,539 | 35.6 | 1.5 |
| Bulgaria | L, T | 2.2 | T1 | D | 710 | 691 | -2.6 | 81 | 56 | 1,663 | 1,728 | 3.9 | 8.0 | 1,014 | 967 | -4.7 | 1.5 |
| Canada | L, T | 3.0 | T1, T2 | CS, D | 14,613 | 13,454 | -7.9 | 126 | 65 | 656 | 976 | 48.6 | 8.0 | 14,621 | 14,667 | 0.3 | 1.5 |
| Croatia | L | 2.8 | T1 | D | 489 | 444 | -9.1 | 81 | 56 | 768 | 587 | -23.6 | 5.0 | 1,925 | 1,347 | -30.0 | 1.0 |
| Czech Republic | L | 1.1 | T2 | CS | 1,474 | 1,474 | 0.0 | 68 | 24 | 103 | 103 | 0.1 | 5.0 | 3,363 | 3,363 | 0.0 | 3.4 |
| Denmark | L, T | 3.6 | T1/T2 | CS | 1,724 | 1,726 | 0.1 | 118 | 36 | 83 | 231 | 177.4 | 17.2 | 12,949 | 12,949 | 0.0 | 1.1 |
| Estonia | L | 1.9 | T1 | D | 257 | 254 | -1.3 | 100 | 48 | 31 | 30 | -2.9 | 8.0 | 345 | 341 | -1.1 | 1.5 |
| European Community | L, T | 3.1 | C, CS, D, M, T1, T2 | C, CS, D, T1, T2 | 79,144 | 78,830 | -0.4 | 102 | 53 | 99,956 | 100,973 | 1.0 | 7.0 | 109,694 | 121,522 | 10.8 | 1.5 |
| Finland | L, T | 1.8 | T1/T2 | CS/D | 1,001 | 1,000 | 0.0 | 117 | 43 | 98 | 67 | -31.5 | 8.0 | 1,375 | 1,375 | 0.0 | 1.5 |
| France | L, T | 5.1 | C | CS | 19,913 | 19,597 | -1.6 | 103 | 52 | 9,283 | 9,256 | -0.3 | 8.0 | 10,237 | 15,139 | 47.9 | 1.5 |
| Germany | L, T | 2.5 | T1, CS, C, D | T1, CS, C, D | 13,612 | 13,732 | 0.9 | 103 | 73 | 2,638 | 2,658 | 0.8 | 8.0 | 19,534 | 26,251 | 34.4 | 2.0 |
| Greece | L, T | 2.1 | T1, T2 | D, CS | 593 | 573 | -3.4 | 81 | 56 | 9,083 | 8,932 | -1.7 | 7.4 | 964 | 1,027 | 6.5 | 1.5 |
| Hungary | L, T | 2.1 | D, T1a | CS, D | 758 | 770 | 1.6 | 115 | 48 | 1,259 | 1,103 | -12.4 | 8.0 | 5,049 | 5,082 | 0.6 | 1.5 |
| Iceland | L, T | 7.7 | T1 | D | 67 | 67 | 0.0 | 100 | 48 | 647 | 470 | -27.4 | 8.0 | 32 | 44 | 36.7 | 1.5 |
| Ireland | L, T | 13.8 | D | CS, D | 6,662 | 6,967 | 4.6 | 100 | 50 | 5,979 | 4,829 | -19.2 | 8.0 | 1,750 | 1,713 | -2.1 | 1.5 |
| Italy | L, T | 1.9 | T1, T2 | D, CS | 6,631 | 6,504 | -1.9 | 100 | 48 | 7,952 | 7,952 | 0.0 | 8.0 | 9,111 | 9,157 | 0.5 | 1.5 |
| Japan | | 0.5 | T2 | D, CS | 4,523 | 4,523 | 0.0 | 89 | 54 | 11 | 11 | 3.1 | 4.3 | 9,687 | 9,725 | 0.4 | 1.1 |
| Latvia | L, T | 5.4 | T1 | D | 379 | 379 | 0.0 | 81 | 56 | 39 | 39 | 0.0 | 8.0 | 444 | 444 | 0.0 | 1.5 |
| Liechtenstein | L | 3.5 | | | 5 | 6 | 12.9 | 100 | 48 | 3 | 3 | -5.5 | 8.0 | 2 | 3 | 51.6 | 1.5 |
| Lithuania | L | | D | D | 812 | 779 | -4.1 | 81 | 56 | 17 | 14 | -19.5 | 8.0 | 1,057 | 1,061 | 0.3 | 1.5 |
| Luxembourg | | | | | | 190 | | | | | 9 | | | | 84 | | |
| Monaco | | | | | NO | 0 | | NO | NO | NO | 0 | | NO | NO | 0 | | NO |
| Netherlands | L, T | 2.8 | cattle CS/T2; rest: T1 | cattle: CS/T2; rest: CS/D | 3,759 | 3,759 | 0.0 | 83 | 33 | 1,185 | 1,185 | 0.0 | 8.0 | 11,169 | 11,169 | 0.0 | 1.5 |
| New Zealand | L, T | 45.0 | T1, T2 | CS, D | 9,682 | 9,656 | -0.3 | 79 | 56 | 39,427 | 39,250 | -0.4 | 10.6 | 351 | 380 | 8.3 | 1.5 |
| Norway | L, T | 3.1 | T1 | D | 927 | 955 | 3.0 | 100 | 48 | 1,759 | 2,422 | 37.6 | 8.0 | 636 | 460 | -27.7 | 1.5 |
| Portugal | L, T | 3.1 | T1 | D+CS | 1,392 | 1,395 | 0.2 | 100 | 48 | 3,406 | 5,500 | 61.5 | 8.0 | 2,296 | 2,344 | 2.1 | 1.5 |
| Romania | L, T | 4.3 | T1 | D | 2,749 | 2,878 | 4.7 | 81 | 56 | 7,312 | 7,312 | 0.0 | 5.0 | 5,058 | 5,058 | 0.0 | 1.0 |
| Slovakia | L | 1.9 | T1, T2 | D, CS | 593 | 593 | 0.0 | 100 | 56 | 324 | 326 | 0.6 | 8.0 | 1,443 | 1,554 | 7.7 | 1.5 |
| Slovenia | L, T | 3.3 | T2, T1 | CS,D | 450 | 473 | 5.2 | 90 | 45 | 106 | 107 | 1.6 | 8.0 | 621 | 656 | 5.7 | 1.7 |
| Spain | L, T | 3.7 | T1,T2,CS | T1,T2 | 6,652 | 6,478 | -2.6 | 110 | 59 | 23,498 | 23,813 | 1.3 | 8.8 | 25,208 | 23,517 | -6.7 | 1.3 |
| Sweden | L, T | 4.0 | T1 + CS | D + CS | 1,607 | 1,607 | 0.0 | 129 | 57 | 448 | 448 | 0.1 | 8.0 | 1,902 | 1,903 | 0.1 | 1.6 |
| Switzerland | L, T | 4.8 | CS | CS | 1,570 | 1,565 | -0.3 | 106 | 43 | 445 | 449 | 1.0 | 7.0 | 1,529 | 1,529 | 0.0 | 1.1 |
| Ukraine | L, T | 2.3 | T1 | D | 7,712 | 9,108 | 18.1 | 81 | 56 | 893 | 950 | 6.3 | 8.0 | 7,322 | 9,204 | 25.7 | 1.5 |
| United Kingdom | L, T | 2.5 | T2 | D/CS | 10,517 | 10,459 | -0.6 | 104 | 43 | 35,846 | 35,729 | -0.3 | 4.8 | 5,047 | 5,050 | 0.1 | 1.5 |
| United States | L, T | 1.7 | M, T1, T2 | M, CS, D | 77,745 | 96,100 | 23.6 | 100 | 61 | 6,300 | 6,321 | 0.3 | 8.0 | 59,762 | 59,554 | -0.3 | 1.5 |

^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 the various livestock types within the category CH₄ from 4.A Enteric fermentation.

^b Source of international statistics: FAOSTAT data, 2004 (last updated February 2004), <http://faostat.fao.org/faostat/form?collection=Production.Livestock.Stocks&Domain=Production&servlet=1&hasbulk=0&version=ext&language=EN>.

^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/ yr) 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 | 81 | 68 | 56 |
| Non-dairy cattle | 47 | 48 | 56 | 53 | 44 |

Table 4.2

Enteric fermentation – trend information

| CH ₄ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|-------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 1994 to 1995 | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998to 1999 | 1999 to 2000 | 2000 to 2001 | 2001 to 2002 | 2002 to 2003 | Base year ^a to 2003 |
| Australia | 3,215 | 2,988 | 0.3 | -1.9 | -2.2 | -2.4 | -0.8 | -0.4 | 0.8 | 0.0 | 1.2 | 0.5 | 0.7 | -2.3 | -0.9 | -7.1 |
| Austria | 170 | 147 | -1.4 | -4.4 | 0.0 | 1.4 | 0.8 | -1.5 | -1.5 | -0.7 | -1.2 | -1.4 | -1.7 | -1.9 | -1.0 | -13.4 |
| Belarus | 471 | 270 | -4.0 | -5.2 | -5.3 | -5.9 | -6.1 | -4.9 | -2.7 | -1.9 | -4.6 | -4.7 | -4.4 | -2.3 | -2.3 | -42.6 |
| Belgium | 214 | 191 | -0.1 | -1.2 | 0.3 | 0.1 | 1.0 | -1.7 | -2.0 | 0.3 | -1.1 | -1.3 | 0.6 | -4.2 | -1.7 | -10.6 |
| Bulgaria | 193 | 72 | -7.9 | -17.2 | -22.0 | -15.9 | -5.4 | -3.4 | -3.5 | 2.9 | 1.5 | -4.4 | -21.5 | 10.9 | 3.7 | -62.9 |
| Canada | 890 | 1,067 | 1.0 | 2.7 | 0.9 | 5.1 | 3.4 | 0.4 | 0.9 | -2.0 | -0.8 | -0.5 | 6.6 | 0.2 | 0.8 | 20.0 |
| Croatia | 64 | 40 | -4.7 | -7.3 | -16.7 | -10.2 | -4.5 | -6.4 | -1.8 | -3.4 | 0.2 | -2.2 | 1.4 | -2.8 | 15.4 | -37.6 |
| Czech Republic | 156 | 76 | | | | | -1.3 | 0.0 | -5.1 | -7.6 | -0.8 | -4.9 | -0.2 | -6.6 | 0.5 | -51.2 |
| Denmark | 148 | 130 | -0.1 | -1.4 | 1.0 | -0.4 | -0.1 | 0.3 | -3.3 | 0.2 | -3.6 | -0.4 | 0.9 | -3.1 | -2.6 | -12.1 |
| Estonia | 52 | 19 | -6.3 | -3.8 | -22.5 | -7.1 | -21.4 | -9.3 | -4.5 | -4.7 | -12.9 | -5.8 | 2.5 | -3.8 | 9.0 | -62.9 |
| European Community | 6,987 | 6,226 | -2.8 | -1.8 | -0.6 | 0.3 | 0.1 | 0.6 | -1.1 | -0.3 | -0.2 | -1.1 | -0.8 | -1.8 | -1.7 | -10.9 |
| Finland | 89 | 73 | -4.4 | -2.6 | -0.1 | -0.2 | -5.9 | 0.4 | 1.0 | -2.4 | -1.7 | -0.6 | -1.0 | -0.2 | -1.6 | -17.7 |
| France | 1,471 | 1,348 | -1.7 | -1.7 | -1.0 | 0.0 | 0.3 | -0.1 | -1.2 | -0.7 | -0.3 | 1.0 | 0.4 | -1.3 | -2.3 | -8.4 |
| Germany | 1,633 | 1,199 | -11.7 | -4.6 | -1.6 | 0.4 | -0.1 | -0.3 | -2.5 | -1.6 | -0.7 | -2.0 | 0.9 | -3.8 | -2.3 | -26.6 |
| Greece | 136 | 137 | -0.9 | -0.8 | -0.1 | 0.3 | 0.5 | 0.2 | 0.0 | 0.5 | 0.6 | 0.4 | 0.0 | -0.1 | 0.1 | 0.8 |
| Hungary | 157 | 78 | -6.5 | -13.2 | -14.6 | -11.3 | -1.0 | -0.7 | -2.9 | 0.8 | 0.4 | 0.0 | -3.9 | -2.1 | -1.3 | -49.9 |
| Iceland | 13 | 11 | -2.2 | -3.1 | -0.6 | 0.6 | -3.3 | 1.0 | 1.3 | 1.2 | -0.9 | -4.4 | -0.3 | -2.3 | -1.7 | -13.8 |
| Ireland | 437 | 443 | 2.5 | 1.3 | 0.5 | 0.3 | 0.3 | 1.1 | 1.9 | 2.1 | 0.0 | -2.1 | -2.5 | -1.6 | -2.4 | 1.2 |
| Italy | 588 | 521 | 3.2 | -2.8 | -1.0 | 0.3 | 1.5 | 0.0 | 0.5 | -0.5 | 0.2 | -2.1 | -4.1 | -0.9 | -6.1 | -11.4 |
| Japan | 345 | 315 | 1.2 | 0.3 | -0.7 | -1.2 | -1.4 | -1.2 | -1.1 | -1.0 | -1.2 | -0.7 | -0.7 | -0.6 | -0.8 | -8.7 |
| Latvia | 98 | 27 | -3.4 | -16.2 | -38.3 | -16.9 | -3.2 | -5.7 | -6.4 | -8.8 | -13.1 | -2.4 | 4.5 | 0.4 | -3.5 | -72.2 |
| Liechtenstein | 0 | 0 | | | | | | | | | | | | | | -3.5 |
| Lithuania | 157 | 60 | | | | | | | | | | | | 2.8 | 3.7 | -62.0 |
| Luxembourg | | 15 | | | | | | | | | | | | | | |
| Monaco | | 0 | | | | | | | | | | | | | | |
| Netherlands | 349 | 289 | 1.4 | -1.9 | -1.9 | -1.3 | -0.5 | -2.0 | -2.8 | -1.4 | -0.9 | -1.4 | 0.1 | -4.7 | -1.4 | -17.2 |
| New Zealand | 1,025 | 1,123 | -0.4 | -0.3 | 1.5 | 1.2 | 1.0 | 0.5 | 0.7 | 0.2 | 0.9 | 1.6 | 1.5 | 0.2 | 0.6 | 9.6 |
| Norway | 82 | 80 | 1.4 | 0.2 | -1.1 | 1.1 | 1.2 | 0.8 | 0.2 | 0.9 | -0.6 | -1.7 | -2.7 | -3.1 | 1.4 | -2.0 |
| Portugal | 124 | 119 | -1.2 | -0.4 | -0.5 | 0.8 | 0.4 | 0.1 | 0.3 | 0.3 | 0.3 | -1.1 | -1.0 | -1.4 | -0.4 | -3.9 |
| Romania | 547 | 255 | -12.8 | -15.1 | -14.4 | -2.7 | -3.6 | -0.4 | -2.4 | -6.0 | -3.0 | -3.1 | -5.8 | -2.8 | 2.9 | -53.4 |
| Slovakia | 116 | 48 | -13.8 | -13.9 | -14.6 | -6.4 | 6.7 | -8.1 | -7.6 | -12.1 | -3.1 | -1.8 | 0.1 | -5.7 | -3.3 | -58.9 |
| Slovenia | 36 | 31 | -7.9 | 8.5 | -7.6 | 0.7 | 4.9 | -5.1 | -5.8 | 1.4 | 2.9 | 4.7 | -2.4 | 0.8 | -4.9 | -14.3 |
| Spain | 602 | 710 | 1.2 | -1.3 | -0.2 | 0.6 | 1.3 | 7.5 | -1.0 | 2.3 | 1.4 | 0.6 | 2.9 | 0.4 | 1.2 | 17.9 |
| Sweden | 144 | 134 | -1.8 | 3.0 | 3.4 | 1.1 | -2.9 | -0.6 | 0.2 | -2.9 | -1.1 | -2.4 | -0.9 | -0.6 | -1.5 | -6.9 |
| Switzerland | 132 | 119 | 0.4 | -3.0 | 0.7 | -3.5 | 1.0 | -1.2 | -1.6 | -1.0 | 0.6 | -1.8 | 1.8 | -1.8 | -0.8 | -9.9 |
| Ukraine | 1,738 | 573 | -2.4 | -3.6 | -5.1 | -3.3 | -8.6 | -9.9 | -12.2 | -15.6 | -7.7 | -8.7 | -10.8 | -3.1 | -14.0 | -67.0 |
| United Kingdom | 865 | 770 | -1.4 | 0.5 | 0.0 | 0.7 | -1.0 | 0.9 | -1.3 | 0.0 | 0.1 | -3.4 | -6.2 | -1.0 | 0.7 | -11.0 |
| United States | 5,612 | 5,475 | -0.6 | 2.0 | -0.5 | 1.3 | 2.1 | -2.0 | -1.8 | -1.4 | 0.1 | -1.0 | -0.9 | 0.1 | 0.3 | -2.4 |

^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 4.3**Enteric fermentation: dairy cattle – trend information**

| CH ₄ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|-------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 275 | 352 | -0.8 | 0.2 | 3.4 | 3.5 | 4.0 | 3.5 | 4.3 | 4.8 | 2.9 | 1.9 | -0.2 | -1.4 | -1.1 | 27.7 |
| Austria | 80 | 59 | -2.8 | -3.5 | -1.2 | 1.8 | -9.3 | -0.3 | 4.2 | 2.1 | -3.3 | -10.0 | -2.6 | -0.4 | -4.2 | -26.6 |
| Belarus | | 134 | | | | | | | | | | | | | | |
| Belgium | 95 | 83 | -2.2 | -1.7 | -1.8 | -1.5 | 0.3 | -4.4 | -1.1 | 8.0 | -5.2 | -1.1 | 2.3 | -3.2 | -1.4 | -12.8 |
| Bulgaria | 51 | 29 | -2.7 | -9.4 | -14.6 | -15.2 | -6.4 | 1.0 | 2.4 | 8.7 | 5.4 | -0.6 | -19.7 | 6.6 | -0.8 | -42.7 |
| Canada | 173 | 134 | -3.6 | -2.0 | -3.2 | 0.9 | 0.5 | 0.2 | -3.1 | -1.4 | -3.9 | -3.0 | -4.6 | -0.3 | -1.7 | -22.6 |
| Croatia | | 18 | | | | | | | | | | | | | | |
| Czech Republic | | 40 | | | | | | | | | | | | | | |
| Denmark | 82 | 70 | -1.5 | -3.9 | 0.4 | 3.8 | 0.5 | -0.2 | -4.3 | 0.5 | -4.3 | -0.7 | -1.9 | -1.6 | -2.3 | -14.8 |
| Estonia | | 12 | | | | | | | | | | | | | | |
| European Community | 2,615 | 2,118 | -4.9 | -3.4 | -1.2 | -0.7 | -0.6 | -0.7 | -1.6 | -0.6 | -0.9 | -2.3 | 0.0 | -0.9 | -2.8 | -19.0 |
| Finland | 48 | 39 | -8.2 | -3.7 | 0.6 | -0.1 | -3.1 | -1.2 | 1.7 | -1.5 | -1.2 | 1.0 | 0.0 | -0.9 | -2.5 | -17.9 |
| France | 531 | 430 | -4.7 | -4.5 | -2.3 | -0.4 | -1.3 | -1.8 | -2.0 | -1.1 | -0.7 | -0.1 | 0.3 | 0.0 | -2.5 | -19.2 |
| Germany | 599 | 449 | -11.1 | -3.0 | -0.4 | -0.5 | 0.2 | -0.1 | -2.9 | -3.2 | -0.2 | -3.3 | 0.4 | -2.5 | -1.4 | -25.0 |
| Greece | 20 | 18 | -2.0 | -1.4 | -1.2 | -1.0 | -1.0 | -0.7 | -0.7 | -0.5 | -0.1 | -0.8 | -1.0 | -1.1 | -1.0 | -12.0 |
| Hungary | 61 | 38 | -9.3 | -8.5 | -8.1 | -7.6 | -0.9 | 0.5 | -1.1 | 1.0 | 0.6 | 1.5 | -2.2 | -5.9 | -4.9 | -38.4 |
| Iceland | 3 | 2 | -1.9 | -4.1 | -1.1 | 1.6 | -0.3 | -1.9 | -1.2 | -1.0 | -3.2 | -4.3 | -3.1 | -2.8 | -2.4 | -22.8 |
| Ireland | 136 | 115 | -1.4 | -2.4 | -1.9 | -1.2 | -0.2 | 0.0 | -0.1 | -0.2 | -1.0 | -1.3 | -1.1 | -1.0 | -4.4 | -15.0 |
| Italy | 249 | 190 | -7.1 | -5.3 | -1.7 | -4.2 | 3.9 | -0.3 | 0.5 | 1.9 | -1.8 | -2.8 | 1.7 | 0.9 | -11.4 | -23.6 |
| Japan | 182 | 153 | 0.1 | -0.8 | -2.0 | -2.0 | -1.6 | -1.2 | -1.7 | -1.9 | -2.2 | -1.6 | -1.0 | -0.8 | -0.8 | -16.1 |
| Latvia | 43 | 15 | -0.7 | -9.2 | -27.2 | -11.1 | -6.4 | -5.2 | -5.0 | -8.0 | -14.9 | -0.7 | 2.2 | -1.9 | -9.3 | -65.2 |
| Liechtenstein | | 0 | | | | | | | | | | | | | | |
| Lithuania | | 36 | | | | | | | | | | | | | | |
| Luxembourg | | 7 | | | | | | | | | | | | | | |
| Monaco | | 0 | | | | | | | | | | | | | | |
| Netherlands | 266 | 222 | -0.4 | -3.3 | -2.2 | -1.6 | 0.9 | -1.2 | -3.2 | 0.3 | -1.1 | -1.7 | 0.9 | -4.2 | -1.3 | -16.6 |
| New Zealand | 240 | 409 | 2.6 | 3.7 | 4.6 | 5.9 | 5.0 | 4.5 | 1.8 | 2.4 | 4.6 | 7.1 | 6.2 | 3.7 | 2.5 | 70.3 |
| Norway | 34 | 32 | 0.7 | -0.7 | -0.6 | -0.4 | 0.6 | 1.4 | 0.0 | 1.1 | -0.6 | -1.6 | -4.0 | -3.7 | 1.6 | -6.1 |
| Portugal | 39 | 33 | -1.8 | 0.5 | -0.3 | 0.3 | -0.9 | -0.2 | -1.1 | -1.7 | -2.0 | -3.2 | -1.5 | -2.5 | -0.3 | -13.7 |
| Romania | 242 | 108 | -14.5 | -19.1 | -15.4 | -2.3 | -3.2 | 0.4 | -1.7 | -5.8 | -2.9 | -2.9 | -6.0 | -2.4 | 2.8 | -55.1 |
| Slovakia | | 21 | | | | | | | | | | | | | | |
| Slovenia | 20 | 17 | -5.0 | 3.5 | -3.5 | -1.5 | 3.0 | -10.8 | -0.6 | -0.4 | 2.9 | 4.3 | -2.4 | 4.6 | -5.3 | -16.6 |
| Spain | 143 | 123 | 3.9 | -6.0 | -3.2 | -2.7 | -2.1 | 1.3 | -2.1 | 1.0 | -1.5 | -3.2 | 1.7 | 1.0 | -2.5 | -13.9 |
| Sweden | 69 | 52 | -8.0 | -2.4 | 3.0 | -1.2 | -3.8 | -5.1 | 1.7 | -4.5 | 0.5 | -4.8 | -0.7 | -0.1 | -2.1 | -24.8 |
| Switzerland | 81 | 75 | 0.4 | -3.7 | 3.6 | -3.8 | 0.4 | -1.1 | -0.4 | -1.1 | 1.4 | -2.2 | 2.7 | -3.1 | -0.8 | -8.0 |
| Ukraine | 691 | 347 | -1.8 | -1.4 | -2.5 | 0.3 | -3.2 | -3.7 | -7.4 | -10.1 | -6.8 | -7.0 | -8.7 | -4.9 | -9.2 | -49.8 |
| United Kingdom | 251 | 228 | -2.4 | -1.2 | 0.2 | 2.0 | -2.7 | 0.4 | -1.4 | -1.3 | 1.7 | -3.4 | -2.9 | 2.3 | -0.5 | -9.2 |
| United States | 1,375 | 1,300 | 0.2 | -0.2 | -4.3 | -0.1 | 0.4 | -5.0 | 0.1 | -0.3 | 1.1 | 1.5 | -0.1 | 0.6 | 0.8 | -5.5 |

^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 4.3**Enteric fermentation: dairy cattle – trend information (continued)**

| CH ₄ implied emission factors (kg/head/year) | | | Relative Change (%) | | | | | | | | | | | | | |
|--|------------------------|------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 1994 to 1995 | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998to 1999 | 1999 to 2000 | 2000 to 2001 | 2001 to 2002 | 2002 to 2003 | Base year ^a to 2003 |
| Australia | 107 | 114 | 0.7 | 1.0 | 1.0 | 0.4 | 0.5 | -8.2 | 9.3 | 0.2 | 0.9 | 0.4 | 0.7 | -0.5 | 0.2 | 6.1 |
| Austria | 89 | 105 | 0.4 | 0.4 | 0.4 | 4.1 | 3.9 | 0.9 | 0.9 | 0.9 | 0.9 | 1.2 | 1.2 | 1.2 | 1.1 | 19.1 |
| Belarus | | 81 | | | | | | | | | | | | | | |
| Belgium | 100 | 105 | 0.5 | 0.5 | 0.3 | 0.5 | 0.4 | 0.5 | 0.4 | 0.2 | 0.5 | 0.4 | 0.3 | 0.4 | 0.1 | 5.2 |
| Bulgaria | 81 | 81 | | | | | | | | | | | | | | |
| Canada | 126 | 126 | | | | | | | | | | | | | | |
| Croatia | | 81 | | | | | | | | | | | | | | |
| Czech Republic | | 68 | | | | | | | | | | | | | | |
| Denmark | 109 | 118 | 0.1 | 0.1 | 0.1 | 5.9 | 0.1 | 0.1 | 0.1 | 0.7 | 0.0 | 0.0 | 0.0 | 0.6 | -0.1 | 7.6 |
| Estonia | | 100 | | | | | | | | | | | | | | |
| European Community | 93 | 102 | 0.8 | 1.0 | 0.8 | 0.8 | 1.0 | 0.0 | 0.8 | 0.7 | 0.7 | 1.0 | 0.0 | 0.6 | 0.9 | 9.6 |
| Finland | 97 | 117 | 0.9 | 0.2 | 1.0 | 2.3 | 1.3 | 0.4 | 2.0 | 0.5 | 1.6 | 3.3 | 2.6 | 1.1 | 1.6 | 20.5 |
| France | 99 | 103 | 0.5 | 0.9 | 0.3 | 0.4 | 0.6 | 0.2 | 0.4 | 0.2 | 0.3 | 0.2 | -0.2 | 0.5 | 0.1 | 4.7 |
| Germany | 94 | 103 | 0.3 | 1.8 | 0.8 | 0.0 | 1.0 | 0.5 | 0.4 | 0.7 | 1.2 | 0.9 | 0.8 | 0.2 | 0.1 | 9.2 |
| Greece | 81 | 81 | | | | | | | | | | | | | | |
| Hungary | 104 | 115 | -2.0 | 0.6 | -1.0 | 0.4 | 1.8 | -0.3 | 1.0 | 2.6 | -0.3 | 0.2 | 1.2 | 2.9 | -0.1 | 9.8 |
| Iceland | 100 | 100 | | | | | | | | | | | | | | |
| Ireland | 100 | 100 | | | | | | | | | | | 0.0 | 0.0 | 0.0 | 0.0 |
| Italy | 94 | 100 | 4.9 | 3.3 | -0.4 | 0.9 | 0.5 | -0.3 | 0.6 | 0.0 | -2.2 | 0.1 | -2.5 | -1.1 | 2.5 | 6.1 |
| Japan | 88 | 89 | 0.0 | 0.0 | 0.1 | 0.4 | 0.5 | 0.4 | 0.3 | 0.5 | 0.3 | 0.1 | -0.1 | -0.1 | -0.8 | 1.5 |
| Latvia | 81 | 81 | | | | | | | | | | | | | | |
| Liechtenstein | | 100 | | | | | | | | | | | | | | |
| Lithuania | | 81 | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | NO | | | | | | | | | | | | | | |
| Netherlands | 74 | 83 | -0.9 | 0.5 | 1.6 | 0.9 | 0.3 | -0.5 | 0.6 | 3.2 | 1.8 | 2.9 | -1.0 | 0.8 | 2.2 | 13.0 |
| New Zealand | 71 | 79 | 0.9 | 2.6 | 0.6 | 0.2 | -0.3 | 1.0 | -0.2 | 1.2 | 1.9 | 2.9 | 0.1 | 0.2 | 0.2 | 11.8 |
| Norway | 100 | 100 | | | | | | | | | | | | | | |
| Portugal | 100 | 100 | | | | | | | | | | | | | | |
| Romania | 81 | 81 | | | | | | | | | | | | | 0.0 | 0.0 |
| Slovakia | | 100 | | | | | | | | | | | | | | |
| Slovenia | 85 | 90 | 1.6 | -0.4 | -0.2 | 0.6 | 0.6 | 1.5 | 1.6 | 0.4 | 0.4 | -0.3 | 0.5 | 1.1 | -0.6 | 6.5 |
| Spain | 89 | 110 | 6.8 | -0.7 | 2.0 | 0.8 | 4.1 | -2.3 | 0.3 | 0.7 | 4.5 | 2.9 | 1.8 | -1.0 | 2.6 | 24.4 |
| Sweden | 120 | 129 | 0.3 | -2.0 | 3.2 | 1.9 | 1.6 | -1.9 | 1.2 | -0.5 | 0.5 | -0.2 | 1.7 | 0.1 | 1.3 | 7.5 |
| Switzerland | 102 | 106 | 0.5 | -2.0 | 6.0 | -3.8 | 0.3 | -1.3 | 2.3 | -0.3 | 3.1 | -0.8 | 1.9 | -2.6 | 0.9 | 4.0 |
| Ukraine | 81 | 81 | | | | | | | | | | | | | | |
| United Kingdom | 88 | 104 | 0.4 | 1.9 | 0.8 | 0.2 | 1.5 | 1.0 | 3.0 | 0.9 | 1.0 | 0.9 | 0.7 | 3.4 | 1.1 | 17.9 |
| United States | 97 | 100 | 1.4 | 0.9 | -3.9 | 1.4 | 0.9 | -3.6 | 1.3 | 0.8 | 0.8 | 1.1 | 0.6 | 0.3 | 1.1 | 3.0 |

^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 4.4**Enteric fermentation: non-dairy cattle – trend information**

| CH ₄ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|-------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 1,755 | 1,919 | 2.3 | 0.7 | 0.1 | -0.3 | 0.9 | 0.6 | 1.2 | -0.2 | 1.7 | 1.1 | 2.3 | -1.2 | -0.1 | 9.4 |
| Austria | 80 | 79 | -0.4 | -5.8 | 0.7 | 1.1 | 10.5 | -2.7 | -6.6 | -3.3 | 1.5 | 6.8 | -1.2 | -2.8 | 1.2 | -2.2 |
| Belarus | | 127 | | | | | | | | | | | | | | |
| Belgium | 110 | 99 | 2.0 | -1.1 | 1.8 | 1.4 | 1.5 | 0.0 | -2.9 | -5.6 | 2.2 | -1.4 | -0.3 | -5.2 | -1.9 | -9.4 |
| Bulgaria | 56 | 20 | -12.7 | -23.4 | -33.1 | -24.2 | -11.2 | -11.5 | -7.7 | 5.5 | 5.5 | -5.3 | -1.1 | 28.1 | 16.5 | -65.1 |
| Canada | 687 | 886 | 2.1 | 3.8 | 1.8 | 6.1 | 4.0 | 0.3 | 1.7 | -2.5 | -0.4 | -0.3 | 8.1 | 0.1 | 1.2 | 29.0 |
| Croatia | | 15 | | | | | | | | | | | | | | |
| Czech Republic | | 21 | | | | | | | | | | | | | | |
| Denmark | 51 | 41 | 0.2 | 0.3 | 0.8 | -5.4 | -0.9 | 0.5 | -3.3 | -1.9 | -3.5 | -0.6 | 4.9 | -6.8 | -5.1 | -19.4 |
| Estonia | | 7 | | | | | | | | | | | | | | |
| European Community | 3,320 | 3,112 | -1.6 | -1.6 | -0.5 | 1.0 | 1.3 | 0.9 | -1.4 | -0.4 | 0.2 | -0.4 | 0.0 | -2.6 | -1.4 | -6.3 |
| Finland | 36 | 28 | -0.6 | -0.9 | -0.6 | -0.5 | -11.4 | 2.6 | 0.2 | -3.0 | -1.7 | -2.7 | -1.8 | 0.0 | -1.1 | -20.1 |
| France | 820 | 814 | 0.3 | 0.0 | -0.3 | 0.2 | 1.3 | 0.8 | -0.9 | -0.5 | 0.3 | 1.8 | 0.6 | -2.1 | -2.3 | -0.8 |
| Germany | 953 | 679 | -11.7 | -6.0 | -2.4 | 1.1 | -0.2 | -0.6 | -3.0 | -0.4 | -1.0 | -1.4 | 1.2 | -5.0 | -3.2 | -28.7 |
| Greece | 21 | 21 | -4.5 | -3.1 | -1.4 | 0.1 | 0.8 | 0.5 | 0.7 | 2.3 | 3.2 | 1.8 | 0.0 | -1.1 | 0.0 | -1.0 |
| Hungary | 59 | 21 | -4.4 | -19.7 | -22.5 | -12.5 | 0.8 | -3.3 | -4.3 | -3.4 | -1.9 | -8.5 | -6.2 | 3.8 | -0.3 | -65.0 |
| Iceland | 2 | 2 | 7.9 | -0.8 | -3.9 | -5.6 | 3.3 | 3.0 | 2.8 | 2.2 | -0.1 | -2.6 | -2.5 | -3.9 | -2.6 | -3.6 |
| Ireland | 246 | 275 | 3.4 | 2.6 | 1.7 | 1.4 | 1.2 | 2.4 | 3.4 | 3.4 | 0.3 | -2.5 | -2.8 | -1.6 | -1.4 | 11.9 |
| Italy | 238 | 229 | 16.4 | -2.3 | -1.7 | -0.2 | -2.3 | -1.2 | 1.2 | -3.2 | 1.3 | -2.5 | -1.5 | -1.9 | -4.9 | -4.1 |
| Japan | 150 | 151 | 3.0 | 1.9 | 0.8 | -0.3 | -1.1 | -1.1 | -0.6 | 0.0 | -0.2 | 0.2 | -0.4 | -0.4 | -0.9 | 0.7 |
| Latvia | 51 | 11 | -5.8 | -22.3 | -50.6 | -26.9 | 2.6 | -5.1 | -8.0 | -10.3 | -10.4 | -5.7 | 8.5 | 4.0 | 5.5 | -78.7 |
| Liechtenstein | | 0 | | | | | | | | | | | | | | |
| Lithuania | | 20 | | | | | | | | | | | | | | |
| Luxembourg | | 7 | | | | | | | | | | | | | | |
| Monaco | | 0 | | | | | | | | | | | | | | |
| Netherlands | 46 | 36 | 11.6 | -0.2 | 0.1 | -1.7 | -5.8 | -8.1 | -3.0 | -4.5 | -1.0 | 2.1 | -4.5 | -5.7 | -2.3 | -21.9 |
| New Zealand | 235 | 254 | 2.3 | 3.2 | 5.6 | 2.4 | 0.1 | -3.0 | -1.5 | -1.5 | 0.0 | 0.5 | 1.2 | -0.3 | -0.4 | 8.5 |
| Norway | 31 | 29 | 1.4 | 0.5 | 0.1 | 0.2 | 1.4 | 1.6 | 1.6 | 1.3 | -3.0 | -3.6 | -3.2 | -4.2 | 1.4 | -4.8 |
| Portugal | 48 | 51 | -1.2 | -0.8 | -1.1 | 1.6 | 1.7 | 0.8 | 1.2 | 1.7 | 1.6 | 0.9 | -0.3 | 0.0 | -0.3 | 6.0 |
| Romania | 176 | 79 | -14.5 | -19.1 | -15.4 | -2.3 | -3.2 | 0.4 | -1.8 | -5.8 | -2.8 | -2.9 | -6.0 | -2.4 | 2.8 | -55.1 |
| Slovakia | | 21 | | | | | | | | | | | | | | |
| Slovenia | 14 | 12 | -12.2 | 16.2 | -13.6 | 4.3 | 7.2 | 1.9 | -13.2 | 2.1 | 3.9 | 3.5 | -2.7 | -5.7 | -4.8 | -17.3 |
| Spain | 210 | 327 | 2.5 | -2.8 | 1.9 | 6.8 | 13.8 | 6.1 | -1.5 | 3.9 | 3.5 | 0.2 | 6.4 | 1.5 | 3.6 | 55.4 |
| Sweden | 61 | 68 | 4.8 | 8.4 | 3.8 | 3.1 | -2.1 | 2.5 | -0.4 | -1.5 | -2.1 | -0.4 | -1.7 | -0.7 | -1.5 | 12.2 |
| Switzerland | 44 | 37 | 0.2 | -2.1 | -4.3 | -3.6 | 2.3 | -0.3 | -3.7 | -1.8 | -1.2 | -1.4 | -0.1 | 0.4 | -1.2 | -15.7 |
| Ukraine | 933 | 192 | -2.5 | -4.8 | -6.9 | -6.0 | -12.7 | -15.1 | -16.8 | -22.2 | -9.4 | -11.7 | -14.1 | -1.6 | -21.9 | -79.4 |
| United Kingdom | 391 | 357 | -1.3 | 1.7 | -0.5 | 0.6 | 0.2 | 2.4 | -2.9 | -0.9 | -0.8 | -2.3 | -4.9 | -2.6 | 2.2 | -8.9 |
| United States | 3,961 | 3,930 | -1.0 | 2.8 | 0.9 | 1.9 | 3.0 | -1.0 | -2.5 | -1.9 | 0.0 | -1.8 | -1.2 | -0.1 | 0.3 | -0.8 |

^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 4.4**Enteric fermentation: non-dairy cattle – trend information (continued)**

| CH ₄ implied emission factors (kg/head/year) | | | Relative Change (%) | | | | | | | | | | | | | |
|--|------------------------|------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 1994 to 1995 | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998to 1999 | 1999 to 2000 | 2000 to 2001 | 2001 to 2002 | 2002 to 2003 | Base year ^a to 2003 |
| Australia | 79 | 79 | 0.17 | 0.14 | -0.17 | -0.53 | -0.43 | -3.45 | 3.25 | 0.13 | 0.64 | 0.12 | 0.35 | -0.06 | 0.35 | 0.39 |
| Austria | 48 | 53 | 0.89 | 0.21 | 4.23 | 0.27 | 3.59 | 0.12 | -0.50 | -0.99 | 0.71 | 1.27 | -0.28 | -0.05 | 0.14 | 9.90 |
| Belarus | | 56 | | | | | | | | | | | | | | |
| Belgium | 48 | 48 | 0.17 | -0.18 | 0.53 | -0.21 | 0.02 | 0.13 | 0.16 | -0.06 | 0.14 | -0.01 | 0.62 | 0.11 | 0.02 | 1.43 |
| Bulgaria | 56 | 56 | | | | | | | | | | | | | | |
| Canada | 65 | 65 | -0.01 | -0.04 | 0.15 | 0.42 | 0.15 | -0.39 | -0.69 | 0.20 | -0.42 | -0.15 | 0.48 | -0.16 | 0.60 | 0.12 |
| Croatia | | 56 | | | | | | | | | | | | | | |
| Czech Republic | | 24 | | | | | | | | | | | | | | |
| Denmark | 34 | 36 | 0.64 | 0.44 | 0.60 | -0.32 | 0.38 | 0.12 | 0.97 | -0.03 | 1.23 | 0.56 | 0.72 | 0.85 | -0.19 | 6.13 |
| Estonia | | 48 | | | | | | | | | | | | | | |
| European Community | 53 | 53 | -0.27 | -0.12 | 0.12 | 0.43 | 0.08 | 0.17 | 0.12 | -0.04 | -0.11 | 0.08 | 0.58 | -0.44 | -0.19 | 0.41 |
| Finland | 41 | 43 | 0.04 | 1.35 | 1.72 | 0.65 | -3.53 | 2.10 | 0.42 | -0.70 | 0.99 | 0.32 | -0.34 | 0.70 | 0.57 | 4.26 |
| France | 50 | 52 | 0.44 | 1.12 | 0.30 | 0.10 | 0.17 | 0.28 | 0.31 | 0.04 | 0.05 | 0.02 | -0.28 | -0.18 | 0.22 | 2.63 |
| Germany | 73 | 73 | 0.79 | -0.30 | -0.14 | 0.21 | 0.10 | 0.27 | 0.47 | 0.52 | -1.21 | 0.23 | 0.35 | -0.11 | 0.08 | 1.25 |
| Greece | 56 | 56 | | | | | | | | | | | | | | |
| Hungary | 51 | 48 | | | | | | | | | | | | | 0.00 | -5.98 |
| Iceland | 48 | 48 | | | | | | | | | | | | | | |
| Ireland | 50 | 50 | | | | | | | | | | | 0.00 | 0.00 | 0.00 | 0.00 |
| Italy | 47 | 48 | 6.60 | 0.55 | 0.18 | 3.02 | -2.89 | 0.69 | 1.21 | -1.60 | 0.87 | -1.59 | 1.39 | -2.30 | -2.13 | 3.66 |
| Japan | 53 | 54 | -0.06 | 0.00 | 0.02 | 0.33 | 0.23 | 0.21 | 0.11 | 0.35 | 0.31 | 0.23 | -0.17 | -0.24 | -0.95 | 0.36 |
| Latvia | 56 | 56 | | | | | | | | | | | | | | |
| Liechtenstein | | 48 | | | | | | | | | | | | | | |
| Lithuania | | 56 | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | NO | | | | | | | | | | | | | | |
| Netherlands | 35 | 33 | 2.59 | 0.21 | -0.41 | -1.87 | -0.08 | -2.22 | -1.97 | -1.49 | -1.93 | 2.28 | 2.17 | -5.09 | 1.80 | -6.14 |
| New Zealand | 51 | 56 | 1.24 | 1.98 | 2.82 | -1.06 | -0.50 | -1.44 | 3.71 | -0.04 | 1.52 | -0.34 | 2.34 | -0.65 | 0.50 | 10.38 |
| Norway | 48 | 48 | | | | | | | | | | | | | | |
| Portugal | 48 | 48 | | | | | | | | | | | | | | |
| Romania | 56 | 56 | | | | | | | | | | | | | 0.00 | 0.00 |
| Slovakia | | 56 | | | | | | | | | | | | | | |
| Slovenia | 45 | 45 | -1.18 | 11.47 | -7.49 | 2.71 | 2.16 | -3.63 | -1.18 | -1.19 | -1.21 | -1.22 | 1.05 | -2.26 | 0.33 | -0.12 |
| Spain | 61 | 59 | -2.11 | -1.13 | 0.13 | -0.03 | 1.34 | -0.27 | -1.39 | -0.26 | -0.39 | 1.41 | 0.81 | -0.83 | 0.12 | -2.62 |
| Sweden | 53 | 57 | 1.58 | 2.28 | 0.96 | 0.45 | -0.34 | 0.23 | 0.42 | 0.26 | -0.11 | 0.21 | 0.14 | 0.32 | -0.12 | 6.45 |
| Switzerland | 42 | 43 | 2.72 | 1.04 | -2.29 | -3.87 | 2.19 | 0.01 | 1.89 | 1.01 | 1.00 | -0.23 | -2.07 | 1.97 | 0.00 | 3.16 |
| Ukraine | 56 | 56 | | | | | | | | | | | | | | |
| United Kingdom | 42 | 43 | -0.01 | 0.32 | 0.11 | 0.02 | 0.03 | 0.25 | 0.27 | 0.07 | 0.14 | -0.20 | 0.23 | 0.17 | -0.39 | 1.03 |
| United States | 64 | 61 | -2.97 | 1.22 | -1.62 | -0.91 | 1.18 | -1.00 | -0.64 | -0.12 | 0.86 | -1.15 | -1.19 | 0.39 | 1.17 | -4.77 |

^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 4.5**Manure management, CH₄ (2003)**

| | Key source | Share of national total (%) | Methods and EF used ^a | | Cattle | | Sheep | Swine |
|------------------------------|------------|------------------------------------|----------------------------------|------------------|--|------------------|--------------|---------|
| | | | Methods | EF | Dairy cattle | Non-dairy cattle | | |
| | | | | | CH ₄ IEF (kg CH ₄ /head/yr) | | | |
| IPCC default EF ^b | | | | | 6 to 81 | 1 to 38 | 0.19 to 0.37 | 3 to 20 |
| Australia | | 0.4 | CS | CS, D | 8.90 | 2.81 | 0.00 | 22.93 |
| Austria | L, T | 1.0 | T1, T2 | D, CS | 19.07 | 7.21 | 0.19 | 12.38 |
| Belarus | | 1.0 | D,T1 | D | 6.00 | 4.00 | 0.16 | 4.00 |
| Belgium | L | 1.7 | | | 21.66 | 13.62 | 1.43 | 10.07 |
| Bulgaria | T | 0.7 | T1, T2 | D, CS | 18.30 | 12.21 | 0.28 | 9.95 |
| Canada | | 0.5 | T2 | CS | 32.50 | 2.92 | 0.36 | 6.38 |
| Croatia | | 0.7 | T1 | D | 6.00 | 4.00 | 0.10 | 4.00 |
| Czech Republic | L | 0.4 | T2 | CS | 3.29 | 1.01 | 0.23 | 7.87 |
| Denmark | L, T | 1.3 | T2 | CS | 17.96 | 1.80 | 0.32 | 2.55 |
| Estonia | | 0.3 | T1 | D | 6.00 | 4.00 | 0.19 | 4.00 |
| European Community | L | 1.5 | C, CS, D, M, T1, T2 | C, CS, D, T1, T2 | 33.47 | 11.72 | 0.18 | 13.05 |
| Finland | | 0.3 | T2 | CS/D | 8.53 | 2.32 | 0.19 | 3.37 |
| France | L | 2.4 | C/ T1 | D/ CS | 0.24 | 0.17 | 0.19 | 0.45 |
| Germany | L | 2.3 | C, D, T1 | C,D | 85.56 | 20.03 | 0.19 | 27.15 |
| Greece | | 0.4 | T1 | D | 19.00 | 13.00 | 0.28 | 7.00 |
| Hungary | | 0.6 | D | CS,D | 6.00 | 4.00 | 0.19 | 3.00 |
| Iceland | | 0.7 | T1 | D | 14.00 | 6.00 | 0.19 | 3.00 |
| Ireland | L | 2.0 | D | CS, D | 15.90 | 6.40 | 0.00 | 5.40 |
| Italy | L, T | 0.7 | T1, T2 | D, CS | 20.05 | 10.62 | 0.22 | 7.76 |
| Japan | | 0.1 | D, CS | D, CS | 8.69 | 3.23 | 0.28 | 0.92 |
| Latvia | L | 0.8 | T1 | D | 6.00 | 4.00 | 0.19 | 4.00 |
| Liechtenstein | | 1.6 | | | 44.00 | 20.00 | 0.28 | 11.00 |
| Lithuania | | | D | D | 6.00 | 4.00 | 0.19 | 4.00 |
| Luxembourg | | | | | | | | |
| Monaco | | | | | NO | NO | NO | NO |
| Netherlands | L, T | 1.1 | CS/T2 | CS | 24.04 | 3.83 | 0.19 | 3.91 |
| New Zealand | L, T | 1.0 | T1 | CS, D | 0.89 | 0.91 | 0.18 | 20.00 |
| Norway | L | 0.6 | T2 | CS | 14.41 | 8.56 | 0.73 | 1.99 |
| Portugal | L, T | 1.7 | T2 | D (CS) | 2.89 | 1.67 | 0.24 | 26.26 |
| Romania | L, T | 1.4 | T1 | D | 19.00 | 13.00 | 0.16 | 7.00 |
| Slovakia | | 0.4 | T1, T2 | D, CS | 4.00 | 3.80 | 0.19 | 4.00 |
| Slovenia | L, T | 0.8 | T2, T1 | CS,D | 12.37 | 5.51 | 0.19 | 5.52 |
| Spain | L | 2.2 | T1,T2,CS | T1,T2 | 14.25 | 3.81 | 0.23 | 13.99 |
| Sweden | L, T | 0.7 | T1 + CS | D + CS | 17.79 | 5.92 | 0.19 | 3.05 |
| Switzerland | L | 0.8 | CS | CS | 14.69 | 3.50 | 0.13 | 3.38 |
| Ukraine | | 0.3 | T1 | D | 6.00 | 4.00 | 0.19 | 4.00 |
| United Kingdom | T | 0.4 | T2 | D/CS | 25.49 | 4.21 | 0.11 | 3.00 |
| United States | L | 0.6 | M, T1, T2 | M, CS, D | 57.65 | 1.68 | 0.78 | 13.53 |

^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 the various livestock types within the category CH₄ from 4.B Manure management.

^b Source of default emission factors: IPCC Guidelines, Volume 3, tables 4–5 and 4–6 (pages 4.12 to 4.13). Default emission factors are provided according to climate regions (cool, temperate, warm), as shown in box 1.

Box 1. Default IPCC default emission factors according to climate regions^b

| | 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 (2003)

| | Key source | 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 | Swine | Sheep | Poultry | | |
| | | | N ₂ O IEF | | | | | | | | | | | | |
| | | | (kg N ₂ O-N / kg N) | | | | | | | | | | | (kg N / head / yr) | |
| 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 | | 0.2 | CS | D | 0.001 | 0.001 | 0.020 | 0.018 | 141 | 40 | 12 | 7 | 0.7 | | |
| Austria | L, T | 0.8 | T1 | D, CS | NO | 0.001 | 0.020 | 0.005 | 68 | 34 | 18 | 20 | 0.9 | | |
| Belarus | | 0.0 | D,T1 | D | 0.001 | 0.001 | 0.020 | 0.005 | 70 | 50 | 20 | 16 | 0.6 | | |
| Belgium | L | 0.6 | | | NO | 0.001 | 0.020 | 0.005 | 113 | 54 | 13 | 11 | 0.6 | | |
| Bulgaria | | 0.6 | D | D | 0.001 | 0.001 | 0.020 | 0.005 | 70 | 50 | 20 | 16 | 0.6 | | |
| Canada | L | 0.6 | T1 | D | NE | 0.001 | 0.020 | 0.005 | 105 | 45 | 12 | 4 | 0.4 | | |
| Croatia | L | 0.8 | | | 0.001 | 0.001 | 0.020 | 0.005 | 70 | 50 | 20 | 16 | 0.6 | | |
| Czech Republic | | 0.3 | D | D | 0.000 | 1.005 | 20.230 | 4.899 | 100 | 70 | 20 | 20 | 1.0 | | |
| Denmark | L | 0.7 | | | NO | 0.001 | 0.020 | NO | 127 | 38 | 10 | 17 | 0.6 | | |
| Estonia | | 0.0 | T1 | D | | 0.001 | 0.020 | 0.005 | 70 | 50 | 20 | 16 | 0.6 | | |
| European Community | L | 0.5 | C, CS, D, T1, T2 | C, CS, D | | | | | NE | NE | NE | NE | NE | | |
| Finland | T | 0.5 | D | D/CS | NO | 0.001 | 0.023 | NO | 96 | 35 | 10 | 16 | 0.4 | | |
| France | L | 1.1 | C/ T1 | D/ CS | | 0.001 | 0.020 | | 100 | 58 | 17 | 18 | 0.6 | | |
| Germany | | 0.3 | C,CS | D | NO | IE | IE | NO | 116 | 41 | 11 | 13 | 0.5 | | |
| Greece | | 0.2 | D | D | | 0.001 | 0.020 | 0.005 | 70 | 50 | 16 | 12 | 0.6 | | |
| Hungary | T | 1.6 | CS,D | CS,D | NO | 0.001 | 0.020 | 0.005 | 100 | 70 | 20 | 20 | 0.6 | | |
| Iceland | | 0.9 | T1 | D | NO | 0.001 | 0.020 | NO | 60 | 34 | 13 | 6 | 0.4 | | |
| Ireland | L | 1.0 | D | CS, D | 0.001 | 0.001 | 0.020 | | 93 | 50 | 12 | 8 | 0.6 | | |
| Italy | L | 0.7 | D | D, CS | NO | 0.001 | 0.020 | 0.020 | 109 | 45 | 11 | 16 | 0.6 | | |
| Japan | L, T | 0.9 | CS | CS | NO | 0.008 | 0.004 | 0.047 | 80 | 47 | 16 | 12 | 0.9 | | |
| Latvia | L | 1.2 | T1 | D/CS | 0.001 | 0.001 | 0.020 | 0.005 | 71 | 51 | 10 | 6 | 0.9 | | |
| Liechtenstein | | | | | NO | NE | NE | | | | | | | | |
| Lithuania | | | D | D | 0.001 | 0.001 | 0.020 | 0.005 | 70 | 50 | 20 | 16 | 0.6 | | |
| Luxembourg | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | |
| Netherlands | | 0.3 | CS/T2 | D | NO | 0.001 | 0.017 | NO | NA | NA | NA | NA | NA | | |
| New Zealand | | 0.1 | T1 | D | 0.001 | NO | 0.020 | 0.005 | 117 | 73 | 16 | 15 | 0.6 | | |
| Norway | | 0.3 | D | D, CS | NO | 0.001 | 0.018 | NO | 82 | 30 | 6 | 10 | 0.2 | | |
| Portugal | L, T | 1.3 | T2 | D (CS) | 0.001 | 0.001 | 0.020 | | 108 | 54 | 17 | 7 | 1.1 | | |
| Romania | | 0.1 | T1 | D | 0.001 | 0.001 | 0.020 | 0.005 | 70 | 50 | 20 | | 0.6 | | |
| Slovakia | L | 0.9 | T1, T2 | D, CS | NO | 0.001 | 0.020 | NO | 100 | 60 | IE | 16 | IE | | |
| Slovenia | L, T | 1.2 | T1 | D | 0.001 | 0.001 | 0.020 | 0.001 | 100 | 70 | 20 | 20 | 0.6 | | |
| Spain | T | 0.4 | D,CS | D | NO | 0.001 | 0.020 | 0.005 | 70 | 33 | 10 | 10 | 0.4 | | |
| Sweden | L, T | 0.8 | T1 + T2 | D + CS | NO | 0.001 | 0.020 | 0.020 | 123 | 41 | 10 | 6 | 0.4 | | |
| Switzerland | L | 0.8 | CS | CS | NO | 0.001 | 0.020 | NO | 105 | | 16 | 12 | 0.5 | | |
| Ukraine | | 0.6 | T1 | D | 0.001 | 0.001 | 0.020 | 0.005 | 70 | 50 | 20 | 16 | 0.6 | | |
| United Kingdom | | 0.2 | T1 | D/CS | NO | 0.001 | 0.020 | 0.004 | 112 | 48 | 10 | 7 | 0.7 | | |
| United States | | 0.3 | M, T1, T2 | D | 0.001 | 0.001 | 0.020 | 0.014 | 84 | 45 | 8 | 11 | 0.4 | | |

^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 with the category N₂O from 4.B Manure management.

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

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

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

IPCC defaults:

| | North America | Western Europe | Eastern | 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 4.7

Manure management – trend information

| CH ₄ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|-------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 73 | 98 | 0.1 | 2.0 | 4.0 | 3.4 | 2.0 | 1.0 | 4.3 | 4.2 | 2.7 | 1.6 | 2.6 | 0.9 | 0.1 | 33.0 |
| Austria | 49 | 42 | -1.4 | -1.5 | 0.8 | -0.4 | -0.4 | -1.9 | 0.0 | 1.1 | -5.3 | -3.0 | 0.8 | -3.2 | 0.3 | -13.3 |
| Belarus | 58 | 34 | -3.9 | -5.8 | -5.3 | -4.9 | -5.3 | -4.4 | -2.5 | -2.1 | -4.2 | -4.1 | -4.7 | -2.0 | -1.9 | -40.7 |
| Belgium | 122 | 116 | 1.1 | 1.0 | 2.7 | 0.1 | 2.0 | -0.2 | -0.1 | 0.2 | 0.8 | -3.3 | -3.2 | -2.0 | -3.5 | -4.7 |
| Bulgaria | 73 | 24 | -12.1 | -18.6 | -20.0 | -15.1 | -0.6 | -8.5 | -11.6 | 6.1 | 2.2 | -10.6 | -28.7 | 16.2 | 8.7 | -66.4 |
| Canada | 149 | 174 | -0.7 | 1.8 | -1.0 | 3.4 | 3.8 | 0.7 | -1.7 | 1.6 | -0.7 | -1.1 | 7.4 | 3.0 | -0.2 | 17.1 |
| Croatia | 11 | 10 | -1.8 | -3.3 | -19.7 | -0.1 | -9.5 | -1.9 | -1.9 | -1.6 | 10.7 | -7.2 | 0.5 | 1.6 | 37.4 | -5.8 |
| Czech Republic | 48 | 30 | | | | | 3.2 | 0.0 | 0.7 | -2.6 | 0.1 | -7.3 | -2.2 | -6.9 | 0.4 | -38.2 |
| Denmark | 35 | 46 | 4.8 | 6.7 | 6.4 | -2.5 | -0.2 | 1.5 | 1.3 | 4.1 | -1.3 | 3.3 | 2.0 | 1.1 | 0.6 | 30.9 |
| Estonia | 18 | 3 | -6.7 | -18.9 | -22.1 | -4.0 | -8.8 | -66.0 | -0.8 | -0.3 | -12.3 | -0.8 | 7.5 | -3.0 | 0.7 | -84.1 |
| European Community | 3,108 | 2,951 | -5.9 | -0.6 | -0.2 | 3.4 | -0.3 | 0.2 | 2.0 | -0.7 | -0.8 | -0.6 | 0.5 | -1.0 | -0.8 | -5.1 |
| Finland | 10 | 11 | -7.0 | -3.3 | -0.2 | 1.0 | 16.8 | 0.2 | 4.0 | -2.5 | -2.5 | -0.9 | -3.6 | 2.0 | 1.2 | 3.3 |
| France | 657 | 624 | -0.9 | -1.4 | 0.5 | 0.3 | 0.5 | 0.8 | -0.4 | 0.3 | -4.2 | 1.0 | 0.8 | -0.4 | -1.8 | -5.0 |
| Germany | 1,290 | 1,100 | -13.1 | -2.5 | -2.1 | 8.1 | -2.3 | 0.3 | 3.9 | -3.8 | 0.1 | -2.5 | 0.6 | -1.3 | -0.1 | -14.7 |
| Greece | 24 | 23 | -1.5 | -0.6 | -0.2 | -0.2 | -0.3 | -0.1 | 0.2 | 0.5 | 0.6 | 0.0 | -0.1 | -0.3 | -0.1 | -1.9 |
| Hungary | 42 | 24 | -12.6 | -16.3 | -9.8 | -10.9 | 1.5 | 3.5 | -5.5 | 4.8 | 1.1 | -3.3 | -3.3 | 2.6 | -0.1 | -44.2 |
| Iceland | 1 | 1 | -0.8 | -2.4 | -1.0 | -0.2 | -0.2 | 0.1 | 0.1 | 1.8 | -1.7 | -2.7 | -0.3 | -4.1 | -2.1 | -12.8 |
| Ireland | 60 | 64 | 2.3 | 1.6 | 1.3 | 1.1 | 1.1 | 1.6 | 2.3 | 2.6 | 0.3 | -1.7 | -2.1 | -1.1 | -2.1 | 7.1 |
| Italy | 192 | 182 | 1.0 | -3.7 | -0.2 | -2.6 | 2.1 | 0.6 | -0.1 | 1.0 | 1.0 | -2.9 | 2.2 | -0.7 | -2.6 | -5.1 |
| Japan | 51 | 43 | -0.5 | -0.9 | -1.8 | -2.4 | -2.1 | -1.5 | -1.4 | -1.3 | -1.4 | -1.1 | -0.8 | -0.6 | -0.4 | -15.0 |
| Latvia | 13 | 4 | -6.3 | -23.8 | -39.8 | -9.6 | 2.9 | -10.3 | -6.3 | -6.3 | -8.7 | -2.7 | 7.1 | 3.0 | -2.5 | -69.9 |
| Liechtenstein | 0 | 0 | | | | | | | | | | | | | | -1.7 |
| Lithuania | 23 | 9 | | | | | | | | | | | | 3.8 | 2.7 | -61.0 |
| Luxembourg | | 1 | | | | | | | | | | | | | | |
| Monaco | | 0 | | | | | | | | | | | | | | |
| Netherlands | 141 | 115 | 0.7 | -1.1 | -0.2 | -4.1 | 7.4 | -1.4 | -0.3 | -7.3 | -1.8 | -1.7 | -1.4 | -4.1 | -4.2 | -18.4 |
| New Zealand | 27 | 26 | -1.3 | -1.3 | 0.3 | 1.5 | 1.3 | -0.1 | -1.2 | -1.1 | -1.1 | -1.0 | -0.5 | -0.1 | 0.2 | -4.4 |
| Norway | 14 | 15 | 2.7 | 0.4 | -0.6 | 1.1 | 1.7 | 1.8 | 0.2 | 1.3 | -0.9 | -0.9 | -2.6 | -1.9 | 1.2 | 3.5 |
| Portugal | 74 | 66 | -0.4 | 0.3 | -1.7 | -1.7 | -3.7 | -0.5 | -0.4 | -0.1 | -0.7 | 0.0 | -0.2 | -1.2 | -1.2 | -10.9 |
| Romania | 207 | 84 | -6.4 | -13.6 | -12.6 | -4.4 | -10.0 | 1.6 | 0.7 | -9.9 | -0.7 | -10.5 | -11.1 | -4.3 | 7.2 | -59.2 |
| Slovakia | 18 | 9 | -7.0 | -9.2 | -8.1 | -5.2 | 2.7 | -4.9 | -8.2 | -11.7 | -3.4 | -3.6 | 0.1 | 2.2 | -4.9 | -47.3 |
| Slovenia | 12 | 8 | -6.8 | 5.0 | -3.7 | 0.0 | -19.1 | -6.4 | 1.9 | 0.6 | -2.1 | -1.4 | -14.3 | 1.9 | -5.2 | -38.6 |
| Spain | 296 | 413 | -3.5 | 8.9 | 1.8 | 6.0 | 0.2 | -1.2 | 5.2 | 7.0 | 1.6 | 5.8 | 1.8 | 0.1 | 0.8 | 39.3 |
| Sweden | 17 | 22 | -2.2 | 3.1 | 13.1 | 2.7 | 0.5 | 1.3 | -2.3 | -1.1 | -0.5 | -4.1 | 12.4 | -0.6 | 3.9 | 27.4 |
| Switzerland | 22 | 19 | -0.2 | -2.3 | 0.1 | -4.1 | 1.1 | -4.3 | -1.3 | 0.8 | -0.3 | -0.5 | 1.3 | -1.3 | -1.1 | -11.6 |
| Ukraine | 220 | 81 | -2.5 | -4.9 | -7.1 | -4.6 | -8.9 | -8.2 | -12.9 | -14.6 | -1.9 | -5.0 | -14.9 | 7.1 | -15.1 | -63.2 |
| United Kingdom | 139 | 124 | -1.1 | -0.3 | 0.7 | 1.1 | -1.9 | 0.7 | -0.2 | 0.5 | -1.2 | -3.8 | -3.9 | -1.1 | -0.4 | -10.7 |
| United States | 1,485 | 1,864 | 6.2 | -3.3 | 2.4 | 7.7 | 2.1 | -3.8 | 4.8 | 6.8 | -0.2 | -1.8 | 2.2 | 1.1 | -0.5 | 25.5 |

^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 4.7

Manure management – trend information (continued)

| N ₂ O emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|---------------------------------|------------------------|------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 1.7 | 4.1 | 10.8 | 14.6 | 14.0 | 10.8 | 11.2 | -3.1 | 11.1 | 8.3 | 14.3 | 6.0 | 0.4 | -0.2 | -2.3 | 146.6 |
| Austria | 2.5 | 2.3 | -1.2 | -3.7 | 0.8 | 1.2 | 1.3 | -1.7 | -0.9 | -0.3 | -1.8 | -1.7 | -0.7 | -2.0 | -0.3 | -10.5 |
| Belarus | 0.0 | 0.0 | 100.0 | -50.0 | | | | | | | | | | | | |
| Belgium | 3.1 | 2.9 | 0.2 | -1.0 | 2.0 | 0.7 | 1.7 | -2.4 | -0.3 | -0.5 | 0.4 | -1.2 | -0.4 | -3.6 | -4.3 | -8.7 |
| Bulgaria | 3.4 | 1.3 | -10.6 | -17.5 | -20.2 | -16.0 | -2.7 | -6.9 | -8.5 | 7.0 | 3.3 | -8.0 | -25.3 | 14.9 | 7.1 | -62.6 |
| Canada | 11.1 | 13.3 | 0.7 | 2.6 | 0.6 | 4.2 | 3.1 | 0.8 | 1.4 | -1.4 | 0.0 | 0.0 | 5.8 | 0.3 | 0.2 | 19.7 |
| Croatia | 1.2 | 0.8 | -4.1 | -6.4 | -16.8 | -7.9 | -4.7 | 51.9 | -1.0 | -2.5 | 5.7 | -2.7 | 0.7 | -42.2 | 14.2 | -34.3 |
| Czech Republic | 2.1 | 1.3 | | | | | 0.8 | 0.0 | -1.5 | -5.6 | | -5.6 | -0.8 | -7.3 | 0.6 | -41.3 |
| Denmark | 2.2 | 1.8 | -0.6 | 0.5 | -0.2 | -2.8 | -3.2 | 0.1 | 0.1 | 1.5 | -3.2 | -4.7 | 0.4 | -2.6 | -4.7 | -18.2 |
| Estonia | 0.1 | 0.0 | -6.7 | -14.5 | -22.3 | -7.7 | -10.9 | -10.1 | -3.8 | -4.5 | -12.7 | -4.5 | 23.8 | -4.4 | 1.0 | -58.1 |
| European Community | 79.9 | 70.6 | -2.4 | -1.3 | -0.9 | -2.9 | 0.3 | 0.5 | 0.0 | 0.7 | -0.8 | -1.7 | 0.5 | -1.3 | -3.1 | -11.6 |
| Finland | 2.0 | 1.5 | -8.6 | -3.6 | 0.6 | -0.5 | -9.3 | 1.3 | 3.1 | -2.0 | -3.6 | -2.8 | -3.3 | 1.2 | -1.3 | -25.9 |
| France | 22.3 | 20.3 | -1.7 | -1.4 | -0.9 | -0.1 | 0.2 | 0.3 | -1.0 | -0.6 | -1.2 | 0.6 | 0.8 | -1.7 | -2.3 | -8.7 |
| Germany | 14.4 | 9.4 | -11.3 | -2.5 | -1.0 | -18.0 | 0.1 | 1.1 | -1.3 | -0.8 | -2.0 | -1.5 | 1.1 | -2.1 | -1.5 | -34.6 |
| Greece | 1.0 | 0.9 | -2.8 | -1.8 | -1.0 | -0.5 | -0.3 | -0.2 | 0.0 | 0.7 | 1.2 | 0.3 | -0.5 | -0.9 | -0.4 | -6.2 |
| Hungary | 7.7 | 4.0 | -8.4 | -13.7 | -14.1 | -10.2 | -1.1 | -1.2 | -1.9 | 1.3 | -0.9 | 2.1 | -3.3 | -1.1 | 0.6 | -48.3 |
| Iceland | 0.1 | 0.1 | -3.9 | -3.7 | -0.3 | 0.7 | -7.8 | 1.2 | 1.0 | 2.1 | -0.8 | -7.3 | -0.2 | -2.6 | -1.0 | -21.0 |
| Ireland | 2.0 | 2.1 | 2.2 | 1.4 | 0.9 | 2.3 | -0.5 | 1.9 | 2.6 | 2.6 | 0.1 | -2.2 | -2.4 | -1.4 | -2.1 | 5.3 |
| Italy | 12.4 | 12.8 | 2.7 | -2.3 | -1.1 | 0.5 | 4.3 | 1.3 | 1.3 | 1.6 | 1.2 | -3.7 | 3.8 | -0.6 | -4.9 | 3.7 |
| Japan | 43.7 | 38.1 | -0.4 | -0.7 | -1.5 | -2.2 | -2.1 | -1.4 | -1.1 | -0.9 | -1.0 | -0.9 | -0.7 | -0.5 | -0.3 | -12.7 |
| Latvia | 1.0 | 0.4 | -0.8 | -6.4 | -25.4 | -13.2 | -0.6 | -6.5 | -6.6 | -8.4 | -11.9 | -2.8 | 6.1 | 1.7 | -1.4 | -56.5 |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | 0.7 | | | | | | | | | | | | 3.0 | 3.5 | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | 0.0 | | | | | | | | | | | | | | |
| Netherlands | 2.2 | 1.9 | 3.7 | 6.2 | 2.1 | -5.8 | 4.4 | -2.1 | -0.9 | 8.2 | 0.8 | -5.5 | -0.4 | | -18.9 | -10.6 |
| New Zealand | 0.1 | 0.2 | 0.6 | 2.0 | 5.4 | 8.1 | 5.7 | 3.9 | 2.5 | 3.0 | 3.6 | 3.8 | 4.4 | 3.0 | 2.8 | 61.0 |
| Norway | 0.4 | 0.5 | 5.2 | -0.1 | -2.2 | 3.9 | 1.3 | -0.4 | -2.1 | 0.0 | 0.5 | 1.4 | -1.2 | -1.4 | 1.1 | 5.9 |
| Portugal | 3.0 | 3.3 | -0.7 | -0.2 | -0.4 | 0.6 | 1.5 | 0.1 | 2.1 | 3.9 | 0.0 | 0.6 | 1.1 | 0.7 | -0.2 | 9.5 |
| Romania | 1.0 | 0.4 | -11.4 | -16.4 | -14.6 | -3.6 | -5.3 | 1.0 | -1.5 | -7.4 | -2.2 | -4.7 | -6.8 | -2.8 | 4.0 | -55.4 |
| Slovakia | 3.5 | 1.5 | -9.3 | -13.7 | -13.3 | -6.4 | 5.1 | -7.5 | -8.3 | -12.1 | -5.3 | -2.5 | 0.2 | -4.5 | -3.1 | -57.4 |
| Slovenia | 1.2 | 0.8 | -9.8 | 4.8 | -10.2 | -4.9 | 0.4 | -5.0 | -3.5 | -2.0 | -2.9 | 0.2 | -1.2 | 1.1 | -4.9 | -35.5 |
| Spain | 5.3 | 5.2 | -0.4 | -0.2 | -2.8 | 0.6 | -1.5 | 1.4 | 0.3 | 2.0 | 0.1 | -0.9 | 0.6 | 1.0 | -1.4 | -1.5 |
| Sweden | 2.6 | 1.8 | -2.8 | 2.1 | -9.1 | 0.5 | -7.8 | -0.1 | 3.5 | -0.1 | -7.0 | -2.2 | -5.9 | 0.1 | -5.3 | -29.8 |
| Switzerland | 1.4 | 1.3 | -0.3 | -1.5 | -0.3 | -1.7 | -1.6 | 0.8 | -2.1 | -0.8 | -2.1 | 0.2 | -2.2 | 0.3 | -0.9 | -11.5 |
| Ukraine | 29.9 | 10.5 | -2.3 | -3.4 | -5.2 | -3.3 | -8.2 | -9.0 | -11.8 | -14.8 | -6.8 | -8.1 | -11.1 | -1.7 | -13.6 | -64.9 |
| United Kingdom | 4.9 | 4.3 | -0.3 | -1.6 | 0.7 | 1.3 | -1.3 | 1.1 | 0.0 | 1.1 | -0.1 | -5.9 | -4.2 | -3.0 | -1.3 | -12.8 |
| United States | 52.4 | 56.5 | 3.1 | -1.3 | 2.6 | 0.0 | 1.0 | -0.6 | 1.8 | 0.3 | 0.1 | 2.3 | 1.2 | -0.5 | -2.3 | 7.8 |

^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 4.8

Agricultural soils, N₂O (2003)

| | Methods and EF used ^a | | Direct soil emissions | | | | | | | | Animal production | | | Indirect soil emissions | | | | | |
|--------------------|----------------------------------|---------------------------|-----------------------|-------------------------|-----------------------|---------------------------------------|--------------------------------|--------------------------------|---|------------------------------|-------------------|--------------------------------|-------------------------------------|-------------------------|-------------------------|-------------------------------|---------------|---------------------------------|--------------------------------|
| | | | Key source | Share of national total | Synthetic fertilizers | | Animal wastes applied to soils | N-fixing crops | Crop residue | Cultivation of histosols | Key source | Share of national total | Pasture range and paddock (grazing) | Key source | Share of national total | Atmospheric deposition | | Nitrogen leaching and run-off | |
| | Activity data | N ₂ O IEF | | | N ₂ O IEF | Activity data | | | | | | | | | | N ₂ O IEF | Activity data | N ₂ O IEF | |
| | Use of synthetic fertilizers | | | | | | (kg N / yr) | (kg N ₂ O-N / kg N) | (kg N ₂ O-N / kg dry biomass) ^b | (kg N ₂ O-N / ha) | | | | | | | | | |
| | (%) | (kg N / yr) | | | | | | | | | | | (kg N ₂ O-N / kg N) | | | | | | (kg N ₂ O-N / kg N) |
| IPCC default EF | | | | | | 0.0125 (0.0025 - 0.0225) ^b | | | | 5, 10 (2-15) ^c | | 0.02 (0.005-0.03) ^d | | | | 0.01 (0.002-0.2) ^e | | 0.025 (0.002-0.12) ^e | |
| Australia | CS | CS | L, T | 1.5 | 951,955,589 | 0.0125 | 0.0180 | IE | IE | IE | L, T | 0.8 | 0.004 | | 0.0 | IE | IE | NE | NE |
| Austria | T1 | D | L, T | 1.5 | 96,942,250 | 0.0125 | 0.0125 | 0.0125 | 0.0125 | NO | | 0.2 | 0.020 | L, T | 1.1 | 31,740,639 | 0.010 | 70,735,515 | 0.025 |
| Belarus | D,T1 | D | L | 6.4 | 279,000,000 | 0.0125 | 0.0129 | 0.0124 | 0.0125 | 5.00 | | 0.0 | 0.020 | L | 1.8 | 31,063,437 | 0.010 | 93,095,155 | 0.025 |
| Belgium | | | L, T | 1.4 | 150,625,950 | 0.0125 | 0.0125 | 0.0007 | 0.0002 | 5.00 | | 0.6 | 0.020 | L, T | 0.6 | 52,098,070 | 0.010 | 52,561,511 | 0.025 |
| Bulgaria | D | D | L, T | 1.5 | 126,837,000 | 0.0100 | 0.0100 | 0.0003 | 0.0001 | 8.00 | L, T | 0.8 | 0.020 | T | 0.8 | 39,529,059 | 0.010 | 26,811,030 | 0.025 |
| Canada | T1 | D | L, T | 3.0 | 1,608,795,000 | 0.0112 | 0.0100 | 0.0125 | 0.0125 | 8.00 | | 0.4 | 0.020 | L | 0.9 | 362,755,259 | 0.010 | 392,726,069 | 0.025 |
| Croatia | T1 | D | L | 3.4 | 90,438,300 | 0.0125 | 0.0125 | 0.0125 | 0.0125 | 5.00 | | 0.7 | 0.020 | L | 2.7 | 113,911,691 | 0.002 | 189,984,941 | 0.008 |
| Czech Republic | D | D | L | 1.8 | 204,496,200 | 0.0125 | 0.0125 | 0.0125 | 0.0125 | 5.00 | | 0.2 | 0.020 | L | 1.3 | 64,027,800 | 0.010 | 130,124,400 | 0.025 |
| Denmark | CS/M | CS/M | L, T | 3.8 | 196,776,890 | 0.0125 | 0.0125 | 0.0125 | 0.0125 | 8.00 | | 0.4 | 0.020 | L, T | 3.2 | 77,832,455 | 0.010 | 164,155,194 | 0.025 |
| Estonia | T1 | D | | 0.7 | 20,929,500 | 0.0125 | 0.0125 | 0.0007 | 0.0000 | | | 0.0 | 0.020 | | 0.5 | 2,791,984 | 0.010 | 7,676,227 | 0.025 |
| European Community | C, CS, D, M, T1, T1a, T1b, T2 | C, CS, D, M | L, T | 2.4 | 8,573,281,610 | 0.0123 | 0.0131 | NE | NE | 7.63 | L | 0.7 | 0.020 | L, T | 1.6 | 2,792,956,130 | 0.009 | 4,840,620,172 | 0.022 |
| Finland | D | D/CS | L, T | 2.9 | 159,040,000 | 0.0125 | 0.0125 | 0.0125 | 0.0125 | 8.00 | | 0.2 | 0.020 | L, T | 0.7 | 28,757,650 | 0.010 | 37,097,927 | 0.025 |
| France | C/ T1 | D/ CS | L, T | 4.2 | 2,050,918,200 | 0.0125 | 0.0125 | 0.0008 | 0.0001 | NO | L, T | 1.4 | 0.020 | L, T | 3.2 | 601,130,548 | 0.004 | 1,243,515,522 | 0.025 |
| Germany | C,CS | C,D | L, T | 2.3 | 1,787,833,000 | 0.0125 | 0.0125 | 2.9106 | NA | 8.00 | | 0.2 | 0.020 | L | 1.1 | 494,570,282 | 0.010 | 718,235,505 | 0.025 |
| Greece | T1a, T1b | D | L, T | 1.3 | 220,140,000 | 0.0125 | 0.0125 | 0.0005 | 0.0001 | 8.00 | L, T | 2.6 | 0.020 | L, T | 2.1 | 106,744,922 | 0.010 | 196,807,383 | 0.025 |
| Hungary | D | D | L, T | 5.5 | 252,000,000 | 0.0125 | 0.0125 | 0.0125 | 0.0125 | NO | | 0.2 | 0.020 | L, T | 2.8 | 73,762,519 | 0.010 | 152,643,778 | 0.025 |
| Iceland | T1b | D | L | 2.7 | 9,309,600 | 0.0125 | 0.0125 | NO | 0.0125 | NE | L | 1.4 | 0.020 | L | 2.9 | 2,926,130 | 0.010 | 5,940,795 | 0.025 |
| Ireland | D | CS, D | L, T | 4.7 | 359,230,040 | 0.0125 | 0.0125 | 0.0125 | 0.0125 | | L, T | 4.2 | 0.020 | L, T | 2.2 | 93,974,161 | 0.010 | 83,194,989 | 0.025 |
| Italy | D | D, CS | L, T | 1.5 | 745,417,335 | 0.0125 | 0.0125 | 0.0005 | 0.0001 | 8.00 | | 0.3 | 0.020 | L, T | 1.4 | 402,837,467 | 0.010 | 495,036,107 | 0.025 |
| Japan | CS | CS | | 0.3 | 463,014,000 | 0.0091 | 0.0080 | IE | NE | NE | | 0.0 | NE | T | 0.3 | 154,223,187 | 0.010 | 300,786,880 | 0.025 |
| Latvia | T1 | D | L, T | 4.4 | 33,660,000 | 0.0125 | 0.0125 | 0.0125 | 0.0125 | 8.00 | | 0.7 | 0.020 | L, T | 2.9 | 10,176,194 | 0.010 | 20,874,291 | 0.025 |
| Liechtenstein | | | | | | IE | IE | IE | IE | IE | | 0.0 | IE | | | | NE | | NE |
| Lithuania | D | D | L | | 57,344,700 | 0.0130 | 0.0070 | NE | NE | NO | | | 0.020 | | | NE | NE | NE | NE |
| Luxembourg | | | | | | | | | | | | | | | | | | | |
| Monaco | | | | | NO | NO | NO | NO | NO | NO | | 0.0 | NO | | | NO | NO | NO | NO |
| Netherlands | CS/T1b (Direct and indirect) | CS (indirect), D (direct) | L | 2.2 | 291,000,000 | 0.0100 | 0.0178 | 0.0098 | 0.0100 | 4.71 | T | 0.3 | 0.015 | L, T | 1.5 | 110,100,000 | 0.010 | 743,400,000 | 0.007 |
| New Zealand | D, T1a | CS, D | L, T | 4.2 | 298,380,000 | 0.0125 | 0.0125 | 0.0125 | 0.0125 | 8.00 | L, T | 14.2 | 0.010 | L | 6.3 | 348,973,498 | 0.010 | 133,744,391 | 0.025 |
| Norway | T1a | D, CS | L, T | 3.1 | 103,203,605 | 0.0125 | 0.0125 | 0.0125 | 0.0125 | 8.00 | | 0.4 | 0.020 | L | 0.7 | 15,931,426 | 0.010 | 27,266,853 | 0.025 |
| Portugal | D | D | L, T | 1.7 | 109,720,515 | 0.0125 | 0.0125 | 0.0011 | 0.0001 | NO | L, T | 0.7 | 0.020 | L, T | 1.6 | 56,285,975 | 0.010 | 80,981,121 | 0.025 |
| Romania | D | D | L, T | 2.5 | 226,800,000 | 0.0125 | 0.0125 | 0.0125 | 0.0125 | NE | | 0.1 | 0.020 | | 1.0 | 34,662,404 | 0.010 | 89,793,606 | 0.025 |
| Slovakia | T1, T2 | D, CS | L | 3.6 | 73,170,000 | 0.0125 | 0.0125 | 0.0125 | 0.0125 | NO | | 0.2 | 0.020 | | 0.8 | 24,115,420 | 0.010 | 22,571,794 | 0.025 |
| Slovenia | T1 | D | L | 2.3 | 31,050,900 | 0.0125 | 0.0125 | 0.0125 | 0.0125 | NE | | 0.3 | 0.020 | L | 2.0 | 14,512,511 | 0.010 | 26,943,916 | 0.025 |
| Spain | D,CS | D,CS | L, T | 2.3 | 1,100,490,417 | 0.0125 | 0.0125 | 0.0125 | 0.0125 | NO | L, T | 0.8 | 0.020 | L, T | 1.4 | 359,379,658 | 0.010 | 310,711,863 | 0.025 |
| Sweden | D, C | CS | L, T | 4.1 | 180,100,000 | 0.0079 | 0.0250 | 0.0006 | 0.0001 | 8.01 | T | 0.4 | 0.016 | L, T | 1.3 | 39,009,000 | 0.010 | 61,377,000 | 0.025 |
| Switzerland | CS | CS | L, T | 2.3 | 50,008,000 | 0.0125 | 0.0125 | 0.0125 | 0.0125 | 8.00 | | 0.3 | 0.020 | L, T | 1.3 | 47,603,744 | 0.010 | 37,007,529 | 0.025 |
| Ukraine | T1 | D | L | 1.3 | 244,926,000 | 0.0125 | 0.0125 | 0.0125 | 0.0125 | NE | | 0.2 | 0.020 | | 0.9 | 178,404,406 | 0.010 | 308,427,609 | 0.025 |
| United Kingdom | T1a/T1b | D | L | 1.9 | 1,125,047,013 | 0.0125 | 0.0125 | 0.0008 | 0.0000 | 8.00 | L, T | 0.7 | 0.020 | L, T | 1.3 | 338,495,304 | 0.010 | 582,810,536 | 0.025 |
| United States | T3 | CS | L | 1.7 | 9,799,059,317 | 0.0234 | IE | IE | IE | 9.56 | L, T | 0.6 | 0.022 | L, T | 1.4 | 3,377,663,214 | 0.010 | 7,700,242,436 | 0.022 |

^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 N₂O from 4.D Agricultural soils.

^b Source of default emission factors: IPCC Guidelines, Volume 3; table 4-18, page 4.89. (See also IPCC good practice guidance, table 4-17, page 4.60.) IEFs for N-fixing crops and crop residues are shown in the unit kg N₂O-N/kg dry biomass for most Parties (this corresponds to the unit used in the CRF Excel software application based on the CRF adopted by decision 3/CP.5). However, for Parties that for their 2005 submission used the CRF Reporter (which is based on the revised CRF adopted by decision 18/CP.8), these two IEFs are given in the unit kg N₂O-N/kgN. The unit of the IPCC default emission factor is also kg N₂O-N/kgN.

^c For cultivation of histosols the two default values refer to temperate and tropical, respectively. The values in parenthesis indicate the range. 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).

^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**Agricultural soils, N₂O – trend information**

| N ₂ O emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|---------------------------------|------------------------|------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 1994 to 1995 | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998to 1999 | 1999 to 2000 | 2000 to 2001 | 2001 to 2002 | 2002 to 2003 | Base year ^a to 2003 |
| Australia | 49 | 60 | 0.9 | -0.7 | 1.9 | 0.8 | -1.1 | -1.2 | 6.6 | 5.3 | 5.9 | 4.8 | 2.0 | -1.0 | -2.6 | 23.3 |
| Austria | 10 | 9 | 8.4 | -7.8 | -7.7 | 16.7 | 0.9 | -11.6 | 3.8 | 0.5 | -5.9 | -1.8 | 2.9 | -3.3 | -6.2 | -13.4 |
| Belarus | 32 | 19 | -7.9 | -14.2 | -8.4 | -26.5 | -16.4 | 17.7 | 12.1 | 7.6 | -12.6 | 5.9 | 81.1 | -51.1 | 14.7 | -40.7 |
| Belgium | 14 | 13 | -1.0 | -0.7 | 0.5 | -0.6 | 2.0 | -4.1 | -0.7 | 1.8 | -0.6 | -2.3 | 0.0 | -2.8 | -3.9 | -12.0 |
| Bulgaria | 22 | 7 | -26.2 | -20.7 | -10.2 | 1.2 | -14.5 | -5.1 | 3.7 | -13.3 | 12.4 | -4.3 | -8.1 | 2.8 | -7.6 | -69.3 |
| Canada | 87 | 103 | -2.7 | 1.9 | 4.0 | 5.2 | 2.2 | 5.5 | 0.1 | 1.4 | 2.4 | 0.6 | -6.9 | -4.2 | 8.9 | 18.8 |
| Croatia | 8 | 7 | 4.7 | -6.4 | -20.9 | -2.5 | -8.4 | 14.1 | 16.5 | -11.7 | 3.0 | 3.0 | -13.8 | 3.6 | 12.4 | -13.4 |
| Czech Republic | 24 | 15 | | | | | 4.4 | 9.3 | -6.8 | -10.1 | -1.5 | -2.8 | 1.5 | 0.6 | -0.7 | -36.6 |
| Denmark | 27 | 18 | -1.8 | -3.7 | -2.6 | -2.6 | -2.4 | -4.7 | -1.1 | -0.6 | -6.2 | -3.6 | -2.3 | -3.9 | -2.5 | -32.2 |
| Estonia | 3 | 1 | -1.9 | -18.2 | -36.8 | -12.0 | -16.3 | -7.9 | 10.8 | 4.0 | -18.2 | 18.5 | -14.8 | -16.1 | -1.4 | -72.9 |
| European Community | 718 | 637 | -1.9 | -1.6 | -3.6 | 0.5 | 0.6 | 0.6 | 1.2 | -0.6 | -0.9 | 0.2 | -3.9 | -1.4 | -1.0 | -11.2 |
| Finland | 14 | 10 | -6.2 | -9.5 | 1.2 | -1.1 | 4.5 | -3.6 | -2.5 | -3.2 | -2.5 | 1.3 | -2.0 | -1.4 | -1.7 | -24.2 |
| France | 181 | 162 | -1.9 | 1.0 | -8.3 | 2.5 | 0.6 | -0.5 | 4.4 | -0.3 | -2.8 | 2.9 | -4.8 | -0.5 | -2.6 | -10.5 |
| Germany | 142 | 119 | -8.0 | -3.0 | -3.1 | -5.5 | 4.7 | -0.1 | -0.7 | 0.8 | 2.3 | 1.9 | -3.5 | -2.3 | -0.6 | -16.2 |
| Greece | 31 | 26 | -1.7 | -1.8 | -6.5 | 2.4 | -3.0 | 3.1 | -3.3 | -1.7 | 0.1 | -0.4 | -2.5 | -0.7 | -0.8 | -15.7 |
| Hungary | 43 | 22 | -17.2 | -20.7 | -8.8 | 12.3 | -2.8 | 4.6 | 0.0 | 5.3 | 0.4 | -10.6 | 8.5 | -0.5 | -7.4 | -49.4 |
| Iceland | 1 | 1 | -2.2 | -6.2 | 2.1 | 2.1 | -3.9 | 4.5 | -1.6 | 1.1 | 3.5 | -1.9 | -1.0 | -6.7 | -4.0 | -14.1 |
| Ireland | 24 | 24 | 2.6 | 0.6 | 0.3 | 1.7 | 1.9 | 1.9 | 0.4 | 1.3 | 0.8 | -0.3 | -3.6 | -3.5 | -2.0 | 2.0 |
| Italy | 61 | 59 | 4.2 | 1.3 | 1.9 | -2.1 | -2.7 | -1.4 | 5.3 | -3.3 | 0.9 | -1.8 | -1.9 | 0.0 | -2.2 | -2.2 |
| Japan | 31 | 25 | -2.5 | -0.8 | -0.7 | -2.4 | -3.8 | -3.5 | -2.1 | -1.4 | -0.5 | -0.1 | -0.9 | -1.1 | -0.9 | -18.9 |
| Latvia | 8 | 3 | -5.0 | -28.5 | -33.5 | -18.5 | -20.6 | 1.6 | -0.5 | -3.6 | -11.4 | 7.7 | 14.8 | -3.0 | 9.7 | -66.9 |
| Liechtenstein | 0 | 0 | | | | | | | | | | | | | | 5.9 |
| Lithuania | 11 | 1 | | | | | | | | | | | | 46.2 | -78.2 | -86.6 |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | 0 | | | | | | | | | | | | | | |
| Netherlands | 35 | 28 | 2.2 | 4.9 | 1.3 | -3.7 | 4.6 | -1.7 | -1.3 | -2.5 | -3.9 | -8.3 | -4.2 | -6.0 | -2.0 | -19.5 |
| New Zealand | 32 | 42 | 0.2 | 0.8 | 2.8 | 2.9 | 2.1 | 1.0 | 0.8 | 0.6 | 1.9 | 3.4 | 4.2 | 3.0 | 2.4 | 29.4 |
| Norway | 8 | 8 | 0.5 | -3.1 | 1.9 | -1.7 | 2.1 | 1.6 | 0.5 | 0.4 | -2.7 | 1.8 | -3.1 | -2.0 | 1.7 | -2.4 |
| Portugal | 11 | 10 | -3.4 | -4.7 | 0.1 | 0.1 | 0.0 | 2.0 | -2.7 | 3.8 | -2.9 | -2.4 | 0.9 | -0.5 | -0.2 | -9.8 |
| Romania | 35 | 15 | -37.7 | -18.4 | 23.9 | -0.6 | 2.5 | -21.3 | 20.4 | -13.8 | 20.2 | -29.9 | 30.6 | -17.3 | -3.8 | -57.0 |
| Slovakia | 13 | 8 | -16.9 | -16.3 | -11.5 | -1.4 | 1.0 | -0.6 | 2.0 | -6.5 | -6.5 | 3.4 | 3.4 | -0.1 | -2.5 | -43.4 |
| Slovenia | 3 | 3 | -8.9 | 20.8 | -8.5 | 1.0 | 0.2 | -2.6 | 1.7 | 2.4 | 0.0 | 2.7 | -1.5 | 1.0 | -3.0 | -6.1 |
| Spain | 52 | 60 | -0.8 | -3.8 | -8.1 | 10.0 | -5.5 | 16.4 | -5.2 | 3.8 | 4.1 | 6.2 | -6.2 | -3.1 | 8.7 | 13.9 |
| Sweden | 17 | 16 | -3.3 | -2.1 | 3.4 | 1.4 | -1.7 | 0.1 | 1.0 | -1.3 | -5.1 | -0.5 | 0.6 | -1.7 | -0.2 | -9.4 |
| Switzerland | 8 | 7 | 0.0 | -0.8 | -1.4 | -1.5 | -3.1 | 1.6 | -4.4 | -0.5 | -0.9 | 0.4 | -0.8 | -0.3 | -2.9 | -13.7 |
| Ukraine | 89 | 40 | -7.1 | -1.0 | 33.0 | -32.6 | -11.7 | 6.4 | -6.9 | -13.1 | -8.4 | -9.7 | 0.3 | 2.0 | -14.4 | -54.5 |
| United Kingdom | 98 | 83 | -0.4 | -5.3 | -1.7 | 2.6 | 0.6 | 0.6 | 3.1 | -2.9 | -2.0 | -3.7 | -6.4 | 2.1 | -2.5 | -15.3 |
| United States | 816 | 818 | -2.1 | -5.8 | 6.2 | -3.7 | 2.7 | 9.2 | -5.7 | 6.2 | -9.1 | 8.4 | -2.6 | -1.8 | 0.4 | 0.2 |

^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 4.10**Agricultural soils: parameters used (2003)**Parameters (fractions) used to estimate N₂O emissions in the agricultural soils category (direct and indirect emissions)

| | Frac _{BURN} | Frac _{FUEL} | Frac _{GRAZ} | Frac _{NCRBF} | Frac _{NCRO} | Frac _R | Frac _{GASF} | Frac _{GASM} | Frac _{LEACH} |
|------------------------|----------------------|-------------------------|-------------------------|---------------------------|---------------------------|-------------------|--|---|---------------------------------------|
| | (kg N/kg crop-N) | (kg N/ kg N excreted) | | (kg N/ kg of dry biomass) | (kg N/ kg of dry biomass) | (kg N/ kg crop-N) | (NH ₃ -N + NO _x -N/ kg of synth fert. N applied) | (NH ₃ -N + NO _x -N/ kg of N excreted) | (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 | NA | NA | NA | NA | NA | NA | NA | NA |
| Austria | 0.00 | 0.00 | 0.16 | 0.01 | 0.015 | 0.34 | 0.03 | 0.20 | 0.30 |
| Belarus | 0.01 | 0.00 | 0.02 | 0.03 | 0.015 | 0.45 | 0.10 | 0.20 | 0.30 |
| Belgium | | | | | | | | | |
| Bulgaria | 0.10 | 0.00 | 0.46 | 0.03 | 0.015 | 0.10 | 0.10 | 0.20 | 0.10 |
| Canada | 0.00 | 0.00 | 0.00 | 0.03 | 0.015 | 0.00 | 0.00 | 0.00 | 0.00 |
| Croatia | 0.10 | 0.00 | 0.24 | 0.02 | 0.030 | 0.45 | 0.10 | 0.15 | 0.30 |
| Czech Republic | | | | | | | | | |
| Denmark | NO | NO | 0.12 | NE | NE | 0.26 | 0.02 | 0.22 | 0.34 |
| Estonia | NO | NO | 0.20 | 0.02 | 0.030 | 0.45 | 0.10 | 0.20 | 0.30 |
| European Community | | | | | | | | | |
| Finland | NE | 0.00 | 0.22 | 0.01 | 0.042 | 0.43 | 0.01 | 0.31 | 0.15 |
| France | NA | NA | 0.28 | CS | CS | CS | 0.10 | 0.20 | 0.30 |
| Germany | 0.00 | 0.00 | 0.15 | NA | NA | NA | 0.06 | 0.29 | 0.30 |
| Greece | 0.10 | 0.00 | 0.88 | | | | 0.10 | 0.20 | 0.30 |
| Hungary | 0.09 | 0.00 | 0.08 | 0.03 | 0.015 | 0.45 | 0.10 | 0.20 | 0.30 |
| Iceland | NO | NO | 0.46 | 0.01 | NO | 0.40 | 0.10 | 0.20 | 0.30 |
| Ireland | 0.00 | 0.00 | 0.63 | as GPG | as GPG | as GPG | 0.04 | 0.17 | 0.10 |
| Italy | 0.10 | 0.00 | 0.25 | 0.03 | 0.015 | 0.45 | 0.10 | 0.39 | 0.30 |
| Japan | NE | NE | NE | NE | NE | NE | 0.10 | 0.20 | 0.30 |
| Latvia | 0.10 | NO | 0.23 | 0.02 | 0.030 | 0.45 | 0.10 | 0.20 | 0.30 |
| Liechtenstein | | | | | | | | | |
| Lithuania | | | | | | | | | |
| Luxembourg | | | | | | | | | |
| Monaco | | | | | | | | | |
| Netherlands | NO | NO | NE | NE | NE | NE | NE | NE | NE |
| New Zealand | 0.50 | 0.00 | IE | 0.03 | 0.015 | 0.45 | 0.10 | 0.20 | 0.07 |
| Norway | 0.08 | NO | 0.31 | NE | NE | NE | 0.01 | 0.20 | 0.18 |
| Portugal | 0.06 | 0.00 | 0.27 | 0.01 | 0.022 | 0.72 | 0.06 | 0.16 | 0.30 |
| Romania | 0.10 | 0.00 | 0.34 | 0.02 | 0.030 | 0.45 | 0.10 | 0.20 | 0.30 |
| Slovakia | NO | 0.00 | 0.06 | 0.07 | 0.145 | NE | 0.10 | 0.24 | 0.14 |
| Slovenia | 0.00 | 0.00 | 0.11 | 0.02 | 0.008 | 0.47 | 0.10 | 0.20 | 0.30 |
| Spain | NA | 0.00 | NA | NA | NA | NA | 0.07 | 0.36 | 0.15 |
| Sweden | NO | NO | 0.29 | 0.01 | 0.020 | 0.20 | 0.01 | 0.33 | 0.21 |
| Switzerland | NO | NO | 0.13 | 0.02 | 0.011 | 0.39 | 0.07 | 0.33 | 0.20 |
| Ukraine | 0.10 | 0.00 | 0.02 | 0.02 | 0.030 | 0.45 | 0.10 | 0.20 | 0.30 |
| United Kingdom | 0.00 | 0.00 | 0.52 | 0.03 | 0.015 | 0.45 | 0.10 | 0.20 | 0.30 |
| United States | NA | NO | 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 which volatilizes as NH ₃ and Nox |
| Frac _{NCRBF} | Fraction of N in non-N-fixing crop | Frac _{GASM} | Fraction livestock N excretion that volatilizes as NH ₃ and NOx |
| Frac _{NCRO} | Fraction of N in N-fixing crop | Frac _{LEACH} | Fraction of N input to soils which is lost through leaching and runoff |
| Frac _R | Fraction of crop residue removed from the field as crop | | |

^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.

Land Use, Land-use Change and Forestry
Figure 5.1

Net CO₂ emissions/removals from LULUCF^d

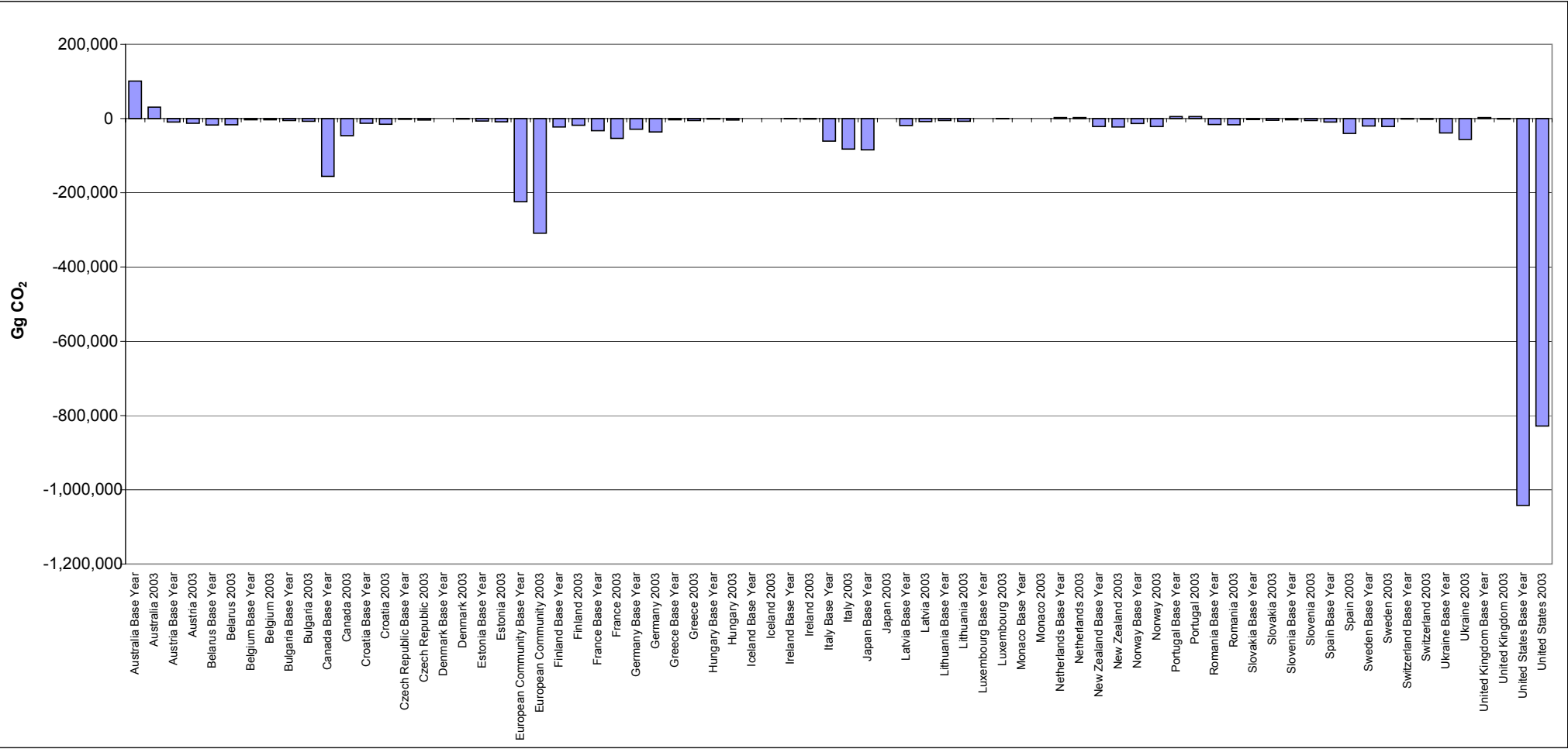


Table 5.1

LULUCF sector - trend information

| Net CO ₂ emissions/removals (Gg) | | | Relative Change (%) | | | | | | | | | | | | | Base year ^a to 2003 |
|---|------------------------|-------------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | |
| Australia | 101,141.87 | 30,581.52 | -24.6 | -22.4 | -21.4 | 0.4 | -6.0 | -8.6 | -11.3 | 35.4 | -17.4 | 5.5 | -12.2 | 10.1 | -24.7 | -69.8 |
| Austria | -9,013.33 | -12,772.55 | 30.6 | -28.4 | 3.9 | -12.8 | -7.8 | -26.3 | 125.2 | 8.7 | -0.5 | 8.0 | -2.2 | -15.2 | 12.9 | 41.7 |
| Belarus ^b | -17,221.24 | -16,738.66 | -15.4 | 7.4 | 7.9 | 4.8 | 2.7 | 0.0 | 0.9 | 1.1 | 4.2 | -1.6 | -11.1 | -32.2 | 46.1 | -2.8 |
| Belgium | -3,103.47 | -3,359.26 | -9.2 | 11.2 | -2.3 | 0.9 | -5.5 | 1.8 | 0.8 | -3.9 | -2.0 | 11.2 | 40.7 | -9.8 | -15.6 | 8.2 |
| Bulgaria ^b | -5,132.63 | -7,055.98 | 24.0 | -2.9 | 0.9 | -2.3 | 3.1 | -13.4 | 5.4 | -0.2 | 4.9 | 24.7 | 5.5 | -12.1 | -15.2 | 37.5 |
| Canada | -155,390.52 | -45,868.70 | -12.6 | 3.3 | -19.6 | -1.2 | -100.9 | -9,707.0 | 13.5 | -38.5 | 9.2 | 22.8 | 5.9 | -59.4 | 25.2 | -70.5 |
| Croatia ^b | -12,687.87 | -15,373.00 | | | | | | | 13.8 | | | | | 6.4 | | 21.2 |
| Czech Republic ^b | -2,127.86 | -3,848.23 | | | | | -9.2 | 5.5 | 3.4 | -19.0 | -9.5 | 18.1 | 8.6 | 3.0 | -14.3 | 80.8 |
| Denmark | 159.63 | -1,203.49 | -167.4 | 133.2 | 83.7 | -28.7 | -30.0 | 83.3 | 5.5 | 83.9 | 5.8 | -305.9 | -165.0 | 27.5 | -18.5 | -853.9 |
| Estonia ^b | -6,319.96 | -8,717.19 | 13.3 | 9.1 | 24.0 | -21.6 | 2.3 | 23.5 | -5.2 | -6.4 | -4.9 | 3.2 | 12.6 | -9.1 | 1.8 | 37.9 |
| European Community ^b | -223,716.22 | -309,033.44 | 21.1 | -3.3 | 0.0 | 1.7 | -1.0 | 6.3 | -0.2 | -0.7 | 6.2 | -3.5 | 8.3 | 7.0 | -6.3 | 38.1 |
| Finland | -22,794.05 | -17,802.33 | 62.5 | -14.5 | -7.8 | -40.8 | -5.0 | 38.8 | -44.3 | -29.8 | 2.7 | 5.3 | 52.3 | 5.6 | 14.9 | -21.9 |
| France ^b | -32,667.73 | -53,073.22 | -15.7 | 19.4 | 19.8 | 5.7 | -8.6 | 8.8 | 8.4 | -1.9 | 5.0 | -12.8 | 20.4 | 13.5 | -3.7 | 62.5 |
| Germany | -28,943.98 | -35,690.29 | 2.4 | 1.8 | 2.1 | 2.0 | 0.8 | 1.3 | 1.2 | 0.8 | 1.4 | 3.7 | 2.2 | 0.1 | 1.3 | 23.3 |
| Greece | -3,248.20 | -5,533.46 | 10.7 | -14.5 | 26.2 | -8.4 | 24.0 | -9.4 | -0.9 | -9.3 | 23.5 | -29.2 | 69.4 | 2.6 | 1.4 | 70.4 |
| Hungary ^b | -1,348.27 | -3,964.57 | -35.2 | 49.0 | 45.0 | 63.2 | -1.8 | -11.0 | 5.0 | 0.4 | -4.3 | -8.4 | 3.8 | -47.9 | 67.6 | 194.0 |
| Iceland ^b | -7.96 | -207.64 | 139.7 | 66.3 | 47.6 | 26.0 | 19.4 | 16.5 | 20.6 | 15.5 | 18.3 | 15.7 | 10.5 | 11.7 | 7.6 | 2,508.5 |
| Ireland ^b | -407.02 | -981.26 | 15.8 | -21.0 | 22.8 | -4.1 | -1.7 | -10.4 | 17.1 | 37.3 | -39.5 | 58.3 | 24.3 | 32.3 | 0.4 | 141.1 |
| Italy | -60,883.70 | -81,899.96 | 36.6 | -4.8 | -18.2 | 25.9 | 5.2 | 4.3 | -10.1 | 0.4 | 10.5 | -8.3 | 4.5 | 12.0 | -14.5 | 34.5 |
| Japan ^b | -83,903.07 | NE | 0.0 | 2.0 | 5.3 | 3.8 | 3.4 | | | | | | | | | |
| Latvia ^b | -18,453.38 | -8,186.76 | -5.3 | 3.3 | -5.9 | -14.8 | 1.0 | 1.4 | -20.5 | -12.9 | -9.0 | -7.6 | 11.0 | -12.2 | -2.8 | -55.6 |
| Liechtenstein ^b | | | | | | | | | | | | | | | | |
| Lithuania | -5,482.36 | -6,989.43 | | | | | | | | | | | | 2.8 | -677.7 | 27.5 |
| Luxembourg ^b | | -249.93 | | | | | | | | | | | | | | |
| Monaco | | 0.28 | | | | | | | | | | | | | | |
| Netherlands | 2,894.32 | 2,760.93 | -3.4 | -4.4 | -2.0 | 0.1 | 1.1 | 0.8 | 6.5 | -3.8 | -0.2 | 3.1 | -1.4 | -0.6 | 0.1 | -4.6 |
| New Zealand | -21,370.45 | -22,865.71 | -5.9 | -12.1 | -13.7 | -7.1 | 3.5 | 1.9 | 10.3 | 17.3 | 9.4 | 8.1 | 1.6 | 0.6 | -2.0 | 7.0 |
| Norway | -13,461.34 | -20,969.97 | -1.1 | 2.1 | -1.8 | 4.3 | -3.8 | 3.2 | 53.6 | -1.5 | 0.0 | -0.5 | 0.1 | 0.3 | 0.2 | 55.8 |
| Portugal | 5,572.83 | 5,329.99 | -22.4 | -29.5 | -9.1 | -33.7 | -52.3 | -102.2 | 449.6 | 931.8 | -60.7 | 187.8 | -29.6 | 82.4 | -431.9 | -4.4 |
| Romania | -15,713.48 | -16,882.30 | 15.2 | 4.1 | 4.9 | 2.5 | -3.4 | -4.3 | 1.5 | 9.0 | -4.7 | -4.6 | 5.2 | -11.9 | -3.4 | 7.4 |
| Slovakia | -2,406.58 | -4,833.26 | 45.6 | 18.5 | 3.2 | -22.6 | -18.7 | -10.2 | -42.1 | 38.4 | -15.6 | 46.9 | 117.4 | 0.3 | -7.8 | 100.8 |
| Slovenia ^b | -2,950.39 | -5,561.42 | 9.5 | 7.1 | 1.7 | 3.0 | 6.4 | -2.0 | | | | | | | | 88.5 |
| Spain ^b | -9,032.88 | -40,118.26 | 22.4 | 22.3 | 14.6 | 0.1 | 8.2 | 14.8 | 15.4 | 10.2 | 11.6 | 13.9 | 9.1 | 7.1 | 10.2 | 344.1 |
| Sweden ^b | -20,291.96 | -21,498.94 | 44.5 | -20.4 | 25.6 | -10.3 | -19.1 | 4.6 | 22.5 | -10.8 | 12.2 | 0.0 | -9.1 | 7.0 | -19.0 | 5.9 |
| Switzerland ^b | -1,273.29 | -1,766.45 | 5.2 | 6.3 | 67.7 | 0.2 | -1.5 | 6.5 | 6.7 | -2.7 | -13.3 | -106.6 | 201.3 | -32.2 | -678.8 | 38.7 |
| Ukraine ^b | -38,937.98 | -55,761.28 | -19.2 | 73.4 | -13.6 | 4.0 | -0.1 | 25.9 | 6.2 | -2.8 | -0.6 | -2.8 | -2.9 | -4.0 | -2.7 | 43.2 |
| United Kingdom | 2,645.25 | -1,535.71 | -2.1 | -19.8 | -56.7 | -23.8 | 14.9 | -21.8 | -65.7 | -282.5 | 42.7 | 43.1 | 25.3 | 50.9 | 3.2 | -158.1 |
| United States | -1,042,049.95 | -828,046.47 | 0.9 | -7.4 | 6.4 | -9.2 | -3.7 | 0.8 | 1.9 | -5.3 | -6.2 | -0.4 | 0.5 | 0.0 | 0.2 | -20.5 |

^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).

^b These Parties did not report using the tables of the CRF for LULUCF sector as required by decision 13/CP.9. For these Parties, the data included in this table are taken from table 5 of the CRF reported using the previous reporting guidelines.

Table 5.2

Methods and emission factors used (2003)

| | Forestland | | | | Cropland | | | | Grassland | | | | Wetlands | | | | Settlements | | | | Other land | | | |
|--------------------|------------------|--------|---|---|-----------------|--------|--|--|-----------------|--------|----------------------------------|----------------------|-----------------|-------|--|---|-----------------|--------|--|--|-----------------|-------|----------------------------------|----|
| | CO ₂ | | Non-CO ₂ ^a | | CO ₂ | | Non-CO ₂ ^a | | CO ₂ | | Non-CO ₂ ^a | | CO ₂ | | Non-CO ₂ ^a | | CO ₂ | | Non-CO ₂ ^a | | CO ₂ | | Non-CO ₂ ^a | |
| | Method | EF | Method | EF | Method | EF | Method | EF | Method | EF | Method | EF | Method | EF | Method | EF | Method | EF | Method | EF | Method | EF | Method | EF |
| Australia | CS | CS | CS | CS | CS | CS | CS | CS | CS | CS | CS | CS | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE |
| Austria | T3 | CS | NE | NE | T3 | CS | NE | NE | T3 | CS | NE | NE | T3 | CS | NE | NE | T3 | CS | NE | NE | T3 | CS | NE | NE |
| Belarus | | | | | | | | | | | | | | | | | | | | | | | | |
| Belgium | T3 | CS | | | | | | | | | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | | | | | | | | | |
| Canada | T1 / T2 | D + CS | T1 / T2 | CS | CS | D + CS | | | T1 / T2 | D + CS | | | | | | | T1 / T2 | D + CS | | | | | | |
| Croatia | | | | | | | | | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | | | | | | | | | |
| Denmark | T2, CS | CS | | NE | T2, CS | D, CS | NE | NE | T2, CS | D, CS | NE | NE | CS | D, CS | NE (CH ₄), T2, CS (N ₂ O) | NE (CH ₄), D, CS (N ₂ O) | NO | NO | NE | NE | NO | NO | NE | NE |
| Estonia | | | | | | | | | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | | | | | | | | | |
| Finland | T3 | | T2 (CH ₄), T1, T2 (N ₂ O) | D | T1 | CS | NE | | T1 | D | NE | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | | | | | | | | | | | | |
| Germany | T2/D | CS/D | | | | | | | | | | | | | | | | | | | | | | |
| Greece | D, CS, T2, T1 | CS, D | T1 | D | T2, T1 | CS, D | | | T1 | T1 | T1 | D | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | | | | | | | | | |
| Italy | OTH | CS | T1 | D | T2 | D | | | T1 | D | | | T1 | D | | | T1 | D | | | | | | |
| Japan | | | | | | | | | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | | | | | | | | | |
| Lithuania | D | D | | | D | D | | | D | D | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | | | | | | | | | |
| Monaco | T1 | D | T1 (N ₂ O) | D (N ₂ O) | | | | | T1 | D | T1 (N ₂ O) | D (N ₂ O) | | | | | | | | | | | | |
| Netherlands | CS/T2 | CS/T2 | | | CS/T2 | CS/T2 | NE | NE | CS/T2 | CS/T2 | | | CS/T2 | CS/T2 | | | CS/T2 | CS/T2 | | | CS/T2 | CS/T2 | | |
| New Zealand | CS | CS | T1 | D | T1 | D | T1 | D | CS/T1 | CS/T1 | T1 | D | T1 | D | T1 | D | T1 | D | NE | NE | T1 | D | NE | NE |
| Norway | | | | | | | | | | | | | | | | | | | | | | | | |
| Portugal | D | D, CS | D | D, CS | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE |
| Romania | T2 | CS | T1 | D | T1 | CS | T1 | D | T1 | CS | T1 | D | T1 | CS | T1 | D | T1 | CS | T1 | D | T1 | CS | T1 | D |
| Slovakia | T2 | PS | | | T2 | CS | | | T2 | CS | | | | | | | | | | | T2 | CS | | |
| Slovenia | | | | | | | | | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | | | | | | | | | |
| United Kingdom | T3 | T3 | | | T3 | T3 | | | T3 | T3 | | | IE | IE | | | T3 | T3 | D/T2 | T1 | NO | NO | | |
| United States | T3 | CS | NE (CH ₄), D (N ₂ O) | NE (CH ₄), D (N ₂ O) | T2 | CS | NE (CH ₄), IE (N ₂ O) | NE (CH ₄), IE (N ₂ O) | IE | IE | NE | NE | NE | NE | NE | NE | T3, T2 | CS | IE (CH ₄), D (N ₂ O) | IE (CH ₄), D (N ₂ O) | NE | NE | NE | NE |

^a If not otherwise indicated, the notation keys for non-CO₂ method and EF apply to the estimates of both CH₄ and N₂O emissions.

Table 5.3

Forest Land remaining Forest Land - AD, IEF and carbon stock change in pools (2003)

| | Activity data | IEF (Mg C/ha) | | | | | Emissions/Removals (Gg C) | | | | |
|--------------------|---------------|---------------------------------------|----------|------------|--|----------------------------------|----------------------------------|------------|------------|--|-----------------------------|
| | | C stock change in living biomass/area | | | Net C stock change in DOM ^a /area | Net C stock change in soils/area | C stock change in living biomass | | | Net C stock change in DOM ^a | Net C stock change in soils |
| | | Increase | Decrease | Net Change | | | Increase | Decrease | Net Change | | |
| Australia | 16,551.43 | 1.00 | -0.96 | 0.04 | IE | NE | 16,555.43 | -15,929.40 | 626.03 | IE | NE |
| Austria | 3,362.31 | 2.77 | -1.72 | 1.06 | NE | NE | 9,318.27 | -5,769.87 | 3,548.40 | NE | NE |
| Belarus | | | | | | | | | | | |
| Belgium | 620.98 | 3.54 | -2.07 | 1.48 | NE | NE | 2,200.81 | -1,284.64 | 916.16 | NE | NE |
| Bulgaria | | | | | | | | | | | |
| Canada | 140,704.15 | 0.65 | -0.44 | 0.21 | IE, NA, NE | IE, NA, NE | 91,278.00 | -61,293.35 | 29,984.65 | IE, NA, NE | IE, NA, NE |
| Croatia | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | |
| Denmark | 440.80 | 3.76 | -1.64 | 2.12 | NE | NE | 1,659.00 | -725.00 | 934.00 | NE | NE |
| Estonia | | | | | | | | | | | |
| European Community | | | | | | | | | | | |
| Finland | 23,008.74 | 1.33 | -1.08 | 0.25 | NE | NE | 30,617.50 | -24,793.60 | 5,823.90 | NE | NE |
| France | | | | | | | | | | | |
| Germany | 10,420.24 | 1.94 | 0.00 | 1.94 | 0.00 | 0.00 | 20,199.14 | | 20,199.14 | 0.00 | 0.00 |
| Greece | 6,513.07 | 0.27 | -0.09 | 0.18 | -0.02 | 0.00 | 1,779.47 | -582.30 | 1,197.18 | -123.65 | 0.00 |
| Hungary | | | | | | | | | | | |
| Iceland | | | | | | | | | | | |
| Ireland | | | | | | | | | | | |
| Italy | 10,556.86 | 2.58 | -1.65 | 0.93 | 0.15 | 0.99 | 27,272.62 | -17,442.26 | 9,830.36 | 1,559.55 | 10,440.39 |
| Japan | | | | | | | | | | | |
| Latvia | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | |
| Lithuania | 1,968.00 | 1.65 | -0.44 | 1.21 | 0.00 | 0.00 | 3,288.00 | -1,338.00 | 1,950.00 | | |
| Luxembourg | | | | | | | | | | | |
| Monaco | 0.03 | 0.88 | 0.00 | 0.88 | NE | NE | 0.02 | | 0.02 | NE | NE |
| Netherlands | 437.89 | 2.60 | -1.38 | 1.22 | 0.21 | 0.00 | 1,136.60 | -603.80 | 532.80 | 91.50 | |
| New Zealand | 10,056.40 | 2.93 | -2.23 | 0.69 | IE, NE | NE | 29,441.07 | -22,463.64 | 6,977.43 | IE, NE | NE |
| Norway | 9,402.30 | 0.00 | 0.00 | 0.55 | 0.07 | 0.06 | 0.00 | 0.00 | 5,196.27 | 639.18 | 552.69 |
| Portugal | 3,094.26 | 1.60 | -2.11 | -0.51 | NE | NE | 4,950.73 | -6,523.87 | -1,573.14 | NE | NE |
| Romania | 6,701.30 | 1.43 | -0.74 | 0.69 | 0.00 | 0.00 | 9,597.80 | -4,988.38 | 4,609.41 | 0.00 | 0.00 |
| Slovakia | 1,928.83 | 2.13 | -1.52 | 0.60 | NE | 0.15 | 4,100.58 | -2,938.33 | 1,162.25 | NE | 289.67 |
| Slovenia | | | | | | | | | | | |
| Spain | | | | | | | | | | | |
| Sweden | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | |
| United Kingdom | 822.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| United States | 249,275.20 | NA | NA | 0.52 | 0.08 | -0.01 | o | NA | 130,246.76 | 19,614.81 | -3,383.46 |

^a DOM = dead organic matter

Table 5.4**Forest Land remaining Forest Land - trend information**

| Net CO ₂ emissions/removals (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|---|------------------------|-------------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | -21,083.58 | -2,295.45 | -0.2 | 1.7 | -4.2 | -17.9 | -5.5 | 1.6 | -3.1 | -2.8 | -43.3 | -41.7 | -38.5 | 55.1 | -52.2 | -89.1 |
| Austria | -9,243.38 | -13,010.81 | 30.1 | -27.8 | 3.8 | -12.4 | -7.5 | -25.4 | 119.3 | 8.5 | -0.5 | 7.8 | -2.2 | -15.0 | 12.7 | 40.8 |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | -3,103.47 | -3,359.26 | -9.2 | 11.2 | -2.3 | 0.9 | -5.5 | 1.8 | 0.8 | -3.9 | -2.0 | 11.2 | 40.7 | -9.8 | -15.6 | 8.2 |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | -187,838.34 | -69,577.75 | -10.8 | 2.2 | -16.7 | -1.3 | -80.6 | 331.4 | 10.0 | -31.1 | 6.0 | 16.3 | 4.2 | -46.9 | 14.3 | -63.0 |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | -2,830.67 | -3,424.67 | 6.2 | -0.4 | 7.0 | -3.5 | -3.7 | 2.3 | 2.8 | 4.7 | -0.4 | -81.8 | 483.3 | 7.5 | -8.1 | 21.0 |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | -23,618.22 | -21,263.72 | 61.5 | -16.7 | -8.4 | -41.0 | -14.9 | 43.6 | -40.2 | -22.7 | 10.9 | 11.0 | 40.5 | 6.9 | 18.7 | -10.0 |
| France | | | | | | | | | | | | | | | | |
| Germany | -74,063.51 | -74,063.51 | | | | | | | | | | | | | | |
| Greece | -2,042.79 | -3,936.26 | 14.8 | -17.7 | 33.2 | -10.5 | 32.0 | -2.2 | -6.3 | -16.7 | 26.4 | -47.6 | 138.8 | 5.7 | 1.6 | 92.7 |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | -58,286.36 | -80,044.43 | 37.7 | -4.3 | -19.6 | 27.0 | 6.2 | 4.1 | -9.3 | -2.9 | 10.1 | -7.2 | 11.5 | 7.4 | -14.4 | 37.3 |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | -7,150.00 | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | -0.09 | | | | | | | | | | | | | | |
| Netherlands | -2,505.43 | -2,289.10 | 1.6 | 3.8 | 0.4 | -1.8 | -1.8 | -1.1 | -7.7 | 3.5 | -1.4 | -3.9 | | | | -8.6 |
| New Zealand | -22,677.47 | -25,583.91 | -3.4 | -7.6 | -8.5 | -4.0 | -1.4 | 2.9 | 8.6 | 9.5 | 10.4 | 7.8 | 2.7 | -0.8 | -1.7 | 12.8 |
| Norway | -16,191.09 | -23,423.18 | -1.2 | 1.4 | -1.5 | 3.3 | -3.1 | 2.5 | 45.3 | -1.4 | -0.1 | -0.7 | 0.1 | 0.1 | 0.3 | 44.7 |
| Portugal | 5,941.31 | 5,768.17 | -20.2 | -26.0 | -7.3 | -27.2 | -40.4 | -65.4 | -23.5 | -277.4 | -99.2 | 15,894.4 | -45.5 | 165.3 | -594.0 | -2.9 |
| Romania | -15,713.48 | -16,882.30 | 6.5 | 6.5 | 4.9 | 2.5 | -3.4 | -4.3 | 1.5 | 9.0 | -4.7 | -4.6 | 5.2 | -11.9 | -3.4 | 7.4 |
| Slovakia | -4,453.98 | -5,155.68 | 23.1 | 10.5 | 1.3 | -15.2 | -15.5 | -9.8 | -31.5 | 15.2 | -10.5 | 54.2 | 28.5 | 1.6 | -8.6 | 15.8 |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | 0.00 | 0.00 | | | | | | | | | | | | | | |
| United States | -739,242.89 | -537,086.41 | 3.1 | -10.9 | 9.5 | -13.3 | -3.8 | 0.8 | 2.0 | -6.1 | -10.4 | 0.0 | 0.0 | 0.0 | 0.0 | -27.3 |

^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 5.5**Forest Land remaining Forest Land – trend information**

| Area (kha) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------|------------------------|------------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 15,908.62 | 16,551.43 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.3 | 0.3 | 0.4 | 0.6 | 0.9 | 0.5 | 0.4 | 0.2 | 4.0 |
| Austria | 3,336.40 | 3,362.31 | -0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | | | 0.8 |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | 641.11 | 620.98 | -0.3 | -0.3 | -0.3 | 2.4 | -2.9 | -0.3 | -0.3 | -0.3 | -0.3 | -0.1 | -0.5 | | | -3.1 |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | 161,407.57 | 140,704.15 | -1.1 | -1.1 | -0.8 | -1.3 | -1.0 | -1.7 | -0.4 | -0.5 | -1.4 | -1.1 | -0.8 | -0.8 | -1.5 | -12.8 |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | 411.39 | 440.80 | | | | | | | | | | 7.1 | | | | 7.1 |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | 23,267.83 | 23,008.74 | -0.3 | -0.1 | -0.1 | -0.5 | | -0.1 | 0.1 | -0.3 | 0.0 | 0.3 | 0.1 | 0.1 | -0.4 | -1.1 |
| France | | | | | | | | | | | | | | | | |
| Germany | 10,478.60 | 10,420.24 | 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 | -0.6 |
| Greece | 6,513.07 | 6,513.07 | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | 9,061.78 | 10,556.86 | 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 | 16.5 |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | 1,968.00 | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | 0.03 | | | | | | | | | | | | | | |
| Netherlands | 432.40 | 437.89 | 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 | 1.3 |
| New Zealand | 1,219.43 | 10,056.40 | 2.3 | 3.2 | 4.9 | 5.6 | 5.8 | 5.1 | 521.4 | 0.5 | 0.4 | 0.4 | 0.3 | 0.2 | 0.2 | 724.7 |
| Norway | 8,941.00 | 9,402.30 | -0.3 | -0.3 | -0.3 | -0.3 | -0.3 | -0.3 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 5.2 |
| Portugal | 3,014.08 | 3,094.26 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.0 | 2.7 |
| Romania | 6,558.20 | 6,701.30 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | -0.2 | 1.8 | -4.9 | 3.0 | 0.2 | 0.6 | 2.2 |
| Slovakia | 1,921.71 | 1,928.83 | 0.3 | -0.1 | 0.1 | -0.1 | -0.1 | 0.0 | -0.2 | 0.0 | 0.1 | 0.3 | 0.0 | 0.1 | 0.0 | 0.4 |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | 822.00 | 822.00 | | | | | | | | | | | | | | |
| United States | 244,553.88 | 249,275.20 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 1.9 |

^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 5.6

Land converted to Forest Land - AD, IEF and carbon stock change in pools (2003)

| | Activity data | | IEF (Mg C/ha) | | | | Emissions/Removals (Gg C) | | | | |
|--------------------|------------------|---------------------------------------|---------------|------------|--|----------------------------------|----------------------------------|----------|------------|--|-----------------------------|
| | Total area (kha) | C stock change in living biomass/area | | | Net C stock change in DOM ^a /area | Net C stock change in soils/area | C stock change in living biomass | | | Net C stock change in DOM ^a | Net C stock change in soils |
| | | Increase | Decrease | Net Change | | | Increase | Decrease | Net Change | | |
| Australia | NE, NO | IE,NE,NO | IE,NE,NO | NE,NO | IE, NO | NE, NO | 4,035.85 | 0.00 | 4,035.85 | IE, NO | NE, NO |
| Austria | 11.38 | 1.18 | 0.00 | 1.18 | NE | NE | 13.38 | 0.00 | 13.38 | NE | NE |
| Belarus | | | | | | | | | | | |
| Belgium | NE | NE | NE | NE | NE | NE | NE | NE | 0.00 | NE | NE |
| Bulgaria | | | | | | | | | | | |
| Canada | 549.04 | 0.37 | NE, NO | 0.37 | NE, NO | 0.13 | 203.32 | NE, NO | 203.32 | NE, NO | 70.48 |
| Croatia | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | |
| Denmark | 26.30 | 1.12 | IE,NO | 1.12 | NE,NO | NE,NO | 29.33 | IE,NO | 29.33 | NE,NO | NE,NO |
| Estonia | | | | | | | | | | | |
| European Community | | | | | | | | | | | |
| Finland | IE | IE | IE | IE | IE | IE | | | 0.00 | | |
| France | | | | | | | | | | | |
| Germany | 321.56 | 3.48 | 0.00 | 3.48 | NE | NE | 1,117.62 | | 1,117.62 | NE | NE |
| Greece | 40.68 | 2.85 | 0.00 | 2.85 | 0.00 | NE, NO | 115.85 | 0.00 | 115.85 | 0.00 | NE, NO |
| Hungary | | | | | | | | | | | |
| Iceland | | | | | | | | | | | |
| Ireland | | | | | | | | | | | |
| Italy | 117.56 | NO, IE | NO, IE | 0.00 | NO, IE | NO, IE | NO, IE | NO, IE | 0.00 | NO, IE | NO, IE |
| Japan | | | | | | | | | | | |
| Latvia | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | |
| Monaco | | 0.00 | 0.00 | 0.00 | NO | NO | | | 0.00 | NO | NO |
| Netherlands | 3.38 | 22.10 | 0.00 | 22.10 | 0.00 | 5.51 | 74.70 | | 74.70 | | 18.61 |
| New Zealand | 17.90 | IE | IE | -13.26 | IE | -9.66 | IE | IE | -237.35 | IE | -172.94 |
| Norway | 113.97 | NA | NA | 0.00 | NA | NA | NA | NA | 0.00 | NA | NA |
| Portugal | 226.65 | 0.53 | IE | 0.53 | NE | NE | 119.50 | IE | 119.50 | NE | NE |
| Romania | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | 0.00 | | |
| Slovakia | | 0.00 | 0.00 | 0.00 | NE | NE | | | 0.00 | NE | NE |
| Slovenia | | | | | | | | | | | |
| Spain | | | | | | | | | | | |
| Sweden | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | |
| United Kingdom | 1,862.28 | 1.84 | -0.06 | 1.78 | 0.12 | 0.36 | 3,417.50 | -108.70 | 3,308.80 | 230.98 | 665.09 |
| United States | IE | IE | IE | IE | IE | IE | IE | IE | 0.00 | IE | IE |

^a DOM = dead organic matter

Table 5.7

Land converted to Forest Land– trend information

| Net CO ₂ emissions/removals (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|---|------------------------|------------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | IE,NE,NO | -14,798.10 | | 104.9 | 51.0 | 25.0 | 31.1 | 28.4 | 42.1 | 33.4 | 27.2 | 43.1 | 9.3 | 16.6 | 14.0 | |
| Austria | -27.86 | -49.08 | 125.9 | | | | | | -22.0 | | | | | | | 76.2 |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NE | NE | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | -1,003.94 | -1,003.94 | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | IE,NE,NO | -107.54 | | 141.2 | 76.8 | 43.4 | 36.1 | 58.3 | 44.9 | 43.6 | 25.8 | 37.0 | 25.0 | 19.5 | 22.3 | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | IE | IE | | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | | | | |
| Germany | -335.94 | -4,097.94 | 33.4 | 25.0 | 57.4 | 36.5 | 26.7 | 21.1 | 17.4 | 14.8 | 12.9 | 11.4 | 10.3 | 9.3 | 8.5 | 1,119.8 |
| Greece | NE, NO | -424.77 | | | | | 133.3 | 53.6 | 69.8 | 12.3 | 24.4 | 11.7 | 57.4 | 6.4 | 6.6 | |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | NO, IE | NO, IE | | | | | | | | | | | | | | |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | -89.14 | -342.14 | 23.9 | 18.9 | 16.2 | 13.7 | 12.3 | 10.7 | 9.9 | 8.8 | 8.2 | 7.5 | 7.1 | 6.5 | | 283.8 |
| New Zealand | 960.59 | 1,765.49 | 46.8 | 52.7 | 30.7 | 10.9 | -24.1 | 9.7 | -9.9 | -43.9 | 28.8 | 6.2 | 15.3 | -16.5 | 2.1 | 83.8 |
| Norway | NA | NA | | | | | | | | | | | | | | |
| Portugal | -368.48 | -438.17 | 12.7 | 10.4 | 4.9 | 10.6 | 0.6 | -5.3 | -5.3 | -7.4 | -3.4 | 3.0 | -0.5 | -0.5 | | 18.9 |
| Romania | | | | | | | | | | | | | | | | |
| Slovakia | | | | | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | -12,225.76 | -15,417.88 | 3.2 | 4.0 | 2.7 | 2.8 | -0.9 | -0.5 | -1.0 | -0.5 | 1.5 | -1.9 | 4.5 | 5.5 | 4.4 | 26.1 |
| United States | IE | IE | | | | | | | | | | | | | | |

^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 5.8

Land converted to Forest Land - trend information

| Area (kha) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------|------------------------|----------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | NE, NO | NE, NO | | | | | | | | | | | | | | |
| Austria | 6.46 | 11.38 | 125.9 | | | | | | -22.0 | | | | | | | 76.2 |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NE | NE | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | 549.04 | 549.04 | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | 0.73 | 26.30 | 137.0 | 72.3 | 43.0 | 35.0 | 23.1 | 19.4 | 26.9 | 13.1 | 36.5 | 16.7 | 11.0 | 10.9 | 10.7 | 3,502.7 |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | IE | IE | | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | | | | |
| Germany | 24.28 | 321.56 | 33.4 | 25.0 | 63.2 | 38.7 | 27.9 | 21.8 | 17.9 | 15.2 | 13.2 | 11.6 | 10.4 | 9.5 | 8.6 | 1,224.4 |
| Greece | NE, NO | 40.68 | | | | | 133.3 | 53.6 | 69.8 | 12.3 | 24.4 | 11.7 | 57.4 | 6.4 | 6.6 | |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | 117.56 | 117.56 | | | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 3.38 | 3.38 | | | | | | | | | | | | | | |
| New Zealand | 17.89 | 17.90 | 51.6 | 56.3 | 65.1 | 11.3 | 9.4 | -13.5 | -10.3 | -21.7 | -19.4 | -16.8 | -16.6 | -15.8 | -26.6 | 0.0 |
| Norway | 12.47 | 113.97 | 135.6 | 57.6 | 36.5 | 26.8 | 21.1 | 17.4 | | | | | | | | 813.7 |
| Portugal | 125.92 | 226.65 | 8.3 | 8.4 | 4.1 | 7.0 | 2.9 | 3.6 | 4.3 | 1.8 | 6.6 | 7.2 | 3.3 | 3.0 | | 80.0 |
| Romania | | | | | | | | | | | | | | | | |
| Slovakia | | | | | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | 1,862.28 | 1,862.28 | | | | | | | | | | | | | | |
| United States | IE | IE | | | | | | | | | | | | | | |

^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 5.9

Cropland remaining Cropland - AD, IEF and carbon stock change in pools (2003)

| | Activity data | | IEF (Mg C/ha) | | | | Emissions/Removals (Gg C) | | | | |
|----------------|------------------|---------------------------------------|---------------|------------|--|----------------------------------|----------------------------------|----------|------------|--|-----------------------------|
| | Total area (kha) | C stock change in living biomass/area | | | Net C stock change in DOM ^a /area | Net C stock change in soils/area | C stock change in living biomass | | | Net C stock change in DOM ^a | Net C stock change in soils |
| | | Increase | Decrease | Net Change | | | Increase | Decrease | Net Change | | |
| Australia | NE | NE | NE | NE | NE | NE | NE | NE | 0.00 | NE | NE |
| Austria | 1,480.35 | 0.02 | 0.00 | 0.02 | 0.00 | -0.03 | 36.17 | 0.00 | 36.17 | 0.00 | -37.26 |
| Belarus | | | | | | | | | | | |
| Belgium | IE | NE | NE | IE | NE | NE | NE | NE | 0.00 | NE | NE |
| Bulgaria | | | | | | | | | | | |
| Canada | 45,895.65 | NE | NE | 0.00 | NE | 0.01 | NE | NE | 0.00 | NE | 412.50 |
| Croatia | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | |
| Denmark | 2,483.41 | 0.02 | 0.00 | 0.02 | 0.00 | -0.25 | 37.93 | 0.00 | 37.93 | 0.00 | -614.05 |
| Estonia | | | | | | | | | | | |
| European | | | | | | | | | | | |
| Finland | 2,218.10 | 0.00 | 0.00 | 0.00 | 0.00 | -0.03 | | | 0.00 | | -57.53 |
| France | | | | | | | | | | | |
| Germany | 12,564.53 | 0.00 | 0.00 | 0.00 | 0.00 | -0.44 | 1.08 | -40.95 | -39.87 | 0.00 | -5,550.53 |
| Greece | 3,811.00 | 0.09 | 0.00 | 0.09 | 0.00 | 0.00 | 326.26 | -0.88 | 325.39 | 0.00 | -5.63 |
| Hungary | | | | | | | | | | | |
| Iceland | | | | | | | | | | | |
| Ireland | | | | | | | | | | | |
| Italy | 2,713.85 | 2.10 | 0.00 | 2.10 | 0.00 | -0.12 | 5,699.09 | 0.00 | 5,699.09 | 0.00 | -319.89 |
| Japan | | | | | | | | | | | |
| Latvia | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | |
| Monaco | | NO | NO | 0.00 | NO | NO | NO | NO | 0.00 | NO | NO |
| Netherlands | 953.62 | NE | NE | 0.00 | NE | NE | NE | NE | 0.00 | NE | NE |
| New Zealand | 418.33 | 0.43 | 0.00 | 0.43 | NE | 0.00 | 178.22 | 0.00 | 178.22 | NE | 0.00 |
| Norway | 1,005.31 | 0.01 | -0.01 | 0.00 | NA, NE | -0.01 | 5.26 | -5.68 | -0.42 | NA, NE | -12.84 |
| Portugal | NE | NE | NE | NE | NE | NE | NE | NE | 0.00 | NE | NE |
| Romania | 9,872.00 | NE | NE | 0.00 | 0.00 | 0.00 | NE | NE | 0.00 | 0.00 | 0.00 |
| Slovakia | 1,430,197.00 | NE | NE | 0.00 | NE | 0.00 | NE | NE | 0.00 | NE | -385.96 |
| Slovenia | | | | | | | | | | | |
| Spain | | | | | | | | | | | |
| Sweden | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | |
| United Kingdom | 150.00 | IE, NO | IE, NO | 0.00 | NO, IE | -2.21 | IE, NO | IE, NO | 0.00 | NO, IE | -332.00 |
| United States | 386,385.00 | NA | NA | 0.00 | NA | 0.01 | NA | NA | 0.00 | NA | 4,399.65 |

^a DOM = dead organic matter

Table 5.10

Cropland remaining Cropland - trend information

| Net CO ₂ emissions/removals (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|---|------------------------|------------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | NE | NE | | | | | | | | | | | | | | |
| Austria | 3.99 | 3.99 | | | | | | | | | | | | | | |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NE | NE | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | 7,207.95 | -1,512.49 | -9.1 | -13.2 | -19.2 | -10.6 | -25.7 | -46.2 | -31.5 | -49.9 | -94.1 | -1,131.5 | 110.1 | 35.7 | 53.5 | -121.0 |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | 2,422.81 | 2,112.42 | 0.5 | -1.9 | 2.2 | -1.6 | -5.9 | -0.6 | -0.4 | 0.1 | -2.9 | 0.1 | 0.4 | -3.4 | 0.1 | -12.8 |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | 1,277.46 | 210.93 | -72.8 | 13.3 | -15.8 | -18.6 | 412.7 | 11.5 | -14.1 | -21.0 | -14.0 | -22.3 | -14.9 | -42.2 | -38.8 | -83.5 |
| France | | | | | | | | | | | | | | | | |
| Germany | 21,126.79 | 20,498.16 | | 0.0 | 0.0 | | | | | | | -3.0 | -0.2 | 0.2 | | -3.0 |
| Greece | -1,205.41 | -1,172.44 | 3.8 | -8.4 | 14.4 | -6.2 | 7.0 | -28.8 | 9.5 | 7.7 | 17.5 | 5.6 | -6.1 | -7.6 | -1.3 | -2.7 |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | -20,235.69 | -19,723.73 | -1.5 | -0.9 | -1.6 | -2.3 | -2.3 | 2.3 | 3.9 | 6.4 | 5.3 | -5.4 | 0.1 | -1.1 | -4.6 | -2.5 |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | NO | | | | | | | | | | | | | | |
| Netherlands | NE | NE | | | | | | | | | | | | | | |
| New Zealand | NE | -653.46 | | | | | | | | 1.5 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | |
| Norway | 193.98 | 48.64 | -7.8 | -11.4 | -13.4 | -14.9 | 7.3 | -2.5 | -2.8 | -3.5 | -9.5 | -49.9 | -2.8 | -40.5 | 61.8 | -74.9 |
| Portugal | NE | NE | | | | | | | | | | | | | | |
| Romania | 0.00 | 0.00 | | | | | | | | | | | | | | |
| Slovakia | 3,286.21 | 1,415.19 | -2.3 | 8.8 | -1.1 | -21.2 | -24.3 | 0.0 | 56.4 | -44.3 | -4.8 | 156.9 | -77.2 | 17.1 | 20.6 | -56.9 |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | 1,650.00 | 1,217.33 | -2.2 | -2.3 | -2.3 | -2.4 | -2.4 | -2.5 | -2.6 | -2.6 | -2.7 | -2.8 | -1.7 | -1.7 | -1.8 | -26.2 |
| United States | -17,540.55 | -16,132.05 | 0.4 | 0.4 | -9.9 | 0.4 | 0.4 | 0.1 | 0.1 | -13.7 | -3.7 | 8.0 | 11.0 | 1.5 | -0.9 | -8.0 |

^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 5.11**Cropland remaining Cropland – trend information**

| Area (kha) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------|------------------------|--------------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | NE | NE | | | | | | | | | | | | | | |
| Austria | 1,480.35 | 1,480.35 | | | | | | | | | | | | | | |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | IE | IE | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | 45,585.65 | 45,895.65 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | | | 0.7 |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | 2,582.13 | 2,483.41 | -0.6 | -0.4 | -0.6 | -3.4 | 2.8 | 0.1 | 0.6 | -1.2 | -1.2 | -0.1 | 0.9 | -0.5 | -0.3 | -3.8 |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | 2,276.58 | 2,218.10 | 1.4 | -0.7 | -0.4 | 1.1 | -7.0 | -0.9 | 0.1 | 1.9 | 0.5 | 0.5 | 0.0 | 0.8 | 0.4 | -2.6 |
| France | | | | | | | | | | | | | | | | |
| Germany | 12,773.02 | 12,564.53 | -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 |
| Greece | 3,930.00 | 3,811.00 | 0.4 | -0.1 | -0.6 | -0.2 | -0.2 | -0.2 | -0.4 | -0.4 | -0.3 | -0.2 | -0.2 | -0.2 | -0.6 | -3.0 |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | 2,733.76 | 2,713.85 | -0.5 | -0.4 | -0.5 | -0.9 | -0.9 | 1.1 | 1.8 | 3.2 | 2.7 | -2.7 | -0.2 | -0.8 | -2.3 | -0.7 |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 957.11 | 953.62 | 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 | -0.4 |
| New Zealand | NE | 418.33 | | | | | | | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | |
| Norway | 1,078.40 | 1,005.31 | -0.4 | -0.4 | -0.4 | -0.4 | -0.4 | -0.4 | -0.6 | -0.6 | -0.6 | -0.6 | -0.6 | -0.6 | -0.6 | -6.8 |
| Portugal | NE | NE | | | | | | | | | | | | | | |
| Romania | 10,054.60 | 9,872.00 | -3.2 | 2.3 | -0.2 | -0.2 | -0.2 | -0.1 | -0.1 | 0.0 | 0.0 | 0.1 | 0.1 | -0.2 | -0.3 | -1.8 |
| Slovakia | 1,509.00 | 1,430,197.00 | | -1.5 | -0.3 | | 0.1 | -0.5 | 0.5 | -0.2 | -1.3 | -0.7 | -0.1 | -0.6 | 99,150.3 | 94,677.8 |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | 150.00 | 150.00 | | | | | | | | | | | | | | |
| United States | 386,385.00 | 386,385.00 | | | | | | | | | | | | | | |

^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 5.12

Land converted to Cropland - AD, IEF and carbon stock change in pools (2003)

| | Activity data | | IEF (Mg C/ha) | | | | Emissions/Removals (Gg C) | | | | |
|--------------------|------------------|---------------------------------------|---------------|------------|--|----------------------------------|----------------------------------|------------|------------|--|-----------------------------|
| | Total area (kha) | C stock change in living biomass/area | | | Net C stock change in DOM ^a /area | Net C stock change in soils/area | C stock change in living biomass | | | Net C stock change in DOM ^a | Net C stock change in soils |
| | | Increase | Decrease | Net Change | | | Increase | Decrease | Net Change | | |
| Australia | IE, NE, NO | IE, NE, NO | IE, NE, NO | IE, NE, NO | IE, NE, NO | IE, NE, NO | IE, NE, NO | IE, NE, NO | 0.00 | IE, NE, NO | IE, NE, NO |
| Austria | 0.27 | 0.00 | -4.87 | -4.87 | NO, NE | NO, NE | 0.00 | -1.31 | -1.31 | NO, NE | NO, NE |
| Belarus | | | | | | | | | | | |
| Belgium | NE | NE | NE | NE | NE | NE | NE | NE | 0.00 | NE | NE |
| Bulgaria | | | | | | | | | | | |
| Canada | 92.07 | NE | -16.63 | -16.63 | NE | -30.64 | NE | -1,531.53 | -1,531.53 | NE | -2,821.48 |
| Croatia | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | |
| Denmark | NO | NO | NO | NO | NO | NO | NO | NO | 0.00 | NO | NO |
| Estonia | | | | | | | | | | | |
| European Community | | | | | | | | | | | |
| Finland | NE | NE | NE | NE | NE | NE | | | 0.00 | | |
| France | | | | | | | | | | | |
| Germany | 28.57 | 2.76 | -1.03 | 1.74 | 0.00 | -30.78 | 78.97 | -29.33 | 49.64 | | -879.50 |
| Greece | NO | NO | NO | NO | NO | NO | NO | NO | 0.00 | NO | NO |
| Hungary | | | | | | | | | | | |
| Iceland | | | | | | | | | | | |
| Ireland | | | | | | | | | | | |
| Italy | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Japan | | | | | | | | | | | |
| Latvia | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | |
| Lithuania | 41.44 | 0.00 | -1.00 | -1.00 | 0.00 | 0.00 | | -41.44 | -41.44 | | |
| Luxembourg | | | | | | | | | | | |
| Monaco | | NO | NO | 0.00 | NO | NO | NO | NO | 0.00 | NO | NO |
| Netherlands | 19.56 | NE | NE | 0.00 | NE | 0.49 | NE | NE | 0.00 | NE | 9.60 |
| New Zealand | 0.91 | 0.80 | -10.41 | -9.61 | NE | -11.30 | 0.72 | -9.45 | -8.72 | NE | -10.26 |
| Norway | 0.90 | 0.00 | 0.00 | -13.79 | NA, NE | NA | 0.00 | 0.00 | -12.43 | NA, NE | NA |
| Portugal | NE | NE | NE | NE | NE | NE | NE | NE | 0.00 | NE | NE |
| Romania | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | 0.00 | | |
| Slovakia | NE | NE | NE | NE | NE | NE | NE | NE | 0.00 | NE | |
| Slovenia | | | | | | | | | | | |
| Spain | | | | | | | | | | | |
| Sweden | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | |
| United Kingdom | 5.17 | IE | IE | 0.00 | IE | -698.96 | IE | IE | 0.00 | IE | -3,612.69 |
| United States | NA | IE | IE | NA | IE | IE | IE | IE | 0.00 | IE | IE |

^a DOM = dead organic matter

Table 5.13**Land converted to Cropland – trend information**

| Net CO ₂ emissions/removals (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|---|------------------------|------------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | IE, NE, NO | IE, NE, NO | | | | | | | | | | | | | | |
| Austria | 3.23 | 4.82 | 82.2 | | | | | | -18.2 | | | | | | | 49.0 |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NE | NE | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | 15,961.03 | 15,961.03 | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | NO | NO | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | 0.00 | 0.00 | | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | | | | |
| Germany | 3,145.03 | 3,042.79 | | | | | | | | | | -3.3 | | | | -3.3 |
| Greece | NO | NO | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | 0.00 | 0.00 | | | | 32.5 | | 44.4 | | | -19.7 | -89.0 | | | | |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | 151.95 | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | NO | | | | | | | | | | | | | | |
| Netherlands | -35.20 | -35.20 | | | | | | | | | | | | | | |
| New Zealand | NE | 69.59 | | | | | | | | 14.4 | 12.6 | 11.2 | 10.0 | 9.1 | 8.4 | |
| Norway | 83.77 | 45.58 | -7.5 | -8.3 | -9.3 | -10.6 | -12.2 | -14.2 | 0.8 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.6 | -45.6 |
| Portugal | NE | NE | | | | | | | | | | | | | | |
| Romania | | | | | | | | | | | | | | | | |
| Slovakia | | NE | | | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | 13,126.79 | 13,246.51 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.9 |
| United States | IE | IE | | | | | | | | | | | | | | |

^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 5.14

Land converted to Cropland – trend information

| Area (kha) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------|------------------------|------------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | IE, NE, NO | IE, NE, NO | | | | | | | | | | | | | | |
| Austria | 0.18 | 0.27 | 83.3 | | | | | | -18.2 | | | | | | | 50.0 |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NE | NE | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | 92.07 | 92.07 | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | NO | NO | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | NE | NE | | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | | | | |
| Germany | 31.46 | 28.57 | | | | | | | | | | -9.2 | | | | -9.2 |
| Greece | NO | NO | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | 0.00 | 0.00 | | | | 32.5 | | 44.4 | | | -19.7 | -89.0 | | | | |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | 41.44 | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 19.56 | 19.56 | | | | | | | | | | | | | | |
| New Zealand | NE | 0.91 | | | | | | | | | | | | | | |
| Norway | 1.20 | 0.90 | -4.2 | -4.3 | -4.5 | -4.8 | -5.0 | -5.3 | | | | | | | | -25.0 |
| Portugal | NE | NE | | | | | | | | | | | | | | |
| Romania | | | | | | | | | | | | | | | | |
| Slovakia | NE | NE | | | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | 3.90 | 5.17 | 2.5 | 2.4 | 2.4 | 2.3 | 2.3 | 2.2 | 2.2 | 2.1 | 2.1 | 2.0 | 2.0 | 2.0 | 1.9 | 32.5 |
| United States | IE | IE | | | | | | | | | | | | | | |

^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 5.15

Forest Land converted to Cropland - AD, IEF and carbon stock change in pools (2003)

| | Activity data | | IEF (Mg C/ha) | | | | Emissions/Removals (Gg C) | | | | | |
|--------------------|------------------|---------------------------------------|---------------|------------|--|----------------------------------|----------------------------------|-----------|------------|--|-----------------------------|--|
| | Total area (kha) | C stock change in living biomass/area | | | Net C stock change in DOM ^a /area | Net C stock change in soils/area | C stock change in living biomass | | | Net C stock change in DOM ^a | Net C stock change in soils | |
| | | Increase | Decrease | Net Change | | | Increase | Decrease | Net Change | | | |
| Australia | IE | IE | IE | IE | IE | IE | IE | IE | 0.00 | IE | IE | |
| Austria | 0.27 | 0.00 | -4.87 | -4.87 | NE | NE | 0.00 | -1.31 | -1.31 | NE | NE | |
| Belarus | | | | | | | | | | | | |
| Belgium | NE | NE | NE | NE | NE | NE | NE | NE | 0.00 | NE | NE | |
| Bulgaria | | | | | | | | | | | | |
| Canada | 28.65 | NE | -43.16 | -43.16 | NE | -39.06 | NE | -1,236.72 | -1,236.72 | NE | -1,119.31 | |
| Croatia | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | |
| Denmark | NO | NO | NO | NO | NO | NO | NO | NO | 0.00 | NO | NO | |
| Estonia | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | |
| Finland | NE | NE | NE | NE | NE | NE | | | 0.00 | | | |
| France | | | | | | | | | | | | |
| Germany | 0.49 | 0.09 | -59.91 | -59.83 | NE | -27.26 | 0.04 | -29.33 | -29.28 | NE | -13.34 | |
| Greece | NO | NO | NO | NO | NO | NO | NO | NO | 0.00 | NO | NO | |
| Hungary | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | |
| Italy | NO | NO | NO | NO | NO | NO | NO | NO | 0.00 | NO | NO | |
| Japan | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | |
| Lithuania | 41.44 | 0.00 | -1.00 | -1.00 | 0.00 | 0.00 | 0.00 | -41.44 | -41.44 | 0.00 | 0.00 | |
| Luxembourg | | | | | | | | | | | | |
| Monaco | | NO | NO | 0.00 | NO | NO | NO | NO | 0.00 | NO | NO | |
| Netherlands | 0.16 | NE | NE | 0.00 | NE | NE | NE | NE | 0.00 | NE | NE | |
| New Zealand | 0.04 | 0.00 | -219.24 | -219.24 | NE | -3.94 | 0.00 | -9.45 | -9.45 | NE | -0.17 | |
| Norway | 0.36 | 0.00 | 0.00 | -34.47 | NE | NA | | | -12.43 | NE | NA | |
| Portugal | NE | NE | NE | NE | NE | NE | NE | NE | 0.00 | NE | NE | |
| Romania | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | 0.00 | | | |
| Slovakia | NE | NE | NE | NE | NE | NE | NE | NE | 0.00 | NE | | |
| Slovenia | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | |
| United Kingdom | IE | IE | IE | IE | IE | IE | IE | IE | | IE | IE | |
| United States | NA | IE | IE | NA | IE | IE | IE | IE | 0.00 | IE | IE | |

^a DOM = dead organic matter

Table 5.16

Forest Land converted to Cropland – trend information

| CO ₂ emissions/removals (Gg) ^a | | | Relative Change (%) | | | | | | | | | | | | | |
|--|------------------------|----------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^b | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | IE | IE | | | | | | | | | | | | | | |
| Austria | 3.23 | 4.82 | 82.2 | | | | | | -18.2 | | | | | | | 49.0 |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NE | NE | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | 8,638.75 | 8,638.75 | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | NO | NO | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | | | | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | | | | |
| Germany | 156.29 | 156.29 | | | | | | | | | | | | | | |
| Greece | NO | NO | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | NO | NO | | | | | | | | | | | | | | |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | 151.95 | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | NO | | | | | | | | | | | | | | |
| Netherlands | NE | NE | | | | | | | | | | | | | | |
| New Zealand | NE | 35.25 | | | | | | | | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | |
| Norway | 83.77 | 45.58 | -7.5 | -8.3 | -9.3 | -10.6 | -12.2 | -14.2 | 0.8 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.6 | -45.6 |
| Portugal | NE | NE | | | | | | | | | | | | | | |
| Romania | | | | | | | | | | | | | | | | |
| Slovakia | | NE | | | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | IE | IE | | | | | | | | | | | | | | |
| United States | IE | IE | | | | | | | | | | | | | | |

^a The CO₂ emissions/removals are estimated based on C stock changes in pools provided in table 5.B of the CRF for LULUCF.

^b In accordance with the UNFCCC reporting guidelines on annual inventories of Annex I Parties the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2 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 5.17

Forest Land converted to Cropland – trend information

| Area (kha) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------|------------------------|-------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | IE | IE | | | | | | | | | | | | | | |
| Austria | 0.18 | 0.27 | 83.3 | | | | | | -18.2 | | | | | | | 50.0 |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NE | NE | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | 28.65 | 28.65 | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | NO | NO | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | NE | NE | | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | | | | |
| Germany | 0.49 | 0.49 | | | | | | | | | | | | | | |
| Greece | NO | NO | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | NO | NO | | | | | | | | | | | | | | |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | 41.44 | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 0.16 | 0.16 | | | | | | | | | | | | | | |
| New Zealand | NE | 0.04 | | | | | | | | | | | | | | |
| Norway | 0.75 | 0.36 | -8.7 | -9.5 | -10.5 | -11.7 | -13.3 | -15.3 | | | | | | | | -52.0 |
| Portugal | NE | NE | | | | | | | | | | | | | | |
| Romania | NO | | | | | | | | | | | | | | | |
| Slovakia | NE | NE | | | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | IE | IE | | | | | | | | | | | | | | |
| United States | NA | NA | | | | | | | | | | | | | | |

^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 5.18

Grassland remaining Grassland - AD, IEF and carbon stock change in pools (2003)

| | Activity data | IEF (Mg C/ha) | | | | | Emissions/Removals (Gg C) | | | | |
|--------------------|------------------|---------------------------------------|----------|------------|--|----------------------------------|----------------------------------|----------|------------|--|-----------------------------|
| | Total area (kha) | C stock change in living biomass/area | | | Net C stock change in DOM ^a /area | Net C stock change in soils/area | C stock change in living biomass | | | Net C stock change in DOM ^a | Net C stock change in soils |
| | | Increase | Decrease | Net Change | | | Increase | Decrease | Net Change | | |
| Australia | NE | NE | NE | NE | NE | NE | NE | NE | 0.00 | NE | NE |
| Austria | 1,939.00 | NA | NA | 0.00 | NA | -0.01 | NA | NA | 0.00 | NA | -22.11 |
| Belarus | | | | | | | | | | | |
| Belgium | NE | NE | NE | NE | NE | NE | NE | NE | 0.00 | NE | NE |
| Bulgaria | | | | | | | | | | | |
| Canada | NE | NE | NE | NE | NE | NE | NE | NE | 0.00 | NE | NE |
| Croatia | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | |
| Denmark | 177.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Estonia | | | | | | | | | | | |
| European Community | | | | | | | | | | | |
| Finland | 575.07 | 0.00 | 0.00 | 0.00 | 0.00 | -1.41 | | | 0.00 | | -811.06 |
| France | | | | | | | | | | | |
| Germany | 6,257.71 | 0.00 | 0.00 | 0.00 | 0.00 | -0.74 | | | 0.00 | | -4,602.69 |
| Greece | 1,776.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hungary | | | | | | | | | | | |
| Iceland | | | | | | | | | | | |
| Ireland | | | | | | | | | | | |
| Italy | 5,985.12 | 0.00 | 0.00 | 0.00 | 0.00 | -0.72 | 0.00 | 0.00 | 0.00 | 0.00 | -4,322.40 |
| Japan | | | | | | | | | | | |
| Latvia | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | |
| Monaco | 0.03 | 2.90 | 0.00 | 2.90 | NE | NE | 0.08 | | 0.08 | NE | NE |
| Netherlands | 1,326.55 | NE | NE | 0.00 | NE | -0.87 | NE | NE | 0.00 | NE | -1,158.00 |
| New Zealand | 14,310.70 | 0.00 | 0.00 | 0.00 | NE | 0.00 | 0.00 | 0.00 | 0.00 | NE | 0.00 |
| Norway | 172.66 | NA | NA | 0.00 | NA | -2.95 | NA | NA | 0.00 | NA | -510.00 |
| Portugal | NE | NE | NE | NE | NE | NE | NE | NE | 0.00 | NE | NE |
| Romania | 4,845.40 | NE | NE | 0.00 | 0.00 | 0.00 | NE | NE | 0.00 | 0.00 | 0.00 |
| Slovakia | 883,506.00 | NE | NE | 0.00 | NE | 0.00 | NE | NE | 0.00 | NE | 371.78 |
| Slovenia | | | | | | | | | | | |
| Spain | | | | | | | | | | | |
| Sweden | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | |
| United Kingdom | 14.88 | IE, NO | IE, NO | 0.00 | IE, NO | -16.39 | IE, NO | IE, NO | 0.00 | IE, NO | -243.79 |
| United States | NA | IE | IE | NA | IE | IE | IE | IE | 0.00 | IE | IE |

^a DOM = dead organic matter

Table 5.19

Grassland remaining Grassland – trend information

| Net CO ₂ emissions/removals (Gg) | | | Relative change (%) | | | | | | | | | | | | | |
|---|------------------------|-----------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | NE | NE | | | | | | | | | | | | | | |
| Austria | 81.06 | 81.06 | | | | | | | | | | | | | | |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NE | NE | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | NE | NE | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | 0.00 | 0.00 | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | -1,071.15 | 2,973.90 | -130.3 | -295.5 | 30.8 | | 329.4 | 5.8 | -48.2 | -63.6 | -136.0 | 353.8 | -7.0 | 52.3 | 80.7 | -377.6 |
| France | | | | | | | | | | | | | | | | |
| Germany | 18,141.58 | 16,876.52 | | | -1.5 | -0.8 | -0.8 | -0.8 | -0.8 | -0.8 | -0.8 | -0.8 | -0.8 | 0.8 | | -7.0 |
| Greece | 0.00 | 0.00 | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | 15,916.50 | 15,848.79 | -2.9 | 2.2 | 5.2 | -3.1 | 1.2 | 1.5 | -1.0 | 5.5 | 1.4 | -1.5 | -3.9 | -0.2 | -4.1 | -0.4 |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | 0.37 | | | | | | | | | | | | | | |
| Netherlands | 4,246.00 | 4,246.00 | | | | | | | | | | | | | | |
| New Zealand | NE | 0.00 | | | | | | | | | | | | | | |
| Norway | 1,870.00 | 1,870.00 | | | | | | | | | | | | | | |
| Portugal | NE | NE | | | | | | | | | | | | | | |
| Romania | 0.00 | 0.00 | | | | | | | | | | | | | | |
| Slovakia | 535.90 | -1,363.18 | -26.1 | -5.9 | | | 57.1 | -63.6 | -153.3 | -240.7 | -280.9 | 530.5 | 10.4 | -0.8 | 56.0 | -354.4 |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | 791.57 | 893.89 | 1.4 | -1.4 | -1.4 | 13.9 | 6.9 | -8.5 | -6.2 | -13.7 | 16.8 | -0.7 | 4.7 | -20.1 | 30.9 | 12.9 |
| United States | IE | IE | | | | | | | | | | | | | | |

^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 5.20

Grassland remaining Grassland – trend information

| Area (kha) | | | Relative change (%) | | | | | | | | | | | | | |
|--------------------|------------------------|------------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | NE | NE | | | | | | | | | | | | | | |
| Austria | 1,939.00 | 1,939.00 | | | | | | | | | | | | | | |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NE | NE | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | NE | NE | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | 217.24 | 177.64 | -2.4 | -1.9 | -5.1 | -3.2 | 8.4 | -6.9 | -13.1 | -6.8 | 2.1 | 4.2 | 4.5 | 2.2 | 0.1 | -18.2 |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | 741.62 | 575.07 | -4.1 | 0.2 | -4.5 | -3.1 | 24.4 | 1.0 | -2.7 | -4.6 | -8.4 | -9.0 | -1.8 | -2.6 | -6.1 | -22.5 |
| France | | | | | | | | | | | | | | | | |
| Germany | 6,616.39 | 6,257.71 | -0.4 | -0.4 | -0.4 | -0.4 | -0.4 | -0.4 | -0.4 | -0.4 | -0.4 | -0.4 | -0.5 | -0.5 | -0.5 | -5.4 |
| Greece | 1,657.47 | 1,776.47 | -0.9 | 0.2 | 1.3 | 0.4 | 0.4 | 0.4 | 0.9 | 1.0 | 0.7 | 0.4 | 0.5 | 0.4 | 1.2 | 7.2 |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | 7,737.58 | 5,985.12 | -1.2 | -1.2 | -2.2 | | -4.9 | -2.9 | -1.4 | -4.3 | -4.0 | -2.3 | 0.4 | -0.9 | -0.3 | -22.6 |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | 0.03 | | | | | | | | | | | | | | |
| Netherlands | 1,460.21 | 1,326.55 | -0.7 | -0.7 | -0.7 | -0.7 | -0.7 | -0.7 | -0.7 | -0.7 | -0.7 | -0.8 | -0.8 | -0.8 | -0.8 | -9.2 |
| New Zealand | NE | 14,310.70 | | | | | | | | | -0.2 | -0.2 | -0.2 | -0.2 | -0.2 | |
| Norway | 154.63 | 172.66 | -0.5 | -0.5 | -0.5 | -0.5 | -0.5 | -0.5 | 2.2 | 2.1 | 2.1 | 2.0 | 2.0 | 2.0 | 1.9 | 11.7 |
| Portugal | NE | NE | | | | | | | | | | | | | | |
| Romania | 4,704.40 | 4,845.40 | 1.6 | 1.1 | 0.5 | 0.4 | 0.4 | 0.0 | 0.2 | 0.1 | -1.5 | 2.4 | -0.4 | 0.1 | -1.9 | 3.0 |
| Slovakia | 813.00 | 883,506.00 | -0.6 | 0.2 | 2.7 | 0.4 | | 0.8 | -0.9 | 0.0 | 2.6 | 1.0 | -0.1 | -0.1 | 102,216.9 | 108,572.3 |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | 12.44 | 14.88 | 2.1 | -2.1 | -2.1 | 21.2 | 9.9 | -11.9 | -9.0 | -20.4 | 27.2 | -1.0 | 7.1 | -29.4 | 51.1 | 19.6 |
| United States | NA | NA | | | | | | | | | | | | | | |

^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 5.21**Land converted to Grassland - AD, IEF and carbon stock change in pools (2003)**

| | Activity data | IEF (Mg C/ha) | | | | | Emissions/Removals (Gg C) | | | | |
|--------------------|---------------|---------------------------------------|----------|------------|--|----------------------------------|----------------------------------|------------|------------|--|-----------------------------|
| | | C stock change in living biomass/area | | | Net C stock change in DOM ^a /area | Net C stock change in soils/area | C stock change in living biomass | | | Net C stock change in DOM ^a | Net C stock change in soils |
| | | Increase | Decrease | Net Change | | | Increase | Decrease | Net Change | | |
| Australia | 128.01 | 0.00 | -101.57 | -101.57 | IE,NE,NO | IE,NE,NO | 0.00 | -13,002.29 | -13,002.29 | IE, NE, NO | IE, NE, NO |
| Austria | 2.81 | 0.00 | -4.87 | -4.87 | NE, NO | NE, NO | 0.00 | -13.68 | -13.68 | NE, NO | NE, NO |
| Belarus | | | | | | | | | | | |
| Belgium | NE | NE | NE | NE | NE | NE | NE | NE | 0.00 | NE | NE |
| Bulgaria | | | | | | | | | | | |
| Canada | 30.78 | NE | -42.13 | -42.13 | NE | NE | NE | -1,296.84 | -1,296.84 | NE | NE |
| Croatia | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | |
| Denmark | NO,NE | NO,NE | NO,NE | NO,NE | NO,NE | NO,NE | NO,NE | NO,NE | 0.00 | NO,NE | NO,NE |
| Estonia | | | | | | | | | | | |
| European Community | | | | | | | | | | | |
| Finland | NE | NE | NE | NE | NE | NE | | | 0.00 | | |
| France | | | | | | | | | | | |
| Germany | 24.55 | 0.00 | -9.54 | -9.54 | 0.00 | 11.09 | 0.01 | -234.21 | -234.20 | | 272.29 |
| Greece | NE, NO | NE, NO | NE, NO | NE, NO | NE, NO | NE, NO | NE, NO | NE, NO | 0.00 | NE, NO | NE, NO |
| Hungary | | | | | | | | | | | |
| Iceland | | | | | | | | | | | |
| Ireland | | | | | | | | | | | |
| Italy | 98.40 | 0.00 | -1.95 | -1.95 | 0.00 | 0.44 | 0.00 | -191.87 | -191.87 | 0.00 | 42.82 |
| Japan | | | | | | | | | | | |
| Latvia | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | |
| Lithuania | 9.41 | 0.00 | -0.25 | -0.25 | 0.00 | 0.00 | | -2.35 | -2.35 | | |
| Luxembourg | | | | | | | | | | | |
| Monaco | | | | | NO | NO | | | | NO | NO |
| Netherlands | 19.07 | 0.00 | -12.38 | -12.38 | NE | 4.71 | | -236.10 | -236.10 | NE | 89.87 |
| New Zealand | 1.08 | 0.34 | -179.39 | -179.05 | NE | 4.78 | 0.37 | -193.16 | -192.79 | NE | 5.15 |
| Norway | 4.69 | NA | -1.21 | -1.21 | NA, NE | 0.00 | NA | -5.68 | -5.68 | NA, NE | 0.00 |
| Portugal | NE | NE | NE | NE | NE | NE | NE | NE | 0.00 | NE | NE |
| Romania | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | 0.00 | | |
| Slovakia | | NE | NE | 0.00 | NE | NE | NE | NE | 0.00 | NE | NE |
| Slovenia | | | | | | | | | | | |
| Spain | | | | | | | | | | | |
| Sweden | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | |
| United Kingdom | 8.38 | IE | IE | 0.00 | IE | 254.28 | IE | IE | 0.00 | IE | 2,129.66 |
| United States | NA | IE | IE | NA | IE | IE | IE | IE | 0.00 | IE | IE |

^a DOM = dead organic matter

Table 5.22**Land converted to Grassland - trend information**

| Net CO ₂ emissions/removals (Gg) | | | Relative change (%) | | | | | | | | | | | | | |
|---|------------------------|-----------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 122,225.44 | 47,675.07 | -20.0 | -16.6 | -16.0 | -4.6 | -4.8 | -4.6 | -6.4 | 24.4 | -19.5 | 3.0 | -10.7 | 14.2 | -18.4 | -61.0 |
| Austria | 34.63 | 50.16 | 82.5 | | | | | | -20.6 | | | | | | | 44.8 |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NE | NE | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | 4,755.07 | 4,755.07 | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | NO, NE | NO, NE | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | | | | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | | | | |
| Germany | 95.67 | -139.65 | | | 0.0 | | | | | | | -245.9 | | | | -246.0 |
| Greece | NE, NO | NE, NO | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | 256.86 | 546.51 | -47.4 | 19.2 | | | | | | | | | | -44.9 | 52.0 | 112.8 |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | 8.62 | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 536.18 | 536.18 | | | | | | | | | | | | | | |
| New Zealand | NE | 688.02 | | | | | | | | -0.4 | -0.4 | -0.4 | -0.4 | -0.4 | -0.4 | |
| Norway | NA | 20.81 | | | | | | | | | | 53.4 | 46.8 | -83.2 | 400.4 | |
| Portugal | NE | NE | | | | | | | | | | | | | | |
| Romania | | | | | | | | | | | | | | | | |
| Slovakia | | NE | | | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | -6,384.42 | -7,808.77 | 2.0 | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 22.3 |
| United States | IE | IE | | | | | | | | | | | | | | |

^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 5.23**Land converted to Grassland - trend information**

| Area (kha) | | | Relative change (%) | | | | | | | | | | | | | |
|--------------------|------------------------|--------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 468.38 | 128.01 | -28.5 | -11.9 | -5.4 | -4.3 | -16.9 | 0.2 | -1.5 | 4.4 | 0.9 | 0.8 | 0.4 | -33.8 | -16.9 | -72.7 |
| Austria | 1.94 | 2.81 | 82.5 | | | | | | -20.6 | | | | | | | 44.8 |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NE | NE | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | 30.78 | 30.78 | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | NO, NE | NO, NE | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | NE | NE | | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | | | | |
| Germany | 33.56 | 24.55 | | | | | | | | | | -26.8 | | | | -26.8 |
| Greece | NE, NO | NE, NO | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | 46.25 | 98.40 | -47.4 | -7.4 | | | | | | | | | | -44.9 | 52.0 | 112.8 |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | 9.41 | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 19.07 | 19.07 | | | | | | | | | | | | | | |
| New Zealand | NE | 1.08 | | | | | | | | | | | | | | |
| Norway | 0.00 | 4.69 | | | 50.0 | 33.3 | 25.0 | 20.0 | | 1.0 | -1.0 | | | 0.4 | -0.4 | |
| Portugal | NE | NE | | | | | | | | | | | | | | |
| Romania | | | | | | | | | | | | | | | | |
| Slovakia | NE | | | | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | 5.77 | 8.38 | 3.5 | 3.4 | 3.3 | 3.2 | 3.1 | 3.0 | 2.9 | 2.8 | 2.7 | 2.6 | 2.6 | 2.5 | 2.5 | 45.2 |
| United States | NA | NA | | | | | | | | | | | | | | |

^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 5.24

Forest Land converted to Grassland - AD, IEF and carbon stock change in pools (2003)

| | Activity data Total area (kha) | IEF (Mg C/ha) | | | | Emissions/Removals (Gg C) | | | | | |
|--------------------|-----------------------------------|---------------------------------------|----------|------------|--|--|----------------------------------|------------|------------|---|--------------------------------|
| | | C stock change in living biomass/area | | | Net C stock change in DOM ^a /area | Net C stock change in soils/area | C stock change in living biomass | | | Net C stock change in DOM ^a | Net C stock change in soils |
| | | Increase | Decrease | Net Change | | | Increase | Decrease | Net Change | | |
| Australia | 128.01 | 0.00 | -101.57 | -101.57 | IE | IE | 0.00 | -13,002.29 | -13,002.29 | IE | IE |
| Austria | 2.81 | 0.00 | -4.87 | -4.87 | NE | NE | 0.00 | -13.68 | -13.68 | NE | NE |
| Belarus | | | | | | | | | | | |
| Belgium | NE | NE | NE | NE | NE | NE | NE | NE | 0.00 | NE | NE |
| Bulgaria | | | | | | | | | | | |
| Canada | 30.78 | NE | -42.13 | -42.13 | NE | NE | NE | -1,296.84 | -1,296.84 | NE | NE |
| Croatia | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | |
| Denmark | NO | NO | NO | NO | NO | NO | NO | NO | 0.00 | NO | NO |
| Estonia | | | | | | | | | | | |
| European Community | | | | | | | | | | | |
| Finland | NE | NE | NE | NE | NE | NE | | | 0.00 | | |
| France | | | | | | | | | | | |
| Germany | 1.58 | 0.00 | -59.91 | -59.91 | NE | 0.00 | 0.01 | -94.91 | -94.91 | NE | |
| Greece | NE | NE | NE | NE | NE | NE | NE | NE | 0.00 | NE | NE |
| Hungary | | | | | | | | | | | |
| Iceland | | | | | | | | | | | |
| Ireland | | | | | | | | | | | |
| Italy | NO | NO | NO | NO | NO | NO | NO | NO | 0.00 | NO | NO |
| Japan | | | | | | | | | | | |
| Latvia | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | |
| Lithuania | 9.41 | 0.00 | -0.25 | -0.25 | 0.00 | 0.00 | | -2.35 | -2.35 | | |
| Luxembourg | | | | | | | | | | | |
| Monaco | | | | | NO | NO | | | | NO | NO |
| Netherlands | 1.30 | 0.00 | -181.62 | -181.62 | NE | NE | | -236.10 | -236.10 | NE | NE |
| New Zealand | 1.02 | 0.00 | -189.00 | -189.00 | NE | 4.82 | 0.00 | -193.16 | -193.16 | NE | 4.93 |
| Norway | 0.72 | NA | NA | 0.00 | NA | 0.00 | NA | NA | 0.00 | NA | 0.00 |
| Portugal | NE | NE | NE | NE | NE | NE | NE | NE | 0.00 | NE | NE |
| Romania | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | 0.00 | | |
| Slovakia | | NE | NE | 0.00 | NE | NE | NE | NE | 0.00 | NE | NE |
| Slovenia | | | | | | | | | | | |
| Spain | | | | | | | | | | | |
| Sweden | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | |
| United Kingdom | IE | IE | IE | IE | IE | IE | IE | IE | 0.00 | IE | IE |
| United States | NA | IE | IE | NA | IE | IE | IE | IE | 0.00 | IE | IE |

^a DOM = dead organic matter

Table 5.25**Forest Land converted to Grassland - trend information**

| CO ₂ emissions/removals (Gg) ^a | | | Relative Change (%) | | | | | | | | | | | | | |
|--|------------------------|-----------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^b | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 122,225.44 | 47,675.07 | -20.0 | -16.6 | -16.0 | -4.6 | -4.8 | -4.6 | -6.4 | 24.4 | -19.5 | 3.0 | -10.7 | 14.2 | -18.4 | -61.0 |
| Austria | 34.63 | 50.16 | 82.5 | | | | | | -20.6 | | | | | | | 44.8 |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NE | NE | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | 4,755.07 | 4,755.07 | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | NO | NO | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | | | | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | | | | |
| Germany | 348.00 | 348.00 | | | | | | | | | | | | | | |
| Greece | NE | NE | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | NO | NO | | | | | | | | | | | | | | |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | 8.62 | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 865.70 | 865.70 | | | | | | | | | | | | | | |
| New Zealand | NE | 690.19 | | | | | | | | -0.4 | -0.4 | -0.4 | -0.4 | -0.4 | -0.4 | |
| Norway | NA | 0.00 | | | | | | | | | | | | | | |
| Portugal | NE | NE | | | | | | | | | | | | | | |
| Romania | | | | | | | | | | | | | | | | |
| Slovakia | | NE | | | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | IE | IE | | | | | | | | | | | | | | |
| United States | IE | IE | | | | | | | | | | | | | | |

^a The CO₂ emissions/removals are estimated based on C stock changes in pools provided in table 5.C of the CRF for LULUCF.

^b In accordance with the UNFCCC reporting guidelines on annual inventories of Annex I Parties the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2 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 5.26

Forest Land converted to Grassland (2003)

| Area (kha) | | | Relative Change (%) | | | | | | | | | | | | | Base year ^a to 2003 |
|--------------------|------------------------|--------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | |
| Australia | 468.38 | 128.01 | -28.5 | -11.9 | -5.4 | -4.3 | -16.9 | 0.2 | -1.5 | 4.4 | 0.9 | 0.8 | 0.4 | -33.8 | -16.9 | -72.7 |
| Austria | 1.94 | 2.81 | 82.5 | | | | | | -20.6 | | | | | | | 44.8 |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NE | NE | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | 30.78 | 30.78 | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | NO | NO | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | NE | NE | | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | | | | |
| Germany | 1.58 | 1.58 | | | | | | | | | | | | | | |
| Greece | NE | NE | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | NO | NO | | | | | | | | | | | | | | |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | 9.41 | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 1.30 | 1.30 | | | | | | | | | | | | | | |
| New Zealand | NE | 1.02 | | | | | | | | | | | | | | |
| Norway | 0.00 | 0.72 | | 100.0 | 50.0 | 33.3 | 25.0 | 20.0 | | | | | | | | |
| Poland | | | | | | | | | | | | | | | | |
| Portugal | NE | NE | | | | | | | | | | | | | | |
| Romania | | | | | | | | | | | | | | | | |
| Slovakia | NE | | | | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | IE | IE | | | | | | | | | | | | | | |
| United States | NA | NA | | | | | | | | | | | | | | |

^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 5.27

Direct N₂O emissions from N-fertilization (2003)

| | Forest Land remaining Forest Land | | | Land converted to Forest Land | | |
|--------------------|---|--|------------------------------------|---|--|------------------------------------|
| | Total amount of fertilizer applied (Gg N/yr) | N ₂ O-N emissions per area converted (kg N ₂ O-N/ha) | N ₂ O emissions (Gg) | Total amount of fertilizer applied (Gg N/yr) | N ₂ O-N emissions per area converted (kg N ₂ O-N/ha) | N ₂ O emissions (Gg) |
| Australia | NE | NE | NE | NE | NE | NE |
| Austria | NO | NO | NO | NO | NO | NO |
| Belarus | | | | | | |
| Belgium | NO | NO | NO | NE | NE | NE |
| Bulgaria | | | | | | |
| Canada | IE | IE | IE | IE | IE | IE |
| Croatia | | | | | | |
| Czech Republic | | | | | | |
| Denmark | IE | IE | IE | IE | IE | IE |
| Estonia | | | | | | |
| European Community | | | | | | |
| Finland | 1.85 | 0.01 | 0.04 | IE | IE | IE |
| France | | | | | | |
| Germany | NO | NO | NO | NO | NO | NO |
| Greece | NO | NO | NO | NO | NO | NO |
| Hungary | | | | | | |
| Iceland | | | | | | |
| Ireland | | | | | | |
| Italy | NO | NO | NO | NO | NO | NO |
| Japan | | | | | | |
| Latvia | | | | | | |
| Liechtenstein | | | | | | |
| Lithuania | | | | | | |
| Luxembourg | | | | | | |
| Monaco | 0.00 | 0.01 | 0.00 | NO | NO | NO |
| Netherlands | NE | NE | 0.02 | NE | NE | NE |
| New Zealand | NE | NE | NE | NE | NE | NE |
| Norway | IE | IE | IE | 0.16 | 0.01 | 0.00 |
| Portugal | NE | NE | NE | NE | NE | NE |
| Romania | IE | IE | IE | IE | IE | IE |
| Slovakia | NO | NO | NO | NO | NO | NO |
| Slovenia | | | | | | |
| Spain | | | | | | |
| Sweden | | | | | | |
| Switzerland | | | | | | |
| Ukraine | | | | | | |
| United Kingdom | | NE | NE | | NE | NE |
| United States | 71.51 | 0.01 | 1.26 | NE | NE | NE |

Table 5.28**Direct N₂O emissions from N fertilization (Gg) – trend information****Total for all Land-use Categories**

| N ₂ O emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|---------------------------------|------------------------|--------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | NE | NE | | | | | | | | | | | | | | |
| Austria | NE | NE | | | | | | | | | | | | | | |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NO, NE | NO, NE | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | IE | IE | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | IE | IE | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | 0.09 | 0.04 | -25.3 | -56.9 | -60.7 | 236.4 | -43.2 | 19.0 | 64.0 | -31.7 | 57.1 | -2.3 | -18.6 | 5.7 | -1.9 | -58.3 |
| France | | | | | | | | | | | | | | | | |
| Germany | NO | NO | | | | | | | | | | | | | | |
| Greece | NO | NO | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | NO | NO | | | | | | | | | | | | | | |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | 0.00 | | | | | | | | | | | | | | |
| Netherlands | 0.02 | 0.02 | | | | | | | | | | | | | | |
| New Zealand | NE | NE | | | | | | | | | | | | | | |
| Norway | 0.00 | 0.00 | 54.5 | -5.9 | -31.3 | -4.5 | 4.8 | 0.0 | -2.3 | 11.6 | -8.3 | -36.4 | -17.9 | 39.1 | -0.4 | -27.6 |
| Portugal | NE | NE | | | | | | | | | | | | | | |
| Romania | IE | IE | | | | | | | | | | | | | | |
| Slovakia | | NO | | | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | NE | NE | | | | | | | | | | | | | | |
| United States | 18.06 | 20.69 | 1.6 | 1.4 | 3.8 | 4.4 | -2.3 | 4.1 | 1.1 | 1.1 | 2.1 | -4.4 | -2.2 | 3.5 | | 14.6 |

^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 5.29

N₂O emissions from disturbance associated with land-use conversion to cropland (2003)

| | Land area converted (kha) | N ₂ O-N emissions per area converted (kg N ₂ O-N/ha) | N ₂ O emissions (Gg) |
|--------------------|------------------------------|---|------------------------------------|
| Australia | NE | NE | NE |
| Austria | NE | NE | NE |
| Belarus | | | |
| Belgium | NE | NE | NE |
| Bulgaria | | | |
| Canada | NE | NE | NE |
| Croatia | | | |
| Czech Republic | | | |
| Denmark | NO | NO | NO |
| Estonia | | | |
| European Community | | | |
| Finland | NE | NE | |
| France | | | |
| Germany | NE, NO | NE, NO | NE, NO |
| Greece | NO | NO | NO |
| Hungary | | | |
| Iceland | | | |
| Ireland | | | |
| Italy | 0.00 | 0.00 | 0.00 |
| Japan | | | |
| Latvia | | | |
| Liechtenstein | | | |
| Lithuania | | | |
| Luxembourg | | | |
| Monaco | NO | NO | NO |
| Netherlands | NE, NO | NE, NO | NE, NO |
| New Zealand | NE | NE | NE |
| Norway | 78.14 | 0.02 | 0.00 |
| Portugal | NE | NE | NE |
| Romania | NE | NE | NE |
| Slovakia | NE | NE | NE |
| Slovenia | | | |
| Spain | | | |
| Sweden | | | |
| Switzerland | | | |
| Ukraine | | | |
| United Kingdom | | NE | NE |
| United States | NE | NE | NE |

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 | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | NE | NE | | | | | | | | | | | | | | |
| Austria | NE | NE | | | | | | | | | | | | | | |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NE | NE | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | NE | NE | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | NO | NO | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | | | | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | | | | |
| Germany | NE, NO | NE, NO | | | | | | | | | | | | | | |
| Greece | NO | NO | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | 0.00 | 0.00 | | | | 32.5 | | 44.4 | | | -19.7 | -89.0 | | | | |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | NO | | | | | | | | | | | | | | |
| Netherlands | NE, NO | NE, NO | | | | | | | | | | | | | | |
| New Zealand | NE | NE | | | | | | | | | | | | | | |
| Norway | 0.01 | 0.00 | -3.9 | -4.2 | -4.6 | -3.4 | -3.5 | -4.4 | -4.8 | -5.9 | -6.9 | -7.1 | -7.3 | -8.5 | | -48.5 |
| Portugal | NE | NE | | | | | | | | | | | | | | |
| Romania | NE | NE | | | | | | | | | | | | | | |
| Slovakia | NE | NE | | | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | NE | NE | | | | | | | | | | | | | | |
| United States | NE | 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 5.31**Carbon emissions from agricultural lime application in Cropland and Grassland (2003)**

| | Cropland | | | Grassland | | |
|--------------------|---|--|--------------------------|---|--|--------------------------|
| | Total amount of lime applied (Mg/yr) | C emissions per unit of lime (MgC/Mg) | Carbon emissions (Gg) | Total amount of lime applied (Mg/yr) | C emissions per unit of lime (MgC/Mg) | Carbon emissions (Gg) |
| Australia | NE | NE | NE | NE | NE | NE |
| Austria | 244,300.00 | 0.12 | 29.32 | NE | NE | NE |
| Belarus | | | | | | |
| Belgium | NE | NE | NE | NE | NE | NE |
| Bulgaria | | | | | | |
| Canada | 627,114.00 | IE | IE | IE | IE | IE |
| Croatia | | | | | | |
| Czech Republic | | | | | | |
| Denmark | 514,300.00 | 0.12 | 61.72 | IE | IE | IE |
| Estonia | | | | | | |
| European Community | | | | | | |
| Finland | 616,246.30 | 0.12 | 75.43 | | | |
| France | | | | | | |
| Germany | 3,493,718.56 | 0.12 | 419.25 | | | |
| Greece | NO | NO | NO | NO | NO | NO |
| Hungary | | | | | | |
| Iceland | | | | | | |
| Ireland | | | | | | |
| Italy | NO | NO | NO | NO | NO | NO |
| Japan | | | | | | |
| Latvia | | | | | | |
| Liechtenstein | | | | | | |
| Lithuania | | | | | | |
| Luxembourg | | | | | | |
| Monaco | NO | NO | NO | NO | NO | NO |
| Netherlands | NE | NE | NE | NE | NE | NE |
| New Zealand | IE | IE | IE | IE | IE | IE |
| Norway | 237,631.00 | 0.12 | 28.52 | IE, NO | IE, NO | IE, NO |
| Portugal | NE | NE | NE | NO | NO | NO |
| Romania | NE | NE | NE | NE | NE | NE |
| Slovakia | 2,440.00 | 0.12 | 0.30 | NE | NE | NE |
| Slovenia | | | | | | |
| Spain | | | | | | |
| Sweden | | | | | | |
| Switzerland | | | | | | |
| Ukraine | | | | | | |
| United Kingdom | 1,086.73 | 123.47 | 134.18 | 940.27 | 123.47 | 116.10 |
| United States | 21,368.13 | 121.03 | 2586.23 | IE | IE | IE |

Table 5.32

Carbon emissions from agricultural lime application – trend information

All land-use categories

| C emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------|------------------------|----------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | NE | NE | | | | | | | | | | | | | | |
| Austria | 29.32 | 29.32 | | | | | | | | | | | | | | |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NE | NE | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | -55.52 | -78.60 | 25.4 | -3.5 | -9.4 | 21.6 | -0.6 | 10.6 | -8.7 | 11.9 | -1.7 | -11.3 | 7.6 | 9.2 | -7.8 | 41.6 |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | 154.24 | 61.72 | -18.2 | -22.7 | -14.2 | 19.6 | 35.1 | -20.8 | 19.5 | -46.3 | 5.1 | -1.7 | -23.0 | 16.3 | -3.0 | -60.0 |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | 168.51 | 75.43 | -30.2 | -24.3 | 37.5 | -2.9 | -15.1 | 12.0 | 12.9 | -6.5 | -1.9 | -2.6 | -6.0 | 6.8 | -34.2 | -55.2 |
| France | | | | | | | | | | | | | | | | |
| Germany | 658.80 | 453.42 | -24.6 | -22.8 | -2.2 | -11.0 | 17.4 | 2.9 | 4.9 | 13.8 | 0.7 | 10.6 | -13.3 | 6.5 | -8.4 | -31.2 |
| Greece | NO | NO | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | NO | NO | | | | | | | | | | | | | | |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | NO | | | | | | | | | | | | | | |
| Netherlands | 49.95 | 23.57 | -19.9 | -4.0 | -15.2 | -19.9 | 2.6 | 12.5 | -0.5 | -5.5 | -18.9 | 15.7 | -18.1 | 5.8 | 2.1 | -52.8 |
| New Zealand | 94.48 | 196.10 | 12.0 | 7.9 | 8.6 | 9.1 | 2.2 | 2.5 | 2.7 | 9.2 | 8.5 | 7.8 | 7.2 | 0.3 | -1.9 | 107.6 |
| Norway | 61.85 | 33.54 | -13.0 | -17.5 | 17.2 | -10.6 | 11.3 | -7.2 | 0.1 | -11.0 | -1.0 | -13.4 | 1.9 | -2.0 | -8.5 | -45.8 |
| Portugal | NE, NO | NE, NO | | | | | | | | | | | | | | |
| Romania | NE | NE | | | | | | | | | | | | | | |
| Slovakia | 0.12 | 0.30 | | | | | | | | | | 143.8 | | | | 143.8 |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | 390.12 | 250.28 | 23.9 | 2.1 | -37.5 | 12.3 | 20.4 | -0.9 | -11.1 | -21.4 | -16.2 | -10.5 | -8.8 | 2.0 | 24.2 | -35.8 |
| United States | 2,588.15 | 2,586.23 | 7.3 | -11.9 | -14.3 | 9.4 | 6.1 | -0.5 | -2.0 | 10.2 | -5.5 | -2.9 | 1.9 | 12.9 | -6.3 | -0.1 |

^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 5.33**Biomass burning (2003). CO₂ emissions for all Land-use Categories**

| | Activity Data | | | 2003 CO ₂ IEF (Mg/activity data unit) | CO ₂ Emissions | |
|----------------|----------------|------------|----------------|--|---------------------------|------------|
| | Description | Unit | Values | | Base year ^a | 2003 |
| | | (ha/kg dm) | | | | |
| Australia | area burned | ha | 1,493,011.82 | NA, IE, NO | NA, IE, NO | NA, IE, NO |
| Austria | area burned | ha | NO, NE | NO, IE | NO, IE | NO, IE |
| Belarus | | | | | | |
| Belgium | NO | | NO | NO | NO | NO |
| Bulgaria | | | | | | |
| Canada | area burned | ha | 909,178.98 | 44.40 | 13094.57 | 40365.96 |
| Croatia | | | | | | |
| Czech Republic | | | | | | |
| Denmark | NO | | | | | |
| Estonia | | | | | | |
| European | | | | | | |
| Finland | area burned | ha | 2,063.00 | 43.91 | 179.55 | 90.58 |
| France | | | | | | |
| Germany | area burned | ha | 1,315.00 | IE | IE | IE |
| Greece | area burned | ha | 4,843.37 | 0.00 | IE | 0.00 |
| Hungary | | | | | | |
| Iceland | | | | | | |
| Ireland | | | | | | |
| Italy | area burned | ha | 44,201.51 | NO, IE | NO, IE | NO, IE |
| Japan | | | | | | |
| Latvia | | | | | | |
| Liechtenstein | | | | | | |
| Lithuania | | | | | | |
| Luxembourg | | | | | | |
| Monaco | biomass burned | kg dm | 375,000.00 | 0.00 | | 0.65 |
| Netherlands | | | NE,NO | NE,NO | NE,NO | NE,NO |
| New Zealand | biomass burned | kg dm | 799,630,000.00 | 0.00 | 200.77 | 261.09 |
| Norway | area burned | ha | 750.10 | IE,NO | IE, NO | IE, NO |
| Portugal | biomass burned | kg dm | 9,436,217.75 | NO, NE, IE | NO, NE, IE | NO, NE, IE |
| Romania | area burned | ha | 762.40 | 24.77 | 2.31 | 18.88 |
| Slovakia | biomass burned | kg dm | 91,655,100.00 | 0.00 | 160.21 | 168.03 |
| Slovenia | | | | | | |
| Spain | | | | | | |
| Sweden | | | | | | |
| Switzerland | | | | | | |
| Ukraine | | | | | | |
| United Kingdom | | | | NO, NE, IE | NO, NE, IE | NO, NE, IE |
| United States | IE,NE | | IE,NE | IE,NE | 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

| CH ₄ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|------------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 58.09 | 86.97 | 3.1 | -5.7 | -1.8 | -4.8 | 5.8 | -3.5 | 5.4 | -0.8 | -5.2 | -14.2 | 8.8 | 75.8 | -1.1 | 49.7 |
| Austria | NO, NE | NO, NE | | | | | | | | | | | | | | |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NO | NO | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | 39.67 | 42.97 | 62.9 | -68.2 | 209.1 | -43.1 | 316.3 | -67.9 | -43.9 | 221.5 | -54.8 | -74.1 | 99.8 | 347.2 | -52.8 | 8.3 |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | NO | NO | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | 0.78 | 0.40 | -59.9 | 90.8 | -70.3 | 164.6 | -22.5 | -28.2 | 74.4 | -70.7 | 177.6 | -56.2 | 182.8 | 6.7 | -19.5 | -49.4 |
| France | | | | | | | | | | | | | | | | |
| Germany | NO | NO | | | | | | | | | | | | | | |
| Greece | 2.29 | 0.19 | -51.1 | 205.6 | -10.8 | -11.8 | -40.4 | -43.9 | 104.5 | 204.8 | -92.5 | 1,705.8 | -86.9 | -85.8 | 31.5 | -91.9 |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | 6.80 | 3.09 | -74.4 | 65.3 | 149.7 | -59.7 | -55.0 | -19.0 | 234.1 | 16.4 | -50.8 | 104.9 | -36.6 | -44.0 | 110.1 | -54.5 |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | NO, NE | | | | | | | | | | | | | | |
| Netherlands | NE | NE | | | | | | | | | | | | | | |
| New Zealand | 1.72 | 1.89 | 8.6 | 34.1 | 34.2 | 15.1 | -8.8 | 25.4 | -3.8 | -30.7 | -15.9 | -6.7 | 2.1 | -18.3 | -2.3 | 9.8 |
| Norway | 0.84 | 0.68 | 68.2 | -8.2 | -84.5 | 3.5 | -51.2 | 354.0 | 68.7 | -68.3 | -68.7 | 99.7 | -97.0 | 4,140.4 | 240.2 | -19.9 |
| Portugal | 20.99 | 75.49 | 57.7 | -68.4 | -40.0 | -43.4 | 549.2 | -65.1 | -62.5 | 400.5 | -45.9 | 121.1 | -34.0 | 43.8 | 339.0 | 259.6 |
| Romania | 0.01 | 0.08 | 197.6 | 163.0 | -28.9 | -39.8 | -33.2 | 8.9 | -70.1 | 102.2 | 176.5 | 853.0 | -72.2 | 255.9 | -78.6 | 718.9 |
| Slovakia | 0.70 | 0.73 | -18.6 | -19.3 | 4.3 | -14.6 | 12.2 | 10.9 | 5.9 | -1.9 | 15.1 | 9.8 | 1.5 | -2.9 | 10.6 | 4.3 |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | NO, NE, IE | NO, NE, IE | | | | | | | | | | | | | | |
| United States | NE | 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 5.35**N₂O emissions from biomass burning in Forest Land – trend**

| N ₂ O emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|---------------------------------|------------------------|------------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 1.07 | 1.60 | 3.1 | -5.7 | -1.8 | -4.8 | 5.8 | -3.5 | 5.4 | -0.8 | -5.2 | -14.2 | 8.8 | 75.8 | -1.1 | 49.7 |
| Austria | NO, NE | NO, NE | | | | | | | | | | | | | | |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NO | NO | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | 2.34 | 3.25 | 82.5 | -74.4 | 282.6 | -50.5 | 438.3 | -70.7 | -42.8 | 257.4 | -58.2 | -81.9 | 177.9 | 407.1 | -54.5 | 38.6 |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | NO | NO | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | 0.01 | 0.00 | -66.7 | 150.0 | -80.0 | 200.0 | | -33.3 | 100.0 | -75.0 | 200.0 | -33.3 | 50.0 | 33.3 | -25.0 | -50.0 |
| France | | | | | | | | | | | | | | | | |
| Germany | NO | NO | | | | | | | | | | | | | | |
| Greece | 0.02 | 0.00 | -51.1 | 205.6 | -10.8 | -11.8 | -40.4 | -43.9 | 104.5 | 204.8 | -92.5 | 1,705.8 | -86.9 | | -81.3 | -91.9 |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | 0.05 | 0.02 | -74.4 | 65.3 | 149.7 | -59.7 | -55.0 | -19.0 | 234.1 | 16.4 | -50.8 | 104.9 | -36.6 | -44.0 | 110.1 | -54.5 |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | NO, NE | | | | | | | | | | | | | | |
| Netherlands | NE | NE | | | | | | | | | | | | | | |
| New Zealand | 0.01 | 0.01 | 8.6 | 34.1 | 34.2 | 15.1 | -8.8 | 25.4 | -3.8 | -30.7 | -15.9 | -6.7 | 2.1 | -18.3 | -2.3 | 9.8 |
| Norway | 0.01 | 0.00 | 68.2 | -8.2 | -84.5 | 3.5 | -51.2 | 354.0 | 68.7 | -68.3 | -68.7 | 99.7 | -97.0 | 4,140.4 | 240.2 | -19.9 |
| Portugal | 0.14 | 0.52 | 57.7 | -68.4 | -40.0 | -43.4 | 549.2 | -65.1 | -62.5 | 400.5 | -45.9 | 121.1 | -34.0 | 43.8 | 339.0 | 259.6 |
| Romania | 0.00 | 0.00 | 197.6 | 163.0 | -28.9 | -39.8 | -33.2 | 8.9 | -70.1 | 102.2 | 176.5 | 853.0 | -72.2 | 255.9 | -78.6 | 718.9 |
| Slovakia | 0.01 | 0.01 | | | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | NO, NE, IE | NO, NE, IE | | | | | | | | | | | | | | |
| United States | NE | 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 5.36

CH₄ emissions from biomass burning in Land converted to Cropland – trend

| CH ₄ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|--------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | IE, NA | IE, NA | | | | | | | | | | | | | | |
| Austria | NO | NO | | | | | | | | | | | | | | |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NO | NO | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | NE | NE | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | NO | NO | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | NE | NE | | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | | | | |
| Germany | | | | | | | | | | | | | | | | |
| Greece | NO | NO | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | NO | NO | | | | | | | | | | | | | | |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | NO | | | | | | | | | | | | | | |
| Netherlands | NE | NE | | | | | | | | | | | | | | |
| New Zealand | NO | NO | | | | | | | | | | | | | | |
| Norway | NO | NO | | | | | | | | | | | | | | |
| Portugal | NE, NO | NE, NO | | | | | | | | | | | | | | |
| Romania | NO | NO | | | | | | | | | | | | | | |
| Slovakia | | | | | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | NO | NO | | | | | | | | | | | | | | |
| United States | NE | 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 5.37**N₂O emissions from biomass burning in Land converted to Cropland – trend**

| N ₂ O emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|---------------------------------|------------------------|--------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | IE, NA | IE, NA | | | | | | | | | | | | | | |
| Austria | NO | NO | | | | | | | | | | | | | | |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NO | NO | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | NE | NE | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | NO | NO | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | NE | NE | | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | | | | |
| Germany | | | | | | | | | | | | | | | | |
| Greece | NO | NO | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | NO | NO | | | | | | | | | | | | | | |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | NO | | | | | | | | | | | | | | |
| Netherlands | NE | NE | | | | | | | | | | | | | | |
| New Zealand | NO | NO | | | | | | | | | | | | | | |
| Norway | NO | NO | | | | | | | | | | | | | | |
| Portugal | NE, NO | NE, NO | | | | | | | | | | | | | | |
| Romania | NO | NO | | | | | | | | | | | | | | |
| Slovakia | | | | | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | NO | NO | | | | | | | | | | | | | | |
| United States | NE | 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 5.38

CH₄ emissions from biomass burning in Grasslands – trend

| CH ₄ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|--------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 147.73 | 72.62 | -11.3 | -16.9 | -10.8 | 1.5 | -14.9 | -0.8 | -1.0 | 1.6 | -1.0 | 2.7 | -2.2 | -3.4 | -9.7 | -50.8 |
| Austria | NO | NO | | | | | | | | | | | | | | |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NO | NO | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | NE | NE | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | NO | NO | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | | NE | | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | | | | |
| Germany | | | | | | | | | | | | | | | | |
| Greece | 0.09 | 0.03 | 9.8 | 81.0 | -36.6 | 153.3 | -81.3 | 165.8 | 180.6 | -8.5 | -87.7 | 685.6 | -71.2 | -88.5 | 144.2 | -67.9 |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | NO | NO | | | | | | | | | | | | | | |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | NO, NE | | | | | | | | | | | | | | |
| Netherlands | NE | NE | | | | | | | | | | | | | | |
| New Zealand | 2.51 | 2.19 | -19.5 | -5.3 | 19.2 | 8.6 | 4.6 | -4.3 | 31.1 | -1.6 | -6.7 | -30.5 | -7.8 | 10.8 | 3.3 | -12.8 |
| Norway | NO | NO | | | | | | | | | | | | | | |
| Portugal | NE, NO | NE, NO | | | | | | | | | | | | | | |
| Romania | NO | NO | | | | | | | | | | | | | | |
| Slovakia | | | | | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | NO | NO | | | | | | | | | | | | | | |
| United States | NE | 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 5.39

N₂O emissions from biomass burning in grasslands – trend

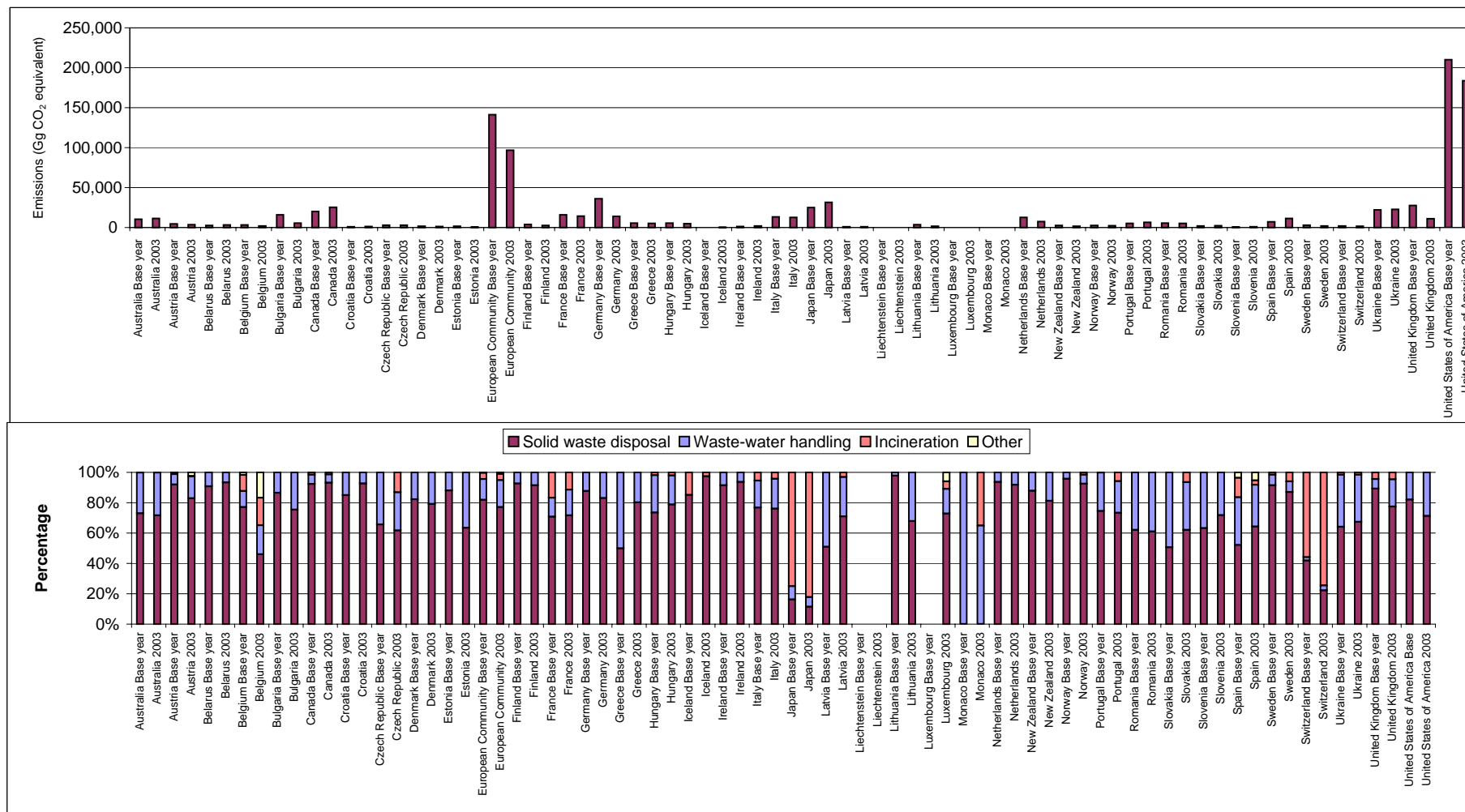
| N ₂ O emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|---------------------------------|------------------------|--------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 2.74 | 1.34 | -11.3 | -16.9 | -10.8 | 1.5 | -14.9 | -0.8 | -1.0 | 1.6 | -1.0 | 2.7 | -2.2 | -3.4 | -9.7 | -50.8 |
| Austria | NO | NO | | | | | | | | | | | | | | |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | NO | NO | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | |
| Canada | NE | NE | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | |
| Denmark | NO | NO | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | | | | | | | | | | | | | | | | |
| Finland | | NE | | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | | | | |
| Germany | | | | | | | | | | | | | | | | |
| Greece | 0.00 | 0.00 | 9.8 | 81.0 | -36.6 | 153.3 | -81.3 | 165.8 | 180.6 | -8.5 | -87.7 | 685.6 | -71.2 | -88.5 | 144.2 | -67.9 |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | |
| Italy | NO | NO | | | | | | | | | | | | | | |
| Japan | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | | | |
| Monaco | | NO, NE | | | | | | | | | | | | | | |
| Netherlands | NE | NE | | | | | | | | | | | | | | |
| New Zealand | 0.02 | 0.02 | -19.5 | -5.3 | 19.2 | 8.6 | 4.6 | -4.3 | 31.1 | -1.6 | -6.7 | -30.5 | -7.8 | 10.8 | 3.3 | -12.8 |
| Norway | NO | NO | | | | | | | | | | | | | | |
| Portugal | NE, NO | NE, NO | | | | | | | | | | | | | | |
| Romania | NO | NO | | | | | | | | | | | | | | |
| Slovakia | | | | | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | |
| Ukraine | | | | | | | | | | | | | | | | |
| United Kingdom | NO | NO | | | | | | | | | | | | | | |
| United States | NE | 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).

Waste

Figure 6.1

Emissions and contribution of subsectors 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), Romania (1989) and Slovenia (1986).

Table 6.1
Solid waste disposal on land, waste-water handling and waste incineration (2003)

| | Activity data | | 6.A Solid waste disposal on land | | | | | | | | 6.B Wastewater handling | | | | | | | | | | 6.C Waste incineration | | | | |
|------------------------------|-------------------------|---------|----------------------------------|-----------------|------------|-------------------------|----------------------|---------------------|---------|----------------------------------|-------------------------------------|------------|-------------------------|----------------------|----------------------|--------|------------|------|--------------------------------------|----------------------|---|--------------|------------|-------------------------|---------|
| | | | CH ₄ | | | | | | | | CH ₄ Wastewater handling | | | | | | | | N ₂ O from human sewage | | CO ₂ from non-biogenic waste | | | | |
| | | | Methods and EF used ^a | | Key source | Share of national total | Emissions per capita | CH ₄ IEF | | Methods and EF used ^b | | Key source | Share of national total | Emissions per capita | CH ₄ IEF | | | | Emissions per capita | N ₂ O IEF | Methods and EF used ^c | | Key source | Share of national total | IEF |
| | | | | | | | | | | | | | | | Domestic/ commercial | | Industrial | | | | | | | | |
| | Waste-water | Sludge | | | | | | | | | | | | | Waste-water | Sludge | | | | | | | | | |
| CRF | World Bank ^d | Methods | EF | | (%) | (kg) | (t/t) | (t/t) | Methods | EF | | (%) | (kg) | (kg / kg DC) | | | | (kg) | (kg N ₂ O -N/kg sewage N) | Methods | EF | | (%) | (kg/t) | |
| IPCC default EF ^e | | | | | | | | | | | | | | | | | | 0.01 | | | | | | | |
| Australia | 20 | 20 | T2 | D | L, T | 1.6 | 20 | 0.02 | NA | T2 | D | | 0.51 | 6.33 | NE | NE | NE | NE | 0.09 | 0.01 | T2 | CS | | 0.003 | NA |
| Austria | 8 | 8 | CS | CS | L, T | 3.1 | 17 | 0.06 | | CS | CS | | 0.33 | 1.78 | | | | | 0.06 | 0.01 | C | CS | | 0.01 | |
| Belarus | 9,874 | 10 | D, T1 | D | L | 4.4 | 15 | NO | 0.0001 | NE | NE | | | | NE | NE | NE | NE | 0.07 | 0.00 | NO | NO | | | NO |
| Belgium | | 10 | | | L, T | 0.6 | 4 | 0.02 | | | | | 0.05 | 0.35 | | | NE | NE | 0.09 | 0.01 | | | | 0.23 | |
| Bulgaria | 8 | 8 | D | D, CS | L, T | 6.1 | 26 | 0.07 | NE | D | D, CS | L, T | 1.78 | 7.48 | 0.06 | 0.06 | 0.04 | 0.04 | 0.06 | 0.01 | NO | NO | | | NO |
| Canada | 32 | 32 | CS | CS | L, T | 3.2 | 36 | 0.06 | NA | CS | CS | | 0.05 | 0.61 | NA | NE | NE | NE | 0.10 | 0.01 | CS | CS | | 0.04 | 218.2 |
| Croatia | 4 | 4 | T1 | CS | L | 4.0 | 13 | 0.06 | | | | | | | | | | | 0.07 | 0.01 | | | | | |
| Czech Republic | 10 | 10 | T1, T3 | CS | L | 1.2 | 8 | 0.03 | | T2 | D, CS | | 0.35 | 2.41 | 0.09 | 0.01 | 0.01 | 0.01 | 0.06 | 0.01 | | | | 0.25 | 835.2 |
| Denmark | 5 | 5 | CS/M | CS/M | L, T | 1.5 | 10 | 0.06 | | NE | | | 0.32 | 2.12 | 0.07 | | | | 0.03 | | IE | | | | |
| Estonia | | 1 | T1 | D | L | 2.2 | 16 | | | T1 | D | L | 1.25 | 9.43 | 0.12 | | 0.12 | | | | | | | | |
| European Community | | 381 | C, CS, D, M, T1, T2 | C, CS, D, M, T2 | L, T | 1.8 | 9 | 0.02 | 0.13 | C, CS, D, M, T1, T2 | C, CS, D | | 0.19 | 1.00 | NE | NE | NE | NE | | NE | C, D, PS, T2 | C, CS, D, PS | | 0.07 | NE |
| Finland | 5 | 5 | T2 | D/CS | L, T | 2.9 | 23 | 0.05 | NO | D | D/CS | | 0.15 | 1.17 | 0.04 | IE | 0.001 | IE | 0.05 | 0.01 | NO | NO | | | IE |
| France | 62 | 60 | CS/ T2 | CS | L, T | 1.9 | 8 | 0.02 | 0.62 | CS/ T2 | CS | | 0.21 | 0.93 | 0.04 | | | 0.05 | | C | CS/ PS | T | 0.25 | | |
| Germany | | 83 | T2 | D, CS | L, T | 1.1 | 7 | 0.05 | NO | D | D, CS | T | 0.01 | 0.06 | 0.003 | NE | NO | NE | 0.09 | 9.99 | NO | NO | | | NO |
| Greece | 11 | 11 | T1 | D | L, T | 2.8 | 17 | 0.04 | | T1 | D | T | 0.48 | 2.83 | 0.13 | NE | 0.25 | NE | 0.11 | 0.01 | | | | | NE |
| Hungary | 10 | 10 | CS, D | CS, D | L, T | 4.7 | 17 | 0.04 | NA, NO | CS, D | CS, D | | 1.14 | 4.24 | 0.21 | IE | 0.25 | IE | | NE | CS | Oth | | 0.13 | 1,000.0 |
| Iceland | | 0.3 | T1 | D | L, T | 7.1 | 35 | 0.04 | | NE | NE | | | | NE | NE | NE | NE | | NE | T1 | D | T | 0.17 | 3,483.3 |
| Ireland | 4 | 4 | T2 | CS, D | L, T | 2.9 | 23 | 0.09 | | NA | NA | | | | | | | 0.10 | 10.00 | NA | NA | | | | |
| Italy | 58 | 58 | T2 | D, CS | L, T | 1.7 | 8 | 0.02 | | D | D | | 0.25 | 1.18 | NO | 0.02 | 0.25 | NO | 0.06 | 0.01 | D | CS | | 0.03 | 1,150.2 |
| Japan | 127 | 128 | M, CS | CS | | 0.3 | 1 | 0.24 | NO | CS | CS | | 0.08 | 0.38 | NE | IE | NE | IE | 0.00 | NE | CS | CS | L, T | 1.74 | 413.8 |
| Latvia | | 2 | T1 | D | L, T | 6.3 | 14 | 0.05 | | T1 | D | L, T | 1.84 | 3.97 | 0.16 | | 0.07 | | 0.07 | 0.01 | C | D | | 0.28 | |
| Liechtenstein | | 0.03 | | | | | | NE | | | | | | | | IE | IE | IE | | | | | | | NO |
| Lithuania | 3 | 3 | | | L | 0.1 | 14 | IE | 0.05 | D | D | L | 0.03 | 6.49 | 0.25 | | 0.25 | NE | | NE | D | D | | | NE |
| Luxembourg | | 0.4 | | | | | 5 | | | | | | | 0.49 | | | | | | | | | | | |
| Monaco | 0.03 | 0.03 | | | | | | | | D | D | | | | | | | 0.07 | | 0.01 | CS | CS | | | |
| Netherlands | 16 | 16 | CS, T2 | CS | L, T | 3.2 | 20 | 0.07 | NO | CS | CS | | 0.10 | 0.61 | 0.01 | IE | NE | IE | 0.03 | NA | IE | | | | IE |
| New Zealand | 4 | 4 | T2 | D | L, T | 2.7 | 17 | 0.04 | NE | D, Oth | Oth | | 0.32 | 1.97 | 0.00 | IE | NE | IE | 0.08 | NE | NA | NA | | | |
| Norway | 5 | 5 | T2 | CS | L, T | 3.7 | 21 | 0.07 | | D | D | | 0.04 | 0.22 | 0.01 | IE | NE | NO | 0.08 | | D | CS | | 0.06 | |
| Portugal | 10 | 10 | T2 | D+CS | L, T | 6.0 | 22 | 0.03 | 8.16 | D | D+CS | L, T | 1.03 | 3.81 | 0.13 | 0.16 | 0.00 | | 0.11 | 0.01 | D | D+C | T | 0.43 | 1,047.7 |
| Romania | 22 | 22 | T1 | D | L, T | 2.5 | 7 | 0.04 | IE | D | D | L, T | 1.32 | 3.64 | 0.12 | | 0.11 | | 0.05 | 0.00 | | | | | |
| Slovakia | 5 | 5 | D | D | L | 2.7 | 12 | IE | IE | D, CS | D, CS | L | 1.30 | 5.96 | 0.23 | 0.30 | 0.01 | 0.18 | | NA | D | CS | | 0.27 | NO |
| Slovenia | 2 | 2 | | | L, T | 2.9 | 14 | 0.03 | NO | T2 | D, CS | L | 0.87 | 4.11 | 0.01 | 0.39 | 0.00 | 0.09 | 0.09 | 0.01 | | | | | NO |
| Spain | 41 | 41 | T2 | T2, CS | L, T | 1.8 | 9 | 0.03 | 0.09 | D | D, C, CS | L | 0.50 | 2.35 | | | 0.03 | 0.02 | 0.09 | 0.01 | C | C, CS | T | 0.04 | |
| Sweden | 9 | 9 | T2 | D+CS | L, T | 2.5 | 9 | 0.08 | NO | NO | NO | | | | NA | IE | NA | IE | 0.01 | 0.01 | PS | PS | T | 0.17 | IE |
| Switzerland | 7,409 | 7 | D | CS | | 0.7 | 2 | 0.28 | | CS | CS | | 0.06 | 0.22 | 0.01 | | IE | | | | CS | CS | | 2.27 | IE |
| | | | | | T | | | | | | | | | | | | | | | | | L, T | | | |
| Ukraine | | 48 | T1 | D | L, T | 2.9 | 15 | 0.09 | | T1 | D | L, T | 1.14 | 5.92 | 8.04 | NE | | NE | 0.07 | 0.01 | T1 | D | | 0.06 | NO |
| United Kingdom | 60 | 59 | M | CS | L, T | 1.2 | 6 | 0.01 | | M | CS | | 0.12 | 0.63 | | 0.02 | | | 0.07 | 0.08 | T2 | CS | | 0.07 | |
| United States | 295 | 291 | M | M | L, T | 1.9 | 21 | 0.02 | NA | D | D | T | 0.53 | 6.02 | 0.10 | NE | 0.06 | NE | 0.18 | 0.02 | CS | CS | | | |

^a Information on methods and emission factors is included in this table as reported by Parties. 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 is included in this table as reported by Parties. 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 is included in this table as reported by Parties. 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 database, <http://devdata.worldbank.org/query/default.htm>.

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

Table 6.2**Solid waste disposal on land – trend information**

| CH ₄ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | | |
|--------------------------------|------------------------|-------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------|--------------|--------------|--------------------------------|--|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 1994 to 1995 | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998to 1999 | 1999 to 2000 | 2000 to 2001 | 2001 to 2002 | 2002 to 2003 | Base year ^a to 2003 | |
| Australia | 356 | 388 | 4.04 | 1.34 | 3.00 | -2.07 | 4.54 | -9.48 | 1.95 | -3.08 | 5.35 | 1.86 | 2.89 | 3.93 | -4.51 | 8.96 | |
| Austria | 197 | 135 | -0.26 | -2.19 | -1.17 | -4.16 | -4.23 | -4.25 | -3.76 | -2.99 | -3.20 | -3.70 | -3.55 | -2.22 | -1.87 | -31.74 | |
| Belarus | 112 | 151 | -0.03 | | -5.72 | -5.98 | -6.56 | 9.40 | 8.69 | 8.36 | 7.38 | 1.25 | 0.76 | 4.10 | 11.07 | 35.12 | |
| Belgium | 125 | 44 | -0.66 | 0.05 | -8.40 | 4.72 | -2.20 | -6.79 | -1.09 | -6.11 | -15.39 | -7.25 | -27.74 | -15.78 | -9.55 | -65.13 | |
| Bulgaria | 661 | 201 | -12.22 | -3.68 | -7.22 | -5.50 | -7.21 | -10.19 | -18.22 | -13.45 | -22.98 | 2.83 | -0.63 | -0.06 | 0.46 | -69.63 | |
| Canada | 882 | 1,129 | 3.37 | 2.22 | 2.43 | 1.11 | 0.40 | 0.29 | 4.87 | 2.52 | 1.68 | 2.40 | -1.04 | 2.38 | 2.35 | 27.91 | |
| Croatia | 38 | 57 | -1.98 | -1.17 | 1.62 | 3.30 | 7.13 | 4.23 | 5.71 | 5.32 | 7.02 | 0.45 | 2.69 | 3.39 | 4.43 | 50.66 | |
| Czech Republic | 93 | 83 | | | | | 2.42 | 0.13 | -14.91 | 1.31 | -7.26 | | -3.30 | 9.74 | 3.44 | -10.51 | |
| Denmark | 64 | 55 | 1.76 | 0.63 | 0.97 | -3.20 | -3.72 | -0.87 | -5.23 | -3.80 | 2.48 | 0.13 | -0.35 | -2.68 | -0.29 | 13.59 | |
| Estonia | 67 | 22 | -59.19 | 0.00 | 3.48 | 38.43 | 12.08 | 9.35 | 5.21 | -6.36 | 2.45 | -4.61 | -48.46 | -1.58 | -6.17 | -67.16 | |
| European Community | 5,450 | 3,513 | 0.90 | -0.65 | -0.60 | -2.29 | -2.75 | -2.53 | -5.42 | -4.02 | -6.56 | -5.58 | -5.36 | -5.15 | -2.84 | -35.53 | |
| Finland | 175 | 119 | 1.51 | 0.76 | -0.11 | -1.79 | -1.80 | -2.47 | -2.72 | -4.62 | -2.40 | -6.03 | -3.59 | -7.47 | -6.98 | -32.13 | |
| France | 534 | 491 | 5.45 | 5.20 | 4.45 | 3.42 | 2.74 | 2.70 | -13.35 | 0.11 | -1.99 | -2.76 | -4.44 | -5.28 | -2.78 | -8.01 | |
| Germany | 1499 | 555 | 0.56 | -1.06 | -2.37 | -9.10 | -9.10 | -9.19 | -9.43 | -10.32 | -13.14 | -11.19 | -10.91 | -6.90 | -2.24 | -62.98 | |
| Greece | 126 | 186 | 2.12 | 5.96 | 5.25 | 6.57 | 3.58 | 4.76 | 4.19 | 6.67 | -17.16 | 6.49 | 5.66 | 2.69 | 5.38 | 47.65 | |
| Hungary | 188 | 177 | -1.91 | 5.36 | -9.62 | 3.28 | 1.14 | 1.13 | 1.11 | 7.82 | -6.93 | 5.14 | 9.27 | -11.81 | 0.87 | -5.67 | |
| Iceland | 5 | 10 | 6.97 | 8.57 | 7.05 | 9.77 | 22.31 | 4.98 | 0.66 | 1.11 | 4.80 | 2.15 | 1.28 | -4.70 | 1.48 | 86.99 | |
| Ireland | 59 | 92 | 2.68 | 3.27 | 3.69 | 3.71 | 3.81 | 4.06 | -2.65 | -14.31 | -6.96 | 17.74 | 6.80 | 14.62 | 13.52 | 56.44 | |
| Italy | 493 | 461 | 3.24 | -6.57 | 3.32 | 3.43 | 1.77 | 1.32 | 0.66 | 0.24 | 1.40 | 0.93 | -1.40 | -8.33 | -5.61 | -6.35 | |
| Japan | 193 | 171 | 1.38 | -0.16 | 1.36 | 1.49 | 0.65 | 0.01 | -1.16 | -1.29 | -2.34 | -2.77 | -3.32 | -2.02 | -3.40 | -11.14 | |
| Latvia | 20 | 32 | 6.25 | 6.17 | 5.51 | 4.85 | 23.27 | 2.74 | 4.55 | 9.81 | 4.56 | 4.66 | 5.51 | -2.02 | -22.69 | 58.69 | |
| Liechtenstein | | | | | | | | | | | | | | | | | |
| Lithuania | 162 | 47 | | | | | | | | | | | | -4.39 | -9.10 | -70.82 | |
| Luxembourg | | 2 | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | | |
| Netherlands | 572 | 323 | 0.07 | -2.07 | -2.84 | -3.25 | -5.07 | -3.36 | -3.20 | -4.28 | -8.52 | -5.84 | -5.97 | -4.77 | -6.59 | -43.59 | |
| New Zealand | 104 | 68 | 1.15 | -16.07 | -0.17 | -5.23 | -0.13 | -2.59 | -11.47 | -0.70 | -1.95 | -4.62 | -0.09 | 0.62 | 1.37 | -34.54 | |
| Norway | 117 | 98 | -0.69 | -1.77 | 0.31 | 0.11 | -0.89 | 0.26 | -0.69 | -4.92 | -1.54 | 0.44 | -3.98 | -2.36 | -2.39 | -16.80 | |
| Portugal | 185 | 231 | 4.60 | 4.52 | 4.43 | 4.42 | 4.34 | 4.42 | 4.58 | 5.30 | 5.11 | -18.18 | -4.20 | 5.36 | 0.56 | 24.88 | |
| Romania | 158 | 147 | -0.26 | -1.60 | 0.08 | 0.03 | | -0.35 | -0.17 | -0.32 | -0.28 | -0.28 | -0.07 | -3.90 | -0.18 | -7.13 | |
| Slovakia | 50 | 66 | | | | | 1.25 | 17.11 | -14.45 | -10.15 | 1.58 | 3.70 | -5.90 | 25.93 | 15.00 | 30.82 | |
| Slovenia | 22 | 28 | 1.11 | 1.07 | 1.04 | 1.01 | -0.24 | 0.16 | 1.92 | 1.93 | 2.00 | 2.06 | 1.28 | 0.14 | -0.28 | 27.33 | |
| Spain | 165 | 352 | 7.10 | 10.74 | 7.97 | 7.67 | 7.93 | 7.20 | 7.48 | 5.56 | 4.43 | 4.40 | 3.21 | 2.10 | 2.88 | 113.91 | |
| Sweden | 122 | 83 | 1.75 | 0.31 | -3.50 | -4.36 | -0.27 | -1.27 | -1.41 | -2.21 | -5.97 | -4.96 | -2.50 | -7.27 | -5.70 | -31.87 | |
| Switzerland | 34 | 18 | -2.90 | -3.16 | -9.04 | -11.10 | -1.82 | -3.89 | -1.38 | -6.85 | -4.65 | -8.40 | -6.97 | -5.17 | 3.47 | -47.44 | |
| Ukraine | 678 | 728 | 0.86 | 1.99 | -1.12 | | 0.00 | -1.69 | -0.86 | -0.58 | -23.84 | 13.17 | 23.15 | -11.68 | 16.24 | 7.39 | |
| United Kingdom | 1131 | 384 | -2.99 | -3.55 | -3.85 | -3.47 | -4.54 | -4.85 | -9.72 | -9.58 | -14.02 | -11.83 | -11.78 | -13.80 | -8.57 | -66.06 | |
| United States | 8202 | 6246 | 0.30 | -0.06 | -0.32 | -1.75 | -3.96 | -4.18 | -5.31 | -6.02 | -3.23 | -2.49 | -3.43 | 0.48 | 3.43 | -23.84 | |

^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 6.2**Solid waste disposal on land – trend information (continued)**

| Ratio: kg CH ₄ /capita | | | Relative Change (%) | | | | | | | | | | | | | |
|-----------------------------------|------------------------|---------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 1994 to 1995 | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998to 1999 | 1999 to 2000 | 2000 to 2001 | 2001 to 2002 | 2002 to 2003 | Base year ^a to 2003 |
| Australia | 20.85 | 19.50 | 2.72 | 0.13 | 2.01 | -3.08 | 3.29 | -10.71 | 0.74 | -4.21 | 4.15 | 0.71 | 1.66 | 2.61 | -5.56 | -6.48 |
| Austria | 25.54 | 16.65 | -0.64 | -3.27 | -1.97 | -4.53 | -4.37 | -4.38 | -3.87 | -3.10 | -3.38 | -3.94 | -3.79 | -2.63 | -2.16 | -34.81 |
| Belarus | 10.98 | 15.29 | -0.08 | -0.22 | -5.94 | -5.87 | -6.26 | 9.76 | 9.15 | 8.87 | 7.74 | 1.55 | 1.11 | 4.58 | 11.57 | 39.33 |
| Belgium | 12.56 | 4.21 | -1.03 | -0.35 | -8.76 | 4.40 | -2.40 | -6.97 | -1.33 | -6.31 | -15.58 | -7.49 | -27.99 | -16.15 | -9.93 | -66.50 |
| Bulgaria | 73.61 | 25.67 | -8.67 | -2.65 | -6.48 | -5.08 | -6.82 | -9.72 | -17.78 | -12.87 | -22.52 | 4.72 | 1.25 | 0.46 | 1.05 | -65.13 |
| Canada | 31.75 | 35.68 | 1.98 | 0.97 | 1.32 | 0.14 | -0.42 | -0.79 | 3.76 | 1.64 | 0.84 | 1.50 | -2.04 | 1.46 | 1.48 | 12.38 |
| Croatia | 7.90 | 12.80 | 3.88 | -0.28 | -2.11 | 3.07 | 6.67 | 8.40 | 3.86 | 6.96 | 5.84 | 4.35 | 1.30 | 3.39 | 4.32 | 62.03 |
| Czech Republic | 8.99 | 8.18 | | | | | 2.47 | 0.28 | -14.82 | 1.40 | -7.15 | 0.09 | -2.83 | 9.99 | 3.43 | -9.10 |
| Denmark | 12.23 | 10.00 | 1.49 | 0.33 | 0.60 | -3.50 | -4.15 | -1.51 | -5.62 | -4.10 | 2.14 | -0.26 | -0.71 | -2.96 | -1.38 | -18.23 |
| Estonia | 42.98 | 16.37 | -58.98 | 1.83 | 6.18 | 41.37 | 14.11 | 10.97 | 6.41 | -5.43 | 3.24 | -4.17 | -48.25 | -1.15 | -5.82 | -61.92 |
| European Community | 14.95 | 9.23 | 0.47 | -1.12 | -1.02 | -2.60 | -2.99 | -2.83 | -5.76 | -4.21 | -6.85 | -5.89 | -5.67 | -5.46 | -3.07 | -38.24 |
| Finland | 35.14 | 22.81 | 0.94 | 0.20 | -0.59 | -2.23 | -2.16 | -2.80 | -3.00 | -4.86 | -2.62 | -6.15 | -3.89 | -7.66 | -7.21 | -35.08 |
| France | 9.41 | 8.22 | 5.00 | 4.71 | 4.04 | 3.08 | 2.41 | 2.38 | -13.62 | -0.22 | -2.36 | -3.21 | -4.92 | -5.74 | -3.23 | -12.67 |
| Germany | 18.87 | 6.72 | -0.17 | -1.81 | -3.01 | -9.51 | -9.24 | -9.49 | -9.60 | -10.30 | -13.18 | -11.33 | -11.04 | -7.10 | -2.28 | -64.37 |
| Greece | 12.43 | 16.90 | 1.13 | 4.84 | 4.28 | 5.69 | 2.80 | 4.02 | 3.53 | 6.10 | -17.52 | 6.16 | 5.21 | 2.30 | 5.11 | 35.98 |
| Hungary | 17.82 | 17.48 | -0.17 | 5.59 | -9.36 | 3.61 | 1.45 | 1.48 | 1.49 | 8.26 | -6.51 | 5.61 | 7.52 | -11.56 | 1.17 | -1.93 |
| Iceland | 21.40 | 35.29 | 5.64 | 7.28 | 5.96 | 8.86 | 21.39 | 4.20 | -0.08 | 0.37 | 3.48 | 0.88 | -0.14 | -5.69 | 1.13 | 64.86 |
| Ireland | 16.76 | 23.02 | 2.10 | 2.59 | 3.28 | 3.49 | 2.91 | 3.20 | -3.61 | -15.32 | -8.20 | 16.18 | 5.38 | 12.71 | 11.70 | 37.32 |
| Italy | 8.69 | 8.00 | 3.18 | -6.75 | 2.98 | 3.30 | 1.62 | 1.00 | 0.41 | 0.13 | 1.30 | 0.86 | -1.42 | -8.31 | -5.54 | -7.86 |
| Japan | 1.56 | 1.34 | 1.07 | -0.41 | 1.11 | 1.15 | 0.26 | -0.24 | -1.42 | -1.53 | -2.52 | -2.94 | -3.52 | -2.22 | -3.53 | -13.95 |
| Latvia | 7.46 | 13.63 | 6.60 | 7.38 | 7.39 | 6.41 | 24.89 | 3.73 | 6.30 | 11.64 | 5.43 | 5.45 | 6.09 | -1.14 | -22.13 | 82.60 |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | 43.81 | 13.69 | | | | | | | | | | | | -4.04 | -8.71 | -68.76 |
| Luxembourg | | 5.16 | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 38.25 | 19.8877 | -0.72 | -2.77 | -3.49 | -3.90 | -5.56 | -3.72 | -3.76 | -4.83 | -9.13 | -6.52 | -6.68 | -5.39 | -7.04 | -48.01 |
| New Zealand | 30.08 | 16.9311 | -0.22 | -16.94 | -1.30 | -6.49 | -1.58 | -4.11 | -12.65 | -1.55 | -2.47 | -5.19 | -0.67 | -0.88 | -0.40 | -43.70 |
| Norway | 27.65 | 21.3906 | -1.16 | -2.33 | -0.29 | -0.45 | -1.42 | -0.22 | -1.21 | -5.52 | -2.16 | -0.25 | -4.45 | -2.89 | -2.91 | -22.65 |
| Portugal | 18.73 | 22.16 | 4.19 | 4.22 | 4.32 | 4.17 | 4.04 | 4.13 | 4.23 | 4.88 | 4.64 | -18.63 | -4.80 | 4.63 | -0.17 | 18.33 |
| Romania | 6.84 | 6.76 | -0.40 | 0.11 | 0.23 | 0.13 | 0.22 | -0.03 | 0.07 | -0.10 | -0.08 | -0.21 | 1.34 | -2.45 | 0.09 | -1.12 |
| Slovakia | 9.51 | 12.20 | | -0.44 | -0.34 | -0.42 | 0.94 | 16.89 | -14.60 | -10.28 | 1.50 | 3.77 | -5.69 | 25.93 | 14.77 | 28.22 |
| Slovenia | 11.03 | 13.94 | 0.05 | 1.33 | 2.57 | -0.11 | -0.30 | 0.11 | 2.18 | 2.10 | 1.85 | 1.88 | 1.13 | 0.04 | -0.33 | 26.42 |
| Spain | 4.24 | 8.57 | 6.88 | 10.48 | 7.76 | 7.50 | 7.75 | 6.85 | 6.38 | 5.27 | 3.52 | 3.64 | 2.61 | 1.64 | 2.41 | 102.12 |
| Sweden | 14.21 | 9.25 | 1.06 | -0.28 | -4.06 | -5.04 | -0.84 | -1.40 | -1.48 | -2.23 | -6.03 | -5.08 | -2.77 | -7.58 | -6.04 | -34.89 |
| Switzerland | 5.02 | 2.41 | -4.15 | -4.21 | -9.87 | -11.81 | -2.47 | -4.34 | -1.57 | -7.14 | -5.05 | -8.91 | -7.63 | -5.93 | 2.62 | -52.00 |
| Ukraine | 13.06 | 15.05 | 0.65 | 1.70 | -1.17 | 0.50 | 0.76 | -0.89 | -0.05 | 0.20 | -23.23 | 14.09 | 24.17 | -11.00 | 17.11 | 15.25 |
| United Kingdom | 19.66 | 6.47 | -3.30 | -3.81 | -4.08 | -3.66 | -4.70 | -5.02 | -9.89 | -9.77 | -14.23 | -12.05 | -12.03 | -14.06 | -8.73 | -67.07 |
| United States | 32.86 | 21.48 | -1.03 | -1.44 | -1.62 | -2.95 | -5.09 | -5.29 | -6.44 | -7.11 | -4.33 | -3.59 | -4.47 | -0.58 | 2.57 | -34.63 |

^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 6.3**Waste-water handling – trend information**

| CH ₄ emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|--------------------------------|------------------------|----------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------|--------------|--------------|-----------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 1994 to 1995 | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998to 1999 | 1999 to 2000 | 2000 to 2001 | 2001 to 2002 | 2002 to 2003 | Base year ^a to 2003 |
| Australia | 107.95 | 125.92 | 1.4 | 1.3 | 1.1 | 1.0 | 1.1 | 1.4 | 1.2 | 1.0 | 1.1 | 1.2 | 1.2 | 1.3 | 1.2 | 16.6 |
| Austria | 13.64 | 14.42 | 1.0 | 1.1 | 0.8 | 0.4 | 0.2 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.4 | 0.5 | 0.4 | 5.7 |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | 3.85 | 3.68 | 1.1 | 1.7 | 0.2 | 0.7 | -0.5 | 1.1 | -1.7 | -0.8 | -3.5 | 0.9 | -2.0 | -1.2 | -0.4 | -4.4 |
| Bulgaria | 87.85 | 58.48 | -22.3 | -8.6 | -15.1 | -7.1 | 32.3 | -5.0 | -15.1 | -13.7 | -12.3 | -6.1 | -18.9 | -5.0 | 168.4 | -33.4 |
| Canada | 16.92 | 19.33 | 1.2 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.1 | 0.8 | 0.7 | 0.7 | 0.8 | 0.9 | 0.7 | 14.2 |
| Croatia | NE | NE | | | | | | | | | | | | | | |
| Czech Republic | 39.31 | 24.57 | | | | | -4.1 | -6.9 | 2.1 | 3.8 | -10.8 | 0.3 | -9.7 | 7.2 | -7.8 | -37.5 |
| Denmark | 9.52 | 11.62 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.0 | 11.2 | -6.5 | -0.4 | -7.2 | 5.5 | 21.0 | -12.1 | 22.0 |
| Estonia | 9.14 | 12.76 | 137.5 | -43.8 | 0.9 | -20.3 | -37.3 | 106.3 | 60.3 | -2.5 | -32.7 | -21.9 | -0.4 | 15.7 | 6.3 | 39.7 |
| European Community | 498.71 | 380.03 | -3.8 | -2.2 | -1.7 | -2.0 | -1.0 | -1.8 | -1.2 | -1.9 | -0.8 | -3.6 | -5.5 | -0.1 | -1.2 | -23.8 |
| Finland | 7.29 | 6.08 | -5.7 | -0.4 | 2.4 | -2.2 | 1.5 | -2.8 | 0.1 | -2.2 | -3.3 | -2.3 | -1.1 | -1.4 | -0.5 | -16.6 |
| France | 34.01 | 55.67 | 6.6 | 6.3 | 5.9 | 5.5 | 5.3 | 5.0 | 4.8 | 4.6 | 4.5 | 0.5 | 0.5 | 0.5 | 0.5 | 63.7 |
| Germany | 106.01 | 5.33 | -23.3 | -20.5 | -15.1 | -18.7 | -5.3 | -25.2 | -33.7 | -50.8 | -9.6 | -10.7 | -11.9 | -13.7 | -15.7 | -95.0 |
| Greece | 112.26 | 31.21 | -2.5 | -2.1 | -3.6 | -1.2 | -2.5 | -2.0 | -3.7 | -2.9 | -6.2 | -19.3 | -38.2 | -13.7 | -15.1 | -72.2 |
| Hungary | 63.23 | 42.93 | -5.5 | -1.6 | -1.6 | -1.5 | 2.2 | 2.1 | -3.5 | 3.7 | -7.3 | 2.1 | -3.8 | -1.0 | -14.9 | -32.1 |
| Iceland | NE | NE | | | | | | | | | | | | | | |
| Ireland | NE | NE | | | | | | | | | | | | | | |
| Italy | 63.83 | 68.18 | 2.1 | 0.9 | 1.5 | 0.0 | -1.0 | 0.7 | 1.4 | -0.1 | -0.6 | 1.4 | 1.0 | -0.5 | -0.2 | 6.8 |
| Japan | 52.18 | 49.04 | -2.8 | -0.8 | -0.3 | -2.0 | -0.3 | 0.7 | 0.9 | -1.3 | -1.0 | 0.6 | 0.2 | 0.7 | -0.8 | -6.0 |
| Latvia | 16.52 | 9.22 | -1.5 | -5.3 | -33.4 | -3.9 | -2.6 | -1.2 | -0.5 | 0.2 | -1.5 | 1.0 | 1.8 | -4.2 | 0.4 | -44.2 |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | 3.70 | 22.41 | | | | | | | | | | | | | 11.9 | 505.7 |
| Luxembourg | | 0.22 | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 13.79 | 9.86 | 33.4 | -0.3 | -0.2 | -26.8 | -14.4 | -1.4 | -2.5 | -0.5 | 2.4 | -6.5 | -0.3 | 1.9 | -7.6 | -28.5 |
| New Zealand | 7.46 | 7.91 | 0.5 | 0.4 | 0.4 | 0.4 | 0.5 | 0.4 | 0.4 | 0.4 | 0.5 | 0.4 | 0.4 | 0.5 | 0.6 | 6.0 |
| Norway | 0.93 | 1.00 | 0.5 | 0.6 | 0.6 | 0.6 | 0.5 | 0.5 | 0.5 | 0.6 | 0.7 | 0.4 | 0.6 | 0.5 | 0.6 | 7.3 |
| Portugal | 41.41 | 39.76 | 1.0 | 1.4 | 1.3 | -0.3 | -0.3 | -1.6 | -1.6 | -1.7 | -1.7 | -1.7 | 0.4 | 0.5 | 0.5 | -4.0 |
| Romania | 80.68 | 79.21 | -3.7 | 3.6 | 5.9 | 13.2 | -5.6 | -5.9 | 3.2 | -14.2 | 6.4 | 4.9 | -4.9 | 0.0 | 3.9 | -1.8 |
| Slovakia | 48.19 | 32.11 | -5.5 | -4.0 | -8.4 | 0.8 | 0.0 | -0.8 | 0.7 | -3.0 | 1.4 | -11.5 | 0.9 | 0.2 | -9.6 | -33.4 |
| Slovenia | 9.94 | 8.20 | -7.1 | -9.3 | -7.3 | -3.3 | -0.5 | -1.3 | 13.2 | 3.2 | 2.5 | 2.5 | -2.2 | 1.5 | -1.1 | -17.5 |
| Spain | 59.54 | 96.44 | 3.5 | 2.1 | 3.0 | 5.2 | 3.4 | 2.6 | 6.3 | 4.6 | 3.8 | 2.8 | 3.6 | 4.3 | 3.9 | 62.0 |
| Sweden | IE | IE | | | | | | | | | | | | | | |
| Switzerland | 1.35 | 1.58 | 2.3 | 2.0 | 2.0 | 1.1 | 2.0 | 2.0 | 1.1 | 0.2 | 0.3 | 0.4 | 0.8 | 1.2 | 0.8 | 17.5 |
| Ukraine | 315.34 | 286.05 | 0.5 | 1.6 | -1.3 | -0.5 | -0.3 | -2.1 | -0.8 | -0.7 | -1.1 | -2.0 | -1.2 | -0.9 | -1.0 | -9.3 |
| United Kingdom | 33.38 | 37.58 | -6.3 | 11.2 | -0.9 | 4.4 | -4.5 | 2.7 | 2.7 | 2.6 | -3.1 | 2.4 | 0.7 | 0.6 | 0.6 | 12.6 |
| United States | 1,183.16 | 1,750.86 | 3.8 | 4.4 | 2.8 | 4.4 | 3.5 | 2.7 | 3.2 | 2.7 | 3.4 | 2.1 | 0.9 | 3.3 | 2.7 | 48.0 |

^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 6.3**Waste-water handling – trend information (continued)**

| Ratio: kg CH ₄ /capita | | | Relative Change (%) | | | | | | | | | | | | | |
|-----------------------------------|------------------------|------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 6.33 | 6.33 | 0.1 | 0.1 | 0.1 | 0.0 | -0.1 | 0.0 | 0.0 | -0.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 |
| Austria | 1.77 | 1.78 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 1.0 |
| Belarus | | | | | | | | | | | | | | | | |
| Belgium | 0.39 | 0.35 | 0.7 | 1.3 | -0.2 | 0.4 | -0.7 | 0.9 | -1.9 | -1.0 | -3.7 | 0.7 | -2.4 | -1.7 | -0.8 | -8.2 |
| Bulgaria | 9.78 | 7.48 | -19.2 | -7.6 | -14.4 | -6.7 | 32.9 | -4.5 | -14.6 | -13.2 | -11.8 | -4.4 | -17.3 | -4.5 | 170.0 | -23.6 |
| Canada | 0.61 | 0.61 | -0.1 | 0.1 | 0.2 | 0.3 | 0.4 | 0.2 | 0.0 | -0.1 | -0.1 | -0.2 | -0.2 | 0.0 | -0.1 | 0.4 |
| Croatia | NE | NE | | | | | | | | | | | | | | |
| Czech Republic | 3.79 | 2.41 | | | | | -4.0 | -6.7 | 2.2 | 3.9 | -10.7 | 0.4 | -9.3 | 7.5 | -7.8 | -36.5 |
| Denmark | 1.83 | 2.12 | 1.8 | 1.8 | 1.8 | 1.8 | 1.6 | 1.4 | 10.7 | -6.8 | -0.7 | -7.6 | 5.1 | 20.6 | -13.0 | 15.5 |
| Estonia | 5.82 | 9.43 | 138.7 | -42.8 | 3.5 | -18.6 | -36.1 | 109.4 | 62.1 | -1.5 | -32.2 | -21.6 | 0.0 | 16.2 | 6.7 | 62.0 |
| European Community | 1.37 | 1.00 | -4.2 | -2.6 | -2.1 | -2.3 | -1.2 | -2.1 | -1.6 | -2.1 | -1.1 | -4.0 | -5.8 | -0.4 | -1.5 | -27.0 |
| Finland | 1.46 | 1.17 | -6.2 | -1.0 | 1.9 | -2.6 | 1.2 | -3.1 | -0.2 | -2.4 | -3.5 | -2.4 | -1.4 | -1.6 | -0.7 | -20.2 |
| France | 0.60 | 0.93 | 6.2 | 5.8 | 5.5 | 5.2 | 4.9 | 4.7 | 4.5 | 4.3 | 4.1 | 0.1 | 0.0 | 0.0 | 0.0 | 55.4 |
| Germany | 1.33 | 0.06 | -23.8 | -21.1 | -15.7 | -19.0 | -5.4 | -25.5 | -33.8 | -50.8 | -9.6 | -10.9 | -12.0 | -13.8 | -15.8 | -95.2 |
| Greece | 11.05 | 2.83 | -3.5 | -3.1 | -4.5 | -2.0 | -3.2 | -2.7 | -4.3 | -3.4 | -6.6 | -19.6 | -38.5 | -14.0 | -15.3 | -74.4 |
| Hungary | 6.01 | 4.24 | -3.9 | -1.4 | -1.3 | -1.2 | 2.6 | 2.4 | -3.2 | 4.1 | -6.9 | 2.5 | -5.3 | -0.7 | -14.7 | -29.4 |
| Iceland | NE | NE | | | | | | | | | | | | | | |
| Ireland | NE | NE | | | | | | | | | | | | | | |
| Italy | 1.13 | 1.18 | 2.1 | 0.7 | 1.2 | -0.1 | -1.1 | 0.4 | 1.1 | -0.2 | -0.7 | 1.3 | 0.9 | -0.5 | -0.1 | 5.1 |
| Japan | 0.42 | 0.38 | -3.1 | -1.1 | -0.6 | -2.3 | -0.7 | 0.5 | 0.7 | -1.5 | -1.2 | 0.5 | 0.0 | 0.5 | -0.9 | -9.0 |
| Latvia | 6.19 | 3.97 | -1.1 | -4.2 | -32.2 | -2.4 | -1.3 | -0.3 | 1.2 | 1.8 | -0.7 | 1.8 | 2.4 | -3.4 | 1.1 | -35.8 |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | 1.00 | 6.49 | | | | | | | | | | | | 0.4 | 12.4 | 548.5 |
| Luxembourg | | 0.49 | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | |
| Netherlands | 0.92 | 0.61 | 32.3 | -1.0 | -0.8 | -27.3 | -14.8 | -1.8 | -3.1 | -1.1 | 1.7 | -7.2 | -1.0 | 1.3 | -8.1 | -34.1 |
| New Zealand | 2.16 | 1.97 | -0.8 | -0.6 | -0.7 | -0.9 | -0.9 | -1.2 | -0.9 | -0.5 | 0.0 | -0.2 | -0.2 | -1.0 | -1.1 | -8.8 |
| Norway | 0.22 | 0.22 | 0.001 | -0.001 | -0.0002 | 0.001 | -0.02 | 0.03 | 0.02 | -0.04 | 0.1 | -0.3 | 0.1 | -0.1 | 0.1 | -0.2 |
| Portugal | 4.18 | 3.81 | 0.6 | 1.1 | 1.2 | -0.6 | -0.6 | -1.9 | -2.0 | -2.1 | -2.2 | -2.3 | -0.2 | -0.2 | -0.2 | -9.0 |
| Romania | 3.48 | 3.64 | -3.8 | 5.4 | 6.1 | 13.4 | -5.4 | -5.6 | 3.4 | -14.0 | 6.6 | 4.9 | -3.5 | 1.5 | 4.2 | 4.5 |
| Slovakia | 9.12 | 5.96 | -5.5 | -4.4 | -8.7 | 0.4 | -0.3 | -1.0 | 0.5 | -3.1 | 1.3 | -11.4 | 1.2 | 0.2 | -9.7 | -34.7 |
| Slovenia | 5.02 | 4.11 | -8.1 | -9.0 | -5.9 | -4.4 | -0.6 | -1.4 | 13.5 | 3.3 | 2.4 | 2.4 | -2.4 | 1.4 | -1.2 | -18.1 |
| Spain | 1.53 | 2.35 | 3.3 | 1.9 | 2.8 | 5.0 | 3.2 | 2.3 | 5.3 | 4.3 | 2.9 | 2.1 | 3.1 | 3.8 | 3.4 | 53.0 |
| Sweden | IE | IE | | | | | | | | | | | | | | |
| Switzerland | 0.20 | 0.22 | 0.9 | 0.9 | 1.0 | 0.3 | 1.3 | 1.5 | 0.9 | -0.1 | -0.1 | -0.2 | 0.1 | 0.4 | 0.0 | 7.3 |
| Ukraine | 6.08 | 5.92 | 0.3 | 1.3 | -1.4 | 0.0 | 0.5 | -1.3 | 0.0 | 0.1 | -0.3 | -1.2 | -0.3 | -0.2 | -0.3 | -2.7 |
| United Kingdom | 0.58 | 0.63 | -6.6 | 10.9 | -1.1 | 4.2 | -4.7 | 2.6 | 2.5 | 2.4 | -3.3 | 2.2 | 0.4 | 0.3 | 0.4 | 9.2 |
| United States | 4.74 | 6.02 | 2.4 | 3.0 | 1.4 | 3.1 | 2.3 | 1.6 | 2.0 | 1.5 | 2.2 | 0.9 | -0.2 | 2.2 | 1.8 | 27.0 |

^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 6.3**Waste-water handling – trend information (continued)**

| N ₂ O emissions (Gg) | | | Relative Change (%) | | | | | | | | | | | | | |
|---------------------------------|------------------------|-------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 1994 to 1995 | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998to 1999 | 1999 to 2000 | 2000 to 2001 | 2001 to 2002 | 2002 to 2003 | Base year ^a to 2003 |
| Australia | 1.54 | 1.80 | 1.38 | 1.27 | 1.12 | 1.02 | 1.08 | 1.36 | 1.23 | 1.02 | 1.10 | 1.19 | 1.23 | 1.33 | 1.16 | 16.64 |
| Austria | 0.05 | 0.62 | 3.32 | 4.19 | 1.75 | 92.62 | 67.17 | 35.30 | 13.56 | 28.20 | 14.47 | 16.93 | 21.88 | -0.76 | 0.42 | 1029.36 |
| Belarus | 0.77 | 0.73 | | -3.90 | -5.41 | -4.29 | -5.97 | 4.76 | 4.55 | 4.35 | 4.17 | 0.00 | 1.33 | 0.00 | -4.21 | -5.45 |
| Belgium | 0.90 | 0.99 | 4.14 | -62.17 | 162.15 | -1.32 | -0.18 | 0.02 | 0.57 | 1.36 | 3.15 | -6.64 | 2.97 | 0.08 | 6.95 | 10.09 |
| Bulgaria | 1.00 | 0.48 | -9.83 | -0.20 | -4.48 | -5.03 | -3.17 | -5.66 | -13.01 | 13.02 | 3.03 | -6.36 | -7.55 | -4.42 | 7.48 | -51.61 |
| Canada | 2.80 | 3.19 | 1.21 | 1.20 | 1.11 | 1.11 | 1.05 | 1.05 | 1.00 | 0.84 | 0.82 | 1.14 | 0.88 | 1.10 | 0.85 | 14.20 |
| Croatia | 0.45 | 0.30 | -0.11 | -4.78 | -1.01 | -0.62 | -0.11 | -36.23 | -0.91 | -4.03 | 10.82 | -4.23 | 6.85 | 0.12 | 4.91 | -32.49 |
| Czech Republic | 0.65 | 0.64 | | | | | | -0.08 | | | | 0.08 | -0.75 | -0.22 | 0.01 | -0.97 |
| Denmark | 0.28 | 0.20 | -4.72 | -12.11 | 23.86 | 1.45 | -7.64 | -18.51 | -6.14 | 1.17 | -6.07 | 5.59 | -12.46 | 1.66 | 4.29 | -30.76 |
| Estonia | | NE | | | | | | | | | | | | | | |
| European Community | 28.05 | 29.75 | 0.39 | 0.24 | -0.56 | 1.30 | -0.12 | 1.07 | -0.16 | 1.45 | 0.15 | 1.70 | 0.61 | -0.14 | 0.02 | 6.08 |
| Finland | 0.46 | 0.34 | -4.43 | -2.60 | -3.88 | -0.44 | 0.55 | -3.29 | -1.13 | -4.56 | -4.15 | -0.20 | -0.40 | -6.42 | 2.31 | -25.43 |
| France | 4.11 | 4.13 | 0.69 | -0.17 | 0.62 | -0.30 | 0.55 | -0.34 | -2.16 | -2.27 | -0.01 | 10.62 | -6.69 | 0.38 | 0.39 | 0.49 |
| Germany | 7.14 | 7.34 | -0.28 | -0.28 | -3.52 | 3.64 | -0.83 | 2.56 | -5.12 | 5.99 | -0.41 | 0.14 | 2.35 | 0.13 | -1.08 | 2.80 |
| Greece | 1.06 | 1.21 | 1.42 | 1.47 | -0.57 | 3.93 | 1.12 | 0.07 | 2.87 | 0.74 | 1.10 | 2.49 | -0.99 | -0.22 | 0.51 | 14.72 |
| Hungary | NA/NE | NA/NE | | | | | | | | | | | | | | |
| Iceland | NE | NE | | | | | | | | | | | | | | |
| Ireland | 0.37 | 0.42 | 1.57 | 3.60 | -2.67 | -2.33 | -2.92 | 1.09 | 2.89 | 1.66 | 2.90 | 3.59 | 0.30 | 0.69 | 2.11 | 12.86 |
| Italy | 3.37 | 3.43 | -0.55 | 0.35 | 0.22 | 0.48 | 0.06 | 0.34 | 0.24 | -0.11 | 0.15 | 0.14 | -0.18 | 0.32 | 0.27 | 1.73 |
| Japan | 3.54 | 3.22 | 3.06 | -1.48 | 1.53 | -1.79 | -1.64 | 2.88 | 0.92 | -2.42 | -3.72 | -1.39 | -2.83 | -1.48 | -1.00 | -9.20 |
| Latvia | 0.18 | 0.16 | -0.27 | -1.20 | -1.71 | -1.46 | -1.25 | -0.64 | -0.81 | -0.88 | -0.77 | -2.62 | -0.49 | -0.74 | -0.68 | -12.73 |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | NE | NE | | | | | | | | | | | | | | |
| Luxembourg | | 0.02 | | | | | | | | | | | | | | |
| Monaco | 0.002 | 0.002 | 0.68 | 0.68 | 0.67 | 0.67 | 0.67 | 0.66 | 0.66 | 0.65 | 0.65 | 0.64 | 0.64 | 0.64 | 0.63 | 8.88 |
| Netherlands | 1.66 | 1.28 | 1.90 | -2.30 | -2.09 | -0.30 | -7.29 | -2.02 | -1.25 | 2.36 | -4.14 | -2.66 | 1.16 | -1.86 | -6.46 | -22.67 |
| New Zealand | 0.47 | 0.53 | | 2.13 | | | 2.08 | | | 2.04 | | | 2.00 | | 3.03 | 11.80 |
| Norway | 0.29 | 0.35 | 0.00 | | 3.61 | 6.03 | 3.48 | 6.43 | 7.81 | 0.20 | 1.10 | -10.35 | 2.35 | -7.17 | 6.93 | 20.35 |
| Portugal | 1.44 | 1.80 | 4.20 | 4.69 | 4.49 | 1.58 | 0.13 | 1.40 | -1.24 | 3.87 | 2.30 | 0.03 | 1.26 | -0.65 | 0.62 | 24.91 |
| Romania | 1.09 | 1.02 | | -1.83 | | | | | -0.93 | | | | | -2.83 | -0.97 | -6.42 |
| Slovakia | 0.06 | 0.08 | 1.01 | -22.91 | -19.99 | 2.14 | -5.90 | 10.10 | -6.63 | 4.33 | -13.75 | -14.95 | 108.74 | 77.04 | -27.72 | 25.83 |
| Slovenia | 0.19 | 0.19 | -5.85 | -20.16 | 13.03 | 5.17 | 3.33 | 5.54 | -1.87 | -1.80 | 8.54 | -2.28 | -2.01 | 0.28 | | -0.79 |
| Spain | 3.23 | 3.64 | 1.51 | 1.83 | 1.23 | 0.12 | 0.07 | 0.35 | -0.17 | 0.90 | 0.52 | 2.47 | 1.68 | 0.70 | 0.65 | 12.49 |
| Sweden | 0.63 | 0.45 | | -7.10 | | -1.15 | 3.63 | | -0.29 | -13.79 | -0.81 | -7.83 | -0.76 | -3.66 | -0.03 | -28.53 |
| Switzerland | 0.06 | 0.07 | 2.26 | 2.03 | 1.97 | 1.12 | 1.96 | 2.00 | 1.14 | 0.22 | 0.30 | 0.39 | 0.82 | 1.25 | 0.81 | 17.51 |
| Ukraine | 3.36 | 3.39 | 39.60 | -7.52 | -3.86 | -3.63 | -9.67 | -1.67 | -2.10 | -1.32 | -3.50 | 7.37 | -5.45 | 2.49 | -1.97 | 1.02 |
| United Kingdom | 3.33 | 3.90 | -1.48 | 1.02 | -0.61 | 0.54 | 1.03 | 3.38 | 11.16 | -1.15 | -0.12 | -0.29 | 3.09 | -0.62 | 0.39 | 16.91 |
| United States | 42.01 | 51.23 | 2.67 | 1.49 | 1.55 | 3.67 | -0.48 | 1.36 | 1.85 | 1.91 | 3.27 | 0.75 | 0.45 | 0.33 | 1.25 | 21.94 |

^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 6.3**Waste-water handling – trend information (continued)**

| Ratio: kg N ₂ O/capita | | | Relative Change (%) | | | | | | | | | | | | | |
|-----------------------------------|------------------------|------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------------------|
| | Base year ^a | 2003 | 1990 to 1991 | 1991 to 1992 | 1992 to 1993 | 1993 to 1994 | 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 | Base year ^a to 2003 |
| Australia | 0.09 | 0.09 | 0.09 | 0.06 | 0.14 | -0.03 | -0.13 | -0.02 | 0.03 | -0.15 | -0.05 | 0.06 | 0.02 | 0.05 | 0.04 | 0.12 |
| Austria | 0.01 | 0.08 | 2.93 | 3.05 | 0.92 | 91.87 | 66.92 | 35.11 | 13.43 | 28.05 | 14.25 | 16.64 | 21.57 | -1.18 | 0.12 | 978.50 |
| Belarus | 0.08 | 0.07 | -0.05 | -4.10 | -5.62 | -4.17 | -5.67 | 5.11 | 4.99 | 4.85 | 4.52 | 0.30 | 1.69 | 0.46 | -3.78 | -2.51 |
| Belgium | 0.09 | 0.10 | 3.75 | -62.32 | 161.12 | -1.62 | -0.39 | -0.18 | 0.33 | 1.14 | 2.91 | -6.87 | 2.62 | -0.37 | 6.51 | 5.75 |
| Bulgaria | 0.11 | 0.06 | -6.18 | 0.88 | -3.71 | -4.61 | -2.77 | -5.17 | -12.55 | 13.77 | 3.65 | -4.64 | -5.80 | -3.93 | 8.11 | -44.45 |
| Canada | 0.10 | 0.10 | -0.16 | -0.04 | 0.01 | 0.14 | 0.21 | -0.03 | -0.06 | -0.03 | -0.01 | 0.25 | -0.13 | 0.19 | 0.00 | 0.34 |
| Croatia | 0.09 | 0.07 | 5.87 | -3.93 | -4.64 | -0.84 | -0.54 | -33.68 | -2.64 | -2.54 | 9.60 | -0.51 | 5.40 | 0.12 | 4.80 | -27.40 |
| Czech Republic | 0.06 | 0.06 | | | | | 0.05 | 0.08 | 0.11 | 0.09 | 0.12 | 0.17 | -0.27 | 0.00 | 0.00 | 0.60 |
| Denmark | 0.05 | 0.04 | -4.98 | -12.37 | 23.41 | 1.14 | -8.04 | -19.03 | -6.53 | 0.85 | -6.38 | 5.17 | -12.77 | 1.37 | 3.16 | -34.48 |
| Estonia | | | | | | | | | | | | | | | | |
| European Community | 0.08 | 0.08 | -0.04 | -0.23 | -0.98 | 0.97 | -0.36 | 0.76 | -0.51 | 1.24 | -0.16 | 1.37 | 0.28 | -0.47 | -0.23 | 1.63 |
| Finland | 0.09 | 0.07 | -4.97 | -3.14 | -4.33 | -0.89 | 0.18 | -3.61 | -1.41 | -4.80 | -4.37 | -0.33 | -0.70 | -6.62 | 2.06 | -28.66 |
| France | 0.07 | 0.07 | 0.26 | -0.63 | 0.23 | -0.63 | 0.23 | -0.65 | -2.47 | -2.59 | -0.39 | 10.11 | -7.15 | -0.12 | -0.08 | -4.60 |
| Germany | 0.09 | 0.09 | -1.00 | -1.04 | -4.15 | 3.18 | -0.98 | 2.22 | -5.31 | 6.02 | -0.46 | -0.01 | 2.20 | -0.08 | -1.12 | -1.07 |
| Greece | 0.10 | 0.11 | 0.44 | 0.39 | -1.48 | 3.07 | 0.35 | -0.63 | 2.22 | 0.20 | 0.65 | 2.17 | -1.42 | -0.59 | 0.25 | 5.65 |
| Hungary | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | |
| Ireland | 0.11 | 0.10 | 1.00 | 2.91 | -3.06 | -2.53 | -3.77 | 0.25 | 1.88 | 0.46 | 1.53 | 2.21 | -1.04 | -0.98 | 0.47 | -0.94 |
| Italy | 0.06 | 0.06 | -0.60 | 0.16 | -0.12 | 0.35 | -0.09 | 0.03 | -0.01 | -0.22 | 0.05 | 0.06 | -0.21 | 0.34 | 0.34 | 0.09 |
| Japan | 0.03 | 0.03 | 2.74 | -1.72 | 1.28 | -2.13 | -2.01 | 2.62 | 0.66 | -2.67 | -3.90 | -1.56 | -3.04 | -1.68 | -1.13 | -12.07 |
| Latvia | 0.07 | 0.07 | 0.05 | -0.07 | 0.04 | 0.01 | 0.04 | 0.32 | 0.85 | 0.77 | 0.06 | -1.88 | 0.06 | 0.15 | 0.05 | 0.42 |
| Liechtenstein | | | | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | | | | |
| Luxembourg | | 0.04 | | | | | | | | | | | | | | |
| Monaco | | 0.07 | | | | | | | | | | | | | | |
| Netherlands | 0.11 | 0.08 | 1.10 | -3.00 | -2.74 | -0.96 | -7.77 | -2.38 | -1.82 | 1.77 | -4.79 | -3.35 | 0.40 | -2.50 | -6.91 | -28.73 |
| New Zealand | 0.14 | 0.13 | -1.35 | 1.07 | -1.13 | -1.32 | 0.60 | -1.57 | -1.33 | 1.17 | -0.52 | -0.59 | 1.40 | -1.49 | 1.23 | -3.85 |
| Norway | 0.07 | 0.08 | -0.47 | -0.58 | 2.99 | 5.43 | 2.92 | 5.92 | 7.25 | -0.44 | 0.46 | -10.96 | 1.86 | -7.68 | 6.37 | 11.90 |
| Portugal | 0.15 | 0.17 | 3.79 | 4.39 | 4.37 | 1.34 | -0.16 | 1.12 | -1.58 | 3.46 | 1.85 | -0.52 | 0.62 | -1.34 | -0.11 | 18.35 |
| Romania | 0.05 | 0.05 | -0.14 | -0.13 | 0.15 | 0.11 | 0.22 | 0.32 | -0.70 | 0.23 | 0.20 | 0.07 | 1.41 | -1.36 | -0.70 | -0.36 |
| Slovakia | 0.01 | 0.02 | 1.01 | -23.25 | -20.26 | 1.71 | -6.19 | 9.89 | -6.79 | 4.18 | -13.82 | -14.89 | 109.21 | 77.04 | -27.86 | 23.33 |
| Slovenia | 0.10 | 0.09 | -6.83 | -19.95 | 14.74 | 4.00 | 3.28 | 5.49 | -1.62 | -1.63 | 8.38 | -2.45 | -2.16 | 0.18 | -0.05 | -1.50 |
| Spain | 0.08 | 0.09 | 1.30 | 1.60 | 1.03 | -0.04 | -0.10 | 0.02 | -1.19 | 0.62 | -0.35 | 1.71 | 1.10 | 0.25 | 0.20 | 6.29 |
| Sweden | 0.07 | 0.05 | -0.68 | -7.65 | -0.58 | -1.85 | 3.04 | -0.14 | -0.36 | -13.81 | -0.87 | -7.96 | -1.04 | -3.99 | -0.38 | -31.70 |
| Switzerland | 0.01 | 0.01 | 0.93 | 0.92 | 1.05 | 0.31 | 1.28 | 1.52 | 0.94 | -0.09 | -0.12 | -0.17 | 0.11 | 0.43 | -0.01 | 7.31 |
| Ukraine | 0.06 | 0.07 | 39.30 | -7.79 | -3.92 | -3.15 | -8.99 | -0.87 | -1.29 | -0.55 | -2.73 | 8.25 | -4.66 | 3.28 | -1.24 | 8.41 |
| United Kingdom | 0.06 | 0.07 | -1.79 | 0.74 | -0.84 | 0.34 | 0.87 | 3.19 | 10.94 | -1.37 | -0.35 | -0.54 | 2.80 | -0.92 | 0.22 | 13.42 |
| United States | 0.17 | 0.18 | 1.31 | 0.09 | 0.22 | 2.41 | -1.66 | 0.19 | 0.63 | 0.72 | 2.09 | -0.38 | -0.64 | -0.73 | 0.40 | 4.67 |

^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).