



FRAMEWORK CONVENTION ON CLIMATE CHANGE - Secretariat

CONVENTION – CADRE SUR LES CHANGEMENTS CLIMATIQUES - Secrétariat

FCCC/WEB/SAI/2003

6 August 2003

**SYNTHESIS AND ASSESSMENT REPORT ON THE GREENHOUSE GAS INVENTORIES  
SUBMITTED IN 2003**

**Note by the secretariat**

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## I. MANDATE

1. The Conference of the Parties (COP), by its decision 19/CP.8, adopted the revised guidelines for the technical review of greenhouse gas (GHG) inventories from Parties included in Annex I to the Convention<sup>1</sup> (hereinafter referred to as the review guidelines) to be applied from the year 2003. It also determined, by decision 18/CP.8, that the reporting guidelines adopted by decision 3/CP.5 should be used for the inventory due by 15 April 2003.
2. 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 (desk reviews, centralized reviews and in-country reviews). 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.
3. 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Party, will be provided to the corresponding expert review team as input for the individual review; Part II will not be published on the UNFCCC web site.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

4. This document contains Part I of the synthesis and assessment report, covering the national GHG inventories submitted in 2003 by those Annex I Parties that used the common reporting format (CRF) in accordance with the UNFCCC reporting guidelines (FCCC/CP/1999/7).
5. This document covers only the inventory information submitted in the CRF and not information contained in the national inventory reports. 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.
6. The completeness of this report is limited by the fact that only 29 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: Austria, Belgium, Bulgaria, Canada, Czech Republic, Denmark, Estonia, European Community, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Latvia, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Slovakia, Spain, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland, United States of America.<sup>2</sup>
7. 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 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 29 Parties and for

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

<sup>2</sup> Slovenia also submitted its inventory within this time period. However, because the information was not submitted in the CRF, it has not been included in this report.

the base year and for the years from 1995 to 2001. 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.

8. 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).

9. To facilitate the analysis of the inventory data, the secretariat considers, for each individual Party, those source categories that are *key sources* 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).<sup>3</sup> This identification has been performed at the level of detail recommended in that guidance. The land-use change and forestry sector has not been included in the calculation of the key source assessments.<sup>4</sup>

## **B. Explanatory notes to the tables**

10. Blank cells in a table indicate that a Party did not report information for a given source and gas in the appropriate table of the CRF.

11. 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.

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

13. Key sources identified by the secretariat’s analysis are indicated by “L” for level and “T” for trend assessments in the “key source” columns. 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 CO<sub>2</sub> equivalent, excluding emissions and removals from land-use change and forestry.

14. Tables on energy indicate whether implied emission factors 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.

15. Where Parties used notation keys (NO, NE, NA, IE, C, 0) these have been reproduced verbatim from the CRF tables provided by Parties. The notation keys, as described in the UNFCCC reporting guidelines (FCCC/CP/1999/7), are as follows:

|    |                |     |  |
|----|----------------|-----|--|
| NO | Not occurring  | IE  | Included elsewhere   |
| NE | Not estimated  | C   | Confidential   |
| NA | Not applicable | “0” | Estimates that are less than one half of the unit being used to record the inventory table |

<sup>3</sup> 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).

<sup>4</sup> Emissions and removals associated with land-use change and forestry are not covered in the current edition of the IPCC good practice guidance. A separate IPCC report on good practice guidance for land use, land-use change and forestry is in preparation.

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

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

17. 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                        | 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                                      |                          |                  |
| C               | CORINAIR   |                          |                  |
| CS              | Country specific                                 |                          |                  |
| M               | Model  |                          |                  |

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

|                        |   |
|------------------------|---|
| kg                     | kilogram (10 <sup>3</sup> grams)                      |
| t                      | tonne (10 <sup>6</sup> grams)                         |
| Mg                     | megagram (10 <sup>6</sup> grams) – same as tonne      |
| kt                     | kilotonne (10 <sup>9</sup> grams) – same as kilotonne |
| Gg                     | gigagram (10 <sup>9</sup> grams)                      |
| Mt                     | megatonne (10 <sup>12</sup> grams)                    |
| TJ                     | terajoule (10 <sup>12</sup> joules)                   |
| PJ                     | petajoule (10 <sup>15</sup> joules)                   |
| Gg CO <sub>2</sub> equ | Gg of CO <sub>2</sub> equivalent                      |
| ha                     | hectare   |
| kha                    | thousand hectares                                     |
| Mha                    | million hectares                                      |
| MM Bbl/yr              | million barrels per year                              |
| TBtu                   | trillion British thermal units                        |

19. 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 <sub>x</sub>       | nitrogen oxides  |
| NH <sub>3</sub>       | ammonia  |
| NCV                   | net calorific value  |
| GCV                   | gross calorific value  |
| yr                    | year   |
| dm                    | dry matter   |
| Frac <sub>FUEL</sub>  | fraction of livestock N excretion in excrements burned for fuel  |
| Frac <sub>GRAZ</sub>  | fraction of livestock N excreted and deposited onto soil during grazing                                      |
| Frac <sub>NCRBF</sub> | fraction of N in non-N-fixing crop   |
| Frac <sub>NCRO</sub>  | fraction of N in N-fixing crop   |
| Frac <sub>R</sub>     | fraction of crop residue removed from the field as crop  |
| Frac <sub>BURN</sub>  | fraction of crop residue burned  |
| Frac <sub>GASF</sub>  | fraction of synthetic fertilizer N applied to soils which volatilizes as NH <sub>3</sub> and NO <sub>x</sub> |
| Frac <sub>GASM</sub>  | fraction of livestock N excretion that volatilizes as NH <sub>3</sub> and NO <sub>x</sub>                    |
| Frac <sub>LEACH</sub> | 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  |

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| 5.13                | Abandonment of managed land (2001)<br>Annual above-ground biomass growth rate (t dm/ha/yr) and rate of biomass carbon uptake (t C/ha/yr)<br>Abandonment of managed land: abandoned area (kha) – first 20 years<br>Relative change (%)   |
| 5.14                | CO <sub>2</sub> emissions and removals from soils – trend information<br>CO <sub>2</sub> emissions and removals from soils (Gg)<br>Relative change (%)  |
| 5.15                | Cultivation of mineral soils: average annual rate of soil carbon uptake/removal (t C/ha/yr)   |
| 5.16                | Cultivation of organic soils: annual loss rate (Mg C/ha/yr) (2001)  |
| 5.17                | Liming of agricultural soils: C conversion factor (2001)  |
| 5.18                | Cultivation of mineral soils – trend information<br>Net CO <sub>2</sub> emissions/removals (Gg)<br>Relative change (%)  |
| 5.19                | Cultivation of organic soils – trend information<br>Net CO <sub>2</sub> emissions/removals (Gg)<br>Relative change (%)  |
| 5.20                | Liming of agricultural soils – trend information<br>Net CO <sub>2</sub> emissions/removals (Gg)<br>Relative change (%)  |
| 5.21                | Other sources/sinks in LUCF – trend information<br>CO <sub>2</sub> net emission/removal and non-CO <sub>2</sub> GHG (Gg)<br>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 (2001)  |
| 6.2                 | Solid waste disposal on land – trend information<br>CH <sub>4</sub> emissions (Gg)<br>Relative change (%)<br>Ratio: kg CH <sub>4</sub> /capita<br>Relative change (%)   |

Table number   Table name

|     |  |
|-----|--|
| 6.3 | Waste-water handling – trend information |
|     | CH <sub>4</sub> emissions (Gg)           |
|     | Relative change (%)                      |
|     | Ratio: kg CH <sub>4</sub> /capita        |
|     | Relative change (%)                      |
|     | N <sub>2</sub> O emissions (Gg)          |
|     | Relative change (%)                      |
|     | Ratio: kg N <sub>2</sub> O /capita       |
|     | Relative change (%)                      |

# General

**Table G.1**

## Submissions used in the S&A report: Part I

| Party                           | CRF for years:  | Initial submission date | NIR                                 | Submission date and version used in the S&A report       | Sources of data for the trend tables   |
|---------------------------------|-----------------|-------------------------|-------------------------------------|--|--|
| Austria                         | 1990–2001       | 15/04/2003              | <input checked="" type="checkbox"/> | 15 April 2003 (v.1)                                      | 1990–2000: S2003   |
| Belgium                         | 1990–2001       | 15/04/2003              | <input checked="" type="checkbox"/> | 1990–2000: 27 May 2003 (v.2)<br>2001: 27 May 2003 (v.3)  | 1990–2000: S2003   |
| Bulgaria                        | 2000 and 2001   | 23/05/2003              | <input checked="" type="checkbox"/> | 23 May 2003 (v.1)  | 1988–1997: T2003; 1998: T2003/ S2000; 1999: T2003/S2001; 2000: S2003                     |
| Canada                          | 1990–2001       | 15/04/2003              | <input checked="" type="checkbox"/> | 15 April 2003 (v.1)                                      | 1990–2000: S2003   |
| Czech Republic                  | 1994 and 2001   | 15/04/2003              | <input checked="" type="checkbox"/> | 23 May 2003 (v.2)  | 1990: T2003/S2002; 1996–1997 T2003; 1998 T2003/S2000; 1999 T2003/S2001; 2000 T2003/S2002 |
| Denmark                         | 1990–2001       | 15/04/2003              | <input checked="" type="checkbox"/> | 1990–2000: 15 April 2003 (v.1)<br>2001: 9 May 2003 (v.2) | 1990–2000: S2003   |
| Estonia                         | 2001            | 14/04/2003              |                                     | 14 April 2003 (v.1)                                      | 1990–1998: T2003; 1999: T2003/S2001; 2000: T2003/S2002                                   |
| European Community <sup>a</sup> | 1990–2001       | 15/04/2003              | <input checked="" type="checkbox"/> | 28 May 2003 (v.2)  | 1990–2000: S2003   |
| Finland                         | 1990–2001       | 04/04/2003              | <input checked="" type="checkbox"/> | 4 April 2003 (v.1)                                       | 1990–2000: S2003   |
| France                          | 1990–2001       | 31/03/2003              | <input checked="" type="checkbox"/> | 31 March 2003 (v.1)                                      | 1990–2000: S2003   |
| Germany                         | 1990–2001       | 14/04/2003              |                                     | 28 May 2003 (v.2)  | 1990–2000: S2003   |
| Greece                          | 2001            | 24/04/2003              |                                     | 24 April 2003 (v.1)                                      | 1990–2000: S2002   |
| Iceland                         | 2001            | 05/05/2003              |                                     | 27 May 2003 (v.2)  | 1990–1998: T2003; 1999: T2003/S2001; 2000: T2003/S2002                                   |
| Ireland                         | 1990–2001       | 15/04/2003              | <input checked="" type="checkbox"/> | 14 May 2003 (v.2)  | 1990–2000: S2003   |
| Italy                           | 2001            | 15/04/2003              |                                     | 12 May 2003 (v.2)  | 1990–1997: T2003; 1998: T2003/ S2001; 1999: T2003/S2001; 2000: T2003/S2002               |
| Latvia                          | 1990–2001       | 15/04/2003              | <input checked="" type="checkbox"/> | 20 May 2003 (v.2)  | 1990–2000: S2003   |
| Luxembourg <sup>b</sup>         | 2001            | 15/04/2003              |                                     | 15 April 2003 (v.1)                                      | 1999: S2001; 2000: S2002   |
| Netherlands                     | 1990–2001       | 14/04/2003              | <input checked="" type="checkbox"/> | 27 May 2003 (v.2)  | 1990–2000: S2003   |
| New Zealand                     | 2001            | 15/04/2003              | <input checked="" type="checkbox"/> | 20 May 2003 (v.2)  | 1990–1998: T2003/S2000; 1999: T2003/S2001; 2000: T2003/S2002                             |
| Norway                          | 1990, 1998–2001 | 05/05/2003              | <input checked="" type="checkbox"/> | 5 May 2003 (v.1)   | 1990: S2003; 1995–1997: T2003; 1990, 1998–2000: S2003                                    |
| Poland                          | 2001            | 15/04/2003              |                                     | 23 May 2003 (v.2)  | 1990–1999: T2003; 2000: S2002/T2003  |
| Portugal                        | 1990–2001       | 09/04/2003              |                                     | 9 April 2003 (v.1)                                       | 1990–2000: S2003   |
| Romania                         | 2001            | 14/04/2003              | <input checked="" type="checkbox"/> | 14 May 2003 (v.1)  | 1990: T2003; 1995–2000: T2003/S2002  |
| Slovakia                        | 2000 and 2001   | 16/04/2003              |                                     | 16 April 2003 (v.1)                                      | 1990–1997: T2003; 1998: T2003/S2000; 1999: T2003/S2001; 2000: S2003                      |
| Spain                           | 1990–2001       | 29/04/2003              | <input checked="" type="checkbox"/> | 29 April 2003 (v.1)                                      | 1990–2000: S2003   |
| Sweden                          | 1990–2001       | 15/04/2003              | <input checked="" type="checkbox"/> | 27 May 2003 (v.2)  | 1990–2000: S2003   |
| Switzerland                     | 1990 and 2001   | 15/04/2003              |                                     | 15 April 2003 (v.1)                                      | 1990: S2003; 1995–1997: T2003; 1998: T2003/ S2001; 1999: T2003/S2001; 2000: T2003/S2002  |
| United Kingdom                  | 1990–2001       | 14/04/2003              | <input checked="" type="checkbox"/> | 9 May 2003 (v.2)   | 1990–2000: S2003   |
| United States                   | 1990–2001       | 11/04/2003              | <input checked="" type="checkbox"/> | 22 May 2003 (v.2)  | 1990–2000: S2003   |

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

NIR = national inventory report

<sup>a</sup> Summary tables for all member states are provided.

<sup>b</sup> The submission includes the following tables from the CRF: Summary 1.A, Summary 3, Table 7

Table G.2

Key sources: inventory year 2001 <sup>a</sup>

|   | Austria | Belgium | Bulgaria | Canada | Czech Republic | Denmark | Estonia | Finland | France | Germany | Greece | Iceland | Ireland | Italy | Latvia | Netherlands | New Zealand | Norway | Poland | Portugal | Romania | Slovakia | Spain | Sweden | Switzerland | United Kingdom | United States |
|---|---------|---------|----------|--------|----------------|---------|---------|---------|--------|---------|--------|---------|---------|-------|--------|-------------|-------------|--------|--------|----------|---------|----------|-------|--------|-------------|----------------|---------------|
| Source categories   |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       |        |             |                |               |
| Energy  |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       |        |             |                |               |
| Stationary combustion – coal (CO <sub>2</sub> )                 | L, T    | L       | L        | L, T   | L              | L, T    | L       | L, T    | L, T   | L, T    | L, T   | L       | L, T    | L     | L, T   | L, T        | L           | L      | L      | L, T     | L       | L        | L, T  | L, T   | L, T        | L, T           | L, T          |
| Stationary combustion – coal (CH <sub>4</sub> )                 |         |         |          |        |                |         |         |         |        | T       |        |         |         |       |        |             |             |        |        |          |         |          |       |        |             |                |               |
| Stationary combustion – coal (N <sub>2</sub> O)                 |         |         | L        |        | L              |         |         |         |        |         | L, T   |         |         |       |        |             |             |        |        |          |         |          | T     | L      |             |                |               |
| Stationary combustion – oil (CO <sub>2</sub> )                  | L, T    | L       | L        | L, T   | L              | L, T    | L       | L, T    | L, T   | L, T    | L, T   | L       | L, T    | L     | L, T   | L, T        | L           | L, T   | L      | L, T     | L       | L        | L, T  | L, T   | L, T        | L, T           | L, T          |
| Stationary combustion – oil (N <sub>2</sub> O)                  |         | L       |          |        |                |         |         |         |        |         | T      |         | L, T    | L     |        |             |             |        |        |          |         |          | L     | L, T   |             |                |               |
| Stationary combustion – gas (CO <sub>2</sub> )                  | L, T    | L       | L        | L, T   | L              | L, T    | L       | L, T    | L, T   | L, T    | L, T   |         | L, T    | L     | L, T   | L, T        | L           | L, T   | L      | L, T     | L       | L        | L, T  | L, T   | L, T        | L, T           | L, T          |
| Stationary combustion – gas (CH <sub>4</sub> )                  |         |         |          | T      |                | T       |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       |        |             |                |               |
| Stationary combustion – gas (N <sub>2</sub> O)                  |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          | T     |        |             |                |               |
| Stationary combustion – biomass (CH <sub>4</sub> )              | T       |         |          |        |                |         |         |         |        |         |        |         |         |       | L, T   |             |             |        |        | T        |         |          |       | T      |             |                |               |
| Stationary combustion – biomass (N <sub>2</sub> O)              |         |         |          |        |                |         |         |         |        |         |        |         |         |       | T      |             |             |        |        |          |         |          |       | T      |             |                |               |
| Stationary combustion – other fuels (CO <sub>2</sub> )          | L, T    | L       |          |        |                | L       |         | L, T    | L, T   | T       |        |         |         | L     |        | L, T        |             |        |        |          | L       | L        |       | L, T   |             |                | T             |
| Mobile combustion – road vehicles (CO <sub>2</sub> )            | L, T    | L       | L        | L, T   | L              | L, T    | L       | L, T    | L, T   | L, T    | L, T   | L       | L, T    | L     | L, T   | L, T        | L           | L, T   | L      | L, T     | L       | L        | L, T  | L, T   | L, T        | L, T           | L, T          |
| Mobile combustion – road vehicles (CH <sub>4</sub> )            |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       | T      | T           |                |               |
| Mobile combustion – road vehicles (N <sub>2</sub> O)            | L, T    | L       |          | L, T   |                | T       |         | L, T    | L, T   | L, T    | T      |         |         | T     | L      |             |             |        | L, T   |          |         |          | T     | L, T   | L, T        | L, T           | L             |
| Mobile combustion – water-borne navigation (CO <sub>2</sub> )   |         | L       |          | L      |                |         |         | L, T    |        |         | L      |         |         | L     | T      |             |             |        | L, T   |          | T       |          | L     | L      |             |                | L             |
| Mobile combustion – aircraft (CO <sub>2</sub> )                 |         |         |          | L, T   |                |         |         |         | L, T   | T       | L, T   |         |         |       |        |             | L           | L, T   |        |          | L, T    |          | L     | L      | T           | L              | L, T          |
| Railways (CO <sub>2</sub> )                                     |         |         |          | L, T   |                |         |         |         |        |         |        |         |         |       | L      |             |             |        |        |          |         |          |       |        |             |                |               |
| Other transportation (CO <sub>2</sub> )                         | L, T    |         | L        | L, T   |                |         |         | L, T    |        |         | L, T   |         |         |       |        | L           |             | L, T   |        |          |         |          |       |        |             |                | L, T          |
| Other transportation (N <sub>2</sub> O)                         |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       | T      |             |                |               |
| Fugitive emissions: coal mining and handling (CH <sub>4</sub> ) |         |         | L        | T      | L              |         | L       |         | L, T   | L, T    | L, T   |         |         |       |        |             | L           |        | L      |          | L       | L        | T     |        |             | L, T           | L, T          |
| Fugitive emissions: oil and gas operations (CO <sub>2</sub> )   |         |         |          | L, T   |                | L, T    |         |         |        |         |        |         |         |       |        | L, T        | L           | L, T   |        |          |         |          | L     |        |             | L, T           |               |
| Fugitive emissions: oil and gas operations (CH <sub>4</sub> )   |         | L       | L        | L, T   |                |         | L       |         | L, T   | L, T    |        |         |         | L     | L      | L, T        |             | L, T   | L      | T        | L       | L        |       |        |             | L              | L, T          |
| Solid fuel transformation (CO <sub>2</sub> )                    |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          | L, T  | T      |             |                |               |
| Other (fugitive emissions from solid fuels) (CO <sub>2</sub> )  |         |         |          |        |                |         |         | L, T    |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       |        |             |                |               |
| Industrial processes  |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       |        |             |                |               |
| Cement production (CO <sub>2</sub> )                            | L, T    | L       | L        | L      | L              | L, T    | L       | L, T    | L, T   | L       | L, T   | L       | L, T    | L     | L      |             |             | L, T   | L      | L, T     | L       | L        | L, T  | L, T   | L, T        | L              | L, T          |
| Lime production (CO <sub>2</sub> )                              |         | L       | L        |        |                |         |         |         |        | L       |        |         |         |       |        |             |             |        |        |          | L       | L        |       |        |             |                |               |
| Limestone and dolomite use (CO <sub>2</sub> )                   |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         | L        |       |        |             |                |               |
| Other (mineral products) (CO <sub>2</sub> )                     | T       |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       |        |             |                |               |
| Ammonia production (CO <sub>2</sub> )                           | L       | L       |          | L      |                |         |         |         | T      |         |        |         | L, T    |       |        |             |             | L, T   |        | T        | L       |          |       |        |             |                | T             |
| Nitric acid production (N <sub>2</sub> O)                       | L, T    | L       | L        |        | L              |         |         | L, T    | T      |         | T      |         | T       |       |        | L, T        |             | L, T   | L      | L, T     |         |          | L, T  | L, T   |             | L              |               |
| Adipic acid production (N <sub>2</sub> O)                       |         |         |          | T      |                |         |         |         | T      | T       |        |         |         | L     |        |             |             |        |        |          |         |          |       |        |             | T              | T             |
| Carbide production (CO <sub>2</sub> )                           |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             | L, T   |        |          |         |          |       |        |             |                |               |
| Iron and steel industry (CO <sub>2</sub> )                      | L       | L       | L        | L, T   | L              |         |         |         |        |         |        |         |         |       | L, T   |             | L           |        |        |          |         |          |       | L, T   |             |                | L, T          |

<sup>a</sup> Source: UNFCCC secretariat key source analysis.

**Table G.2**

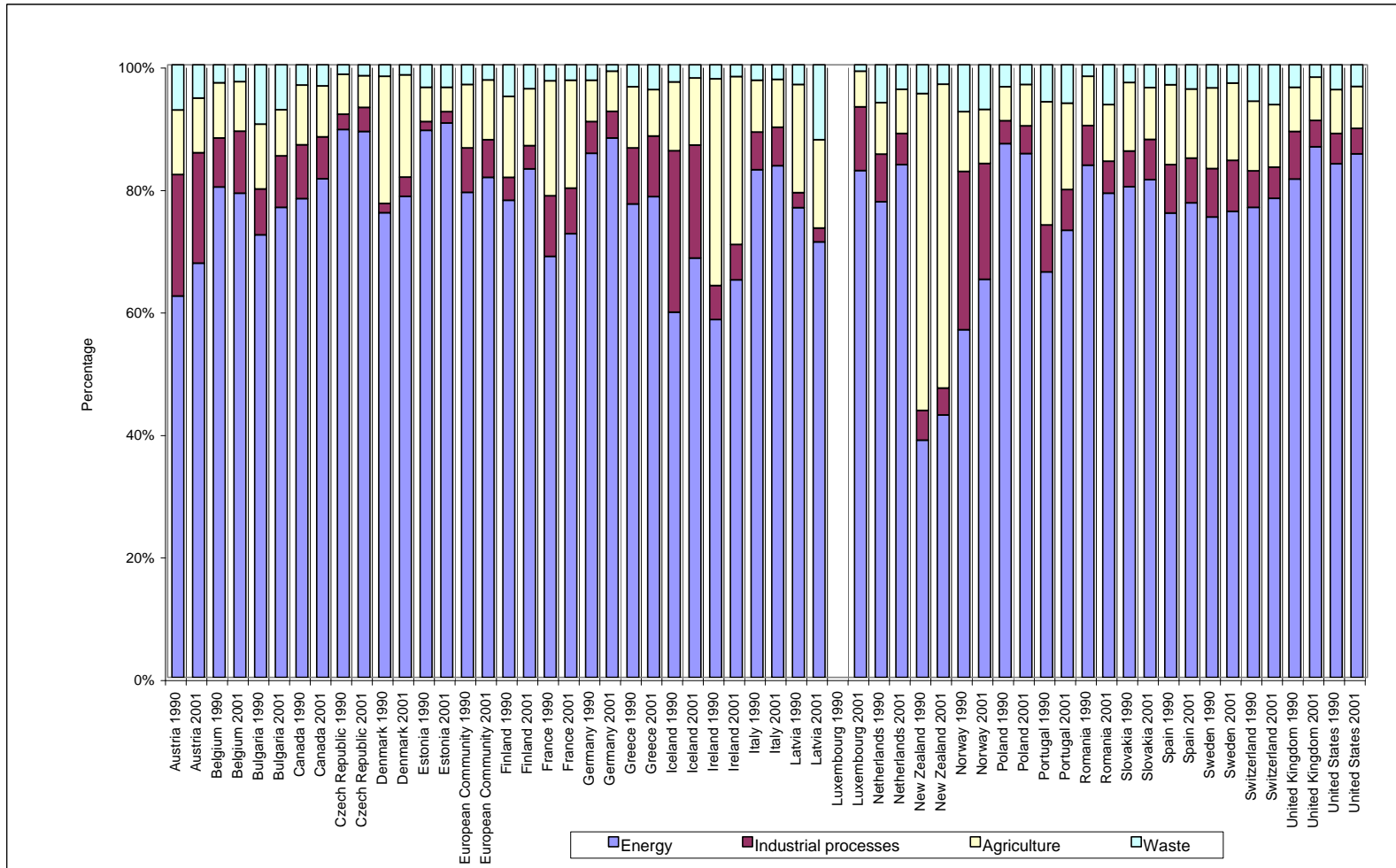
**Key sources: inventory year 2001 (continued)**

| Source categories  | Austria | Belgium | Bulgaria | Canada | Czech Republic | Denmark | Estonia | Finland | France | Germany | Greece | Iceland | Ireland | Italy | Latvia | Netherlands | New Zealand | Norway | Poland | Portugal | Romania | Slovakia | Spain | Sweden | Switzerland | United Kingdom | United States |
|--|---------|---------|----------|--------|----------------|---------|---------|---------|--------|---------|--------|---------|---------|-------|--------|-------------|-------------|--------|--------|----------|---------|----------|-------|--------|-------------|----------------|---------------|
| Industrial processes, continued  |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       |        |             |                |               |
| Ferroalloys production (CO <sub>2</sub> )                                    |         |         |          |        |                |         |         |         |        |         |        | L       |         |       |        |             |             | L      |        |          |         |          |       | L, T   |             |                |               |
| Aluminium production (CO <sub>2</sub> )                                      |         |         |          | T      |                |         |         |         |        |         |        | L       |         |       |        |             |             | L, T   |        |          |         |          |       |        | T           |                |               |
| Aluminium production (PFCs)  |         |         |          | L, T   |                |         |         |         |        |         | T      | L       |         |       |        | L, T        |             | L, T   |        |          |         |          | T     | T      | T           | T              | T             |
| Magnesium production (SF <sub>6</sub> )                                      |         |         |          | T      |                |         |         |         |        |         |        |         |         |       |        |             |             | L, T   |        |          |         |          |       | T      |             |                | T             |
| Other (metal production) (CO <sub>2</sub> )                                  |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             | T      |        |          |         |          |       |        |             |                |               |
| Other (metal production) (SF <sub>6</sub> )                                  |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       |        |             |                | T             |
| HFC-23 from HCFC production  |         |         |          |        |                |         |         |         |        |         | L, T   |         |         |       |        | T           |             |        |        |          |         |          | L, T  |        |             |                | T             |
| Other (by-product emissions; production of halocarbons and SF <sub>6</sub> ) |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       |        |             | L, T           |               |
| ODS substitutes HFCs, PFCs, SF <sub>6</sub>                                  | L, T    | L       |          | T      |                | L, T    |         | L, T    | L, T   | L, T    | T      |         |         | L     |        | T           |             | T      |        |          |         |          | L, T  | L, T   | L, T        | L, T           | L, T          |
| Semiconductor manufacturing (HFCs, PFCs, SF <sub>6</sub> )                   | T       |         |          |        |                |         |         |         |        |         |        |         | T       |       |        |             |             |        |        |          |         |          |       |        |             |                |               |
| Electrical equipment (SF <sub>6</sub> )                                      |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       |        | T           |                | T             |
| Other sources of SF <sub>6</sub>   |         |         |          |        |                |         |         |         |        | T       |        |         |         |       |        |             |             |        |        |          |         |          |       |        | T           |                |               |
| Other consumptions of halocarbons and SF <sub>6</sub>                        |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       |        |             |                | T             |
| Other (industrial processes) (CO <sub>2</sub> )                              |         | L       |          | L, T   |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       |        |             |                |               |
| Solvents   |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       |        |             |                |               |
| Solvent and other product use (CO <sub>2</sub> )                             | T       |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       | T      |             |                |               |
| Agriculture  |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       |        |             |                |               |
| Enteric fermentation in domestic livestock (CH <sub>4</sub> )                | L, T    | L       | L        | L      | L              | L, T    | L       | L, T    | L, T   | L, T    | L, T   | L       | L, T    | L     | L, T   | L, T        | L           | L, T   | L      | L, T     | L       | L        | L, T  | L, T   | L, T        | L              | L, T          |
| Manure management (CH <sub>4</sub> )   | L       | L       |          | L      | L              | L       |         |         | L      |         |        |         | L, T    | L     |        | L           | L           | L      |        | L, T     | L       |          | L     | L, T   |             |                |               |
| Manure management (N <sub>2</sub> O)   | L, T    | L       |          |        |                |         |         | T       |        | L       |        |         | L       | L     | L      |             |             |        | L      | L, T     |         | L        | T     | L, T   | L           |                |               |
| Rice production (CH <sub>4</sub> )   |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        | T        |         |          |       |        |             |                |               |
| Direct N <sub>2</sub> O emissions from agricultural soils                    | L, T    |         | L        | L, T   | L              | L, T    |         | L, T    | L, T   | L       | L, T   | L       | L, T    | L     | L      | L, T        | L           | L, T   | L      | L, T     | L       | L        | L, T  | L, T   | L, T        | L              | L             |
| Animal production (N <sub>2</sub> O)   |         |         |          |        |                |         |         |         | L, T   |         | L, T   |         | L, T    |       |        |             | L           |        |        | L, T     |         |          | L, T  | L, T   |             | L              | L, T          |
| Indirect N <sub>2</sub> O from nitrogen used in agriculture                  | L, T    |         | L        | L, T   | L              | L, T    |         | L, T    | L, T   | L       |        |         | L, T    | L     | L, T   |             | L           | L      |        | L, T     |         |          | L, T  | L, T   | L, T        | L              | L, T          |
| Agricultural soils (CO <sub>2</sub> )  |         |         |          |        |                |         |         | L, T    |        |         |        |         |         |       |        |             |             | T      |        |          |         |          | L, T  | L, T   | L, T        | L              | L, T          |
| Other (agricultural soils) (N <sub>2</sub> O)                                |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        | L           |             |        |        |          |         |          |       | L      |             |                |               |
| Waste  |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       |        |             |                |               |
| Solid waste disposal sites (CH <sub>4</sub> )                                | L, T    | L       | L        | L, T   | L              | L       | L       | L, T    | L, T   | L, T    | L, T   | L       | L, T    | L     | L, T   | L, T        | L           | L, T   | L      | L, T     | L       | L        | L, T  | L, T   | L, T        | L, T           | L, T          |
| Waste-water handling (CH <sub>4</sub> )                                      |         |         |          |        |                |         |         |         |        |         | T      |         |         |       | L, T   |             |             |        |        | L, T     | L       | L        | L, T  |        |             |                |               |
| Waste-water handling (N <sub>2</sub> O)                                      |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        | L        |         |          |       |        |             |                |               |
| Waste incineration (CO <sub>2</sub> )  |         | L       |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        | T        |         |          | T     |        | L, T        |                |               |
| Other (waste) (CO <sub>2</sub> )   |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        | T           |             |        |        |          |         |          |       |        |             |                |               |
| Other (waste) (CH <sub>4</sub> )   | L       | L       |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       |        |             |                |               |
| Other  |         |         |          |        |                |         |         |         |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       |        |             |                |               |
| Other (CO <sub>2</sub> )   |         |         |          |        |                |         |         | L       |        |         |        |         |         |       |        |             |             |        |        |          |         |          |       |        |             |                |               |

Source: UNFCCC secretariat key source analysis.

**Figure G.2**

**GHG emissions by sector (without LUCF): base year and 2001 (%)<sup>a</sup>**

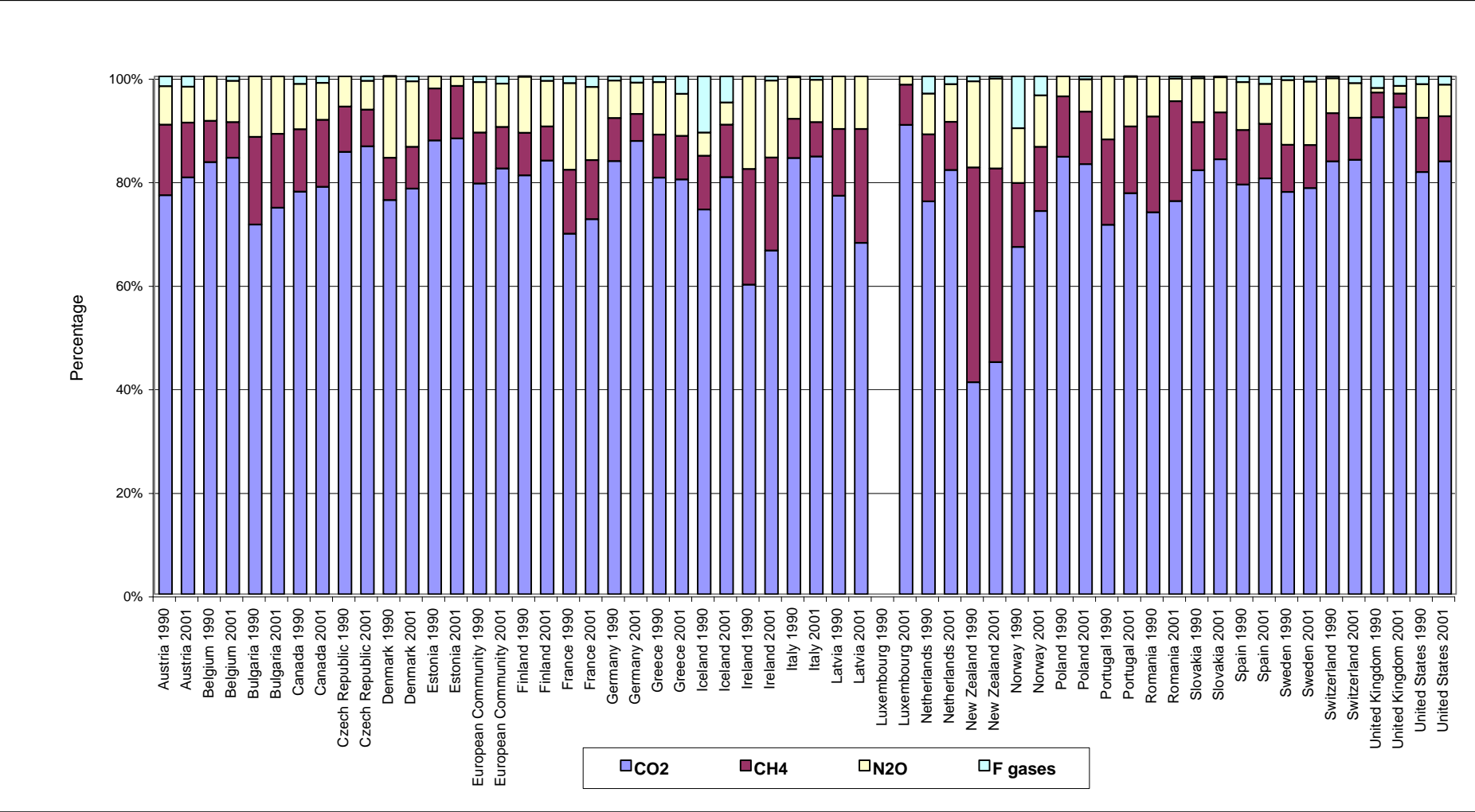


<sup>a</sup> In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Poland (1988) and Romania (1989).



**Figure G.1**

**GHG emissions by gas: base year and 2001 (%)<sup>a</sup>**



<sup>a</sup> 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), Poland (1988) and Romania (1989).

**Table G.3****Recalculations for total CO<sub>2</sub> equivalent emissions****without land-use change and forestry: 2003 submission data (%)**

|                       | 1990 <sup>a</sup> | 1995   | 1996   | 1997   | 1998   | 1999   | 2000  |
|-----------------------|-------------------|--------|--------|--------|--------|--------|-------|
| Austria               | 0.89              | 2.79   | 5.85   | 3.48   | 5.49   | 3.00   | 2.75  |
| Belgium               | -1.14             | -1.14  | -1.05  | -1.13  | -0.58  | -0.77  | -1.38 |
| Bulgaria              | -8.08             | -11.20 | -11.11 | -11.42 | -12.11 | -16.11 |       |
| Canada                | 0.07              | -0.03  | 0.08   | 0.03   | 0.02   | 0.50   | 0.41  |
| Czech Republic        |                   |        |        |        |        |        |       |
| Denmark               | -0.21             | -0.06  | -0.17  | -0.20  | -0.24  | -0.23  | -0.47 |
| Estonia               |                   |        |        |        |        |        |       |
| European Community    | -0.38             | -0.12  | 0.04   | 0.03   | 0.15   | 0.13   | 0.18  |
| Finland               | 0.26              | 2.45   | 2.67   | 2.51   | 2.50   | 2.60   | 2.31  |
| France                | 1.60              | 2.00   | 2.00   | 2.30   | 2.70   | 2.80   | 2.90  |
| Germany               |                   |        |        |        |        |        |       |
| Greece                |                   |        |        |        |        |        |       |
| Iceland               |                   |        |        |        |        |        |       |
| Ireland               | -0.85             | -0.01  | 0.09   | 0.33   | 0.05   | 0.59   | 1.87  |
| Italy <sup>b</sup>    |                   |        |        |        |        |        |       |
| Latvia                |                   |        |        |        |        |        |       |
| Luxembourg            |                   |        |        |        |        |        |       |
| Netherlands           | -0.20             | -0.13  | -0.60  | -1.60  | -0.60  | -0.60  | -0.04 |
| New Zealand           | -15.59            | -11.27 | -10.67 | -9.78  | -9.39  | -9.44  | -8.59 |
| Norway                | -0.32             |        |        |        | 0.08   | -0.06  | 0.52  |
| Poland                |                   |        |        |        |        |        |       |
| Portugal              | -5.40             | -4.54  | -5.83  | -5.60  | -4.12  | -3.18  | -2.89 |
| Romania               |                   |        |        |        |        |        |       |
| Slovakia <sup>c</sup> |                   |        |        |        |        |        |       |
| Spain                 | 0.41              | 0.39   | 0.15   | 0.45   | 0.34   | 0.04   | 0.29  |
| Sweden                | 3.10              | 3.22   | 2.96   | 3.29   | 3.26   | 2.46   | -0.59 |
| Switzerland           | 0.10              | -0.52  | 0.05   | 0.05   | 0.08   | 0.44   | -0.63 |
| United Kingdom        | 0.22              | 0.28   | 0.34   | 0.18   | 0.14   | 0.00   | 0.00  |
| United States         | 0.15              | 0.51   | 0.56   | 0.51   | 0.67   | 0.29   | 0.66  |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Recalculations are reported to have taken place but actual recalculated values have not been provided.

<sup>c</sup> For inventory year 2000 recalculations are reported for CO<sub>2</sub> emissions from industrial processes and N<sub>2</sub>O emissions from agriculture, but there is no information on the impact on the total GHG emission estimates.

**Table G.4****Reported recalculations for the base year and the latest year (%)**

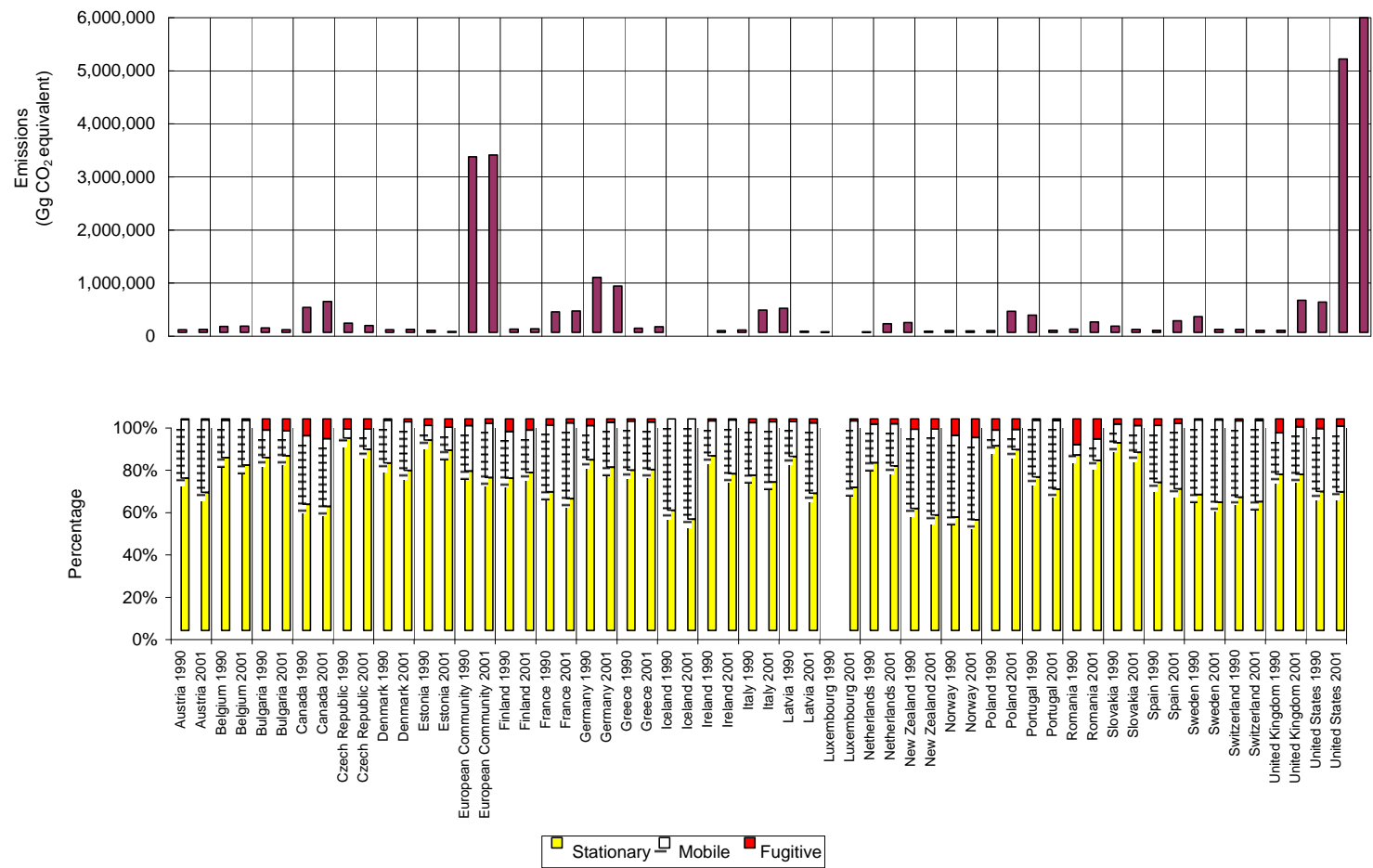
|                | Energy            |       |                   |        |                   |        | Industrial processes |        |                   |        |                   |        | Solvents          |         |                   |        | Agriculture       |       |                   |        |                   |        | LUCF              |        | Waste             |        |                   |        |                   |        |       |       |
|----------------|-------------------|-------|-------------------|--------|-------------------|--------|----------------------|--------|-------------------|--------|-------------------|--------|-------------------|---------|-------------------|--------|-------------------|-------|-------------------|--------|-------------------|--------|-------------------|--------|-------------------|--------|-------------------|--------|-------------------|--------|-------|-------|
|                | CO <sub>2</sub>   |       | CH <sub>4</sub>   |        | N <sub>2</sub> O  |        | CO <sub>2</sub>      |        | CH <sub>4</sub>   |        | N <sub>2</sub> O  |        | CO <sub>2</sub>   |         | N <sub>2</sub> O  |        | CO <sub>2</sub>   |       | CH <sub>4</sub>   |        | N <sub>2</sub> O  |        | CO <sub>2</sub>   |        | CO <sub>2</sub>   |        | CH <sub>4</sub>   |        | N <sub>2</sub> O  |        |       |       |
|                | 1990 <sup>a</sup> | 2000  | 1990 <sup>a</sup> | 2000   | 1990 <sup>a</sup> | 2000   | 1990 <sup>a</sup>    | 2000   | 1990 <sup>a</sup> | 2000   | 1990 <sup>a</sup> | 2000   | 1990 <sup>a</sup> | 2000    | 1990 <sup>a</sup> | 2000   | 1990 <sup>a</sup> | 2000  | 1990 <sup>a</sup> | 2000   | 1990 <sup>a</sup> | 2000   | 1990 <sup>a</sup> | 2000   | 1990 <sup>a</sup> | 2000   | 1990 <sup>a</sup> | 2000   | 1990 <sup>a</sup> | 2000   |       |       |
| Austria        | -4.44             | -2.02 | 5.59              | -0.41  | 9.97              | 25.47  | 0.02                 | 0.01   | -0.22             | -7.99  | 388.56            | 429.80 |                   |         |                   |        |                   |       | -3.19             | 7.21   | 262.34            | 261.92 |                   |        |                   |        | -45.77            | -89.35 | -8.23             | -10.41 | -4.86 | -9.53 |
| Belgium        | -0.20             |       | 2.76              |        | 8.56              |        | 0.00                 |        | -26.48            |        | 0.00              |        |                   |         | 0.00              |        | 0.00              |       | 0.00              |        | -18.53            |        | 0.00              |        | 0.01              |        | -11.02            |        | 0.05              |        |       |       |
| Bulgaria       | -0.86             |       | -12.64            |        | 0.00              |        | -0.27                |        | -26.04            |        | 0.00              |        |                   |         |                   |        | 0.01              |       | 0.01              |        | -46.50            |        | 0.01              |        | 0.00              |        | -16.87            |        | -17.72            |        |       |       |
| Canada         | 0.07              | 1.00  | 0.01              | 0.04   | 0.30              | -1.12  |                      | -0.65  |                   |        |                   |        |                   |         |                   | 4.11   | -65.09            |       |                   |        |                   |        | 73.97             | 223.51 | 0.00              |        |                   |        | 0.00              |        |       |       |
| Czech Republic |                   |       |                   |        |                   |        |                      |        |                   |        |                   |        |                   |         |                   |        |                   |       |                   |        |                   |        |                   |        |                   |        |                   |        |                   |        |       |       |
| Denmark        | 0.05              | -0.17 | -43.69            | -25.57 | 1.04              | 0.82   | 0.00                 |        |                   |        |                   |        |                   |         |                   |        |                   |       | 0.96              | 1.25   |                   |        |                   | 240.39 | 253.47            |        |                   |        |                   |        |       |       |
| Estonia        |                   |       |                   |        |                   |        |                      |        |                   |        |                   |        |                   |         |                   |        |                   |       |                   |        |                   |        |                   |        |                   |        |                   |        |                   |        |       |       |
| Community      | -0.30             | 0.31  | -1.16             | -2.15  | -0.26             | 5.79   | -3.24                | -3.87  | -0.50             | -5.20  | 0.90              | 7.22   | 5.97              | 3.96    | 4.56              | 0.90   | -0.21             | -1.09 | 6.04              | 6.93   | 2.80              | 2.58   | -3.55             | -0.07  | 23.71             | 3.36   | -15.54            | -15.50 | 10.35             | -10.52 |       |       |
| Finland        |                   | 0.00  |                   |        |                   |        |                      |        |                   |        |                   |        |                   |         |                   |        | -0.21             | -1.09 | 2.20              | 2.32   | -2.11             | -2.67  | 0.00              |        |                   |        | 4.17              | 86.50  | 27.28             | 31.46  |       |       |
| France         | -0.05             | 1.22  | 0.86              | 2.00   | 3.03              | 7.00   | 6.38                 | 7.49   | 0.00              | -0.45  | -1.61             | 17.56  | -0.02             | -0.47   | 0.00              | 0.00   | 0.00              | 0.00  | 31.04             | 30.58  | 7.17              | 4.57   | -0.94             | -0.24  | -0.43             | -28.02 | -38.81            | -29.30 | 32.59             | 10.39  |       |       |
| Germany        |                   |       |                   |        |                   |        |                      |        |                   |        |                   |        |                   |         |                   |        |                   |       |                   |        |                   |        |                   |        |                   |        |                   |        |                   |        |       |       |
| Greece         |                   |       |                   |        |                   |        |                      |        |                   |        |                   |        |                   |         |                   |        |                   |       |                   |        |                   |        |                   |        |                   |        |                   |        |                   |        |       |       |
| Iceland        |                   |       |                   |        |                   |        |                      |        |                   |        |                   |        |                   |         |                   |        |                   |       |                   |        |                   |        |                   |        |                   |        |                   |        |                   |        |       |       |
| Ireland        | 0.67              | 0.40  | 8.54              | 7.36   | 0.07              | 0.07   |                      | 2.65   |                   |        | 0.00              | 0.00   | 0.00              | 0.00    |                   |        |                   |       | -3.32             | 2.62   | 4.16              | 14.07  | -26.03            | 45.94  |                   |        | -34.92            | -20.78 |                   |        |       |       |
| Italy          |                   |       |                   |        |                   |        |                      |        |                   |        |                   |        |                   |         |                   |        |                   |       |                   |        |                   |        |                   |        |                   |        |                   |        |                   |        |       |       |
| Latvia         |                   |       |                   |        |                   |        |                      |        |                   |        |                   |        |                   |         |                   |        |                   |       |                   |        |                   |        |                   |        |                   |        |                   |        |                   |        |       |       |
| Luxembourg     |                   |       |                   |        |                   |        |                      |        |                   |        |                   |        |                   |         |                   |        |                   |       |                   |        |                   |        |                   |        |                   |        |                   |        |                   |        |       |       |
| Netherlands    | -0.40             | 0.31  | -0.01             | 0.43   | -0.80             | 4.12   | -6.47                | -9.00  | 0.00              | -44.98 |                   | 0.02   | -100.00           | -100.00 |                   | -10.93 |                   |       | 0.67              | 0.36   | -4.70             |        |                   |        | 76.07             | -22.69 | -0.02             | -0.43  | -0.04             | 9.38   |       |       |
| New Zealand    |                   | -0.19 |                   |        |                   |        |                      |        |                   |        |                   |        |                   |         |                   |        |                   |       | -30.83            | -20.36 | -13.99            | -2.85  | 1.24              | 0.81   |                   |        |                   |        |                   |        |       |       |
| Norway         | -0.49             | 0.15  | -3.08             | 9.25   | 1.33              | 1.53   | -2.83                | -3.49  |                   |        |                   |        | 0.00              | 0.00    | 0.00              |        |                   |       | -0.74             | 1.18   | 13.88             | 15.02  | 0.00              |        | 1.26              | 3.73   | 0.30              | 1.50   | 0.00              | 0.00   |       |       |
| Poland         |                   |       |                   |        |                   |        |                      |        |                   |        |                   |        |                   |         |                   |        |                   |       |                   |        |                   |        |                   |        |                   |        |                   |        |                   |        |       |       |
| Portugal       | -0.66             | 0.96  | -11.77            | 11.84  | -47.52            | -23.10 | -0.94                | -3.18  | 3.81              | 40.43  | 0.01              | 0.01   |                   |         |                   |        |                   |       | 0.00              | 0.00   | 0.00              | 0.00   | -99.93            | -48.97 | 14.75             | -11.16 | -45.50            | -37.53 | 5.66              | 11.70  |       |       |
| Romania        |                   |       |                   |        |                   |        |                      |        |                   |        |                   |        |                   |         |                   |        |                   |       |                   |        |                   |        |                   |        |                   |        |                   |        |                   |        |       |       |
| Slovakia       |                   |       |                   |        |                   |        |                      |        |                   |        |                   |        |                   |         |                   |        |                   |       |                   |        |                   |        |                   |        |                   |        |                   |        |                   |        |       |       |
| Spain          | 0.19              | 0.68  | 2.38              | 7.63   | -1.59             | 0.11   | -1.29                | -1.84  | 0.00              | -1.50  |                   |        | -1.34             | -0.18   | 0.00              |        |                   |       | 2.98              | 3.52   | 2.48              | 1.43   |                   |        | 0.00              | 0.08   | 0.00              | -0.35  | -0.01             | 0.45   |       |       |
| Sweden         | 0.27              | -4.31 | -8.85             | 0.47   | 0.35              | 3.48   | 1.72                 | 0.89   | -1.75             | -0.08  |                   | 1.07   | 189.37            | 68.20   |                   |        |                   |       | -3.19             | 33.39  | 36.52             | 33.39  |                   |        |                   |        |                   |        |                   |        |       |       |
| Switzerland    | -0.03             | -0.88 | 2.71              | -0.61  | 10.48             | -0.22  | -16.22               | -21.20 | -0.14             | -0.05  | 0.04              | 0.00   |                   |         | -0.03             | 0.00   |                   |       | 0.55              | 0.08   | 0.00              | 0.00   | 0.01              | 0.00   | 36.53             | 54.09  | -10.91            | -13.55 | 1.59              | 9.75   |       |       |
| United Kingdom | 0.03              | 0.11  | 0.01              | 0.30   | -0.16             | 0.40   | 0.00                 | -0.94  | -0.06             | 0.58   | -0.01             | 1.13   |                   |         |                   |        |                   |       | 0.20              | 0.18   | 0.00              | 2.63   | 0.00              | 0.76   | 140.45            | 547.75 | 1.25              | -15.46 | 0.00              |        |       |       |
| United States  | 0.08              | 0.79  | 0.87              | 2.07   | -0.93             | -2.02  | 0.70                 | -1.15  |                   | 0.66   | 14.07             | 7.19   |                   |         |                   |        |                   |       | -4.81             | -4.38  | 0.21              | -0.83  | -2.27             | -7.52  |                   |        | -0.63             | 0.81   | 80.59             | 79.04  |       |       |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

Energy

Figure 1.1

Emissions and contribution of subsectors in energy<sup>a</sup>



<sup>a</sup> 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), Poland (1988) and Romania (1989).

**Table 1.1**

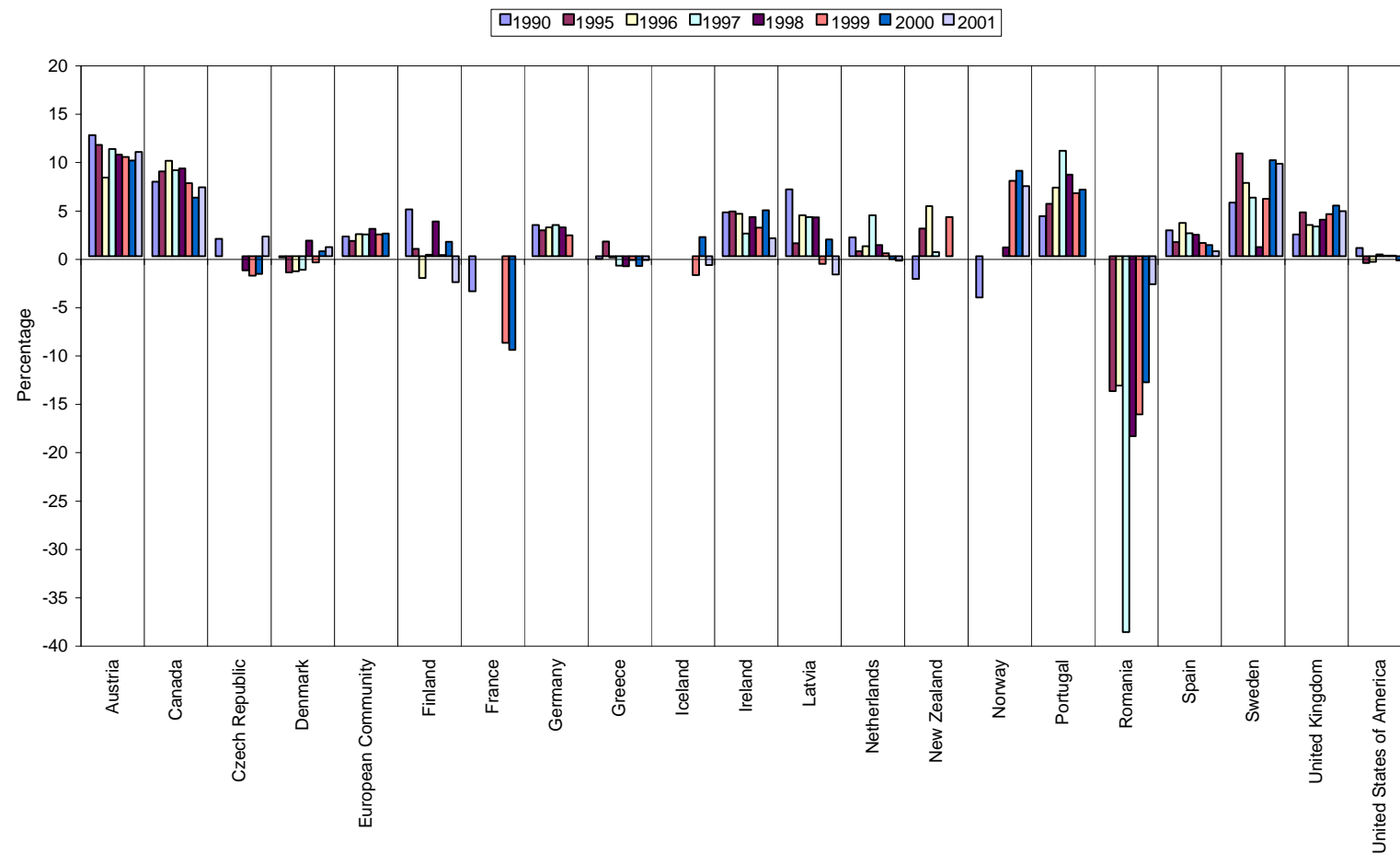
**Total CO<sub>2</sub> emissions from the reference approach and the sectoral approach (2001)**

|                           | Reference approach    | Sectoral approach | Difference | Explanation of the differences as reported in table 1.A(c) of the CRF   |
|---------------------------|-----------------------|-------------------|------------|---|
|                           | (Gg CO <sub>2</sub> ) |                   | (%)        |   |
| <b>Austria</b>            | 61,661                | 55,672            | 10.8       | All fuels: Emissions of the cement industry are included in category 2A. Emissions of iron and steel industry are included in category 2C.<br>Solid fuels: Energy consumption: National approach includes coke oven coke for blast furnaces whereas in the reference approach a share is considered as non-energy use blast furnaces.<br>CO <sub>2</sub> emissions: National approach does not separate between fuel related and non-fuel related CO <sub>2</sub> emissions for metal production. All CO <sub>2</sub> emissions are included in sector 2C: Metal production.<br>Gaseous fuels: Energy consumption: National approach does not include losses and non-energy use.<br>CO <sub>2</sub> emissions: National approach uses sector specific carbon contents (different from IPCC reference factor). Emissions from natural gas consumption of cement industry and iron and steel industry are reported under category "2 Industrial Processes".<br>Liquid fuels: Energy consumption: National approach does not include non-energy use and energy losses.<br>CO <sub>2</sub> emissions: Heat values and carbon contents are sector and fuel specific. The energy statistic is mass balanced only. Emissions from liquid fuels consumption of cement industry and iron and steel industry are reported under category "2 Industrial Processes".<br>Other fuels: The national approach considers waste as an additional fuel type (e.g. municipal solid waste and industrial fuel waste). |
| <b>Belgium</b>            | 116,801               | 115,237           | 1.4        |   |
| <b>Bulgaria</b>           | 46,331                | 44,917            | 3.1        | The discrepancy arises from the following sources:<br>(I) The statistical difference between "apparent consumption" used in the reference approach and actual consumption used in the sectoral approach.<br>(II) Not taking into account the losses during fuel transformation and the non-energy use of fuels in the sectoral approach.<br>(III) Different emission factors applied in the sectoral approach for the different combustion technologies.<br>(IV) The reference approach treats the non-energy use of fuels as if they were combusted. A correction is done by the carbon stored from non-energy fuel use, which is estimated from an approximate procedure which does not identify specific processes.  |
| <b>Canada</b>             | 549,093               | 512,570           | 7.1        | For a complete discussion and reconciliation of the national and reference approaches, please consult the most recent copy of Canada's National Inventory Report (NIR) specifically, the section describing: Energy/Fuel Combustion/Memo Items/Reference Approach.  |
| <b>Czech Republic</b>     | 124,730               | 122,246           | 2.0        | Regarding sectoral approach - when CO <sub>2</sub> from 2C1 is added (2,524 Gg CO <sub>2</sub> ), the total value for the Sectoral approach is 124,770 Gg CO <sub>2</sub> (very close to the reference approach result).  |
| <b>Denmark</b>            | 52,633                | 52,145            | 0.9        | Non-energy use of fuels is not included in the Danish national approach. Fuel consumption for non-energy (10.63 PJ) is subtracted in the reference approach to make results comparable. Inclusion of these fuels in future inventories will be considered.<br>CO <sub>2</sub> emission from plastic part of municipal wastes is included in the Danish national approach.<br>CO <sub>2</sub> emission from the plastic part of municipal wastes is added in reference approach. (Other fuels of sources 1A1, 1A2 and 1A4)   |
| <b>Estonia</b>            | 16,033                | 16,728            | -4.2       |   |
| <b>European Community</b> |                       | 3,201,455         |            |   |
| <b>Finland</b>            | 58,860                | 60,492            | -2.7       | Secondary liquid fuels with notification "IE" are included in Other oil in Table 1.A(b). Anthracite is included in Other bituminous coal.<br>All biomass fuels are included in Solid biomass.<br>The relatively high difference in liquid fuels CO <sub>2</sub> emissions is due to statistical differences in national oil balance.  |
| <b>France</b>             |                       | 385,530           |            | Anthracite is included with Other bituminous coal.<br>Energy data relating to 2001 were not yet available when the CRF was elaborated.  |
| <b>Germany</b>            |                       | 846,352           |            |   |
| <b>Greece</b>             | 97,330                | 97,718            | -0.4       |   |
| <b>Iceland</b>            | 1,768                 | 1,784             | -0.9       |   |
| <b>Ireland</b>            | 44,144                | 43,348            | 1.8        | Liquid fuels. 0.21 PJ in Cell D12 is LPG used in Road Transport and should be included in Cell D9 (Liquid Fuels); the remaining difference is due to "rounding" between the reference approach and national approach.<br>Solid fuels. The difference between the reference approach and national approach is 0.38 PJ. This is due to 9 ktoe of milled peat used in the manufacture of peat briquettes, which is not included in the national approach. This will be included in future submissions.<br>Gaseous fuels. 18.882 PJ of natural gas used as feedstock in the manufacture of ammonia is not included in the national approach and accounts for the total difference.  |
| <b>Italy</b>              | 434,658               | 436,039           | -0.3       |   |
| <b>Latvia</b>             | 7,316                 | 7,457             | -1.9       | There is made more detailed research on fuel consumption for domestic ships and aviation. In the national approach is used energy balance made by expert but in Reference approach are used data from Statistical Bureau.   |
| <b>Luxembourg</b>         |                       | 4,847             |            |   |
| <b>Netherlands</b>        | 175,904               | 176,715           | -0.5       | The energy consumption in the national approach is based on the data from the national inventory.<br>These fuel data are not complete:<br>1) Not all CO <sub>2</sub> emissions (from combustion) submitted by industry are accompanied by fuel data in the inventory;<br>2) In industry reports some of the CO <sub>2</sub> emissions from combustion are allocated as process and thus the corresponding fuel data are not incorporated in the totals for the fuel data.<br>3) Industries may calculate and report actual CO <sub>2</sub> emissions from energy used as chemical using different overall CO <sub>2</sub> emission factors for the amount of energy carriers converted into product used in the reference approach for estimating non-reported feedstock emissions.<br>4) Industry firms report more heavy fuels used as chemical feedstock than the energy statistics used in the reference approach.<br>The extent of these causes may differ from year to year, which then also cause situations in the difference between reference approach and national approach.<br>In addition, the reference approach figures are calculated using preliminary values for the carbon content of crude oil and NGL.   |
| <b>New Zealand</b>        | 29,205                | 28,980            | 0.8        | IE refers to the fact that the 'Other' energy consumption and CO <sub>2</sub> emissions comprised LPG and fuel oil, which is included in row 9, under 'Liquid Fuels' reference approach figures (PJ) i.e. excluding coal, are verifiable via Ministry of Economic Development's "Energy Data File" published every six months. e national approach data however, is more detailed, and are from the Ministry of Economic Development's greenhouse gas database. These figures are not reported elsewhere. Hence both approaches are credible, and we are looking into the matter of minimizing the % difference.  |
| <b>Norway</b>             | 34,324                | 32,003            | 7.3        |   |

|                | Reference approach    | Sectoral approach | Difference | Explanation of the differences as reported in table 1.A(c) of the CRF   |
|----------------|-----------------------|-------------------|------------|---|
|                | (Gg CO <sub>2</sub> ) |                   | (%)        |   |
| Poland         | 303,672               | 307,110           | -1.1       |   |
| Portugal       |                       | 58,991            |            | Difference between sectoral and reference approach (CO <sub>2</sub> from fuel combustion): the sectoral approach CO <sub>2</sub> estimates depend partially on combustion information from point sources, and the reference approach results from national energy balances.<br>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        | 101,775               | 104,812           | -3.0       |   |
| Slovakia       | 38,999                | 38,542            | 1.2        | Sectoral approach is based on totally independent data collection than the reference approach. The difference in fuel consumption between these two approaches can be caused by: using average net calorific value in the reference approach and fuel specific net calorific value in the sectoral approach, not full coverage of fuel consumption in the sectoral approach (not appropriate reporting by sources). Slovakia is using the reference approach as national total emission estimate of CO <sub>2</sub> , while consistent data series since 1990 exist only for the reference approach.  |
| Spain          | 282,913               | 281,468           | 0.5        |   |
| Sweden         | 56,302                | 51,392            | 9.6        | If energy consumption in 1B and 2 is taken into account, the difference in Energy consumption is 0.90% and the difference in CO <sub>2</sub> emissions is 3.36%<br>See comparison 1990--2001, in appendix 13 of the Swedish National Inventory Report, for further information.<br>Note that cell D12 and E12 includes gasoline consumption. Gasoline is a liquid fuel, hence not included in B12 and C12. (Also the case other years)  |
| Switzerland    | 41,142                | 40,551            | 1.5        | Differences in energy consumption: allocation problems:<br>Only bitumen production from national refineries is shown in table 1.A(d).<br>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.<br>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".<br>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).  |
| United Kingdom | 561,600               | 536,632           | 4.7        | A significant proportion of fuel consumption emissions occurs in 1B1b Solid Fuel Transformation, 2C Metal Production, 2B1 Ammonia Production including these sources with 1A in the comparison reduces the discrepancy to 3.5 %.<br>This discrepancy arises from three sources:<br>(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.<br>(2) The sectoral inventory includes emissions from the non-energy use of fuel where they can be specifically identified e.g. catalytic crackers, iron and 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.<br>(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  | 5,694,124             | 5,641,760         | 0.9        | In order to accommodate the differences and limitations between the reference approach table of the CRF and that of the US Inventory, the following adaptations were made to table 1.A(b):<br>1) Orimulsion values refer to US Inventory's "Other Liquids" which has production. The carbon stored subtracted in column P refers to "Pentanes Plus."<br>2) Field production of motor gasoline is included in column F with "Gasoline" Imports.<br>3) Naphtha values refer to "Naphtha for Petrofeed" and "Special Naphtha."<br>4) Refinery Feedstocks values refer to US Inventory's "Other Oil for Petrofeed" and "Still Gas."<br>5) Other Oil values refer to US Inventory's "Waxes," "Asphalt/Road Oil," "Misc. Products," and "US Terr. Misc. Products."<br>6) Other Bit. Coal includes US Inventory's "Bituminous Coal" and "Unspecified Coal."<br>7) US 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).<br>8) Other includes waste combustion and geothermal emissions.<br>Additional notes:<br>9) 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 US, and no "other" options were offered in the CRF table. The US suggests revising the table to allow for additional fuel types.<br>10) "Other" reported above includes waste combustion, geothermal consumption, and adjustments to exclude petroleum coke for aluminum, ferroalloy, and titanium dioxide production; coking coal for iron and steel production; and natural gas for ammonia production. These fuels consumed as feedstocks are accounted for in the Industrial Processes section. The inclusion of waste combustion in this table gives higher totals for energy consumption and CO <sub>2</sub> emissions in the CRF reference approach than in the US Inventory reference approach which does not include waste combustion. |

**Figure 1.2**

**Differences in CO<sub>2</sub> emissions from reference and sectoral approach for 1990–2001 (%)<sup>a</sup>**



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

<sup>a</sup> 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), Poland (1988) and Romania (1989).

**Table 1.2****Emissions from stationary combustion – trend information****CO<sub>2</sub> emissions (Gg)**

|                               | 1990 <sup>a</sup> | 1995      | 1996      | 1997      | 1998      | 1999      | 2000      | 2001      |
|-------------------------------|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Austria</b>                | 33,790            | 35,278    | 38,194    | 37,598    | 36,554    | 35,808    | 34,665    | 36,785    |
| <b>Belgium</b>                | 89,383            | 94,706    | 96,737    | 91,645    | 95,550    | 91,812    | 90,752    | 91,075    |
| <b>Bulgaria</b>               | 82,034            | 49,141    | 48,235    | 47,752    | 41,638    | 37,893    | 36,768    | 38,904    |
| <b>Canada</b>                 | 275,782           | 288,408   | 295,895   | 300,701   | 306,234   | 319,222   | 341,192   | 334,688   |
| <b>Czech Republic</b>         | 152,805           |           | 119,620   | 122,534   | 113,707   | 105,485   | 113,310   | 110,185   |
| <b>Denmark</b>                | 40,885            | 47,561    | 60,675    | 50,888    | 45,952    | 42,679    | 38,560    | 40,068    |
| <b>Estonia</b>                | 34,801            | 17,991    | 19,010    | 18,787    | 16,598    | 15,221    | 15,464    | 14,807    |
| <b>European Community</b>     | 2,441,954         | 2,329,968 | 2,394,132 | 2,321,762 | 2,348,074 | 2,305,283 | 2,322,373 | 2,367,530 |
| <b>Finland</b>                | 41,418            | 44,757    | 50,226    | 48,283    | 45,105    | 44,047    | 42,553    | 47,923    |
| <b>France</b>                 | 244,636           | 237,440   | 251,156   | 243,174   | 262,978   | 248,492   | 243,191   | 244,860   |
| <b>Germany</b>                | 824,552           | 695,883   | 719,711   | 687,303   | 675,316   | 642,655   | 649,134   | 668,039   |
| <b>Greece<sup>b</sup></b>     | 58,435            | 60,343    | 62,134    | 65,995    | 69,139    | 67,686    | 74,003    | 75,269    |
| <b>Iceland</b>                | 953               | 1,026     | 1,134     | 1,136     | 1,095     | 1,085     | 981       | 952       |
| <b>Ireland</b>                | 24,617            | 26,084    | 26,563    | 28,052    | 28,939    | 29,868    | 31,124    | 32,285    |
| <b>Italy</b>                  | 299,695           | 302,189   | 298,073   | 301,445   | 308,890   | 313,122   | 315,985   | 310,848   |
| <b>Latvia</b>                 | 18,037            | 7,760     | 7,065     | 6,554     | 6,135     | 5,198     | 4,531     | 4,871     |
| <b>Luxembourg<sup>b</sup></b> |                   |           |           |           |           | 3,403     | 3,257     | 3,343     |
| <b>Netherlands</b>            | 127,379           | 137,077   | 144,217   | 131,910   | 136,675   | 132,037   | 135,449   | 141,107   |
| <b>New Zealand</b>            | 13,601            | 12,973    | 13,820    | 15,582    | 13,826    | 15,064    | 15,307    | 16,673    |
| <b>Norway</b>                 | 15,318            | 16,480    | 18,539    | 18,671    | 18,386    | 17,977    | 18,003    | 18,615    |
| <b>Poland</b>                 | 434,760           | 312,657   | 335,400   | 324,214   | 298,731   | 287,581   | 274,075   | 276,988   |
| <b>Portugal</b>               | 28,570            | 33,584    | 30,570    | 31,743    | 34,724    | 40,973    | 38,470    | 39,914    |
| <b>Romania</b>                |                   | 144,253   | 138,461   | 137,031   | 120,851   | 100,487   | 95,616    | 93,187    |
| <b>Slovakia</b>               | 50,654            | 36,685    | 37,194    | 37,212    | 35,139    | 34,066    | 31,942    | 33,655    |
| <b>Spain</b>                  | 147,514           | 167,619   | 150,594   | 168,331   | 168,658   | 188,473   | 197,841   | 192,126   |
| <b>Sweden</b>                 | 33,243            | 34,683    | 38,319    | 33,456    | 34,188    | 32,054    | 29,064    | 30,420    |
| <b>Switzerland</b>            | 25,432            | 25,657    | 26,355    | 25,118    | 26,088    | 25,519    | 24,037    | 25,226    |
| <b>United Kingdom</b>         | 440,025           | 407,156   | 421,419   | 397,748   | 402,035   | 392,172   | 398,327   | 413,467   |
| <b>United States</b>          | 3,358,374         | 3,582,213 | 3,727,835 | 3,794,266 | 3,789,062 | 3,799,667 | 3,954,787 | 3,860,889 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

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.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 8.3          | -1.6         | -2.8         | -2.0         | -3.2         | 6.1          | 8.9          |
| <b>Belgium</b>            | 2.1          | -5.3         | 4.3          | -3.9         | -1.2         | 0.4          | 1.9          |
| <b>Bulgaria</b>           | -1.8         | -1.0         | -12.8        | -9.0         | -3.0         | 5.8          | -52.6        |
| <b>Canada</b>             | 2.6          | 1.6          | 1.8          | 4.2          | 6.9          | -1.9         | 21.4         |
| <b>Czech Republic</b>     |              | 2.4          | -7.2         | -7.2         | 7.4          | -2.8         |              |
| <b>Denmark</b>            | 27.6         | -16.1        | -9.7         | -7.1         | -9.7         | 3.9          | -2.0         |
| <b>Estonia</b>            | 5.7          | -1.2         | -11.7        | -8.3         | 1.6          | -4.3         | -57.5        |
| <b>European Community</b> | 2.8          | -3.0         | 1.1          | -1.8         | 0.7          | 1.9          | -3.0         |
| <b>Finland</b>            | 12.2         | -3.9         | -6.6         | -2.3         | -3.4         | 12.6         | 15.7         |
| <b>France</b>             | 5.8          | -3.2         | 8.1          | -5.5         | -2.1         | 0.7          | 0.1          |
| <b>Germany</b>            | 3.4          | -4.5         | -1.7         | -4.8         | 1.0          | 2.9          | -19.0        |
| <b>Greece</b>             | 3.0          | 6.2          | 4.8          | -2.1         | 9.3          | 1.7          | 28.8         |
| <b>Iceland</b>            | 10.5         | 0.2          | -3.7         | -0.8         | -9.6         | -2.9         | -0.1         |
| <b>Ireland</b>            | 1.8          | 5.6          | 3.2          | 3.2          | 4.2          | 3.7          | 31.2         |
| <b>Italy</b>              | -1.4         | 1.1          | 2.5          | 1.4          | 0.9          | -1.6         | 3.7          |
| <b>Latvia</b>             | -9.0         | -7.2         | -6.4         | -15.3        | -12.8        | 7.5          | -73.0        |
| <b>Luxembourg</b>         |              |              |              |              | -4.3         | 2.6          |              |
| <b>Netherlands</b>        | 5.2          | -8.5         | 3.6          | -3.4         | 2.6          | 4.2          | 10.8         |
| <b>New Zealand</b>        | 6.5          | 12.8         | -11.3        | 8.9          | 1.6          | 8.9          | 22.6         |
| <b>Norway</b>             | 12.5         | 0.7          | -1.5         | -2.2         | 0.1          | 3.4          | 21.5         |
| <b>Poland</b>             | 7.3          | -3.3         | -7.9         | -3.7         | -4.7         | 1.1          | -36.3        |
| <b>Portugal</b>           | -9.0         | 3.8          | 9.4          | 18.0         | -6.1         | 3.8          | 39.7         |
| <b>Romania</b>            | -4.0         | -1.0         | -11.8        | -16.9        | -4.8         | -2.5         | -47.6        |
| <b>Slovakia</b>           | 1.4          | 0.0          | -5.6         | -3.1         | -6.2         | 5.4          | -33.6        |
| <b>Spain</b>              | -10.2        | 11.8         | 0.2          | 11.7         | 5.0          | -2.9         | 30.2         |
| <b>Sweden</b>             | 10.5         | -12.7        | 2.2          | -6.2         | -9.3         | 4.7          | -8.5         |
| <b>Switzerland</b>        | 2.7          | -4.7         | 3.9          | -2.2         | -5.8         | 4.9          | -0.8         |
| <b>United Kingdom</b>     | 3.5          | -5.6         | 1.1          | -2.5         | 1.6          | 3.8          | -6.0         |
| <b>United States</b>      | 4.1          | 1.8          | -0.1         | 0.3          | 4.1          | -2.4         | 15.0         |



**Table 1.3**  
**Stationary combustion: liquid fuels, CO<sub>2</sub> (2001)**

|                    | Key source | Share of national total | IEF in CRF based on | Energy industries                |              |                     |  |                    | Manufacturing industries and construction              |                  |                     | Other sectors                    |                  |                     |       |                            |             |                                     |
|--------------------|------------|-------------------------|---------------------|----------------------------------|--------------|---------------------|--|--------------------|--|------------------|---------------------|----------------------------------|------------------|---------------------|-------|----------------------------|-------------|-------------------------------------|
|                    |            |                         |                     | Methods and EF used <sup>a</sup> |              | CO <sub>2</sub> IEF |  |                    | Methods and EF used <sup>b</sup>                       |                  | CO <sub>2</sub> IEF | Methods and EF used <sup>c</sup> |                  | CO <sub>2</sub> 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 | Agricultural / forestry / fisheries |
|                    |            |                         |                     |                                  |              |                     |  |                    |  |                  |                     |                                  |                  |                     |       |                            |             |                                     |
| Austria            | L, T       | 17.9                    | NCV                 | C                                | CS           | 75.07               | 78.44                                  | 72.89              |  | C                | CS                  | 61.71                            | CS               | CS                  | 74.61 | 73.98                      | 74.87       | 74.01                               |
| Belgium            | L          | 19.9                    | NCV                 |                                  |              | 72.22               | 77.07                                  | 71.54              | 76.02  |                  |                     | 77.55                            |                  |                     | 73.54 | 73.56                      | 73.38       | 74.57                               |
| Bulgaria           | L          | 6.1                     | NCV                 | T3                               | CS, D        | 70.02               | 73.79                                  | NO                 | 68.17  | T2               | CS, D               | 74.76                            | T2               | CS, D               | 72.65 | 73.23                      | 64.19       | 73.96                               |
| Canada             | L, T       | 10.3                    | GCV                 | T2                               | CS           | 72.90               | 92.96                                  | 64.70              | NA   | T2               | CS                  | 71.80                            | T2               | CS                  | 69.35 | 67.40                      | 71.47       | 67.46                               |
| Czech Republic     | L, T       | 7.2                     | NCV                 | T1                               | D            | 74.36               | 75.76                                  | 73.10              | 73.32  | T1               | D                   | 61.84                            | T1               | D                   | 67.60 | 71.99                      | 62.44       | 73.33                               |
| Denmark            | L, T       | 16.8                    | NCV                 | C                                | CS           | 73.55               | 79.15                                  | 59.30              |  | C                | CS                  | 78.75                            | C                | CS                  | 74.04 | 73.96                      | 73.91       | 74.21                               |
| Estonia            | L          | 4.7                     | NCV                 |                                  |              | 72.99               | 72.99                                  |                    |  |                  |                     | 72.79                            |                  |                     | 71.63 | 72.39                      | 71.15       | 71.15                               |
| European Community |            |                         |                     | C, CS, D, T1, T2                 | C, CS, D, PS |                     | NE                                     | NE                 | NE   | C, CS, D, T1, T2 | C, CS, D, PS        |                                  | C, CS, D, T1, T2 | C, CS, D            |       | NE                         | NE          | NE                                  |
| Finland            | L, T       | 17.3                    | NCV                 | CS (T2)                          | CS/PS/D      | 73.62               | 76.18                                  | 72.00              | NO   | CS (T2)          | CS/PS/D             | 73.39                            | CS (T2, T1)      | CS/D                | 73.62 | 74.20                      | 73.38       | 73.60                               |
| France             | L, T       | 19.5                    | NCV                 | C                                | CS           | 67.19               | 77.78                                  | 62.02              | 78.12  | C                | CS                  | 76.18                            | C                | CS                  | 73.49 | 74.31                      | 73.08       | 73.40                               |
| Germany            | L, T       | 13.8                    | NCV                 | CS                               | CS           | 69.42               | 70.24                                  | 69.27              | 74.70  | CS               | CS                  | 75.02                            | CS               | CS                  | 73.74 | 73.81                      | 73.68       | 74.16                               |
| Greece             | L, T       | 18.7                    | NCV                 | C                                | C and CS     | 74.81               | 75.92                                  | 72.91              | NO   | C                | C                   | 59.43                            | C                | C                   | 72.98 | 72.38                      | 73.03       | 74.70                               |
| Iceland            | L          | 33.9                    | NCV                 | T1                               | D            | 73.33               | 73.33                                  | NO                 | NO   | T1               | D                   | 64.57                            | T1               | D                   | 73.57 | 62.44                      | 72.14       | 73.66                               |
| Ireland            | L, T       | 19.6                    | NCV                 | T1                               | PS, CS       | 78.88               | 80.06                                  | 67.55              | NO   | T1               | PS, CS              | 78.29                            | T1               | CS                  | 72.93 | 73.73                      | 72.22       | 73.30                               |
| Italy              | L          | 22.4                    | NCV                 | D, T2                            | CS           | 76.00               | 76.97                                  | 74.27              | 74.80  | D, T2            | CS                  | 81.96                            | D, T2            | CS                  | 73.38 | 74.04                      | 73.34       | 73.17                               |
| Latvia             | L, T       | 10.3                    | NCV                 | T1                               | D            | 76.25               | 76.25                                  | NO                 | NO   | T1               | D                   | 74.87                            | T1               | D                   | 71.68 | 73.86                      | 67.85       | 74.25                               |
| Luxembourg         |            |                         |                     | C                                | C            |                     |  |                    |  | C                | C                   |                                  | C                | C                   |       |                            |             |                                     |
| Netherlands        | L, T       | 2.8                     | NCV                 | CS/T2                            | PS, CS       | 49.88               | 49.65                                  | 75.53              | 73.72  | CS/T2            | PS, CS              | 57.04                            | CS/T2            | CS                  | 70.01 | 66.79                      | 71.16       | 70.38                               |
| New Zealand        | L          | 3.3                     | GCV                 | T1                               | CS/D         | 74.59               | 67.56                                  | 74.61              | NE   | T1               | CS/D                | 67.72                            | T1               | CS/D                | 67.49 | 66.94                      | 59.86       | 68.49                               |
| Norway             | L, T       | 15.3                    | NCV                 | T2                               | CS           | 62.02               | 73.32                                  | 58.20              | 73.55  | T2               | CS                  | 68.13                            | T2               | CS                  | 73.43 | 73.60                      | 73.09       | 73.50                               |
| Poland             | L          | 7.5                     | NCV                 | T2                               | CS           | 69.58               | 75.14                                  | 67.04              | 72.92  | T2               | CS                  | 73.88                            | T2               | CS                  | 72.52 | 72.71                      | 69.37       | 73.76                               |
| Portugal           | L, T       | 27.0                    | NCV                 | C+T2                             | C            | 74.23               | 76.49                                  | 70.01              |  | C+T2             | C                   | 72.02                            | C+T2             | C                   | 68.98 | 72.33                      | 63.11       | 73.59                               |
| Romania            | L          | 9.0                     | NCV                 | D                                | D            | 76.39               | 76.39                                  | IE                 | IE   | D                | D                   | 70.28                            | D                | D                   | 66.47 | 69.79                      | 62.91       | 76.59                               |
| Slovakia           | L          | 3.9                     | NCV                 | SA                               | D            | 75.28               | 75.98                                  | 74.81              |  | SA               | D                   | 65.74                            | SA               | D                   | 73.63 | 73.35                      |             | 73.98                               |
| Spain              | L, T       | 20.2                    | NCV                 | CS,C                             | PS,C         | 71.83               | 77.72                                  | 66.73              | 67.90  | CS,C             | PS,C                | 77.48                            | C                | C                   | 71.28 | 72.55                      | 69.44       | 72.63                               |
| Sweden             | L, T       | 27.4                    | NCV                 | CS                               | CS           | 68.30               | 75.46                                  | 63.87              | 75.30  | CS               | CS                  | 72.27                            | CS               | CS                  | 74.99 | 74.28                      | 75.11       | 75.28                               |
| Switzerland        | L, T       | 35.2                    | NCV                 | RA, C                            | RA, CS       | 62.99               | 73.70                                  | 62.44              | NO   | C                | CS                  | 74.33                            | C                | CS                  | 73.70 | 73.70                      | 73.70       | 73.65                               |
| United Kingdom     | L, T       | 9.6                     | NCV                 | T2                               | CS           | 69.09               | 75.38                                  | 68.53              | 61.62  | T2               | CS                  | 71.74                            | T2               | CS                  | 71.94 | 73.66                      | 71.06       | 72.57                               |
| United States      | L, T       | 9.7                     | GCV                 | T1                               | CS           | 74.55               | 74.55                                  | IE                 | IE   | T1               | CS                  | 40.71                            | T1               | CS                  | 66.13 | 67.91                      | 65.26       | IE                                  |

<sup>a</sup> 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.

<sup>b</sup> 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.

<sup>c</sup> 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.

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.

**Table 1.4**  
**Stationary combustion: solid fuels, CO<sub>2</sub> (2001)**

|                    | Key source | Share of national total (%) | IEF in CRF based on | Energy industries                |              |                     |  |  | Manufacturing industries and construction |              |                     | Other sectors                    |          |                     |                            |             |                                     |
|--------------------|------------|-----------------------------|---------------------|----------------------------------|--------------|---------------------|--|--|---|--------------|---------------------|----------------------------------|----------|---------------------|----------------------------|-------------|-------------------------------------|
|                    |            |                             |                     | Methods and EF used <sup>a</sup> |              | CO <sub>2</sub> IEF |  |  | Methods and EF used <sup>b</sup>          |              | CO <sub>2</sub> IEF | Methods and EF used <sup>c</sup> |          | CO <sub>2</sub> 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 | Agricultural / forestry / fisheries |
|                    |            |                             |                     |                                  |              |                     |  |  |   |              |                     |                                  |          |                     |                            |             |                                     |
| Austria            | L, T       | 8.3                         | NCV                 | C                                | CS           | 97.50               | 97.50                                  |  | C   | CS           | 4.75                | CS                               | CS       | 93.64               | 94.24                      | 93.61       | 93.86                               |
| Belgium            | L          | 17.1                        | NCV                 |                                  |              | 102.13              | 107.25                                 | 45.38  |   |              | 105.45              |                                  |          | 93.46               | 93.47                      | 93.55       | 92.71                               |
| Bulgaria           | L          | 45.8                        | NCV                 | T3                               | CS, D        | 106.81              | 107.42                                 | 66.21  | T2  | CS, D        | 92.09               | T2                               | CS, D    | 99.88               | 99.62                      | 99.88       | 100.84                              |
| Canada             | L, T       | 15.4                        | GCV                 | T2                               | CS           | 87.96               | 88.08                                  | 79.65  | T2  | CS           | 83.09               | T2                               | CS       | 88.66               | 79.51                      | 90.55       |                                     |
| Czech Republic     | L, T       | 54.6                        | NCV                 | T1                               | D            | 96.99               | 97.81                                  | 68.27  | T1  | D            | 96.70               | T1                               | D        | 98.05               | 98.45                      | 97.90       | 99.81                               |
| Denmark            | L, T       | 24.0                        | NCV                 | C                                | CS           | 95.00               | 95.00                                  |  | C   | CS           | 95.00               | C                                | CS       | 95.00               |                            | 95.00       | 95.00                               |
| Estonia            | L          | 64.7                        | NCV                 |                                  |              | 101.73              | 101.73                                 |  |   |              | 100.84              |                                  |          | 98.13               | 96.30                      | 98.15       | 96.30                               |
| European Community |            |                             |                     | C, CS, D, T1, T2                 | C, CS, D, PS |                     | NE                                     | NE   | C, CS, D, T1, T2                          | C, CS, D, PS |                     | C, CS, D, T1, T2                 | C, CS, D |                     | NE                         | NE          | NE                                  |
| Finland            | L, T       | 19.4                        | NCV                 | CS (T2)                          | CS/PS/D      | 91.65               | 92.71                                  | 39.69  | CS (T2)                                   | CS/PS/D      | 97.74               | CS (T2, T1)                      | CS/D     | 92.60               |                            | 92.67       | 92.56                               |
| France             | L, T       | 9.1                         | NCV                 | C                                | CS           | 106.51              | 105.43                                 | 106.25   | C   | CS           | 132.72              | C                                | CS       | 95.00               | 95.00                      | 95.00       | 95.00                               |
| Germany            | L, T       | 36.7                        | NCV                 | CS                               | CS           | 102.03              | 102.19                                 | 96.64  | CS  | CS           | 91.59               | CS                               | CS       | 99.91               | 110.95                     | 97.74       | 94.10                               |
| Greece             | L, T       | 35.3                        | NCV                 | C                                | C and CS     | 122.14              | 122.14                                 | NO   | C   | C            | 93.01               | C                                | C        | 95.48               | NO                         | 94.08       | 99.18                               |
| Iceland            | L          | 1.7                         | NCV                 | T1                               | D            |                     | NO                                     | NO   | T1  | D            | 92.71               | T1                               | D        |                     | NO                         | NO          | NO                                  |
| Ireland            | L, T       | 16.2                        | NCV                 | T1                               | PS, CS       | 99.53               | 99.53                                  | NO   | T1  | PS, CS       | 97.72               | T1                               | CS       | 98.46               | 98.86                      | 98.46       | NO                                  |
| Italy              | L          | 9.4                         | NCV                 | D, T2                            | CS           | 113.43              | 102.16                                 | 240.03   | D, T2                                     | CS           | 59.58               | D, T2                            | CS       | 100.67              | 85.54                      | 101.16      | NO                                  |
| Latvia             | L, T       | 4.1                         | NCV                 | T1                               | D            | 101.07              | 101.03                                 | 103.85   | T1  | D            | 94.16               | T1                               | D        | 92.77               | 92.82                      | 92.71       | 92.71                               |
| Luxembourg         |            |                             |                     | C                                | C            |                     |  |  | C   | C            |                     | C                                | C        |                     |                            |             |                                     |
| Netherlands        | L, T       | 10.0                        | NCV                 | CS/T2                            | PS, CS       | 93.43               | 93.43                                  |  | CS/T2                                     | PS, CS       | 95.35               | CS/T2                            | CS       | 98.97               | 89.25                      | 103.00      | 94.00                               |
| New Zealand        | L          | 5.0                         | GCV                 | T1                               | CS/D         | 89.47               | 89.47                                  | NE   | T1  | CS/D         | 89.47               | T1                               | CS/D     | 89.47               | 89.47                      | 89.47       | 89.47                               |
| Norway             | L          | 1.3                         | NCV                 | T2                               | CS           | 88.94               | 88.94                                  | NO   | T2  | CS           | 106.48              | T2                               | CS       | 93.36               | NO                         | 94.46       | 86.12                               |
| Poland             | L          | 60.1                        | NCV                 | T2                               | CS           | 97.31               | 98.24                                  | 75.72  | T2  | CS           | 105.48              | T2                               | CS       | 92.45               | 97.04                      | 91.26       | 97.62                               |
| Portugal           | L, T       | 15.8                        | NCV                 | C+T2                             | C            | 92.04               | 92.00                                  | 96.30  | C+T2                                      | C            | 118.58              | C+T2                             | C        |                     |                            |             |                                     |
| Romania            | L          | 28.1                        | NCV                 | D                                | D            | 96.03               | 96.03                                  | IE   | D   | D            | 93.45               | D                                | D        | 98.26               | 96.20                      | 99.17       | 95.94                               |
| Slovakia           | L          | 26.2                        | NCV                 | SA                               | D            | 93.29               | 93.29                                  |  | SA  | D            | 94.40               | SA                               | D        | 95.14               | 96.84                      | 94.87       | 95.10                               |
| Spain              | L, T       | 19.7                        | NCV                 | CS,C                             | PS,C         | 99.30               | 99.71                                  | 72.78  | CS,C                                      | PS,C         | 100.20              | C                                | C        | 71.00               | 66.90                      | 73.69       | NO                                  |
| Sweden             | L, T       | 10.9                        | NCV                 | CS                               | CS           | 96.06               | 101.87                                 | 79.00  | CS  | CS           | 88.44               | CS                               | CS       |                     | NO                         | NO          | NO                                  |
| Switzerland        | L, T       | 1.2                         | NCV                 | RA, C                            | RA, CS       | NO                  | NO                                     | NO   | C   | CS           | 94.00               | C                                | CS       | 94.00               | NO                         | 94.00       | NO                                  |
| United Kingdom     | L, T       | 21.5                        | NCV                 | T2                               | CS           | 87.60               | 87.66                                  | 83.65  | T2  | CS           | 124.75              | T2                               | CS       | 89.67               | 87.19                      | 89.89       | 85.43                               |
| United States      | L, T       | 28.7                        | GCV                 | T1                               | CS           | 89.39               | 89.39                                  | IE   | T1  | CS           | 87.58               | T1                               | CS       | 89.59               | 89.59                      | 89.59       | IE                                  |

<sup>a</sup> 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.

<sup>b</sup> 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.

<sup>c</sup> 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.

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.

**Table 1.5**  
**Stationary combustion: gaseous fuels, CO<sub>2</sub> (2001)**

|                    | Key source | Share of national total<br>(%) | IEF in CRF based on | Energy industries                |              |                     |  |                    |  | Manufacturing industries and construction |              |                     | Other sectors                    |          |                     |                            |             |                                     |
|--------------------|------------|--------------------------------|---------------------|----------------------------------|--------------|---------------------|--|--------------------|--|---|--------------|---------------------|----------------------------------|----------|---------------------|----------------------------|-------------|-------------------------------------|
|                    |            |                                |                     | Methods and EF used <sup>a</sup> |              | CO <sub>2</sub> IEF |  |                    |  | Methods and EF used <sup>b</sup>          |              | CO <sub>2</sub> IEF | Methods and EF used <sup>c</sup> |          | CO <sub>2</sub> 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 | Agricultural / forestry / fisheries |
|                    |            |                                |                     | (t/TJ)                           |              |                     |  |                    |  | (t/TJ)                                    |              |                     | (t/TJ)                           |          |                     |                            |             |                                     |
| Austria            | L, T       | 15.9                           | NCV                 | C                                | CS           | 55.00               | 55.00                                  | 55.00              | 55.00  | C   | CS           | 47.46               | CS                               | CS       | 55.00               | 55.00                      | 55.00       | 55.00                               |
| Belgium            | L          | 19.8                           | NCV                 |                                  |              | 56.45               | 56.46                                  | 55.82              |  |   |              | 51.67               |                                  |          | 58.80               | 68.11                      | 55.89       | 55.82                               |
| Bulgaria           | L          | 7.2                            | 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             | L, T       | 20.8                           | GCV                 | T2                               | CS           | 50.96               | 49.65                                  | 49.65              | 51.75  | T2  | CS           | 43.77               | T2                               | CS       | 49.65               | 49.65                      | 49.65       | 49.65                               |
| Czech Republic     | L, T       | 12.7                           | 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       | 16.0                           | NCV                 | C                                | CS           | 57.25               | 57.25                                  |                    | 57.25  | C   | CS           | 57.25               | C                                | CS       | 57.25               | 57.25                      | 57.25       | 57.25                               |
| Estonia            | L          | 6.7                            | NCV                 |                                  |              | 55.82               | 55.82                                  |                    |  |   |              | 55.82               |                                  |          | 55.82               | 55.82                      | 55.82       |                                     |
| European Community |            |                                |                     | C, CS, D, T1, T2                 | C, CS, D, PS |                     | NE                                     | NE                 | NE   | C, CS, D, T1, T2                          | C, CS, D, PS |                     | C, CS, D, T1, T2                 | C, CS, D |                     | NE                         | NE          | NE                                  |
| Finland            | L, T       | 10.8                           | NCV                 | CS (T2)                          | CS/PS/D      | 55.86               | 55.86                                  | 55.82              |  | CS (T2)                                   | CS/PS/D      | 55.47               | CS (T2, T1)                      | CS/D     | 55.82               | 55.82                      | 55.82       | 55.83                               |
| France             | L, T       | 13.7                           | NCV                 | C                                | CS           | 57.00               | 57.00                                  | 57.06              |  | C   | CS           | 56.46               | C                                | CS       | 57.00               | 57.00                      | 57.00       | 57.00                               |
| Germany            | L, T       | 16.5                           | NCV                 | CS                               | CS           | 55.99               | 55.99                                  | 56.00              | 55.99  | CS  | CS           | 56.00               | CS                               | CS       | 56.00               | 56.00                      | 56.00       | 56.00                               |
| Greece             | L, T       | 2.9                            | NCV                 | C                                | C and CS     | 55.82               | 55.82                                  | NO                 | 55.82  | C   | C            | 49.70               | C                                | C        | 55.82               | 55.82                      | 55.82       | NO                                  |
| Iceland            |            |                                |                     | T1                               | D            |                     | NO                                     | NO                 | NO   | T1  | D            |                     | T1                               | D        |                     | NO                         | NO          | NO                                  |
| Ireland            | L, T       | 10.3                           | NCV                 | T1                               | PS, CS       | 56.64               | 56.64                                  | NO                 | NO   | T1  | PS, CS       | 54.94               | T1                               | CS       | 54.94               | 54.94                      | 54.94       | NO                                  |
| Italy              | L          | 24.2                           | NCV                 | D, T2                            | CS           | 55.41               | 55.41                                  | 55.41              | 55.41  | D, T2                                     | CS           | 55.41               | D, T2                            | CS       | 55.12               | 55.41                      | 55.41       | 0.06                                |
| Latvia             | L, T       | 28.4                           | NCV                 | T1                               | D            | 55.82               | 55.82                                  | NO                 | NO   | T1  | D            | 55.82               | T1                               | D        | 55.82               | 55.82                      | 55.82       | 55.82                               |
| Luxembourg         |            |                                |                     | C                                | C            |                     |  |                    |  | C   | C            |                     | C                                | C        |                     |                            |             |                                     |
| Netherlands        | L, T       | 35.5                           | NCV                 | CS/T2                            | PS, CS       | 60.95               | 61.35                                  |                    | 56.19  | CS/T2                                     | PS, CS       | 54.20               | CS/T2                            | CS       | 55.96               | 56.02                      | 55.92       | 56.00                               |
| New Zealand        | L          | 14.8                           | GCV                 | T1                               | CS/D         | 52.27               | 51.88                                  | 58.73              | 46.99  | T1  | CS/D         | 30.32               | T1                               | CS/D     | 51.99               | 51.99                      | 51.99       | NE                                  |
| Norway             | L          | 16.3                           | NCV                 | T2                               | CS           | 57.56               | 58.21                                  | NO                 | 57.56  | T2  | CS           | 58.21               | T2                               | CS       | 58.21               | 58.21                      | 58.21       | NO                                  |
| Poland             | L          | 4.8                            | NCV                 | T2                               | CS           | 55.07               | 54.80                                  | 56.83              | 56.48  | T2  | CS           | 53.97               | T2                               | CS       | 53.50               | 54.08                      | 53.33       | 53.41                               |
| Portugal           | L, T       | 4.7                            | NCV                 | C+T2                             | C            | 56.10               | 56.10                                  |                    |  | C+T2                                      | C            | 56.04               | C+T2                             | C        | 56.10               | 56.10                      | 56.10       | 56.10                               |
| Romania            | L          | 23.6                           | NCV                 | D                                | D            | 59.29               | 59.29                                  | IE                 | IE   | D   | D            | 56.60               | D                                | D        | 55.82               | 55.82                      | 55.82       | 55.82                               |
| Slovakia           | L          | 28.1                           | NCV                 | SA                               | D            | 58.63               | 58.63                                  | 58.63              | 58.59  | SA  | D            | 55.64               | SA                               | D        | 58.63               | 58.63                      | 58.63       | 58.63                               |
| Spain              | L, T       | 10.1                           | NCV                 | CS,C                             | PS,C         | 59.36               | 63.14                                  | 46.43              | 56.00  | CS,C                                      | PS,C         | 53.13               | C                                | C        | 56.00               | 56.00                      | 56.00       | 56.00                               |
| Sweden             | L, T       | 2.5                            | NCV                 | CS                               | CS           | 56.50               | 56.50                                  | 56.50              | NO   | CS  | CS           | 56.50               | CS                               | CS       | 56.50               | 56.50                      | 56.50       | 56.50                               |
| Switzerland        | L, T       | 10.8                           | 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                               |
| United Kingdom     | L, T       | 31.6                           | NCV                 | T2                               | CS           | 59.16               | 58.17                                  | 57.96              | 62.37  | T2  | CS           | 57.96               | T2                               | CS       | 116.51              | 57.96                      | 177.48      | 57.96                               |
| United States      | L, T       | 16.8                           | GCV                 | T1                               | CS           | 50.04               | 50.04                                  | IE                 | IE   | T1  | CS           | 48.90               | T1                               | CS       | 50.04               | 50.04                      | 50.04       | IE                                  |

<sup>a</sup> 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.

<sup>b</sup> 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.

<sup>c</sup> 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.

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.

**Table 1.6****Stationary combustion: other fuels, CO<sub>2</sub> (2001)**

|                    | 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 <sup>a</sup> |              | CO <sub>2</sub> IEF |  | Methods and EF used <sup>b</sup>                |              | CO <sub>2</sub> IEF | Methods and EF used <sup>c</sup> |          | CO <sub>2</sub> IEF |                            |             |                                     |        |
|                    |            |                             |                     | Methods                          | EF           | Total               | Public electricity and heat production | Methods   | EF           | Total               | Methods                          | EF       | Total               | Commercial / institutional | Residential | Agricultural / forestry / fisheries |        |
|                    |            |                             |                     |                                  |              |                     |  |   |              |                     |                                  |          |                     |                            |             |                                     | (t/TJ) |
| Austria            | L, T       | 0.7                         | NCV                 | C                                | CS           | 60.17               | 60.17                                  | C   | CS           | 6.47                | CS                               | CS       | 10.00               | 10.00                      |             |                                     |        |
| Belgium            | L          | 3.9                         | NCV                 |                                  |              | 39.88               | 39.88                                  |   |              | 694.85              |                                  |          | 65.49               | 65.49                      |             |                                     |        |
| Bulgaria           |            | 0.0                         | NCV                 | T3                               | CS, D        |                     | NO                                     | T2  | CS, D        |                     | T2                               | CS, D    |                     | NO                         | NO          | NO                                  |        |
| Canada             |            | 0.0                         | GCV                 | T2                               | CS           |                     | NA                                     | T2  | CS           |                     | T2                               | CS       |                     | NA                         | NA          | NA                                  |        |
| Czech Republic     |            | 0.0                         | NCV                 | T1                               | D            |                     |  | T1  | D            |                     | T1                               | D        |                     |                            |             |                                     |        |
| Denmark            | L          | 0.9                         | NCV                 | C                                | CS           |                     |  | C   | CS           |                     | C                                | CS       |                     |                            |             |                                     |        |
| Estonia            |            | 0.1                         | NCV                 |                                  |              |                     |  |   |              |                     |                                  |          | 62.44               | 62.44                      | 62.44       |                                     |        |
| European Community |            |                             |                     | C, CS, D, T1, T2                 | C, CS, D, PS |                     | NE                                     | C, CS, D, T1, T2                                | C, CS, D, PS |                     | C, CS, D, T1, T2                 | C, CS, D |                     | NE                         | NE          | NE                                  |        |
| Finland            | L, T       | 11.8                        | NCV                 | CS (T2)                          | CS/PS/D      | 104.30              | 104.30                                 | CS (T2)   | CS/PS/D      | 95.16               | CS (T2, T1)                      | CS/D     | 85.14               | 50.08                      | 104.94      | 103.74                              |        |
| France             | L, T       | 1.4                         | NCV                 | C                                | CS           | 95.30               | 87.49                                  | C   | CS           | 48.80               | C                                | CS       | 57.00               | 56.97                      | 57.00       |                                     |        |
| Germany            | T          | 0.1                         | NCV                 | CS                               | CS           | 15.03               | 15.00                                  | CS  | CS           | 20.00               | CS                               | CS       |                     | NE                         | NE          | NE                                  |        |
| Greece             |            |                             | NCV                 | C                                | C and CS     |                     | NO                                     | C   | C            |                     | C                                | C        |                     | NE                         | NO          | NO                                  |        |
| Iceland            |            | 0.1                         | NCV                 | T1                               | D            |                     | NO                                     | T1  | D            | 99.71               | T1                               | D        |                     | NO                         | NO          | NO                                  |        |
| Ireland            |            | 0.0                         | NCV                 | T1                               | PS, CS       |                     | NO                                     | T1  | PS, CS       |                     | T1                               | CS       |                     | NO                         | NO          | NO                                  |        |
| Italy              | L          | 1.1                         | NCV                 | D, T2                            | CS           | 94.15               | 94.15                                  | D, T2   | CS           | 116.84              | D, T2                            | CS       | 66.76               | 73.16                      | 64.94       | NO                                  |        |
| Latvia             |            | 0.0                         | NCV                 | T1                               | D            |                     | NO                                     | T1  | D            |                     | T1                               | D        |                     | NO                         | NO          | NO                                  |        |
| Luxembourg         |            |                             |                     | C                                | C            |                     |  | C   | C            |                     | C                                | C        |                     |                            |             |                                     |        |
| Netherlands        | L, T       | 15.8                        | NCV                 | CS/T2                            | PS, CS       | 254.13              | 253.79                                 | CS/T2   | PS, CS       | 1024.86             | CS/T2                            | CS       | 60.68               | 55.46                      |             |                                     |        |
| New Zealand        |            | 0.0                         | GCV                 | T1                               | CS/D         |                     | NO                                     | T1  | CS/D         |                     | T1                               | CS/D     |                     | NO                         | NO          | NO                                  |        |
| Norway             |            | 0.3                         | NCV                 | T2                               | CS           | 23.94               | 23.94                                  | T2  | CS           | 23.90               | T2                               | CS       |                     | NO                         | NO          | NO                                  |        |
| Poland             |            | 0.0                         | NCV                 | T2                               | CS           |                     |  | T2  | CS           |                     | T2                               | CS       |                     |                            |             |                                     |        |
| Portugal           |            | 0.2                         | NCV                 | C+T2                             | C            |                     |  | C+T2  | C            | 63.13               | C+T2                             | C        |                     |                            |             |                                     |        |
| Romania            | L          | 2.1                         | NCV                 | D                                | D            | 72.60               | 72.60                                  | D   | D            | 61.19               | D                                | D        | 73.50               | 74.94                      | 72.60       | 94.15                               |        |
| Slovakia           | L          | 9.7                         | NCV                 | SA                               | D            | 22.10               |  | SA  | D            | 159.72              | SA                               | D        |                     |                            |             |                                     |        |
| Spain              |            | 0.1                         | NCV                 | CS,C                             | PS,C         | 37.66               | 37.66                                  | CS,C  | PS,C         | 82.05               | C                                | C        |                     |                            |             |                                     |        |
| Sweden             | L, T       | 2.2                         | NCV                 | CS                               | CS           | 35.01               | 35.01                                  | CS  | CS           | 59.69               | CS                               | CS       |                     | NO                         | NO          | NO                                  |        |
| Switzerland        |            | 0.0                         | NCV                 | RA, C                            | RA, CS       | NO                  | NO                                     | C   | CS           | NO                  | C                                | CS       | NO                  | NO                         | NO          | NO                                  |        |
| United Kingdom     |            | 0.1                         | NCV                 | T2                               | CS           | 30.47               | 30.47                                  | T2  | CS           | 94.25               | T2                               | CS       | 30.47               | 30.47                      |             |                                     |        |
| United States      | T          | 0.4                         | GCV                 | T1                               | CS           | 7.12                | 7.12                                   | T1  | CS           |                     | T1                               | CS       |                     | 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 CO<sub>2</sub> IEFs may not be comparable.

<sup>a</sup> 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.

<sup>b</sup> 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.

<sup>c</sup> 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.

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.

**Table 1.7****Stationary combustion: all fuels – trend information****Fuel consumption (TJ)**

|                                | 1990 <sup>a</sup> | 1995        | 1996        | 1997        | 1998        | 1999        | 2000        | 2001       |
|--------------------------------|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|
| <b>Austria</b>                 | 672,901           | 742,661     | 784,703     | 788,249     | 768,271     | 757,682     | 739,307     | 774,426    |
| <b>Belgium</b>                 |                   |             |             |             |             |             | 1,282,446   | 1,220,354  |
| <b>Bulgaria</b>                |                   |             |             |             |             |             | 443,367     | 457,022    |
| <b>Canada</b>                  | 4,844,702         | 5,202,432   | 5,333,678   | 5,391,627   | 5,467,150   | 5,696,048   | 6,029,655   | 6,001,410  |
| <b>Czech Republic(a)</b>       | 1,735,609         |             |             |             | 1,347,911   | 1,274,971   | 1,340,798   | 1,362,682  |
| <b>Denmark</b>                 | 538,196           | 646,915     | 804,149     | 702,496     | 649,100     | 616,248     | 575,573     | 601,066    |
| <b>Estonia<sup>b</sup></b>     |                   |             |             |             |             | 191,133     | 198,404     | 181,668    |
| <b>European Community</b>      |                   |             |             |             |             |             | NE          | NE         |
| <b>Finland</b>                 | 685,933           | 785,829     | 847,858     | 858,127     | 824,918     | 829,369     | 817,179     | 863,274    |
| <b>France</b>                  | 3,632,673         | 3,630,481   | 3,863,471   | 3,712,344   | 3,992,763   | 3,805,156   | 3,735,669   | 3,850,796  |
| <b>Germany</b>                 | 8,698,914         | 8,807,211   | 9,234,657   | 8,875,371   | 8,773,973   | 8,409,836   | 8,440,210   | 8,737,177  |
| <b>Greece<sup>b</sup></b>      | 627,642           | 653,550     | 698,083     | 732,144     | 771,628     | 762,566     | 839,102     | 856,073    |
| <b>Iceland<sup>b</sup></b>     |                   |             |             |             |             | 14,889      | 14,994      | 13,386     |
| <b>Ireland</b>                 | 305,636           | 341,099     | 345,568     | 365,466     | 385,470     | 399,881     | 417,047     | 431,910    |
| <b>Italy</b>                   |                   |             |             |             |             |             |             | 4,714,273  |
| <b>Latvia</b>                  | 273076.9922       | 147849.998  | 145589.002  | 141979.9941 | 135813      | 116,453     | 104,734     | 131,299    |
| <b>Luxembourg<sup>b</sup></b>  |                   |             |             |             |             | 53,278      |             |            |
| <b>Netherlands</b>             | 1823316.969       | 1930917.063 | 2039120.375 | 1855744.813 | 1837368.906 | 1647042.656 | 2156656.813 | 1,822,750  |
| <b>New Zealand<sup>b</sup></b> |                   | 290,430     | 311,721     | 332,754     |             |             |             | 362,378    |
| <b>Norway</b>                  | 274,754           |             |             |             | 332,581     | 328,356     | 333,543     | 347,182    |
| <b>Poland<sup>b</sup></b>      |                   |             |             |             |             |             | 3,178,140   | 3,255,473  |
| <b>Portugal</b>                | 464,797           | 525,698     | 491,416     | 509,333     | 556,547     | 653,741     | 614,465     | 635,633    |
| <b>Romania</b>                 |                   | 2,431,190   | 2,395,940   | 2,331,947   | 2,036,609   | 1,693,642   | 1,647,057   | 1,362,834  |
| <b>Slovakia<sup>b</sup></b>    |                   |             |             |             | 493,230     |             | 455,128     | 475,222    |
| <b>Spain</b>                   | 1,945,485         | 2,237,763   | 2,086,131   | 2,291,081   | 2,316,829   | 2,628,609   | 2,693,315   | 2,697,627  |
| <b>Sweden</b>                  | 555,681           | 626,665     | 698,029     | 619,132     | 628,351     | 608,363     | 558,432     | 611,285    |
| <b>Switzerland</b>             | 374,624           |             |             |             |             |             |             | 389,859    |
| <b>United Kingdom</b>          | 5,699,492         | 5,599,592   | 5,907,724   | 5,658,479   | 5,767,803   | 5,736,568   | 5,855,132   | 5,248,179  |
| <b>United States</b>           | 54,257,648        | 58,634,434  | 60,696,546  | 61,350,334  | 61,113,268  | 61,497,046  | 63,706,770  | 61,964,012 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

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.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 6.9          | -1.1         | 0.9          | -1.9         | -0.5         | 5.6          | 22.4         |
| <b>Belgium</b>            |              |              |              |              |              | -3.7         |              |
| <b>Bulgaria</b>           |              |              |              |              |              | 3.0          |              |
| <b>Canada</b>             | 2.6          | 1.9          | 1.8          | 3.7          | 4.1          | -0.8         | 23.4         |
| <b>Czech Republic</b>     |              |              |              | -3.6         | 3.7          | 2.3          | -16.7        |
| <b>Denmark</b>            | 19.8         | -10.3        | -6.1         | -3.9         | -5.4         | 3.5          | 12.6         |
| <b>Estonia</b>            |              |              |              |              | 2.3          | -1.9         |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | 6.4          | 1.7          | -2.4         | 1.2          | -1.6         | 4.9          | 21.1         |
| <b>France</b>             | 4.7          | -2.1         | 5.6          | -2.5         | -1.3         | 2.7          | 9.7          |
| <b>Germany</b>            | 3.8          | -3.0         | -0.5         | -2.5         | -0.1         | 2.2          | 2.8          |
| <b>Greece</b>             | 5.5          | 4.3          | 6.0          | 0.2          | 5.7          | 2.4          | 33.0         |
| <b>Iceland</b>            |              |              |              |              | 0.9          | -5.9         |              |
| <b>Ireland</b>            | 3.5          | 6.4          | 7.4          | 5.5          | 4.2          | 4.8          | 55.9         |
| <b>Italy</b>              |              |              |              |              |              |              |              |
| <b>Latvia</b>             | -2.6         | -2.2         | -3.8         | -12.3        | -7.8         | 25.9         | -48.2        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | 4.8          | -7.1         | -0.4         | -7.7         | 24.2         | -12.4        | 3.9          |
| <b>New Zealand</b>        | 5.1          | 5.2          |              |              |              |              |              |
| <b>Norway</b>             |              |              |              | 0.8          | -1.3         | 3.6          | 24.2         |
| <b>Poland</b>             |              |              |              |              |              | 2.9          |              |
| <b>Portugal</b>           | -3.4         | 3.8          | 9.5          | 14.0         | -2.0         | 2.3          | 46.9         |
| <b>Romania</b>            | 0.0          | -2.7         | -12.1        | -17.0        | -1.4         | -14.6        |              |
| <b>Slovakia</b>           |              |              |              |              |              | 5.4          |              |
| <b>Spain</b>              | -2.8         | 7.0          | 3.8          | 11.1         | 2.6          | 1.6          | 43.6         |
| <b>Sweden</b>             | 7.8          | -8.0         | 1.5          | -1.8         | -5.6         | 6.9          | 9.7          |
| <b>Switzerland</b>        |              |              |              |              |              |              | 5.4          |
| <b>United Kingdom</b>     | 5.1          | -3.1         | 1.3          | -0.2         | 1.6          | -8.2         | -4.9         |
| <b>United States</b>      | 3.2          | 1.0          | 0.2          | 1.5          | 3.3          | -1.6         | 16.2         |

**Table 1.8**  
**Stationary combustion by fuel: liquid fuels – trend information**  
**Fuel consumption (TJ)**

|                                   | 1990 <sup>a</sup> | 1995       | 1996       | 1997       | 1998         | 1999       | 2000       | 2001       |
|-----------------------------------|-------------------|------------|------------|------------|--------------|------------|------------|------------|
| <b>Austria</b>                    | 190,616           | 216,012    | 230,550    | 233,132    | 234,988      | 218,893    | 196,434    | 213,299    |
| <b>Belgium</b>                    |                   |            |            |            |              |            | 368,434    | 403,626    |
| <b>Bulgaria</b>                   |                   |            |            |            |              |            | 52,737     | 54,345     |
| <b>Canada</b>                     | 1,055,630         | 965,910    | 955,316    | 976,055    | 983,092      | 960,951    | 973,496    | 1,033,463  |
| <b>Czech Republic<sup>b</sup></b> | 238,659           |            |            |            | 171,260      | 171,847    | 167,799    | 164,783    |
| <b>Denmark</b>                    | 160,398           | 176,844    | 203,488    | 185,535    | 171,739      | 166,358    | 155,477    | 154,973    |
| <b>Estonia<sup>b</sup></b>        |                   |            |            |            |              | 30,450     | 27,516     | 12,575     |
| <b>European Community</b>         |                   |            |            |            |              |            | NE         | NE         |
| <b>Finland</b>                    | 203,062           | 196,766    | 206,500    | 196,948    | 199,528      | 194,424    | 186,215    | 190,402    |
| <b>France</b>                     | 1,506,061         | 1,501,112  | 1,553,081  | 1,504,488  | 1,568,446    | 1,480,198  | 1,414,218  | 1,499,864  |
| <b>Germany</b>                    | 1,487,870         | 2,152,885  | 2,297,099  | 2,171,295  | 2,090,461    | 1,841,880  | 1,738,227  | 1,859,836  |
| <b>Greece<sup>b</sup></b>         | 263,985           | 287,648    | 327,137    | 330,119    | 331,521.9375 | 316,097    | 347,038    | 355,942    |
| <b>Iceland<sup>b</sup></b>        |                   |            |            |            |              | 14,266     | 14,304     | 12,700     |
| <b>Ireland</b>                    | 94,664            | 123,594    | 126,891    | 137,453    | 151,437      | 173,501    | 174,003    | 180,912    |
| <b>Italy</b>                      |                   |            |            |            |              |            |            | 1,590,963  |
| <b>Latvia</b>                     | 130,916           | 57,892     | 50,692     | 39,852     | 37,832       | 32,540     | 20,312     | 15,810     |
| <b>Luxembourg<sup>b</sup></b>     |                   |            |            |            |              | 17,863     |            |            |
| <b>Netherlands</b>                | 291,303           | 274,290    | 285,133    | 237,077    | 211,240      | 104,316    | 111,331    | 110,779    |
| <b>New Zealand<sup>b</sup></b>    |                   | 37,438     | 35,091     | 36,080     |              |            |            | 34,947     |
| <b>Norway</b>                     | 133,363           |            |            |            | 140,263      | 142,598    | 127,929    | 124,814    |
| <b>Poland<sup>b</sup></b>         |                   |            |            |            |              |            | 398,236    | 398,722    |
| <b>Portugal</b>                   | 247,910           | 275,565    | 249,118    | 259,991    | 296,421      | 295,435    | 272,087    | 314,300    |
| <b>Romania<sup>b</sup></b>        |                   | 844,777    | 812,666    | 846,674    | 772,214      | 596,321    | 599,626    | 182,181    |
| <b>Slovakia<sup>b</sup></b>       |                   |            |            |            | 41,342       |            | 31,326     | 29,248     |
| <b>Spain</b>                      | 845,814           | 1,002,470  | 936,427    | 956,027    | 983,301      | 1,036,191  | 1,049,932  | 1,053,249  |
| <b>Sweden</b>                     | 299,479           | 317,604    | 356,242    | 313,775    | 309,952      | 304,199    | 261,040    | 266,752    |
| <b>Switzerland</b>                | 272,961           |            |            |            |              |            |            | 256,695    |
| <b>United Kingdom</b>             | 1,264,630         | 1,144,299  | 1,154,908  | 1,023,781  | 969,008      | 897,175    | 846,271    | 892,952    |
| <b>United States</b>              | 12,794,323        | 12,536,657 | 13,147,565 | 13,483,966 | 13,427,593   | 13,694,402 | 13,693,108 | 13,433,289 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

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.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 6.7          | 1.1          | 0.8          | -6.8         | -10.3        | 8.6          | 11.9         |
| <b>Belgium</b>            |              |              |              |              |              | 9.6          |              |
| <b>Bulgaria</b>           |              |              |              |              |              | 3.0          |              |
| <b>Canada</b>             | -1.1         | 2.2          | 0.7          | -2.3         | 1.3          | 6.2          | -2.1         |
| <b>Czech Republic</b>     |              |              |              | 0.3          | -2.4         | -1.8         | -31.0        |
| <b>Denmark</b>            | 15.1         | -8.8         | -7.4         | -3.1         | -6.5         | -0.3         | -3.4         |
| <b>Estonia</b>            |              |              |              |              | -9.6         | -54.3        |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | 4.9          | -4.6         | 1.3          | -2.6         | -4.2         | 2.2          | -6.2         |
| <b>France</b>             | 3.5          | -3.1         | 4.3          | -5.6         | -4.5         | 6.1          | -0.4         |
| <b>Germany</b>            | 6.7          | -5.5         | -3.7         | -11.9        | -5.6         | 7.0          | 25.0         |
| <b>Greece</b>             | 13.7         | 0.9          | 0.4          | -4.7         | 9.8          | 2.6          | 34.8         |
| <b>Iceland</b>            |              |              |              |              | 0.3          | -11.2        |              |
| <b>Ireland</b>            | 2.7          | 8.3          | 10.2         | 14.6         | 0.3          | 4.0          | 91.1         |
| <b>Italy</b>              |              |              |              |              |              |              |              |
| <b>Latvia</b>             | -12.4        | -21.4        | -5.1         | -14.0        | -37.6        | -22.2        | -87.9        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | 4.0          | -16.9        | -10.9        | -50.6        | 6.7          | -0.5         | -62.0        |
| <b>New Zealand</b>        | -6.3         | 2.8          |              |              |              |              |              |
| <b>Norway</b>             |              |              |              | 1.7          | -10.3        | -2.4         |              |
| <b>Poland</b>             |              |              |              |              |              | 0.1          |              |
| <b>Portugal</b>           | -9.6         | 4.4          | 14.0         | -0.3         | -7.9         | 15.5         | 26.8         |
| <b>Romania</b>            | -3.8         | 4.2          | -8.8         | -22.8        | 0.6          | -69.6        |              |
| <b>Slovakia</b>           |              |              |              |              |              | -6.6         |              |
| <b>Spain</b>              | -6.6         | 2.1          | 2.9          | 5.4          | 1.3          | 0.3          | 24.5         |
| <b>Sweden</b>             | 12.2         | -11.9        | -1.2         | -1.9         | -14.2        | 2.2          | -10.9        |
| <b>Switzerland</b>        |              |              |              |              |              |              |              |
| <b>United Kingdom</b>     | 0.9          | -11.4        | -5.4         | -7.4         | -5.7         | 5.5          | -29.4        |
| <b>United States</b>      | 4.9          | 2.6          | -0.4         | 2.0          | 0.0          | -1.9         | 5.0          |

**Table 1.9****Stationary combustion by fuel: solid fuels – trend information****Fuel consumption (TJ)**

|                             | 1990 <sup>a</sup> | 1995       | 1996       | 1997       | 1998       | 1999       | 2000       | 2001       |
|-----------------------------|-------------------|------------|------------|------------|------------|------------|------------|------------|
| Austria                     | 181,129           | 159,017    | 156,716    | 167,724    | 148,895    | 144,632    | 164,318    | 166,124    |
| Belgium                     |                   |            |            |            |            |            | 278,130    | 247,891    |
| Bulgaria                    |                   |            |            |            |            |            | 265,075    | 288,368    |
| Canada                      | 969,984           | 996,331    | 1,018,462  | 1,091,744  | 1,177,288  | 1,180,556  | 1,284,192  | 1,264,529  |
| Czech Republic <sup>b</sup> | 1,252,660         |            |            |            | 833,685    | 754,074    | 837,053    | 832,464    |
| Denmark                     | 254,837           | 273,899    | 375,387    | 280,011    | 233,355    | 197,985    | 165,921    | 175,451    |
| Estonia <sup>b</sup>        |                   |            |            |            |            | 114,997    | 117,114    | 123,600    |
| European Community          |                   |            |            |            |            |            | NE         | NE         |
| Finland                     | 167,071           | 178,123    | 220,974    | 206,643    | 148,994    | 149,933    | 149,177    | 167,656    |
| France                      | 645,528           | 487,052    | 517,971    | 462,057    | 553,555    | 497,409    | 492,519    | 433,426    |
| Germany                     | 5,182,874         | 3,881,144  | 3,862,127  | 3,694,033  | 3,618,161  | 3,460,336  | 3,665,773  | 3,660,917  |
| Greece <sup>b</sup>         | 334,230           | 339,155    | 330,268    | 355,720    | 371,863    | 357,388    | 383,191    | 391,229    |
| Iceland <sup>b</sup>        |                   |            |            |            |            | 358        | 371        | 488        |
| Ireland                     | 146,999           | 130,126    | 125,520    | 127,404    | 126,986    | 110,448    | 109,317    | 113,923    |
| Italy                       |                   |            |            |            |            |            |            | 542,885    |
| Latvia                      | 28,758            | 11,131     | 10,732     | 8,987      | 6,801      | 4,952      | 5,153      | 4,875      |
| Luxembourg <sup>b</sup>     |                   |            |            |            |            | 5,908      |            |            |
| Netherlands                 | 299,600           | 293,863    | 253,405    | 256,219    | 265,026    | 228,674    | 8,510      | 236,110    |
| New Zealand <sup>b</sup>    |                   | 33,110     | 32,599     | 38,172     |            |            |            | 40,135     |
| Norway                      | 6,911             |            |            |            | 9,305      | 8,180      | 8,206      | 7,145      |
| Poland <sup>b</sup>         |                   |            |            |            |            |            | 2,325,870  | 2,350,825  |
| Portugal                    | 109,429           | 143,415    | 134,694    | 135,041    | 123,024    | 150,615    | 151,154    | 139,398    |
| Romania <sup>b</sup>        |                   | 591,680    | 570,990    | 669,667    | 490,401    | 406,869    | 346,018    | 435,264    |
| Slovakia <sup>b</sup>       |                   |            |            |            | 174,567    |            | 131,909    | 138,338    |
| Spain                       | 752,579           | 764,532    | 648,401    | 710,970    | 696,412    | 787,155    | 836,789    | 761,709    |
| Sweden                      | 89,198            | 78,844     | 91,737     | 76,605     | 81,241     | 70,950     | 74,171     | 83,264     |
| Switzerland                 | 16,835            |            |            |            |            |            |            | 6,606      |
| United Kingdom              | 2,512,857         | 1,810,572  | 1,684,048  | 1,485,928  | 1,501,092  | 1,319,867  | 1,386,861  | 1,529,213  |
| United States               | 19,033,156        | 20,274,956 | 21,261,114 | 21,779,222 | 21,960,654 | 21,971,646 | 22,979,314 | 22,334,508 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

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.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            | -1.4         | 7.0          | -11.2        | -2.9         | 13.6         | 1.1          | -8.3         |
| Belgium            |              |              |              |              |              |              | -10.9        |
| Bulgaria           |              |              |              |              |              |              | 8.8          |
| Canada             | 2.2          | 7.2          | 7.8          | 0.3          | 8.8          | -1.5         | 30.4         |
| Czech Republic     |              |              |              | -9.5         | 11.0         | -0.5         | -33.5        |
| Denmark            | 37.1         | -25.4        | -16.7        | -15.2        | -16.2        | 5.7          | -31.2        |
| Estonia            |              |              |              |              | 1.8          | 5.5          |              |
| European Community |              |              |              |              |              |              |              |
| Finland            | 24.1         | -6.5         | -27.9        | 0.6          | -0.5         | 12.4         | 0.4          |
| France             | 6.3          | -10.8        | 19.8         | -10.1        | -1.0         | -12.0        | -32.9        |
| Germany            | -0.5         | -4.4         | -2.1         | -4.4         | 5.9          | -0.1         | -29.4        |
| Greece             | -2.6         | 7.7          | 4.5          | -3.9         | 7.2          | 2.1          | 17.1         |
| Iceland            |              |              |              |              | 3.6          | 31.4         |              |
| Ireland            | -3.5         | 1.5          | -0.3         | -13.0        | -1.0         | 4.2          | -22.5        |
| Italy              |              |              |              |              |              |              |              |
| Latvia             | -3.6         | -16.3        | -24.3        | -27.2        | 4.1          | -5.4         | -83.0        |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        | -13.8        | 1.1          | 3.4          | -13.7        | -96.3        | 2,674.4      | -21.2        |
| New Zealand        | -1.5         | 17.1         |              |              |              |              |              |
| Norway             |              |              |              | -12.1        | 0.3          | -12.9        | 3.4          |
| Poland             |              |              |              |              |              | 1.1          |              |
| Portugal           | -6.1         | 0.3          | -8.9         | 22.4         | 0.4          | -7.8         | 27.4         |
| Romania            | -3.5         | 17.3         | -26.8        | -17.0        | -15.0        | 25.8         |              |
| Slovakia           |              |              |              |              |              | 4.9          |              |
| Spain              | -15.2        | 9.6          | -2.0         | 13.0         | 6.3          | -9.0         | 1.2          |
| Sweden             | 16.4         | -16.5        | 6.1          | -12.7        | 4.5          | 12.3         | -6.7         |
| Switzerland        |              |              |              |              |              |              | -60.8        |
| United Kingdom     | -7.0         | -11.8        | 1.0          | -12.1        | 5.1          | 10.3         | -39.1        |
| United States      | 4.9          | 2.4          | 0.8          | 0.1          | 4.6          | -2.8         | 17.3         |

**Table 1.10****Stationary combustion by fuel: gaseous fuels – trend information****Fuel consumption (TJ)**

|                                   | 1990 <sup>a</sup> | 1995       | 1996       | 1997       | 1998       | 1999       | 2000       | 2001       |
|-----------------------------------|-------------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Austria</b>                    | 198,555           | 250,329    | 271,226    | 261,454    | 265,246    | 267,933    | 255,758    | 261,606    |
| <b>Belgium</b>                    |                   |            |            |            |            |            | 528,767    | 534,849    |
| <b>Bulgaria</b>                   |                   |            |            |            |            |            | 95,615     | 85,169     |
| <b>Canada</b>                     | 2,316,119         | 2,661,930  | 2,785,576  | 2,747,867  | 2,711,398  | 2,923,309  | 3,123,128  | 3,094,993  |
| <b>Czech Republic<sup>b</sup></b> | 222,830           |            |            |            | 318,335    | 323,192    | 313,937    | 336,331    |
| <b>Denmark</b>                    | 76,099            | 135,645    | 160,599    | 169,726    | 180,202    | 187,959    | 183,757    | 193,450    |
| <b>Estonia<sup>b</sup></b>        |                   |            |            |            |            | 24,146     | 32,379     | 23,399     |
| <b>European Community</b>         |                   |            |            |            |            |            | NE         | NE         |
| <b>Finland</b>                    | 91,838            | 120,535    | 124,229    | 122,778    | 143,722    | 141,643    | 146,263    | 156,605    |
| <b>France</b>                     | 976,249           | 1,116,431  | 1,241,494  | 1,224,719  | 1,329,752  | 1,277,468  | 1,286,810  | 1,351,363  |
| <b>Germany</b>                    | 1,781,482         | 2,577,038  | 2,879,226  | 2,751,820  | 2,794,437  | 2,803,532  | 2,753,873  | 2,924,803  |
| <b>Greece<sup>b</sup></b>         | 6,404             | 2,440      | 2,668      | 8,212      | 30,276     | 51,021     | 70,814     | 69,601     |
| <b>Iceland<sup>b</sup></b>        |                   |            |            |            |            |            |            |            |
| <b>Ireland</b>                    | 59,411            | 79,926     | 87,295     | 94,789     | 100,232    | 108,941    | 126,902    | 129,540    |
| <b>Italy</b>                      |                   |            |            |            |            |            |            | 2,382,370  |
| <b>Latvia</b>                     | 100,320           | 41,247     | 39,101     | 47,869     | 46,913     | 40,717     | 45,019     | 57,945     |
| <b>Luxembourg<sup>b</sup></b>     |                   |            |            |            |            | 28,793     |            |            |
| <b>Netherlands</b>                | 1,184,602         | 1,307,141  | 1,448,778  | 1,268,024  | 1,283,047  | 1,289,965  | 1,281,639  | 1,369,694  |
| <b>New Zealand<sup>b</sup></b>    | 126,829           | 152,871    | 186,646    | 218,710    | 194,605    | 224,773    | 245,717    | 256,895    |
| <b>Norway</b>                     | 92,650            |            |            |            | 134,198    | 126,149    | 145,087    | 158,424    |
| <b>Poland<sup>b</sup></b>         |                   |            |            |            |            |            | 298,912    | 340,499    |
| <b>Portugal</b>                   | 1,369             | 1,990      | 2,133      | 5,133      | 28,157     | 96,652     | 80,178     | 70,258     |
| <b>Romania<sup>b</sup></b>        |                   | 835,547    | 807,956    | 676,151    | 639,883    | 566,471    | 575,491    | 607,324    |
| <b>Slovakia<sup>b</sup></b>       |                   |            |            |            | 229,622    |            | 227,286    | 240,646    |
| <b>Spain</b>                      | 184,242           | 317,746    | 347,661    | 460,374    | 471,434    | 554,168    | 636,195    | 711,796    |
| <b>Sweden</b>                     | 21,566            | 28,700     | 30,019     | 29,327     | 29,518     | 29,615     | 28,397     | 31,771     |
| <b>Switzerland</b>                | 67,698            |            |            |            |            |            |            | 105,168    |
| <b>United Kingdom</b>             | 1,887,821         | 2,576,518  | 2,997,490  | 3,075,674  | 3,218,289  | 3,434,334  | 3,534,858  | 2,733,981  |
| <b>United States</b>              | 19,707,258        | 22,873,611 | 23,286,627 | 23,378,640 | 23,079,912 | 23,163,250 | 24,300,298 | 23,554,294 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

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.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 8.3          | -3.6         | 1.5          | 1.0          | -4.5         | 2.3          | 31.8         |
| <b>Belgium</b>            |              |              |              |              |              | 1.2          |              |
| <b>Bulgaria</b>           |              |              |              |              |              | -10.9        |              |
| <b>Canada</b>             | 4.6          | -1.4         | -1.3         | 7.8          | 6.8          | -0.9         | 33.6         |
| <b>Czech Republic</b>     |              |              |              | 1.5          | -2.9         | 7.1          | 50.9         |
| <b>Denmark</b>            | 18.4         | 5.7          | 6.2          | 4.3          | -2.2         | 5.3          | 154.2        |
| <b>Estonia</b>            |              |              |              |              | 34.1         | -27.7        |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | 3.1          | -1.2         | 17.1         | -1.4         | 3.3          | 7.1          | 70.5         |
| <b>France</b>             | 11.2         | -1.4         | 8.6          | -3.9         | 0.7          | 5.0          | 38.4         |
| <b>Germany</b>            | 11.7         | -4.4         | 1.5          | 0.3          | -1.8         | 6.2          | 64.2         |
| <b>Greece</b>             | 9.3          | 207.8        | 268.7        | 68.5         | 38.8         | -1.7         | 986.8        |
| <b>Iceland</b>            |              |              |              |              |              |              |              |
| <b>Ireland</b>            | 9.2          | 8.6          | 5.7          | 8.7          | 16.5         | 2.1          | 118.0        |
| <b>Italy</b>              |              |              |              |              |              |              |              |
| <b>Latvia</b>             | -5.2         | 22.4         | -2.0         | -13.2        | 10.6         | 28.7         | -42.2        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | 10.8         | -12.5        | 1.2          | 0.5          | -0.6         | 6.9          | 15.6         |
| <b>New Zealand</b>        | 22.1         | 17.2         | -11.0        | 15.5         | 9.3          | 4.5          | 102.6        |
| <b>Norway</b>             |              |              |              | -6.0         | 15.0         | 9.2          | 71.0         |
| <b>Poland</b>             |              |              |              |              |              | 13.9         |              |
| <b>Portugal</b>           | 7.2          | 140.7        | 448.5        | 243.3        | -17.0        | -12.4        | 5,030.3      |
| <b>Romania</b>            | -3.3         | -16.3        | -5.4         | -11.5        | 1.6          | 5.5          |              |
| <b>Slovakia</b>           |              |              |              |              |              | 5.9          |              |
| <b>Spain</b>              | 9.4          | 32.4         | 2.4          | 17.5         | 14.8         | 11.9         | 286.3        |
| <b>Sweden</b>             | 4.6          | -2.3         | 0.7          | 0.3          | -4.1         | 11.9         | 47.3         |
| <b>Switzerland</b>        |              |              |              |              |              |              | 55.3         |
| <b>United Kingdom</b>     | 16.3         | 2.6          | 4.6          | 6.7          | 2.9          | -22.7        | 44.8         |
| <b>United States</b>      | 1.8          | 0.4          | -1.3         | 0.4          | 4.9          | -3.1         | 19.5         |



**Table 1.11****Stationary combustion by fuel: biomass – trend information****Fuel consumption (TJ)**

|                                   | 1990 <sup>a</sup> | 1995      | 1996      | 1997      | 1998      | 1999      | 2000      | 2001      |
|-----------------------------------|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Austria</b>                    | 94,376            | 108,418   | 115,490   | 114,676   | 109,311   | 114,443   | 110,537   | 119,493   |
| <b>Belgium</b>                    |                   |           |           |           |           |           | 16,645    | 18,098    |
| <b>Bulgaria</b>                   |                   |           |           |           |           |           | 29,940    | 29,140    |
| <b>Canada</b>                     | 502,969           | 578,260   | 574,323   | 575,960   | 595,372   | 631,232   | 648,838   | 608,425   |
| <b>Czech Republic<sup>b</sup></b> | 21,460            |           |           |           | 24,631    | 25,858    | 22,009    | 29,104    |
| <b>Denmark</b>                    | 46,862            | 60,527    | 64,674    | 67,224    | 63,805    | 63,946    | 70,418    | 77,192    |
| <b>Estonia<sup>b</sup></b>        |                   |           |           |           |           | 21,258    | 21,119    | 21,798    |
| <b>European Community</b>         |                   |           |           |           |           |           | NE        | NE        |
| <b>Finland</b>                    | 169,787           | 212,224   | 210,949   | 244,134   | 250,617   | 266,829   | 268,697   | 255,535   |
| <b>France</b>                     | 439,368           | 446,400   | 472,250   | 439,370   | 459,747   | 454,930   | 442,373   | 471,728   |
| <b>Germany</b>                    | 134,838           | 137,024   | 138,634   | 202,113   | 208,722   | 214,779   | 219,802   | 225,451   |
| <b>Greece<sup>b</sup></b>         | 23,023            | 24,307    | 38,010    | 38,094    | 37,967    | 38,059    | 38,059    | 39,257    |
| <b>Iceland<sup>b</sup></b>        |                   |           |           |           |           | 227       | 272       | 175       |
| <b>Ireland</b>                    | 4,564             | 7,453     | 5,862     | 5,820     | 5,945     | 5,652     | 5,862     | 7,536     |
| <b>Italy</b>                      |                   |           |           |           |           |           |           | 107,805   |
| <b>Latvia</b>                     | 13,083            | 37,580    | 45,064    | 45,272    | 44,267    | 38,244    | 34,251    | 52,669    |
| <b>Luxembourg<sup>b</sup></b>     |                   |           |           |           |           | 714       |           |           |
| <b>Netherlands</b>                | 15,736            | 17,437    | 13,683    | 14,765    | 16,747    | 18,177    | 24,830    | 21,370    |
| <b>New Zealand<sup>b</sup></b>    |                   | 33,690    | 34,030    | 32,600    |           |           |           | 30,400    |
| <b>Norway</b>                     | 37,657            |           |           |           | 43,648    | 45,660    | 46,067    | 50,577    |
| <b>Poland<sup>b</sup></b>         |                   |           |           |           |           |           | 155,122   | 165,427   |
| <b>Portugal</b>                   | 105,049           | 103,569   | 104,264   | 107,737   | 107,069   | 108,903   | 108,864   | 109,601   |
| <b>Romania<sup>b</sup></b>        |                   | 159,186   | 204,328   | 139,455   | 124,758   | 115,650   | 114,973   | 89,256    |
| <b>Slovakia<sup>b</sup></b>       |                   |           |           |           | 3,159     |           | 4,068     | 4,125     |
| <b>Spain</b>                      | 157,767           | 146,740   | 145,188   | 152,071   | 154,137   | 155,980   | 157,341   | 157,700   |
| <b>Sweden</b>                     | 119,252           | 167,719   | 185,799   | 171,780   | 176,271   | 177,142   | 158,671   | 194,307   |
| <b>Switzerland</b>                | 17,130            |           |           |           |           |           |           | 21,390    |
| <b>United Kingdom</b>             | 27,816            | 48,782    | 50,376    | 52,778    | 53,306    | 60,168    | 62,123    | 64,994    |
| <b>United States</b>              | 2,310,621         | 2,552,805 | 2,602,596 | 2,331,719 | 2,295,188 | 2,331,719 | 2,380,999 | 2,289,951 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

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.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 6.5          | -0.7         | -4.7         | 4.7          | -3.4         | 8.1          | 26.6         |
| <b>Belgium</b>            |              |              |              |              |              | 8.7          |              |
| <b>Bulgaria</b>           |              |              |              |              |              | -2.7         |              |
| <b>Canada</b>             | -0.7         | 0.3          | 3.4          | 6.0          | 2.8          | -6.2         | 21.0         |
| <b>Czech Republic</b>     |              |              |              | 5.0          | -14.9        | 32.2         | 35.6         |
| <b>Denmark</b>            | 6.9          | 3.9          | -5.1         | 0.2          | 10.1         | 9.6          | 64.7         |
| <b>Estonia</b>            |              |              |              |              | -0.7         | 3.2          |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | -0.6         | 15.7         | 2.7          | 6.5          | 0.7          | -4.9         | 50.5         |
| <b>France</b>             | 5.8          | -7.0         | 4.6          | -1.0         | -2.8         | 6.6          | 7.4          |
| <b>Germany</b>            | 1.2          | 45.8         | 3.3          | 2.9          | 2.3          | 2.6          | 67.2         |
| <b>Greece</b>             | 56.4         | 0.2          | -0.3         | 0.2          | 0.0          | 3.1          | 70.5         |
| <b>Iceland</b>            |              |              |              |              | 19.9         | -35.6        |              |
| <b>Ireland</b>            | -21.3        | -0.7         | 2.2          | -4.9         | 3.7          | 28.6         | 65.1         |
| <b>Italy</b>              |              |              |              |              |              |              |              |
| <b>Latvia</b>             | 19.9         | 0.5          | -2.2         | -13.6        | -10.4        | 53.8         | 302.6        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | -21.5        | 7.9          | 13.4         | 8.5          | 36.6         | -13.9        | 35.8         |
| <b>New Zealand</b>        | 1.0          | -4.2         |              |              |              |              |              |
| <b>Norway</b>             |              |              |              | 4.6          | 0.9          | 9.8          | 34.3         |
| <b>Poland</b>             |              |              |              |              |              | 6.6          |              |
| <b>Portugal</b>           | 0.7          | 3.3          | -0.6         | 1.7          | 0.0          | 0.7          | 4.3          |
| <b>Romania</b>            | 28.4         | -31.7        | -10.5        | -7.3         | -0.6         | -22.4        |              |
| <b>Slovakia</b>           |              |              |              |              |              | 1.4          |              |
| <b>Spain</b>              | -1.1         | 4.7          | 1.4          | 1.2          | 0.9          | 0.2          | 0.0          |
| <b>Sweden</b>             | 10.8         | -7.5         | 2.6          | 0.5          | -10.4        | 22.5         | 62.9         |
| <b>Switzerland</b>        |              |              |              |              |              |              | 24.9         |
| <b>United Kingdom</b>     | 3.3          | 4.8          | 1.0          | 12.9         | 3.2          | 4.6          | 133.7        |
| <b>United States</b>      | 2.0          | -10.4        | -1.6         | 1.6          | 2.1          | -3.8         | -0.9         |

**Table 1.12****Stationary combustion consumption by fuel: other fuels – trend information****Fuel consumption (TJ)**

|                                   | 1990 <sup>a</sup> | 1995    | 1996    | 1997    | 1998    | 1999    | 2000    | 2001    |
|-----------------------------------|-------------------|---------|---------|---------|---------|---------|---------|---------|
| <b>Austria</b>                    | 8,226             | 8,885   | 10,721  | 11,264  | 9,831   | 11,781  | 12,260  | 13,903  |
| <b>Belgium</b>                    |                   |         |         |         |         |         | 90,470  | 15,890  |
| <b>Bulgaria</b>                   |                   |         |         |         |         |         | 0       | 0       |
| <b>Canada</b>                     | 0                 | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| <b>Czech Republic<sup>b</sup></b> |                   |         |         |         | 0       | 0       | 0       | 0       |
| <b>Denmark</b>                    | 0                 | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| <b>Estonia<sup>b</sup></b>        |                   |         |         |         |         | 282     | 276     | 296     |
| <b>European Community</b>         |                   |         |         |         |         |         | NE      | NE      |
| <b>Finland</b>                    | 54,175            | 78,181  | 85,206  | 87,624  | 82,057  | 76,540  | 66,827  | 93,076  |
| <b>France</b>                     | 65,468            | 79,486  | 78,675  | 81,711  | 81,263  | 95,152  | 99,749  | 94,415  |
| <b>Germany</b>                    | 111,850           | 59,121  | 57,572  | 56,109  | 62,192  | 89,310  | 62,536  | 66,171  |
| <b>Greece<sup>b</sup></b>         |                   |         |         |         |         |         |         | 44      |
| <b>Iceland<sup>b</sup></b>        |                   |         |         |         |         | 38      | 47      | 23      |
| <b>Ireland</b>                    | 0                 | 0       | 0       | 0       | 871     | 1,340   | 963     | 0       |
| <b>Italy</b>                      |                   |         |         |         |         |         |         | 90,250  |
| <b>Latvia</b>                     | 0                 | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| <b>Luxembourg<sup>b</sup></b>     |                   |         |         |         |         | 0       |         |         |
| <b>Netherlands</b>                | 32,077            | 38,185  | 38,120  | 79,660  | 61,310  | 5,911   | 730,346 | 84,798  |
| <b>New Zealand<sup>b</sup></b>    |                   | 0       | 0       | 0       |         |         |         | 0       |
| <b>Norway</b>                     | 4,174             |         |         |         | 5,166   | 5,769   | 6,253   | 6,221   |
| <b>Poland<sup>b</sup></b>         |                   |         |         |         |         |         | 0       | 0       |
| <b>Portugal</b>                   | 1,040             | 1,159   | 1,207   | 1,430   | 1,877   | 2,136   | 2,182   | 2,077   |
| <b>Romania</b>                    |                   | 0       | 0       | 0       | 9,353   | 8,331   | 10,949  | 48,809  |
| <b>Slovakia<sup>b</sup></b>       |                   |         |         |         | 44,539  |         | 60,539  | 62,864  |
| <b>Spain</b>                      | 5,084             | 6,276   | 8,453   | 11,639  | 11,543  | 95,116  | 13,058  | 13,173  |
| <b>Sweden</b>                     | 26,185            | 33,798  | 34,232  | 27,644  | 31,369  | 26,457  | 36,154  | 35,191  |
| <b>Switzerland</b>                | 0                 |         |         |         |         |         |         | 0       |
| <b>United Kingdom</b>             | 6,368             | 19,421  | 20,902  | 20,318  | 26,108  | 25,024  | 25,020  | 27,040  |
| <b>United States</b>              | 412,286           | 396,410 | 398,643 | 376,789 | 349,923 | 336,032 | 353,049 | 351,969 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

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.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 20.7         | 5.1          | -12.7        | 19.8         | 4.1          | 13.4         | 69.0         |
| <b>Belgium</b>            |              |              |              |              |              | -82.4        |              |
| <b>Bulgaria</b>           |              |              |              |              |              |              |              |
| <b>Canada</b>             |              |              |              |              |              |              |              |
| <b>Czech Republic</b>     |              |              |              |              |              |              |              |
| <b>Denmark</b>            |              |              |              |              |              |              |              |
| <b>Estonia</b>            |              |              |              |              | -2.1         | 7.2          |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | 9.0          | 2.8          | -6.4         | -6.7         | -12.7        | 39.3         | 71.8         |
| <b>France</b>             | -1.0         | 3.9          | -0.5         | 17.1         | 4.8          | -5.3         | 44.2         |
| <b>Germany</b>            | -2.6         | -2.5         | 10.8         | 43.6         | -30.0        | 5.8          | -40.8        |
| <b>Greece</b>             |              |              |              |              |              |              |              |
| <b>Iceland</b>            |              |              |              |              | 23.9         | -51.4        |              |
| <b>Ireland</b>            |              |              |              | 53.8         | -28.1        | -100.0       |              |
| <b>Italy</b>              |              |              |              |              |              |              |              |
| <b>Latvia</b>             |              |              |              |              |              |              |              |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | -0.2         | 109.0        | -23.0        | -90.4        | 12,255.7     | -88.4        | 164.4        |
| <b>New Zealand</b>        |              |              |              |              |              |              |              |
| <b>Norway</b>             |              |              |              | 11.7         | 8.4          | -0.5         | 49.1         |
| <b>Poland</b>             |              |              |              |              |              |              |              |
| <b>Portugal</b>           | 4.1          | 18.5         | 31.2         | 13.8         | 2.1          | -4.8         |              |
| <b>Romania</b>            |              |              |              | -10.9        | 31.4         | 345.8        |              |
| <b>Slovakia</b>           |              |              |              |              |              | 3.8          |              |
| <b>Spain</b>              | 34.7         | 37.7         | -0.8         | 724.0        | -86.3        | 0.9          | 159.1        |
| <b>Sweden</b>             | 1.3          | -19.2        | 13.5         | -15.7        | 36.7         | -2.7         | 34.4         |
| <b>Switzerland</b>        |              |              |              |              |              |              |              |
| <b>United Kingdom</b>     | 7.6          | -2.8         | 28.5         | -4.2         | 0.0          | 8.1          | 324.6        |
| <b>United States</b>      | 0.6          | -5.5         | -7.1         | -4.0         | 5.1          | -0.3         | -14.6        |

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

|                     | Liquid fuel       |      | Solid fuel        |      | Gaseous fuel      |      | Biomass           |      | Other fuel        |      |
|---------------------|-------------------|------|-------------------|------|-------------------|------|-------------------|------|-------------------|------|
|                     | 1990 <sup>a</sup> | 2001 | 1990 <sup>a</sup> | 2001 | 1990 <sup>a</sup> | 2001 | 1990 <sup>a</sup> | 2001 | 1990 <sup>a</sup> | 2001 |
| Austria             | 28.3              | 27.5 | 26.9              | 21.5 | 29.5              | 33.8 | 14.0              | 15.4 | 1.2               | 1.8  |
| Belgium             |                   | 33.1 |                   | 20.3 |                   | 43.8 |                   | 1.5  |                   | 1.3  |
| Bulgaria            |                   | 11.9 |                   | 63.1 |                   | 18.6 |                   | 6.4  |                   | 0.0  |
| Canada              | 21.8              | 17.2 | 20.0              | 21.1 | 47.8              | 51.6 | 10.4              | 10.1 | 0.0               | 0.0  |
| Czech Republic      | 13.8              | 12.1 | 72.2              | 61.1 | 12.8              | 24.7 | 1.2               | 2.1  |                   | 0.0  |
| Denmark             | 29.8              | 25.8 | 47.4              | 29.2 | 14.1              | 32.2 | 8.7               | 12.8 | 0.0               | 0.0  |
| Estonia             |                   | 6.9  |                   | 68.0 |                   | 12.9 |                   | 12.0 |                   | 0.2  |
| European Community  |                   |      |                   |      |                   |      |                   |      |                   |      |
| Finland             | 29.6              | 22.1 | 24.4              | 19.4 | 13.4              | 18.1 | 24.8              | 29.6 | 7.9               | 10.8 |
| France              | 41.5              | 38.9 | 17.8              | 11.3 | 26.9              | 35.1 | 12.1              | 12.3 | 1.8               | 2.5  |
| Germany             | 17.1              | 21.3 | 59.6              | 41.9 | 20.5              | 33.5 | 1.6               | 2.6  | 1.3               | 0.8  |
| Greece <sup>b</sup> | 42.1              | 41.6 | 53.3              | 45.7 | 1.0               | 8.1  | 3.7               | 4.6  |                   | 0.0  |
| Iceland             |                   | 94.9 |                   | 3.6  |                   |      |                   | 1.3  |                   | 0.2  |
| Ireland             | 31.0              | 41.9 | 48.1              | 26.4 | 19.4              | 30.0 | 1.5               | 1.7  | 0.0               | 0.0  |
| Italy               |                   | 33.7 |                   | 11.5 |                   | 50.5 |                   | 2.3  |                   | 1.9  |
| Latvia              | 47.9              | 12.0 | 10.5              | 3.7  | 36.7              | 44.1 | 4.8               | 40.1 | 0.0               | 0.0  |
| Luxembourg          |                   |      |                   |      |                   |      |                   |      |                   |      |
| Netherlands         | 16.0              | 6.1  | 16.4              | 13.0 | 65.0              | 75.1 | 0.9               | 1.2  | 1.8               | 4.7  |
| New Zealand         |                   | 9.6  |                   | 11.1 |                   | 70.9 |                   | 8.4  |                   | 0.0  |
| Norway              | 48.5              | 36.0 | 2.5               | 2.1  | 33.7              | 45.6 | 13.7              | 14.6 | 1.5               | 1.8  |
| Poland              |                   | 12.2 |                   | 72.2 |                   | 10.5 |                   | 5.1  |                   | 0.0  |
| Portugal            | 53.3              | 49.4 | 23.5              | 21.9 | 0.3               | 11.1 | 22.6              | 17.2 | 0.2               | 0.3  |
| Romania             |                   | 13.4 |                   | 31.9 |                   | 44.6 |                   | 6.5  |                   | 3.6  |
| Slovakia            |                   | 6.2  |                   | 29.1 |                   | 50.6 |                   | 0.9  |                   | 13.2 |
| Spain               | 43.5              | 39.0 | 38.7              | 28.2 | 9.5               | 26.4 | 8.1               | 5.8  | 0.3               | 0.5  |
| Sweden              | 53.9              | 43.6 | 16.1              | 13.6 | 3.9               | 5.2  | 21.5              | 31.8 | 4.7               | 5.8  |
| Switzerland         | 72.9              | 65.8 | 4.5               | 1.7  | 18.1              | 27.0 | 4.6               | 5.5  | 0.0               | 0.0  |
| United Kingdom      | 22.2              | 17.0 | 44.1              | 29.1 | 33.1              | 52.1 | 0.5               | 1.2  | 0.1               | 0.5  |
| United States       | 23.6              | 21.7 | 35.1              | 36.0 | 36.3              | 38.0 | 4.3               | 3.7  | 0.8               | 0.6  |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

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.

**Table 1.14****Energy industries: all fuels – trend information****CO<sub>2</sub> emissions (Gg)**

|                               | 1990 <sup>a</sup> | 1995      | 1996      | 1997      | 1998      | 1999      | 2000      | 2001      |
|-------------------------------|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Austria</b>                | 13,225            | 12,427    | 13,700    | 13,681    | 12,851    | 12,899    | 12,236    | 14,375    |
| <b>Belgium</b>                | 28,572            | 30,327    | 29,293    | 27,960    | 30,011    | 27,022    | 27,482    | 26,669    |
| <b>Bulgaria</b>               | 37,002            | 31,623    | 30,726    | 30,994    | 27,199    | 25,913    | 26,267    | 29,070    |
| <b>Canada</b>                 | 144,277           | 152,961   | 152,221   | 159,791   | 177,041   | 186,477   | 199,174   | 200,765   |
| <b>Czech Republic</b>         | 59,171            |           | 57,818    | 59,180    | 58,706    | 53,848    | 60,160    | 59,538    |
| <b>Denmark</b>                | 26,202            | 32,093    | 44,412    | 35,433    | 31,504    | 28,250    | 25,121    | 26,375    |
| <b>Estonia</b>                | 29,753            | 16,363    | 17,127    | 16,850    | 14,791    | 13,478    | 13,945    | 13,912    |
| <b>European Community</b>     | 1,144,434         | 1,079,944 | 1,093,426 | 1,058,364 | 1,088,645 | 1,070,061 | 1,102,660 | 1,119,301 |
| <b>Finland</b>                | 18,517            | 22,456    | 27,509    | 24,673    | 21,395    | 21,029    | 19,815    | 26,762    |
| <b>France</b>                 | 67,636            | 57,955    | 62,322    | 58,891    | 71,382    | 64,657    | 63,694    | 57,487    |
| <b>Germany</b>                | 412,896           | 351,862   | 357,461   | 339,487   | 341,258   | 327,852   | 340,043   | 345,293   |
| <b>Greece<sup>b</sup></b>     | 43,302            | 45,056    | 44,205    | 47,668    | 50,254    | 50,220    | 55,058    | 55,579    |
| <b>Iceland</b>                | 4                 | 3         | 4         | 2         | 4         | 3         | 3         | 3         |
| <b>Ireland</b>                | 11,057            | 13,239    | 13,959    | 14,643    | 15,047    | 15,728    | 16,016    | 17,145    |
| <b>Italy</b>                  | 138,957           | 142,785   | 139,231   | 142,246   | 150,342   | 149,379   | 157,835   | 155,279   |
| <b>Latvia</b>                 | 10,309            | 4,805     | 4,266     | 3,438     | 3,367     | 2,773     | 2,454     | 2,617     |
| <b>Luxembourg<sup>b</sup></b> |                   |           |           |           |           | 103       | 255       | 266       |
| <b>Netherlands</b>            | 51,305            | 56,540    | 58,338    | 57,181    | 60,195    | 56,671    | 61,222    | 64,776    |
| <b>New Zealand</b>            | 6,032             | 4,728     | 5,314     | 6,945     | 5,197     | 6,520     | 6,126     | 7,581     |
| <b>Norway</b>                 | 7,247             | 8,922     | 9,776     | 10,240    | 9,861     | 9,489     | 10,488    | 10,735    |
| <b>Poland</b>                 | 260,537           | 187,346   | 195,987   | 192,784   | 184,916   | 180,001   | 176,324   | 177,878   |
| <b>Portugal</b>               | 16,199            | 19,546    | 15,883    | 16,353    | 18,854    | 24,849    | 21,280    | 21,953    |
| <b>Romania</b>                | 89,214            | 52,921    | 54,172    | 60,209    | 41,459    | 42,225    | 35,911    | 62,180    |
| <b>Slovakia</b>               | 50,654            | 36,685    | 37,194    | 37,212    | 35,139    | 34,066    | 9,768     | 10,553    |
| <b>Spain</b>                  | 77,030            | 85,421    | 72,893    | 84,807    | 83,723    | 99,547    | 104,082   | 98,417    |
| <b>Sweden</b>                 | 10,169            | 11,575    | 15,724    | 11,490    | 12,671    | 11,127    | 8,336     | 9,697     |
| <b>Switzerland</b>            | 976               | 1,121     | 1,295     | 1,212     | 1,435     | 1,191     | 990       | 1,070     |
| <b>United Kingdom</b>         | 228,090           | 197,841   | 197,758   | 183,447   | 189,091   | 180,729   | 190,184   | 199,229   |
| <b>United States</b>          | 1,804,982         | 1,931,768 | 2,003,873 | 2,070,836 | 2,160,348 | 2,173,496 | 2,277,831 | 2,242,763 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 10.2         | -0.1         | -6.1         | 0.4          | -5.1         | 17.5         | 8.7          |
| <b>Belgium</b>            | -3.4         | -4.6         | 7.3          | -10.0        | 1.7          | -3.0         | -6.7         |
| <b>Bulgaria</b>           | -2.8         | 0.9          | -12.2        | -4.7         | 1.4          | 10.7         | -21.4        |
| <b>Canada</b>             | -0.5         | 5.0          | 10.8         | 5.3          | 6.8          | 0.8          | 39.2         |
| <b>Czech Republic</b>     |              | 2.4          | -0.8         | -8.3         | 11.7         | -1.0         | 0.6          |
| <b>Denmark</b>            | 38.4         | -20.2        | -11.1        | -10.3        | -11.1        | 5.0          | 0.7          |
| <b>Estonia</b>            | 4.7          | -1.6         | -12.2        | -8.9         | 3.5          | -0.2         | -53.2        |
| <b>European Community</b> | 1.2          | -3.2         | 2.9          | -1.7         | 3.0          | 1.5          | -2.2         |
| <b>Finland</b>            | 22.5         | -10.3        | -13.3        | -1.7         | -5.8         | 35.1         | 44.5         |
| <b>France</b>             | 7.5          | -5.5         | 21.2         | -9.4         | -1.5         | -9.7         | -15.0        |
| <b>Germany</b>            | 1.6          | -5.0         | 0.5          | -3.9         | 3.7          | 1.5          | -16.4        |
| <b>Greece</b>             | -1.9         | 7.8          | 5.4          | -0.1         | 9.6          | 0.9          | 28.4         |
| <b>Iceland</b>            | 16.4         | -45.9        | 97.1         | -23.0        | 2.1          | -15.8        | -31.0        |
| <b>Ireland</b>            | 5.4          | 4.9          | 2.8          | 4.5          | 1.8          | 7.0          | 55.1         |
| <b>Italy</b>              | -2.5         | 2.2          | 5.7          | -0.6         | 5.7          | -1.6         | 11.7         |
| <b>Latvia</b>             | -11.2        | -19.4        | -2.1         | -17.6        | -11.5        | 6.6          | -74.6        |
| <b>Luxembourg</b>         |              |              |              |              | 147.0        | 4.4          |              |
| <b>Netherlands</b>        | 3.2          | -2.0         | 5.3          | -5.9         | 8.0          | 5.8          | 26.3         |
| <b>New Zealand</b>        | 12.4         | 30.7         | -25.2        | 25.5         | -6.0         | 23.8         | 25.7         |
| <b>Norway</b>             | 9.6          | 4.7          | -3.7         | -3.8         | 10.5         | 2.4          | 48.1         |
| <b>Poland</b>             | 4.6          | -1.6         | -4.1         | -2.7         | -2.0         | 0.9          | -31.7        |
| <b>Portugal</b>           | -18.7        | 3.0          | 15.3         | 31.8         | -14.4        | 3.2          | 35.5         |
| <b>Romania</b>            | 2.4          | 11.1         | -31.1        | 1.8          | -15.0        | 73.1         | -30.3        |
| <b>Slovakia</b>           | 1.4          | 0.0          | -5.6         | -3.1         | -71.3        | 8.0          | -79.2        |
| <b>Spain</b>              | -14.7        | 16.3         | -1.3         | 18.9         | 4.6          | -5.4         | 27.8         |
| <b>Sweden</b>             | 35.8         | -26.9        | 10.3         | -12.2        | -25.1        | 16.3         | -4.6         |
| <b>Switzerland</b>        | 15.6         | -6.4         | 18.4         | -17.0        | -16.8        | 8.1          | 9.6          |
| <b>United Kingdom</b>     | 0.0          | -7.2         | 3.1          | -4.4         | 5.2          | 4.8          | -12.7        |
| <b>United States</b>      | 3.7          | 3.3          | 4.3          | 0.6          | 4.8          | -1.5         | 24.3         |

**Table 1.15****Energy industries: liquid fuels – trend information****CO<sub>2</sub> emissions (Gg)**

|                                | 1990 <sup>a</sup> | 1995   | 1996   | 1997   | 1998    | 1999   | 2000   | 2001    |
|--------------------------------|-------------------|--------|--------|--------|---------|--------|--------|---------|
| <b>Austria</b>                 | 2,860             | 3,347  | 3,685  | 3,984  | 4,454   | 4,044  | 3,111  | 3,524   |
| <b>Belgium</b>                 |                   |        |        |        |         |        | 4,898  | 6,037   |
| <b>Bulgaria</b>                |                   |        |        |        |         |        | 710    | 727     |
| <b>Canada</b>                  | 35,451            | 33,869 | 32,273 | 33,766 | 37,679  | 39,241 | 39,172 | 42,235  |
| <b>Czech Republic</b>          | 1,790             |        |        |        | 1,726   | 1,712  | 1,574  | 1,595   |
| <b>Denmark</b>                 | 1,847             | 4,103  | 5,829  | 5,237  | 4,718   | 4,521  | 4,213  | 4,151   |
| <b>Estonia<sup>b</sup></b>     |                   |        |        |        |         | 1,321  | 1,115  | 717     |
| <b>European Community</b>      |                   |        |        |        |         |        | NE     | NE      |
| <b>Finland</b>                 | 2,607             | 2,972  | 3,145  | 2,608  | 2,844   | 2,871  | 2,502  | 2,934   |
| <b>France</b>                  | 20,926            | 21,244 | 21,144 | 21,922 | 24,136  | 22,680 | 22,659 | 22,741  |
| <b>Germany</b>                 | 24,972            | 25,695 | 25,606 | 23,472 | 23,665  | 21,956 | 21,967 | 21,717  |
| <b>Greece<sup>b</sup></b>      | 7,948             | 9,009  | 9,165  | 8,979  | 8,863   | 8,428  | 9,731  | 9,329   |
| <b>Iceland<sup>b</sup></b>     |                   |        |        |        |         | 3      | 3      | 3       |
| <b>Ireland</b>                 | 1,268             | 2,174  | 2,181  | 2,857  | 3,584   | 4,602  | 3,781  | 4,270   |
| <b>Italy</b>                   |                   |        |        |        |         |        |        | 77,027  |
| <b>Latvia</b>                  | 4,891             | 2,886  | 2,711  | 1,331  | 1,436   | 1,180  | 598    | 402     |
| <b>Luxembourg</b>              |                   |        |        |        |         | 3      |        |         |
| <b>Netherlands</b>             | 9,383             | 9,828  | 9,911  | 9,966  | 9,441   | 435    | 1,478  | 1,851   |
| <b>New Zealand<sup>b</sup></b> |                   | 271    | 214    | 153    |         |        | 168    | 180     |
| <b>Norway</b>                  | 1,792             |        |        |        | 2,378   | 2,519  | 2,446  | 1,850   |
| <b>Poland<sup>b</sup></b>      |                   |        |        |        |         |        | 7,694  | 7,702   |
| <b>Portugal</b>                | 8,293             | 8,218  | 5,460  | 5,533  | 8,130   | 8,293  | 6,890  | 8,270   |
| <b>Romania<sup>b</sup></b>     |                   | 11,514 | 13,286 | 14,002 | 9,245   | 8,292  | 6,010  | 8,098   |
| <b>Slovakia<sup>b</sup></b>    |                   |        |        |        | 1,302   |        | 88     | 70      |
| <b>Spain</b>                   | 16,734            | 20,279 | 18,571 | 17,661 | 19,658  | 23,529 | 23,463 | 24,617  |
| <b>Sweden</b>                  | 4,268             | 5,903  | 8,881  | 5,829  | 6,361   | 5,775  | 3,184  | 3,853   |
| <b>Switzerland</b>             | 691               |        |        |        |         |        |        | 722     |
| <b>United Kingdom</b>          | 38,940            | 30,876 | 30,067 | 24,357 | 23,060  | 21,666 | 19,473 | 19,808  |
| <b>United States</b>           | 99,010            | 59,710 | 64,530 | 73,506 | 103,231 | 95,613 | 89,935 | 100,676 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 10.1         | 8.1          | 11.8         | -9.2         | -23.1        | 13.3         | 23.2         |
| <b>Belgium</b>            |              |              |              |              |              | 23.2         |              |
| <b>Bulgaria</b>           |              |              |              |              |              | 2.3          |              |
| <b>Canada</b>             | -4.7         | 4.6          | 11.6         | 4.1          | -0.2         | 7.8          | 19.1         |
| <b>Czech Republic</b>     |              |              |              | -0.8         | -8.1         | 1.4          | -10.9        |
| <b>Denmark</b>            | 42.1         | -10.2        | -9.9         | -4.2         | -6.8         | -1.5         | 124.7        |
| <b>Estonia</b>            |              |              |              |              | -15.6        | -35.7        |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | 5.8          | -17.1        | 9.0          | 1.0          | -12.9        | 17.3         | 12.5         |
| <b>France</b>             | -0.5         | 3.7          | 10.1         | -6.0         | -0.1         | 0.4          | 8.7          |
| <b>Germany</b>            | -0.3         | -8.3         | 0.8          | -7.2         | 0.1          | -1.1         | -13.0        |
| <b>Greece</b>             | 1.7          | -2.0         | -1.3         | -4.9         | 15.5         | -4.1         | 17.4         |
| <b>Iceland</b>            |              |              |              |              | 2.1          | -15.8        |              |
| <b>Ireland</b>            | 0.3          | 31.0         | 25.5         | 28.4         | -17.8        | 13.0         | 236.9        |
| <b>Italy</b>              |              |              |              |              |              |              |              |
| <b>Latvia</b>             | -6.1         | -50.9        | 7.9          | -17.8        | -49.4        | -32.7        | -91.8        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | 0.8          | 0.6          | -5.3         | -95.4        | 239.7        | 25.2         | -80.3        |
| <b>New Zealand</b>        | -21.1        | -28.5        |              |              |              | 7.2          |              |
| <b>Norway</b>             |              |              |              | 5.9          | -2.9         | -24.4        | 3.3          |
| <b>Poland</b>             |              |              |              |              |              | 0.1          |              |
| <b>Portugal</b>           | -33.6        | 1.3          | 46.9         | 2.0          | -16.9        | 20.0         | -0.3         |
| <b>Romania</b>            | 15.4         | 5.4          | -34.0        | -10.3        | -27.5        | 34.7         |              |
| <b>Slovakia</b>           |              |              |              |              |              | -21.2        |              |
| <b>Spain</b>              | -8.4         | -4.9         | 11.3         | 19.7         | -0.3         | 4.9          | 47.1         |
| <b>Sweden</b>             | 50.5         | -34.4        | 9.1          | -9.2         | -44.9        | 21.0         | -9.7         |
| <b>Switzerland</b>        |              |              |              |              |              | 300.0        | 4.4          |
| <b>United Kingdom</b>     | -2.6         | -19.0        | -5.3         | -6.0         | -10.1        | 1.7          | -49.1        |
| <b>United States</b>      | 8.1          | 13.9         | 40.4         | -7.4         | -5.9         | 11.9         | 1.7          |

**Table 1.16****Energy industries: solid fuels – trend information****CO<sub>2</sub> emissions (Gg)**

|                                | 1990 <sup>a</sup> | 1995      | 1996      | 1997      | 1998      | 1999      | 2000      | 2001      |
|--------------------------------|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Austria</b>                 | 6,255             | 4,530     | 4,714     | 5,003     | 3,514     | 3,870     | 4,983     | 5,846     |
| <b>Belgium</b>                 |                   |           |           |           |           |           | 14,187    | 12,461    |
| <b>Bulgaria</b>                |                   |           |           |           |           |           | 22,755    | 25,650    |
| <b>Canada</b>                  | 78,674            | 83,079    | 84,800    | 91,329    | 97,337    | 96,700    | 104,694   | 103,643   |
| <b>Czech Republic</b>          | 55,516            |           |           |           | 54,562    | 49,539    | 56,098    | 55,575    |
| <b>Denmark</b>                 | 22,457            | 24,207    | 33,931    | 24,983    | 20,849    | 17,567    | 14,552    | 15,579    |
| <b>Estonia<sup>b</sup></b>     |                   |           |           |           |           | 10,960    | 11,186    | 12,071    |
| <b>European Community</b>      |                   |           |           |           |           |           | NE        | NE        |
| <b>Finland</b>                 | 9,279             | 9,724     | 13,895    | 12,044    | 8,171     | 8,309     | 8,034     | 10,211    |
| <b>France</b>                  | 38,372            | 28,203    | 31,994    | 27,830    | 37,851    | 32,457    | 31,511    | 25,374    |
| <b>Germany</b>                 | 364,146           | 302,365   | 304,370   | 289,733   | 290,101   | 277,556   | 290,984   | 294,541   |
| <b>Greece<sup>b</sup></b>      | 35,257            | 35,953    | 34,941    | 38,466    | 40,501    | 39,764    | 42,259    | 43,219    |
| <b>Iceland<sup>b</sup></b>     |                   |           |           |           |           |           |           |           |
| <b>Ireland</b>                 | 7,909             | 8,645     | 8,856     | 8,606     | 8,145     | 7,454     | 8,084     | 8,689     |
| <b>Italy</b>                   |                   |           |           |           |           |           |           | 39,228    |
| <b>Latvia</b>                  | 1,312             | 538       | 567       | 356       | 263       | 157       | 262       | 161       |
| <b>Luxembourg</b>              |                   |           |           |           |           |           |           |           |
| <b>Netherlands</b>             | 22,008            | 22,191    | 21,930    | 24,060    | 26,715    | 22,040    | 111       | 21,576    |
| <b>New Zealand<sup>b</sup></b> |                   | 561       | 614       | 1,199     |           |           | 844       | 1,284     |
| <b>Norway</b>                  | 52                |           |           |           | 63        | 63        | 58        | 66        |
| <b>Poland<sup>b</sup></b>      |                   |           |           |           |           |           | 167,122   | 168,331   |
| <b>Portugal</b>                | 7,906             | 11,328    | 10,422    | 10,764    | 9,889     | 12,612    | 12,238    | 11,416    |
| <b>Romania<sup>b</sup></b>     |                   | 24,945    | 24,071    | 32,192    | 17,131    | 22,168    | 17,665    | 37,845    |
| <b>Slovakia<sup>b</sup></b>    |                   |           |           |           | 15,261    |           | 5,342     | 5,945     |
| <b>Spain</b>                   | 59,443            | 64,494    | 52,812    | 61,984    | 61,022    | 72,586    | 76,292    | 69,063    |
| <b>Sweden</b>                  | 4,873             | 4,317     | 5,388     | 4,209     | 4,748     | 3,905     | 3,721     | 4,371     |
| <b>Switzerland</b>             | 50                |           |           |           |           |           |           | NO        |
| <b>United Kingdom</b>          | 180,801           | 126,668   | 117,122   | 99,703    | 102,650   | 87,366    | 98,617    | 108,088   |
| <b>United States</b>           | 1,530,255         | 1,643,369 | 1,733,977 | 1,778,078 | 1,808,723 | 1,817,453 | 1,906,896 | 1,856,818 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 4.1          | 6.1          | -29.8        | 10.1         | 28.8         | 17.3         | -6.5         |
| <b>Belgium</b>            |              |              |              |              |              | -12.2        |              |
| <b>Bulgaria</b>           |              |              |              |              |              | 12.7         |              |
| <b>Canada</b>             | 2.1          | 7.7          | 6.6          | -0.7         | 8.3          | -1.0         | 31.7         |
| <b>Czech Republic</b>     |              |              |              | -9.2         | 13.2         | -0.9         | 0.1          |
| <b>Denmark</b>            | 40.2         | -26.4        | -16.5        | -15.7        | -17.2        | 7.1          | -30.6        |
| <b>Estonia</b>            |              |              |              |              | 2.1          | 7.9          |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | 42.9         | -13.3        | -32.2        | 1.7          | -3.3         | 27.1         | 10.0         |
| <b>France</b>             | 13.4         | -13.0        | 36.0         | -14.3        | -2.9         | -19.5        | -33.9        |
| <b>Germany</b>            | 0.7          | -4.8         | 0.1          | -4.3         | 4.8          | 1.2          | -19.1        |
| <b>Greece</b>             | -2.8         | 10.1         | 5.3          | -1.8         | 6.3          | 2.3          | 22.6         |
| <b>Iceland</b>            |              |              |              |              |              |              |              |
| <b>Ireland</b>            | 2.4          | -2.8         | -5.4         | -8.5         | 8.5          | 7.5          | 9.9          |
| <b>Italy</b>              |              |              |              |              |              |              |              |
| <b>Latvia</b>             | 5.4          | -37.2        | -26.1        | -40.3        | 67.2         | -38.6        | -87.7        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | -1.2         | 9.7          | 11.0         | -17.5        | -99.5        | 19,331.2     | -2.0         |
| <b>New Zealand</b>        | 9.6          | 95.2         |              |              |              | 52.1         |              |
| <b>Norway</b>             |              |              |              | 0.9          | -8.4         | 14.4         | 27.9         |
| <b>Poland</b>             |              |              |              |              |              | 0.7          |              |
| <b>Portugal</b>           | -8.0         | 3.3          | -8.1         | 27.5         | -3.0         | -6.7         | 44.4         |
| <b>Romania</b>            | -3.5         | 33.7         | -46.8        | 29.4         | -20.3        | 114.2        |              |
| <b>Slovakia</b>           |              |              |              |              |              | 11.3         |              |
| <b>Spain</b>              | -18.1        | 17.4         | -1.6         | 19.0         | 5.1          | -9.5         | 16.2         |
| <b>Sweden</b>             | 24.8         | -21.9        | 12.8         | -17.8        | -4.7         | 17.5         | -10.3        |
| <b>Switzerland</b>        |              |              |              |              |              |              |              |
| <b>United Kingdom</b>     | -7.5         | -14.9        | 3.0          | -14.9        | 12.9         | 9.6          | -40.2        |
| <b>United States</b>      | 5.5          | 2.5          | 1.7          | 0.5          | 4.9          | -2.6         | 21.3         |

**Table 1.17****Energy industries: gaseous fuels – trend information****CO<sub>2</sub> emissions (Gg)**

|                                | 1990 <sup>a</sup> | 1995    | 1996    | 1997    | 1998    | 1999    | 2000    | 2001    |
|--------------------------------|-------------------|---------|---------|---------|---------|---------|---------|---------|
| <b>Austria</b>                 | 3,960             | 4,290   | 4,974   | 4,350   | 4,550   | 4,644   | 3,700   | 4,447   |
| <b>Belgium</b>                 |                   |         |         |         |         |         | 8,137   | 7,902   |
| <b>Bulgaria</b>                |                   |         |         |         |         |         | 2,801   | 2,694   |
| <b>Canada</b>                  | 30,152            | 36,013  | 35,148  | 34,695  | 42,025  | 50,537  | 55,308  | 54,887  |
| <b>Czech Republic</b>          | 1,866             |         |         |         | 2,417   | 2,597   | 2,488   | 2,368   |
| <b>Denmark</b>                 | 1,520             | 3,325   | 4,177   | 4,703   | 5,424   | 5,631   | 5,786   | 6,029   |
| <b>Estonia<sup>b</sup></b>     |                   |         |         |         |         | 1,197   | 1,644   | 1,124   |
| <b>European Community</b>      |                   |         |         |         |         |         | NE      | NE      |
| <b>Finland</b>                 | 2,659             | 3,552   | 3,920   | 4,000   | 4,738   | 4,756   | 5,017   | 5,882   |
| <b>France</b>                  | 1,583             | 1,966   | 2,700   | 2,697   | 2,670   | 2,244   | 2,242   | 2,179   |
| <b>Germany</b>                 | 22,194            | 23,225  | 26,911  | 25,662  | 26,857  | 27,191  | 26,445  | 28,337  |
| <b>Greece<sup>b</sup></b>      | 97                | 94      | 99      | 224     | 890     | 2,028   | 3,067   | 3,032   |
| <b>Iceland<sup>b</sup></b>     |                   |         |         |         |         |         |         |         |
| <b>Ireland</b>                 | 1,881             | 2,420   | 2,923   | 3,181   | 3,270   | 3,598   | 4,098   | 4,186   |
| <b>Italy</b>                   |                   |         |         |         |         |         |         | 38,764  |
| <b>Latvia</b>                  | 4,107             | 1,382   | 989     | 1,752   | 1,668   | 1,436   | 1,594   | 2,053   |
| <b>Luxembourg</b>              |                   |         |         |         |         | 100     |         |         |
| <b>Netherlands</b>             | 15,513            | 18,780  | 21,120  | 22,128  | 21,712  | 22,676  | 21,095  | 24,651  |
| <b>New Zealand<sup>b</sup></b> |                   | 2,935   | 3,807   | 5,227   |         |         | 5,104   | 6,118   |
| <b>Norway</b>                  | 5,306             |         |         |         | 7,303   | 6,778   | 7,838   | 8,672   |
| <b>Poland<sup>b</sup></b>      |                   |         |         |         |         |         | 1,508   | 1,846   |
| <b>Portugal</b>                |                   |         |         | 56      | 835     | 3,944   | 2,153   | 2,267   |
| <b>Romania<sup>b</sup></b>     |                   | 16,462  | 16,815  | 14,015  | 15,084  | 11,765  | 12,236  | 15,741  |
| <b>Slovakia<sup>b</sup></b>    |                   |         |         |         | 8,752   |         | 3,672   | 3,697   |
| <b>Spain</b>                   | 656               | 405     | 1,199   | 4,743   | 2,638   | 3,001   | 3,895   | 4,279   |
| <b>Sweden</b>                  | 435               | 692     | 685     | 690     | 663     | 670     | 649     | 742     |
| <b>Switzerland</b>             | 235               |         |         |         |         |         |         | 348     |
| <b>United Kingdom</b>          | 8,215             | 39,690  | 49,863  | 58,635  | 62,507  | 70,898  | 71,399  | 70,584  |
| <b>United States</b>           | 175,320           | 228,323 | 204,989 | 218,873 | 248,014 | 260,050 | 280,639 | 284,915 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 15.9         | -12.5        | 4.6          | 2.1          | -20.3        | 20.2         | 12.3         |
| <b>Belgium</b>            |              |              |              |              |              | -2.9         |              |
| <b>Bulgaria</b>           |              |              |              |              |              | -3.8         |              |
| <b>Canada</b>             | -2.4         | -1.3         | 21.1         | 20.3         | 9.4          | -0.8         | 82.0         |
| <b>Czech Republic</b>     |              |              |              | 7.4          | -4.2         | -4.8         | 26.9         |
| <b>Denmark</b>            | 25.6         | 12.6         | 15.3         | 3.8          | 2.8          | 4.2          | 296.7        |
| <b>Estonia</b>            |              |              |              |              | 37.3         | -31.6        |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | 10.4         | 2.0          | 18.5         | 0.4          | 5.5          | 17.2         | 121.2        |
| <b>France</b>             | 37.3         | -0.1         | -1.0         | -16.0        | -0.1         | -2.8         | 37.6         |
| <b>Germany</b>            | 15.9         | -4.6         | 4.7          | 1.2          | -2.7         | 7.2          | 27.7         |
| <b>Greece</b>             | 5.4          | 126.4        | 298.3        | 127.8        | 51.2         | -1.2         | 3,026.7      |
| <b>Iceland</b>            |              |              |              |              |              |              |              |
| <b>Ireland</b>            | 20.7         | 8.8          | 2.8          | 10.0         | 13.9         | 2.1          | 122.6        |
| <b>Italy</b>              |              |              |              |              |              |              |              |
| <b>Latvia</b>             | -28.4        | 77.1         | -4.8         | -13.9        | 11.0         | 28.8         | -50.0        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | 12.5         | 4.8          | -1.9         | 4.4          | -7.0         | 16.9         | 58.9         |
| <b>New Zealand</b>        | 29.7         | 37.3         |              |              |              | 19.9         |              |
| <b>Norway</b>             |              |              |              | -7.2         | 15.6         | 10.6         | 63.4         |
| <b>Poland</b>             |              |              |              |              |              | 22.4         |              |
| <b>Portugal</b>           |              |              | 1,392.4      | 372.2        | -45.4        | 5.3          |              |
| <b>Romania</b>            | 2.1          | -16.7        | 7.6          | -22.0        | 4.0          | 28.6         |              |
| <b>Slovakia</b>           |              |              |              |              |              | 0.7          |              |
| <b>Spain</b>              | 196.2        | 295.5        | -44.4        | 13.8         | 29.8         | 9.9          | 552.7        |
| <b>Sweden</b>             | -1.1         | 0.8          | -4.0         | 1.2          | -3.2         | 14.3         | 70.6         |
| <b>Switzerland</b>        |              |              |              |              |              | 8.6          | 48.2         |
| <b>United Kingdom</b>     | 25.6         | 17.6         | 6.6          | 13.4         | 0.7          | -1.1         | 759.3        |
| <b>United States</b>      | -10.2        | 6.8          | 13.3         | 4.9          | 7.9          | 1.5          | 62.5         |

**Table 1.18****Contribution of fuels in CO<sub>2</sub> emissions from energy industries (%)**

|                           | Liquid fuels      |       | Solid fuels       |      | Gaseous fuels     |      |
|---------------------------|-------------------|-------|-------------------|------|-------------------|------|
|                           | 1990 <sup>a</sup> | 2001  | 1990 <sup>a</sup> | 2001 | 1990 <sup>a</sup> | 2001 |
| <b>Austria</b>            | 21.6              | 24.5  | 47.3              | 40.7 | 29.9              | 30.9 |
| <b>Belgium</b>            |                   | 22.6  |                   | 46.7 |                   | 29.6 |
| <b>Bulgaria</b>           |                   | 2.5   |                   | 88.2 |                   | 9.3  |
| <b>Canada</b>             | 24.6              | 21.0  | 54.5              | 51.6 | 20.9              | 27.3 |
| <b>Czech Republic</b>     | 3.0               | 2.7   | 93.8              | 93.3 | 3.2               | 4.0  |
| <b>Denmark</b>            | 7.0               | 15.7  | 85.7              | 59.1 | 5.8               | 22.9 |
| <b>Estonia</b>            |                   | 5.2   |                   | 86.8 |                   | 8.1  |
| <b>European Community</b> |                   |       |                   |      |                   |      |
| <b>Finland</b>            | 14.1              | 11.0  | 50.1              | 38.2 | 14.4              | 22.0 |
| <b>France</b>             | 30.9              | 39.6  | 56.7              | 44.1 | 2.3               | 3.8  |
| <b>Germany</b>            | 6.0               | 6.3   | 88.2              | 85.3 | 5.4               | 8.2  |
| <b>Greece<sup>b</sup></b> | 18.4              | 16.8  | 81.4              | 77.8 | 0.2               | 5.5  |
| <b>Iceland</b>            |                   | 100.0 |                   |      |                   |      |
| <b>Ireland</b>            | 11.5              | 24.9  | 71.5              | 50.7 | 17.0              | 24.4 |
| <b>Italy</b>              |                   | 49.6  |                   | 25.3 |                   | 25.0 |
| <b>Latvia</b>             | 47.4              | 15.4  | 12.7              | 6.2  | 39.8              | 78.5 |
| <b>Luxembourg</b>         |                   |       |                   |      |                   |      |
| <b>Netherlands</b>        | 18.3              | 2.9   | 42.9              | 33.3 | 30.2              | 38.1 |
| <b>New Zealand</b>        |                   | 2.4   |                   | 16.9 |                   | 80.7 |
| <b>Norway</b>             | 24.7              | 17.2  | 0.7               | 0.6  | 73.2              | 80.8 |
| <b>Poland</b>             |                   | 4.3   |                   | 94.6 |                   | 1.0  |
| <b>Portugal</b>           | 51.2              | 37.7  | 48.8              | 52.0 |                   | 10.3 |
| <b>Romania</b>            |                   | 13.0  |                   | 60.9 |                   | 25.3 |
| <b>Slovakia</b>           |                   | 0.7   |                   | 56.3 |                   | 35.0 |
| <b>Spain</b>              | 21.7              | 25.0  | 77.2              | 70.2 | 0.9               | 4.3  |
| <b>Sweden</b>             | 42.0              | 39.7  | 47.9              | 45.1 | 4.3               | 7.7  |
| <b>Switzerland</b>        | 70.8              | 67.5  | 5.1               | NO   | 24.1              | 32.5 |
| <b>United Kingdom</b>     | 17.1              | 9.9   | 79.3              | 54.3 | 3.6               | 35.4 |
| <b>United States</b>      | 5.5               | 4.5   | 84.8              | 82.8 | 9.7               | 12.7 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.



**Table 1.19****Manufacturing industries and construction: all fuels – trend information****CO<sub>2</sub> emissions (Gg)**

|                                   | 1990 <sup>a</sup> | 1995      | 1996      | 1997      | 1998      | 1999    | 2000    | 2001    |
|-----------------------------------|-------------------|-----------|-----------|-----------|-----------|---------|---------|---------|
| <b>Austria</b>                    | 6,927             | 8,730     | 8,959     | 9,815     | 9,601     | 8,772   | 9,061   | 7,752   |
| <b>Belgium</b>                    | 33,181            | 33,473    | 31,277    | 32,301    | 33,851    | 34,102  | 34,001  | 33,589  |
| <b>Bulgaria</b>                   | 35,755            | 14,582    | 14,010    | 13,968    | 11,401    | 9,488   | 8,605   | 8,196   |
| <b>Canada</b>                     | 62,090            | 61,490    | 64,199    | 64,334    | 61,109    | 60,918  | 63,951  | 59,657  |
| <b>Czech Republic<sup>b</sup></b> | 59,457            |           | 43,867    | 43,341    | 35,376    | 34,156  | 36,130  | 34,879  |
| <b>Denmark</b>                    | 5,605             | 6,705     | 6,888     | 6,763     | 6,081     | 6,129   | 5,823   | 5,909   |
| <b>Estonia</b>                    | 2,655             | 633       | 730       | 655       | 666       | 660     | 483     | 588     |
| <b>European Community</b>         | 642,348           | 604,249   | 591,759   | 602,615   | 598,874   | 590,241 | 590,851 | 585,160 |
| <b>Finland</b>                    | 14,358            | 13,866    | 13,534    | 15,194    | 15,282    | 15,844  | 15,956  | 13,855  |
| <b>France</b>                     | 82,620            | 82,283    | 83,573    | 85,428    | 89,210    | 82,596  | 82,691  | 83,514  |
| <b>Germany</b>                    | 196,457           | 150,012   | 144,166   | 144,138   | 138,587   | 135,698 | 136,199 | 132,536 |
| <b>Greece<sup>b</sup></b>         | 9,792             | 9,603     | 10,412    | 10,570    | 10,772    | 9,552   | 10,415  | 10,390  |
| <b>Iceland</b>                    | 243               | 210       | 259       | 295       | 268       | 276     | 224     | 265     |
| <b>Ireland</b>                    | 3,833             | 3,528     | 3,512     | 3,988     | 3,917     | 4,238   | 4,743   | 4,726   |
| <b>Italy</b>                      | 84,033            | 83,204    | 80,967    | 83,865    | 80,065    | 81,082  | 80,103  | 77,095  |
| <b>Latvia</b>                     | 1,899             | 1,290     | 1,268     | 1,972     | 1,676     | 1,485   | 1,249   | 1,168   |
| <b>Luxembourg<sup>b</sup></b>     |                   |           |           |           |           | 1,785   | 1,734   | 1,651   |
| <b>Netherlands</b>                | 41,888            | 42,601    | 43,000    | 38,868    | 42,437    | 42,300  | 39,677  | 40,197  |
| <b>New Zealand<sup>b</sup></b>    | 4,757             | 5,448     | 5,847     | 5,882     | 5,829     | 5,850   | 6,362   | 6,249   |
| <b>Norway</b>                     | 3,485             | 3,636     | 4,164     | 4,256     | 4,438     | 4,288   | 4,131   | 4,066   |
| <b>Poland<sup>b</sup></b>         | 62,994            | 68,122    | 74,682    | 70,024    | 63,186    | 53,271  | 52,056  | 47,184  |
| <b>Portugal</b>                   | 8,166             | 9,174     | 9,432     | 10,051    | 10,109    | 9,973   | 10,651  | 11,324  |
| <b>Romania</b>                    | 56,678            | 87,268    | 80,338    | 71,978    | 74,480    | 54,069  | 55,447  | 23,715  |
| <b>Slovakia<sup>b</sup></b>       |                   |           |           |           |           |         | 14,406  | 15,031  |
| <b>Spain</b>                      | 44,532            | 53,007    | 47,401    | 53,116    | 53,821    | 56,248  | 59,717  | 59,781  |
| <b>Sweden</b>                     | 11,567            | 13,019    | 12,478    | 12,748    | 12,494    | 11,780  | 12,652  | 12,695  |
| <b>Switzerland</b>                | 5,102             | 4,802     | 4,535     | 4,412     | 4,548     | 5,428   | 5,086   | 5,384   |
| <b>United Kingdom</b>             | 94,132            | 91,571    | 92,751    | 93,393    | 90,983    | 90,144  | 87,428  | 90,144  |
| <b>United States</b>              | 955,308           | 1,002,553 | 1,039,501 | 1,050,767 | 1,000,078 | 973,163 | 991,109 | 937,651 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 2.6          | 9.6          | -2.2         | -8.6         | 3.3          | -14.4        | 11.9         |
| <b>Belgium</b>            | -6.6         | 3.3          | 4.8          | 0.7          | -0.3         | -1.2         | 1.2          |
| <b>Bulgaria</b>           | -3.9         | -0.3         | -18.4        | -16.8        | -9.3         | -4.8         | -77.1        |
| <b>Canada</b>             | 4.4          | 0.2          | -5.0         | -0.3         | 5.0          | -6.7         | -3.9         |
| <b>Czech Republic</b>     |              | -1.2         | -18.4        | -3.4         | 5.8          | -3.5         | -41.3        |
| <b>Denmark</b>            | 2.7          | -1.8         | -10.1        | 0.8          | -5.0         | 1.5          | 5.4          |
| <b>Estonia</b>            | 15.2         | -10.2        | 1.7          | -1.0         | -26.8        | 21.8         | -77.8        |
| <b>European Community</b> | -2.1         | 1.8          | -0.6         | -1.4         | 0.1          | -1.0         | -8.9         |
| <b>Finland</b>            | -2.4         | 12.3         | 0.6          | 3.7          | 0.7          | -13.2        | -3.5         |
| <b>France</b>             | 1.6          | 2.2          | 4.4          | -7.4         | 0.1          | 1.0          | 1.1          |
| <b>Germany</b>            | -3.9         | 0.0          | -3.9         | -2.1         | 0.4          | -2.7         | -32.5        |
| <b>Greece</b>             | 8.4          | 1.5          | 1.9          | -11.3        | 9.0          | -0.2         | 6.1          |
| <b>Iceland</b>            | 23.5         | 13.8         | -9.2         | 3.1          | -18.6        | 18.3         | 9.3          |
| <b>Ireland</b>            | -0.5         | 13.5         | -1.8         | 8.2          | 11.9         | -0.4         | 23.3         |
| <b>Italy</b>              | -2.7         | 3.6          | -4.5         | 1.3          | -1.2         | -3.8         | -8.3         |
| <b>Latvia</b>             | -1.7         | 55.5         | -15.0        | -11.4        | -15.9        | -6.5         | -38.5        |
| <b>Luxembourg</b>         |              |              |              |              | -2.9         | -4.8         |              |
| <b>Netherlands</b>        | 0.9          | -9.6         | 9.2          | -0.3         | -6.2         | 1.3          | -4.0         |
| <b>New Zealand</b>        | 7.3          | 0.6          | -0.9         | 0.4          | 8.7          | -1.8         | 31.4         |
| <b>Norway</b>             | 14.5         | 2.2          | 4.3          | -3.4         | -3.6         | -1.6         | 16.7         |
| <b>Poland</b>             | 9.6          | -6.2         | -9.8         | -15.7        | -2.3         | -9.4         | -25.1        |
| <b>Portugal</b>           | 2.8          | 6.6          | 0.6          | -1.4         | 6.8          | 6.3          | 38.7         |
| <b>Romania</b>            | -8           | -10          | 3            | -27          | 3            | -57          | -58          |
| <b>Slovakia</b>           |              |              |              |              |              | 4.3          |              |
| <b>Spain</b>              | -10.6        | 12.1         | 1.3          | 4.5          | 6.2          | 0.1          | 34.2         |
| <b>Sweden</b>             | -4.2         | 2.2          | -2.0         | -5.7         | 7.4          | 0.3          | 9.7          |
| <b>Switzerland</b>        | -5.6         | -2.7         | 3.1          | 19.4         | -6.3         | 5.9          | 5.5          |
| <b>United Kingdom</b>     | 1.3          | 0.7          | -2.6         | -0.9         | -3.0         | 3.1          | -4.2         |
| <b>United States</b>      | 3.7          | 1.1          | -4.8         | -2.7         | 1.8          | -5.4         | -1.8         |

**Table 1.20****Manufacturing industries and construction: liquid fuels – trend information****CO<sub>2</sub> emissions (Gg)**

|                                   | 1990 <sup>a</sup> | 1995    | 1996    | 1997    | 1998    | 1999    | 2000    | 2001    |
|-----------------------------------|-------------------|---------|---------|---------|---------|---------|---------|---------|
| <b>Austria</b>                    | 2,311             | 2,956   | 3,070   | 3,585   | 3,426   | 2,923   | 2,856   | 2,610   |
| <b>Belgium</b>                    |                   |         |         |         |         |         | 5,259   | 5,433   |
| <b>Bulgaria<sup>b</sup></b>       |                   |         |         |         | 4,646   | 3,688   | 2,672   | 2,556   |
| <b>Canada</b>                     | 15,451            | 12,395  | 12,735  | 12,367  | 11,793  | 11,290  | 11,621  | 12,706  |
| <b>Czech Republic<sup>b</sup></b> | 9,917             |         |         |         | 7,451   | 7,533   | 7,689   | 7,220   |
| <b>Denmark</b>                    | 2,843             | 3,002   | 3,071   | 2,878   | 2,527   | 2,500   | 2,429   | 2,470   |
| <b>Estonia<sup>b</sup></b>        |                   |         |         |         |         | 88      | 95      | 104     |
| <b>European Community</b>         |                   |         |         |         |         |         | NE      | NE      |
| <b>Finland</b>                    | 4,294             | 3,611   | 3,580   | 4,018   | 4,101   | 4,790   | 4,775   | 4,494   |
| <b>France</b>                     | 30,033            | 29,638  | 30,258  | 29,807  | 32,000  | 28,244  | 26,880  | 27,705  |
| <b>Germany</b>                    | 28,392            | 27,730  | 26,484  | 25,313  | 24,285  | 22,173  | 16,734  | 14,997  |
| <b>Greece<sup>b</sup></b>         | 5,479             | 5,654   | 6,558   | 6,860   | 6,576   | 6,028   | 6,311   | 6,269   |
| <b>Iceland<sup>b</sup></b>        |                   |         |         |         |         | 268     | 280     | 218     |
| <b>Ireland</b>                    | 2,007             | 2,372   | 2,288   | 2,761   | 2,382   | 2,540   | 3,132   | 3,189   |
| <b>Italy</b>                      |                   |         |         |         |         |         |         | 24,366  |
| <b>Latvia</b>                     | 909               | 691     | 678     | 1,263   | 983     | 885     | 576     | 297     |
| <b>Luxembourg<sup>b</sup></b>     |                   |         |         |         |         | 370     |         |         |
| <b>Netherlands</b>                | 7,832             | 7,354   | 7,646   | 4,628   | 3,404   | 4,726   | 3,535   | 3,785   |
| <b>New Zealand<sup>b</sup></b>    |                   | 704     | 732     | 708     |         |         | 693     | 656     |
| <b>Norway</b>                     | 2,824             |         |         |         | 3,155   | 3,042   | 2,815   | 2,960   |
| <b>Poland<sup>b</sup></b>         |                   |         |         |         |         |         | 6,288   | 6,869   |
| <b>Portugal</b>                   | 5,543             | 6,878   | 7,096   | 7,822   | 7,676   | 7,026   | 6,375   | 8,079   |
| <b>Romania<sup>b</sup></b>        |                   | 49,135  | 44,628  | 38,687  | 45,237  | 34,161  | 35,938  | 4,127   |
| <b>Slovakia</b>                   |                   |         |         |         |         |         | 1,728   | 1,803   |
| <b>Spain</b>                      | 22,971            | 28,926  | 24,687  | 28,106  | 28,329  | 27,717  | 27,999  | 26,695  |
| <b>Sweden</b>                     | 7,295             | 8,669   | 8,099   | 8,792   | 8,552   | 8,195   | 7,938   | 7,773   |
| <b>Switzerland</b>                | 2,286             |         |         |         |         |         |         | 3,000   |
| <b>United Kingdom</b>             | 27,460            | 27,293  | 27,313  | 25,321  | 23,170  | 21,131  | 20,822  | 23,950  |
| <b>United States</b>              | 383,727           | 374,917 | 399,591 | 408,570 | 378,229 | 375,020 | 378,174 | 365,850 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 3.9          | 16.8         | -4.4         | -14.7        | -2.3         | -8.6         | 12.9         |
| <b>Belgium</b>            |              |              |              |              |              | 3.3          |              |
| <b>Bulgaria</b>           |              |              |              | -20.6        | -27.5        | -4.3         |              |
| <b>Canada</b>             | 2.7          | -2.9         | -4.6         | -4.3         | 2.9          | 9.3          | -17.8        |
| <b>Czech Republic</b>     |              |              |              | 1.1          | 2.1          | -6.1         | -27.2        |
| <b>Denmark</b>            | 2.3          | -6.3         | -12.2        | -1.1         | -2.8         | 1.7          | -13.1        |
| <b>Estonia</b>            |              |              |              |              | 6.9          | 9.7          |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | -0.9         | 12.2         | 2.1          | 16.8         | -0.3         | -5.9         | 4.7          |
| <b>France</b>             | 2.1          | -1.5         | 7.4          | -11.7        | -4.8         | 3.1          | -7.8         |
| <b>Germany</b>            | -4.5         | -4.4         | -4.1         | -8.7         | -24.5        | -10.4        | -47.2        |
| <b>Greece</b>             | 16.0         | 4.6          | -4.1         | -8.3         | 4.7          | -0.7         | 14.4         |
| <b>Iceland</b>            |              |              |              |              | 4.8          | -22.3        |              |
| <b>Ireland</b>            | -3.6         | 20.7         | -13.7        | 6.7          | 23.3         | 1.8          | 58.9         |
| <b>Italy</b>              |              |              |              |              |              |              |              |
| <b>Latvia</b>             | -1.8         | 86.4         | -22.2        | -10.0        | -34.9        | -48.4        | -67.3        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | 4.0          | -39.5        | -26.4        | 38.8         | -25.2        | 7.1          | -51.7        |
| <b>New Zealand</b>        | 4.0          | -3.3         |              |              |              | -5.4         |              |
| <b>Norway</b>             |              |              |              | -3.6         | -7.5         | 5.1          | 4.8          |
| <b>Poland</b>             |              |              |              |              |              | 9.2          |              |
| <b>Portugal</b>           | 3.2          | 10.2         | -1.9         | -8.5         | -9.3         | 26.7         | 45.7         |
| <b>Romania</b>            | -9.2         | -13.3        | 16.9         | -24.5        | 5.2          | -88.5        |              |
| <b>Slovakia</b>           |              |              |              |              |              | 4.3          |              |
| <b>Spain</b>              | -14.7        | 13.9         | 0.8          | -2.2         | 1.0          | -4.7         | 16.2         |
| <b>Sweden</b>             | -6.6         | 8.6          | -2.7         | -4.2         | -3.1         | -2.1         | 6.5          |
| <b>Switzerland</b>        |              |              |              |              |              | 22.2         | 31.3         |
| <b>United Kingdom</b>     | 0.1          | -7.3         | -8.5         | -8.8         | -1.5         | 15.0         | -12.8        |
| <b>United States</b>      | 6.6          | 2.2          | -7.4         | -0.8         | 0.8          | -3.3         | -4.7         |

**Table 1.21****Manufacturing industries and construction: solid fuels – trend information****CO<sub>2</sub> emissions (Gg)**

|                                   | 1990 <sup>a</sup> | 1995    | 1996    | 1997    | 1998    | 1999    | 2000    | 2001    |
|-----------------------------------|-------------------|---------|---------|---------|---------|---------|---------|---------|
| <b>Austria</b>                    | 451               | 584     | 633     | 832     | 879     | 627     | 785     | 462     |
| <b>Belgium</b>                    |                   |         |         |         |         |         | 12,810  | 12,416  |
| <b>Bulgaria<sup>b</sup></b>       |                   |         |         |         | 5,802   | 3,436   | 3,456   | 3,656   |
| <b>Canada</b>                     | 7,175             | 6,514   | 6,773   | 6,940   | 6,663   | 6,817   | 7,379   | 7,034   |
| <b>Czech Republic<sup>b</sup></b> | 43,555            |         |         |         | 20,758  | 19,370  | 21,737  | 20,061  |
| <b>Denmark</b>                    | 1,429             | 1,589   | 1,573   | 1,481   | 1,207   | 1,157   | 1,104   | 967     |
| <b>Estonia<sup>b</sup></b>        |                   |         |         |         |         | 519     | 324     | 402     |
| <b>European Community</b>         |                   |         |         |         |         |         | NE      | NE      |
| <b>Finland</b>                    | 6,410             | 5,665   | 5,399   | 5,875   | 5,780   | 5,734   | 5,965   | 5,476   |
| <b>France</b>                     | 28,993            | 25,910  | 25,251  | 26,320  | 25,377  | 24,875  | 25,468  | 24,647  |
| <b>Germany</b>                    | 120,391           | 72,295  | 68,819  | 70,178  | 65,105  | 63,064  | 69,263  | 67,046  |
| <b>Greece<sup>b</sup></b>         | 4,144             | 3,928   | 3,826   | 3,557   | 3,585   | 2,852   | 3,347   | 3,388   |
| <b>Iceland<sup>b</sup></b>        |                   |         |         |         |         | 33      | 34      | 45      |
| <b>Ireland</b>                    | 970               | 436     | 511     | 368     | 625     | 763     | 319     | 311     |
| <b>Italy</b>                      |                   |         |         |         |         |         |         | 11,601  |
| <b>Latvia</b>                     | 82                | 39      | 33      | 108     | 73      | 53      | 37      | 37      |
| <b>Luxembourg<sup>b</sup></b>     |                   |         |         |         |         | 549     |         |         |
| <b>Netherlands</b>                | 6,101             | 5,242   | 1,230   | 663     | 662     | 1,431   | 542     | 464     |
| <b>New Zealand<sup>b</sup></b>    |                   | 1,798   | 1,733   | 1,693   |         |         | 1,402   | 1,837   |
| <b>Norway</b>                     | 661               |         |         |         | 907     | 777     | 847     | 668     |
| <b>Poland<sup>b</sup></b>         |                   |         |         |         |         |         | 39,615  | 33,745  |
| <b>Portugal</b>                   | 2,557             | 2,223   | 2,260   | 2,027   | 1,732   | 1,581   | 2,097   | 1,821   |
| <b>Romania<sup>b</sup></b>        |                   | 22,554  | 21,639  | 21,632  | 20,639  | 11,882  | 11,240  | 3,817   |
| <b>Slovakia</b>                   |                   |         |         |         |         |         | 5,312   | 5,599   |
| <b>Spain</b>                      | 13,462            | 9,692   | 8,045   | 7,914   | 6,153   | 5,669   | 5,614   | 6,081   |
| <b>Sweden</b>                     | 3,097             | 2,836   | 2,850   | 2,886   | 2,802   | 2,630   | 3,233   | 3,340   |
| <b>Switzerland</b>                | 1,468             |         |         |         |         |         |         | 609     |
| <b>United Kingdom</b>             | 37,515            | 32,640  | 30,586  | 31,116  | 29,398  | 27,913  | 22,862  | 24,293  |
| <b>United States</b>              | 151,637           | 148,825 | 145,283 | 146,441 | 137,758 | 131,694 | 134,006 | 126,332 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 8.3          | 31.4         | 5.7          | -28.7        | 25.2         | -41.2        | 2.2          |
| <b>Belgium</b>            |              |              |              |              |              | -3.1         |              |
| <b>Bulgaria</b>           |              |              |              | -40.8        | 0.6          | 5.8          |              |
| <b>Canada</b>             | 4.0          | 2.5          | -4.0         | 2.3          | 8.2          | -4.7         | -2.0         |
| <b>Czech Republic</b>     |              |              |              | -6.7         | 12.2         | -7.7         | -53.9        |
| <b>Denmark</b>            | -1.0         | -5.9         | -18.4        | -4.2         | -4.6         | -12.4        | -32.3        |
| <b>Estonia</b>            |              |              |              |              | -37.5        | 24.0         |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | -4.7         | 8.8          | -1.6         | -0.8         | 4.0          | -8.2         | -14.6        |
| <b>France</b>             | -2.5         | 4.2          | -3.6         | -2.0         | 2.4          | -3.2         | -15.0        |
| <b>Germany</b>            | -4.8         | 2.0          | -7.2         | -3.1         | 9.8          | -3.2         | -44.3        |
| <b>Greece</b>             | -2.6         | -7.0         | 0.8          | -20.4        | 17.3         | 1.2          | -18.3        |
| <b>Iceland</b>            |              |              |              |              | 3.6          | 31.4         |              |
| <b>Ireland</b>            | 17.3         | -27.9        | 69.6         | 22.2         | -58.2        | -2.5         | -68.0        |
| <b>Italy</b>              |              |              |              |              |              |              |              |
| <b>Latvia</b>             | -15.2        | 232.0        | -33.1        | -27.6        | -29.0        | -1.1         | -54.9        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | -76.5        | -46.1        | -0.1         | 116.1        | -62.1        | -14.3        | -92.4        |
| <b>New Zealand</b>        | -3.6         | -2.3         |              |              |              | 31.0         |              |
| <b>Norway</b>             |              |              |              | -14.3        | 9.0          | -21.1        | 1.2          |
| <b>Poland</b>             |              |              |              |              |              | -14.8        |              |
| <b>Portugal</b>           | 1.7          | -10.3        | -14.5        | -8.7         | 32.6         | -13.2        | -28.8        |
| <b>Romania</b>            | -4.1         | 0.0          | -4.6         | -42.4        | -5.4         | -66.0        |              |
| <b>Slovakia</b>           |              |              |              |              |              | 5.4          |              |
| <b>Spain</b>              | -17.0        | -1.6         | -22.3        | -7.9         | -1.0         | 8.3          | -54.8        |
| <b>Sweden</b>             | 0.5          | 1.2          | -2.9         | -6.1         | 22.9         | 3.3          | 7.8          |
| <b>Switzerland</b>        |              |              |              |              |              | 662.8        | -58.5        |
| <b>United Kingdom</b>     | -6.3         | 1.7          | -5.5         | -5.0         | -18.1        | 6.3          | -35.2        |
| <b>United States</b>      | -2.4         | 0.8          | -5.9         | -4.4         | 1.8          | -5.7         | -16.7        |

**Table 1.22****Manufacturing industries and construction: gaseous fuels – trend information****CO<sub>2</sub> emissions (Gg)**

|                                   | 1990 <sup>a</sup> | 1995    | 1996    | 1997    | 1998    | 1999    | 2000    | 2001    |
|-----------------------------------|-------------------|---------|---------|---------|---------|---------|---------|---------|
| <b>Austria</b>                    | 4,115             | 5,159   | 5,216   | 5,358   | 5,270   | 5,181   | 5,391   | 4,656   |
| <b>Belgium</b>                    |                   |         |         |         |         |         | 10,399  | 10,214  |
| <b>Bulgaria<sup>b</sup></b>       |                   |         |         |         | 3,907   | 2,365   | 2,477   | 1,983   |
| <b>Canada</b>                     | 39,465            | 42,582  | 44,691  | 45,027  | 42,652  | 42,811  | 44,952  | 39,917  |
| <b>Czech Republic<sup>b</sup></b> | 5,984             |         |         |         | 7,167   | 7,252   | 6,704   | 7,598   |
| <b>Denmark</b>                    | 1,333             | 2,115   | 2,244   | 2,405   | 2,347   | 2,472   | 2,279   | 2,457   |
| <b>Estonia<sup>b</sup></b>        |                   |         |         |         |         | 53      | 64      | 83      |
| <b>European Community</b>         |                   |         |         |         |         |         | NE      | NE      |
| <b>Finland</b>                    | 2,094             | 2,570   | 2,419   | 2,379   | 2,672   | 2,724   | 2,783   | 2,224   |
| <b>France</b>                     | 23,592            | 26,152  | 27,491  | 28,484  | 31,286  | 28,650  | 29,324  | 30,294  |
| <b>Germany</b>                    | 45,751            | 49,562  | 48,471  | 48,347  | 48,799  | 50,206  | 49,812  | 50,099  |
| <b>Greece<sup>b</sup></b>         | 169               | 21      | 28      | 152     | 611     | 672     | 756     | 733     |
| <b>Iceland</b>                    |                   |         |         |         |         |         |         | 0       |
| <b>Ireland</b>                    | 856               | 720     | 713     | 858     | 911     | 934     | 1,293   | 1,226   |
| <b>Italy</b>                      |                   |         |         |         |         |         |         | 41,093  |
| <b>Latvia</b>                     | 908               | 561     | 558     | 600     | 620     | 548     | 636     | 834     |
| <b>Luxembourg<sup>b</sup></b>     |                   |         |         |         |         | 866     |         |         |
| <b>Netherlands</b>                | 18,282            | 18,516  | 18,217  | 14,008  | 17,676  | 17,280  | 17,641  | 17,936  |
| <b>New Zealand<sup>b</sup></b>    |                   | 2,946   | 3,381   | 3,482   |         |         | 4,206   | 3,756   |
| <b>Norway</b>                     |                   |         |         |         | 370     | 459     | 467     | 436     |
| <b>Poland<sup>b</sup></b>         |                   |         |         |         |         |         | 6,153   | 6,570   |
| <b>Portugal</b>                   |                   |         |         | 111     | 582     | 1,230   | 2,041   | 1,293   |
| <b>Romania<sup>b</sup></b>        |                   | 15,579  | 14,071  | 11,659  | 8,603   | 8,025   | 8,269   | 13,376  |
| <b>Slovakia</b>                   |                   |         |         |         |         |         | 3,397   | 3,666   |
| <b>Spain</b>                      | 8,099             | 14,388  | 14,653  | 17,077  | 19,308  | 22,783  | 26,015  | 26,921  |
| <b>Sweden</b>                     | 600               | 645     | 711     | 686     | 701     | 685     | 663     | 727     |
| <b>Switzerland</b>                | 1,347             |         |         |         |         |         |         | 1,775   |
| <b>United Kingdom</b>             | 29,157            | 31,553  | 34,767  | 36,888  | 38,365  | 41,044  | 43,688  | 41,846  |
| <b>United States</b>              | 419,943           | 478,811 | 494,627 | 495,757 | 484,092 | 466,449 | 478,929 | 445,469 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 1.1          | 2.7          | -1.6         | -1.7         | 4.1          | -13.6        | 13.1         |
| <b>Belgium</b>            |              |              |              |              |              | -1.8         |              |
| <b>Bulgaria</b>           |              |              |              | -39.5        | 4.7          | -19.9        |              |
| <b>Canada</b>             | 5.0          | 0.8          | -5.3         | 0.4          | 5.0          | -11.2        | 1.1          |
| <b>Czech Republic</b>     |              |              |              | 1.2          | -7.6         | 13.3         | 27.0         |
| <b>Denmark</b>            | 6.1          | 7.2          | -2.4         | 5.3          | -7.8         | 7.8          | 84.3         |
| <b>Estonia</b>            |              |              |              |              | 21.1         | 28.6         |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | -5.9         | -1.6         | 12.3         | 1.9          | 2.2          | -20.1        | 6.2          |
| <b>France</b>             | 5.1          | 3.6          | 9.8          | -8.4         | 2.4          | 3.3          | 28.4         |
| <b>Germany</b>            | -2.2         | -0.3         | 0.9          | 2.9          | -0.8         | 0.6          | 9.5          |
| <b>Greece</b>             | 37.7         | 435.9        | 300.9        | 10.0         | 12.5         | -3.1         | 333.7        |
| <b>Iceland</b>            |              |              |              |              |              |              |              |
| <b>Ireland</b>            | -1.0         | 20.3         | 6.2          | 2.5          | 38.4         | -5.2         | 43.3         |
| <b>Italy</b>              |              |              |              |              |              |              |              |
| <b>Latvia</b>             | -0.6         | 7.6          | 3.4          | -11.7        | 16.1         | 31.1         | -8.1         |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | -1.6         | -23.1        | 26.2         | -2.2         | 2.1          | 1.7          | -1.9         |
| <b>New Zealand</b>        | 14.8         | 3.0          |              |              |              | -10.7        |              |
| <b>Norway</b>             |              |              |              | 24.0         | 1.8          | -6.8         |              |
| <b>Poland</b>             |              |              |              |              |              | 6.8          |              |
| <b>Portugal</b>           |              |              | 422.5        | 111.3        | 65.9         | -36.6        |              |
| <b>Romania</b>            | -9.7         | -17.1        | -26.2        | -6.7         | 3.0          | 61.8         |              |
| <b>Slovakia</b>           |              |              |              |              |              | 7.9          |              |
| <b>Spain</b>              | 1.8          | 16.5         | 13.1         | 18.0         | 14.2         | 3.5          | 232.4        |
| <b>Sweden</b>             | 10.2         | -3.5         | 2.2          | -2.3         | -3.3         | 9.7          | 21.2         |
| <b>Switzerland</b>        |              |              |              |              |              | 12.3         | 31.8         |
| <b>United Kingdom</b>     | 10.2         | 6.1          | 4.0          | 7.0          | 6.4          | -4.2         | 43.5         |
| <b>United States</b>      | 3.3          | 0.2          | -2.4         | -3.6         | 2.7          | -7.0         | 6.1          |

**Table 1.23****Contribution of fuels in CO<sub>2</sub> emissions from Manufacturing industries and construction (%)**

|                           | Liquid fuels      |      | Solid fuels       |      | Gaseous fuels     |      |
|---------------------------|-------------------|------|-------------------|------|-------------------|------|
|                           | 1990 <sup>a</sup> | 2001 | 1990 <sup>a</sup> | 2001 | 1990 <sup>a</sup> | 2001 |
| <b>Austria</b>            | 33.4              | 33.7 | 6.5               | 6.0  | 59.4              | 60.1 |
| <b>Belgium</b>            |                   | 16.2 |                   | 37.0 |                   | 30.4 |
| <b>Bulgaria</b>           |                   | 31.2 |                   | 44.6 |                   | 24.2 |
| <b>Canada</b>             | 24.9              | 21.3 | 11.6              | 11.8 | 63.6              | 66.9 |
| <b>Czech Republic</b>     |                   | 20.7 |                   | 57.5 |                   | 21.8 |
| <b>Denmark</b>            | 50.7              | 41.8 | 25.5              | 16.4 | 23.8              | 41.6 |
| <b>Estonia</b>            |                   | 17.6 |                   | 68.3 |                   | 14.0 |
| <b>European Community</b> |                   |      |                   |      |                   |      |
| <b>Finland</b>            | 29.9              | 32.4 | 44.6              | 39.5 | 14.6              | 16.1 |
| <b>France</b>             | 36.4              | 33.2 | 35.1              | 29.5 | 28.6              | 36.3 |
| <b>Germany</b>            | 14.5              | 11.3 | 61.3              | 50.6 | 23.3              | 37.8 |
| <b>Greece<sup>b</sup></b> | 56.0              | 60.3 | 42.3              | 32.6 | 1.7               | 7.1  |
| <b>Iceland</b>            |                   | 82.1 |                   | 17.0 |                   |      |
| <b>Ireland</b>            | 52.4              | 67.5 | 25.3              | 6.6  | 22.3              | 25.9 |
| <b>Italy</b>              |                   | 31.6 |                   | 15.0 |                   | 53.3 |
| <b>Latvia</b>             | 47.9              | 25.4 | 4.3               | 3.2  | 47.8              | 71.4 |
| <b>Luxembourg</b>         |                   |      |                   |      |                   |      |
| <b>Netherlands</b>        | 18.7              | 9.4  | 14.6              | 1.2  | 43.6              | 44.6 |
| <b>New Zealand</b>        |                   | 10.5 |                   | 29.4 |                   | 60.1 |
| <b>Norway</b>             | 81.0              | 72.8 | 19.0              | 16.4 |                   | 10.7 |
| <b>Poland</b>             |                   | 14.6 |                   | 71.5 |                   | 13.9 |
| <b>Portugal</b>           | 67.9              | 71.3 | 31.3              | 16.1 |                   | 11.4 |
| <b>Romania</b>            |                   | 17.4 |                   | 16.1 |                   | 56.4 |
| <b>Slovakia</b>           |                   | 12.0 |                   | 37.3 |                   | 24.4 |
| <b>Spain</b>              | 51.6              | 44.7 | 30.2              | 10.2 | 18.2              | 45.0 |
| <b>Sweden</b>             | 63.1              | 61.2 | 26.8              | 26.3 | 5.2               | 5.7  |
| <b>Switzerland</b>        | 44.8              | 55.7 | 28.8              | 11.3 | 26.4              | 33.0 |
| <b>United Kingdom</b>     | 29.2              | 26.6 | 39.9              | 26.9 | 31.0              | 46.4 |
| <b>United States</b>      | 40.2              | 39.0 | 15.9              | 13.5 | 44.0              | 47.5 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Table 1.24****Other sectors (commercial / institutional, residential, agriculture / forestry / fisheries): all fuels – trend information****CO<sub>2</sub> emissions (Gg)**

|                               | 1990 <sup>a</sup> | 1995    | 1996    | 1997    | 1998    | 1999    | 2000    | 2001    |
|-------------------------------|-------------------|---------|---------|---------|---------|---------|---------|---------|
| <b>Austria</b>                | 13,638            | 14,121  | 15,534  | 14,101  | 14,102  | 14,137  | 13,368  | 14,658  |
| <b>Belgium</b>                | 27,630            | 30,905  | 36,166  | 31,383  | 31,689  | 30,688  | 29,269  | 30,817  |
| <b>Bulgaria</b>               | 7,612             | 2,621   | 3,238   | 2,678   | 2,989   | 2,491   | 1,896   | 1,638   |
| <b>Canada</b>                 | 69,415            | 73,957  | 79,476  | 76,576  | 68,085  | 71,827  | 78,066  | 74,266  |
| <b>Czech Republic</b>         | 34,177            |         | 17,936  | 20,013  | 19,624  | 17,481  | 17,019  | 14,581  |
| <b>Denmark</b>                | 8,959             | 8,511   | 9,198   | 8,520   | 8,162   | 8,119   | 7,505   | 7,688   |
| <b>Estonia</b>                | 2,392             | 994     | 1,153   | 1,281   | 1,140   | 1,083   | 1,036   | 306     |
| <b>European Community</b>     | 635,096           | 633,655 | 697,081 | 650,014 | 650,818 | 636,724 | 621,237 | 655,763 |
| <b>Finland</b>                | 7,571             | 6,679   | 6,483   | 6,598   | 6,659   | 6,369   | 5,796   | 6,022   |
| <b>France</b>                 | 94,381            | 97,203  | 105,261 | 98,854  | 102,386 | 101,239 | 96,807  | 103,859 |
| <b>Germany</b>                | 203,439           | 189,987 | 214,918 | 200,629 | 192,405 | 176,485 | 170,467 | 187,893 |
| <b>Greece<sup>b</sup></b>     | 5,341             | 5,685   | 7,517   | 7,757   | 8,112   | 7,914   | 8,530   | 9,300   |
| <b>Iceland</b>                | 704               | 811     | 870     | 839     | 817     | 801     | 748     | 664     |
| <b>Ireland</b>                | 9,726             | 9,317   | 9,092   | 9,421   | 9,974   | 9,903   | 10,364  | 10,414  |
| <b>Italy</b>                  | 75,664            | 74,764  | 76,697  | 73,802  | 77,447  | 81,554  | 77,240  | 78,120  |
| <b>Latvia</b>                 | 5,830             | 1,665   | 1,531   | 1,144   | 1,092   | 940     | 827     | 1,086   |
| <b>Luxembourg<sup>b</sup></b> |                   |         |         |         |         | 1,515   | 1,268   | 1,426   |
| <b>Netherlands</b>            | 34,185            | 37,933  | 42,742  | 35,861  | 34,032  | 33,066  | 34,550  | 36,134  |
| <b>New Zealand</b>            | 2,812             | 2,797   | 2,658   | 2,755   | 2,801   | 2,694   | 2,819   | 2,842   |
| <b>Norway</b>                 | 4,130             | 3,467   | 4,192   | 3,750   | 3,728   | 3,809   | 3,206   | 3,520   |
| <b>Poland</b>                 | 111,229           | 56,324  | 64,106  | 60,857  | 50,103  | 54,011  | 45,400  | 50,084  |
| <b>Portugal</b>               | 4,197             | 4,864   | 5,255   | 5,339   | 5,761   | 6,151   | 6,539   | 6,637   |
| <b>Romania</b>                | 28,274            | 4,064   | 3,950   | 4,844   | 4,912   | 4,194   | 4,259   | 7,292   |
| <b>Slovakia<sup>b</sup></b>   |                   |         |         |         | 6,183   | 6,748   | 6,168   | 6,607   |
| <b>Spain</b>                  | 25,953            | 29,191  | 30,300  | 30,408  | 31,114  | 32,679  | 34,041  | 33,928  |
| <b>Sweden</b>                 | 10,597            | 9,386   | 9,422   | 8,633   | 8,553   | 8,740   | 7,682   | 7,757   |
| <b>Switzerland</b>            | 18,651            | 19,051  | 19,850  | 18,826  | 19,445  | 18,248  | 17,317  | 18,125  |
| <b>United Kingdom</b>         | 112,538           | 113,874 | 127,121 | 117,295 | 118,779 | 118,164 | 117,812 | 121,109 |
| <b>United States</b>          | 550,307           | 585,396 | 624,955 | 608,725 | 558,292 | 578,955 | 608,169 | 599,193 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 10.0         | -9.2         | 0.0          | 0.2          | -5.4         | 9.6          | 7.5          |
| <b>Belgium</b>            | 17.0         | -13.2        | 1.0          | -3.2         | -4.6         | 5.3          | 11.5         |
| <b>Bulgaria</b>           | 23.5         | -17.3        | 11.6         | -16.6        | -23.9        | -13.6        | -78.5        |
| <b>Canada</b>             | 7.5          | -3.6         | -11.1        | 5.5          | 8.7          | -4.9         | 7.0          |
| <b>Czech Republic</b>     |              | 11.6         | -1.9         | -10.9        | -2.6         | -14.3        | -57.3        |
| <b>Denmark</b>            | 8.1          | -7.4         | -4.2         | -0.5         | -7.6         | 2.4          | -14.2        |
| <b>Estonia</b>            | 16.0         | 11.1         | -11.0        | -5.0         | -4.3         | -70.4        | -87.2        |
| <b>European Community</b> | 10.0         | -6.8         | 0.1          | -2.2         | -2.4         | 5.6          | 3.3          |
| <b>Finland</b>            | -2.9         | 1.8          | 0.9          | -4.4         | -9.0         | 3.9          | -20.5        |
| <b>France</b>             | 8.3          | -6.1         | 3.6          | -1.1         | -4.4         | 7.3          | 10.0         |
| <b>Germany</b>            | 13.1         | -6.6         | -4.1         | -8.3         | -3.4         | 10.2         | -7.6         |
| <b>Greece</b>             | 32.2         | 3.2          | 4.6          | -2.4         | 7.8          | 9.0          | 74.1         |
| <b>Iceland</b>            | 7.3          | -3.6         | -2.6         | -1.9         | -6.6         | -11.3        | -5.7         |
| <b>Ireland</b>            | -2.4         | 3.6          | 5.9          | -0.7         | 4.7          | 0.5          | 7.1          |
| <b>Italy</b>              | 2.6          | -3.8         | 4.9          | 5.3          | -5.3         | 1.1          | 3.2          |
| <b>Latvia</b>             | -8.0         | -25.3        | -4.5         | -13.9        | -12.0        | 31.3         | -81.4        |
| <b>Luxembourg</b>         |              |              |              |              | -16.3        | 12.5         |              |
| <b>Netherlands</b>        | 12.7         | -16.1        | -5.1         | -2.8         | 4.5          | 4.6          | 5.7          |
| <b>New Zealand</b>        | -5.0         | 3.6          | 1.7          | -3.8         | 4.6          | 0.8          | 1.1          |
| <b>Norway</b>             | 20.9         | -10.5        | -0.6         | 2.2          | -15.8        | 9.8          | -14.8        |
| <b>Poland</b>             | 13.8         | -5.1         | -17.7        | 7.8          | -15.9        | 10.3         | -55.0        |
| <b>Portugal</b>           | 8.0          | 1.6          | 7.9          | 6.8          | 6.3          | 1.5          | 58.1         |
| <b>Romania</b>            | -2.8         | 22.6         | 1.4          | -14.6        | 1.6          | 71.2         | -74.2        |
| <b>Slovakia</b>           |              |              |              | 9.1          | -8.6         | 7.1          |              |
| <b>Spain</b>              | 3.8          | 0.4          | 2.3          | 5.0          | 4.2          | -0.3         | 30.7         |
| <b>Sweden</b>             | 0.4          | -8.4         | -0.9         | 2.2          | -12.1        | 1.0          | -26.8        |
| <b>Switzerland</b>        | 4.2          | -5.2         | 3.3          | -6.2         | -5.1         | 4.7          | -2.8         |
| <b>United Kingdom</b>     | 11.6         | -7.7         | 1.3          | -0.5         | -0.3         | 2.8          | 7.6          |
| <b>United States</b>      | 6.8          | -2.6         | -8.3         | 3.7          | 5.0          | -1.5         | 8.9          |

**Table 1.25****Other sectors (commercial / institutional, residential, agriculture / forestry / fisheries): liquid fuels – trend information****CO<sub>2</sub> emissions (Gg)**

|                                   | 1990 <sup>a</sup> | 1995    | 1996    | 1997    | 1998    | 1999    | 2000    | 2001    |
|-----------------------------------|-------------------|---------|---------|---------|---------|---------|---------|---------|
| <b>Austria</b>                    | 8,593             | 8,602   | 9,695   | 8,768   | 8,852   | 8,841   | 8,065   | 9,257   |
| <b>Belgium</b>                    |                   |         |         |         |         |         | 17,411  | 18,383  |
| <b>Bulgaria<sup>b</sup></b>       |                   |         |         |         | 417     | 594     | 506     | 710     |
| <b>Canada</b>                     | 22,239            | 20,055  | 21,012  | 20,486  | 17,721  | 18,257  | 19,418  | 19,217  |
| <b>Czech Republic<sup>b</sup></b> | 2,618             |         |         |         | 1,074   | 960     | 774     | 673     |
| <b>Denmark</b>                    | 7,140             | 5,982   | 6,299   | 5,809   | 5,582   | 5,413   | 4,970   | 4,974   |
| <b>Estonia<sup>b</sup></b>        |                   |         |         |         |         | 816     | 794     | 95      |
| <b>European Community</b>         |                   |         |         |         |         |         | NE      | NE      |
| <b>Finland</b>                    | 7,274             | 6,488   | 5,989   | 6,090   | 6,265   | 5,972   | 5,490   | 5,663   |
| <b>France</b>                     | 59,853            | 59,322  | 62,177  | 58,643  | 59,238  | 58,165  | 53,947  | 58,629  |
| <b>Germany</b>                    | 91,532            | 104,311 | 116,046 | 110,317 | 105,196 | 90,921  | 88,190  | 99,026  |
| <b>Greece<sup>b</sup></b>         | 5,204             | 5,484   | 7,295   | 7,546   | 7,914   | 7,775   | 8,369   | 9,178   |
| <b>Iceland<sup>b</sup></b>        |                   |         |         |         |         | 798     | 748     | 664     |
| <b>Ireland</b>                    | 3,670             | 4,712   | 4,829   | 5,000   | 5,235   | 5,840   | 6,247   | 6,274   |
| <b>Italy</b>                      |                   |         |         |         |         |         |         | 20,181  |
| <b>Latvia</b>                     | 3,958             | 807     | 455     | 416     | 438     | 386     | 340     | 471     |
| <b>Luxembourg<sup>b</sup></b>     |                   |         |         |         |         | 870     |         |         |
| <b>Netherlands</b>                | 1,352             | 973     | 898     | 666     | 709     | 685     | 581     | 513     |
| <b>New Zealand<sup>b</sup></b>    |                   | 1,612   | 1,489   | 1,615   |         |         |         | 1,542   |
| <b>Norway</b>                     | 4,091             |         |         |         | 3,712   | 3,793   | 3,191   | 3,489   |
| <b>Poland<sup>b</sup></b>         |                   |         |         |         |         |         | 14,312  | 13,370  |
| <b>Portugal</b>                   | 4,120             | 4,752   | 5,136   | 5,218   | 5,599   | 5,903   | 6,238   | 6,257   |
| <b>Romania<sup>b</sup></b>        |                   | 326     | 241     | 780     | 680     | 277     | 374     | 1,159   |
| <b>Slovakia<sup>b</sup></b>       |                   |         |         |         | 36      | 36      | 35      | 35      |
| <b>Spain</b>                      | 22,285            | 24,792  | 25,365  | 25,086  | 25,184  | 26,131  | 27,145  | 26,085  |
| <b>Sweden</b>                     | 10,257            | 9,089   | 9,117   | 8,337   | 8,241   | 8,421   | 7,389   | 7,431   |
| <b>Switzerland</b>                | 16,446            |         |         |         |         |         |         | 14,452  |
| <b>United Kingdom</b>             | 20,156            | 20,456  | 21,917  | 20,036  | 19,825  | 17,912  | 16,792  | 16,613  |
| <b>United States</b>              | 154,183           | 145,378 | 156,374 | 150,573 | 138,317 | 146,213 | 153,806 | 152,819 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                                   | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|-----------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>                    | 12.7         | -9.6         | 1.0          | -0.1         | -8.8         | 14.8         | 7.7          |
| <b>Belgium</b>                    |              |              |              |              |              | 5.6          |              |
| <b>Bulgaria<sup>b</sup></b>       |              |              |              | 42.3         | -14.8        | 40.4         |              |
| <b>Canada</b>                     | 4.8          | -2.5         | -13.5        | 3.0          | 6.4          | -1.0         | -13.6        |
| <b>Czech Republic<sup>b</sup></b> |              |              |              | -10.6        | -19.3        | -13.1        | -74.3        |
| <b>Denmark</b>                    | 5.3          | -7.8         | -3.9         | -3.0         | -8.2         | 0.1          | -30.3        |
| <b>Estonia<sup>b</sup></b>        |              |              |              |              | -2.6         | -88.0        |              |
| <b>European Community</b>         |              |              |              |              |              |              |              |
| <b>Finland</b>                    | -7.7         | 1.7          | 2.9          | -4.7         | -8.1         | 3.1          | -22.2        |
| <b>France</b>                     | 4.8          | -5.7         | 1.0          | -1.8         | -7.3         | 8.7          | -2.0         |
| <b>Germany</b>                    | 11.2         | -4.9         | -4.6         | -13.6        | -3.0         | 12.3         | 8.2          |
| <b>Greece<sup>b</sup></b>         | 33.0         | 3.4          | 4.9          | -1.8         | 7.6          | 9.7          | 76.4         |
| <b>Iceland<sup>b</sup></b>        |              |              |              |              | -6.2         | -11.3        |              |
| <b>Ireland</b>                    | 2.5          | 3.5          | 4.7          | 11.5         | 7.0          | 0.4          | 71.0         |
| <b>Italy</b>                      |              |              |              |              |              |              |              |
| <b>Latvia</b>                     | -43.6        | -8.6         | 5.2          | -11.8        | -11.9        | 38.4         | -88.1        |
| <b>Luxembourg<sup>b</sup></b>     |              |              |              |              |              |              |              |
| <b>Netherlands</b>                | -7.7         | -25.9        | 6.5          | -3.4         | -15.1        | -11.8        | -62.1        |
| <b>New Zealand<sup>b</sup></b>    | -7.7         | 8.5          |              |              |              |              |              |
| <b>Norway</b>                     |              |              |              | 2.2          | -15.9        | 9.3          | -14.7        |
| <b>Poland<sup>b</sup></b>         |              |              |              |              |              | -6.6         |              |
| <b>Portugal</b>                   | 8.1          | 1.6          | 7.3          | 5.4          | 5.7          | 0.3          | 51.9         |
| <b>Romania<sup>b</sup></b>        | -26.2        | 223.9        | -12.9        | -59.2        | 35.0         | 209.8        |              |
| <b>Slovakia<sup>b</sup></b>       |              |              |              | 0.0          | -3.3         | 1.4          |              |
| <b>Spain</b>                      | 2.3          | -1.1         | 0.4          | 3.8          | 3.9          | -3.9         | 17.1         |
| <b>Sweden</b>                     | 0.3          | -8.6         | -1.1         | 2.2          | -12.2        | 0.6          | -27.5        |
| <b>Switzerland</b>                |              |              |              |              |              | 10.6         | -12.1        |
| <b>United Kingdom</b>             | 7.1          | -8.6         | -1.1         | -9.6         | -6.3         | -1.1         | -17.6        |
| <b>United States</b>              | 7.6          | -3.7         | -8.1         | 5.7          | 5.2          | -0.6         | -0.9         |

**Table 1.26****Other sectors (commercial / institutional, residential, agriculture / forestry / fisheries): solid fuels – trend information****CO<sub>2</sub> emissions (Gg)**

|                                   | 1990 <sup>a</sup> | 1995   | 1996   | 1997   | 1998  | 1999   | 2000   | 2001   |
|-----------------------------------|-------------------|--------|--------|--------|-------|--------|--------|--------|
| <b>Austria</b>                    | 2,791             | 1,790  | 1,751  | 1,395  | 1,222 | 1,132  | 988    | 848    |
| <b>Belgium</b>                    |                   |        |        |        |       |        | 734    | 760    |
| <b>Bulgaria<sup>b</sup></b>       |                   |        |        |        | 2,523 | 1,847  | 1,331  | 851    |
| <b>Canada</b>                     | 191               | 195    | 193    | 179    | 158   | 151    | 148    | 144    |
| <b>Czech Republic<sup>b</sup></b> | 25,370            |        |        |        | 9,221 | 7,060  | 6,767  | 5,100  |
| <b>Denmark</b>                    | 318               | 224    | 158    | 138    | 98    | 85     | 107    | 122    |
| <b>Estonia<sup>b</sup></b>        |                   |        |        |        |       | 151    | 125    | 94     |
| <b>European Community</b>         |                   |        |        |        |       |        | NE     | NE     |
| <b>Finland</b>                    | 57                | 19     | 25     | 9      | 26    | 24     | 24     | 20     |
| <b>France</b>                     | 4,401             | 2,518  | 2,232  | 1,500  | 1,181 | 1,245  | 1,061  | 902    |
| <b>Germany</b>                    | 66,103            | 14,846 | 13,772 | 10,874 | 7,004 | 6,579  | 4,906  | 4,123  |
| <b>Greece<sup>b</sup></b>         | 120               | 181    | 203    | 191    | 167   | 112    | 131    | 92     |
| <b>Iceland<sup>b</sup></b>        |                   |        |        |        |       |        |        |        |
| <b>Ireland</b>                    | 5,587             | 3,625  | 3,103  | 3,287  | 3,439 | 2,607  | 2,433  | 2,309  |
| <b>Italy</b>                      |                   |        |        |        |       |        |        | 235    |
| <b>Latvia</b>                     | 1,286             | 498    | 439    | 408    | 324   | 265    | 205    | 268    |
| <b>Luxembourg<sup>b</sup></b>     |                   |        |        |        |       | 25     |        |        |
| <b>Netherlands</b>                | 81                | 33     | 32     | 26     | 35    | 27     | 28     | 30     |
| <b>New Zealand<sup>b</sup></b>    |                   | 671    | 637    | 613    |       |        |        | 470    |
| <b>Norway</b>                     | 35                |        |        |        | 14    | 11     | 11     | 11     |
| <b>Poland<sup>b</sup></b>         |                   |        |        |        |       |        | 22,670 | 27,435 |
| <b>Portugal</b>                   |                   |        |        |        |       |        |        |        |
| <b>Romania<sup>b</sup></b>        |                   | 78     | 375    | 301    | 53    | 102    | 63     | 35     |
| <b>Slovakia<sup>b</sup></b>       |                   |        |        |        | 1,695 | 2,260  | 1,697  | 1,434  |
| <b>Spain</b>                      | 2,300             | 1,440  | 1,371  | 1,350  | 1,258 | 906    | 545    | 394    |
| <b>Sweden</b>                     | 157               | 12     | 5      | 16     | 8     |        |        |        |
| <b>Switzerland</b>                | 64                |        |        |        |       |        |        | 12     |
| <b>United Kingdom</b>             | 19,445            | 11,190 | 11,642 | 10,520 | 9,406 | 9,498  | 7,750  | 9,019  |
| <b>United States</b>              | 14,758            | 12,725 | 13,149 | 13,648 | 9,944 | 11,051 | 9,736  | 9,736  |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | -2.2         | -20.3        | -12.4        | -7.3         | -12.7        | -14.2        | -69.6        |
| <b>Belgium</b>            |              |              |              |              |              | 3.6          |              |
| <b>Bulgaria</b>           |              |              |              | -26.8        | -27.9        | -36.1        |              |
| <b>Canada</b>             | -0.8         | -7.3         | -12.0        | -4.2         | -2.0         | -2.5         | -24.8        |
| <b>Czech Republic</b>     |              |              |              | -23.4        | -4.1         | -24.6        | -79.9        |
| <b>Denmark</b>            | -29.5        | -13.0        | -28.7        | -13.8        | 26.2         | 14.1         | -61.7        |
| <b>Estonia</b>            |              |              |              |              | -17.1        | -25.2        |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | 32.3         | -62.8        | 175.3        | -5.1         | -2.3         | -16.1        | -64.9        |
| <b>France</b>             | -11.3        | -32.8        | -21.3        | 5.4          | -14.7        | -15.0        | -79.5        |
| <b>Germany</b>            | -7.2         | -21.0        | -35.6        | -6.1         | -25.4        | -16.0        | -93.8        |
| <b>Greece</b>             | 12.2         | -6.1         | -12.5        | -32.8        | 16.8         | -29.8        | -23.3        |
| <b>Iceland</b>            |              |              |              |              |              |              |              |
| <b>Ireland</b>            | -14.4        | 5.9          | 4.6          | -24.2        | -6.7         | -5.1         | -58.7        |
| <b>Italy</b>              |              |              |              |              |              |              |              |
| <b>Latvia</b>             | -11.7        | -7.2         | -20.5        | -18.3        | -22.7        | 30.9         | -79.1        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | -3.6         | -17.1        | 33.5         | -24.2        | 7.2          | 7.0          | -62.6        |
| <b>New Zealand</b>        | -5.1         | -3.8         |              |              |              |              |              |
| <b>Norway</b>             |              |              |              | -16.4        | -7.0         | 8.3          | -67.1        |
| <b>Poland</b>             |              |              |              |              |              | 21.0         |              |
| <b>Portugal</b>           |              |              |              |              |              |              |              |
| <b>Romania</b>            | 380.1        | -19.6        | -82.4        | 92.8         | -38.6        | -44.6        |              |
| <b>Slovakia</b>           |              |              |              | 33.3         | -24.9        | -15.5        |              |
| <b>Spain</b>              | -4.8         | -1.5         | -6.8         | -28.0        | -39.8        | -27.7        | -82.9        |
| <b>Sweden</b>             | -60.0        | 217.0        | -50.0        |              |              |              |              |
| <b>Switzerland</b>        |              |              |              |              |              | -40.9        | -80.9        |
| <b>United Kingdom</b>     | 4.0          | -9.6         | -10.6        | 1.0          | -18.4        | 16.4         | -53.6        |
| <b>United States</b>      | 3.3          | 3.8          | -27.1        | 11.1         | -11.9        | 0.0          | -34.0        |



**Table 1.27****Other sectors (commercial / institutional, residential, agriculture / forestry / fisheries): gaseous fuels – trend information****CO<sub>2</sub> emissions (Gg)**

|                                   | 1990 <sup>a</sup> | 1995    | 1996    | 1997    | 1998    | 1999    | 2000    | 2001    |
|-----------------------------------|-------------------|---------|---------|---------|---------|---------|---------|---------|
| <b>Austria</b>                    | 2,252             | 3,723   | 4,084   | 3,932   | 4,022   | 4,157   | 4,308   | 4,546   |
| <b>Belgium</b>                    |                   |         |         |         |         |         | 11,046  | 11,596  |
| <b>Bulgaria<sup>b</sup></b>       |                   |         |         |         | 49      | 51      | 59      | 77      |
| <b>Canada</b>                     | 46,985            | 53,708  | 58,271  | 55,911  | 50,207  | 53,419  | 58,500  | 54,906  |
| <b>Czech Republic<sup>b</sup></b> | 4,589             |         |         |         | 8,185   | 8,191   | 8,332   | 8,808   |
| <b>Denmark</b>                    | 1,478             | 2,278   | 2,717   | 2,550   | 2,482   | 2,592   | 2,427   | 2,590   |
| <b>Estonia<sup>b</sup></b>        |                   |         |         |         |         | 98      | 99      | 99      |
| <b>European Community</b>         |                   |         |         |         |         |         | NE      | NE      |
| <b>Finland</b>                    | 99                | 142     | 297     | 322     | 241     | 260     | 181     | 215     |
| <b>France</b>                     | 30,057            | 35,293  | 40,798  | 38,639  | 41,871  | 41,751  | 41,727  | 44,265  |
| <b>Germany</b>                    | 45,804            | 70,830  | 85,100  | 79,438  | 80,205  | 78,985  | 77,370  | 84,743  |
| <b>Greece<sup>b</sup></b>         | 17                | 19      | 19      | 20      | 31      | 26      | 30      | 30      |
| <b>Iceland<sup>b</sup></b>        |                   |         |         |         |         |         |         |         |
| <b>Ireland</b>                    | 469               | 980     | 1,159   | 1,134   | 1,300   | 1,456   | 1,684   | 1,831   |
| <b>Italy</b>                      |                   |         |         |         |         |         |         | 51,883  |
| <b>Latvia</b>                     | 586               | 360     | 636     | 320     | 330     | 289     | 282     | 347     |
| <b>Luxembourg<sup>b</sup></b>     |                   |         |         |         |         | 620     |         |         |
| <b>Netherlands</b>                | 32,454            | 36,917  | 41,810  | 35,162  | 33,262  | 32,347  | 33,932  | 35,499  |
| <b>New Zealand<sup>b</sup></b>    |                   | 513     | 532     | 528     |         |         |         | 830     |
| <b>Norway</b>                     |                   |         |         |         | 1       | 3       | 3       | 17      |
| <b>Poland<sup>b</sup></b>         |                   |         |         |         |         |         | 8,418   | 9,279   |
| <b>Portugal</b>                   | 77                | 112     | 120     | 121     | 162     | 248     | 301     | 380     |
| <b>Romania<sup>b</sup></b>        |                   | 3,660   | 3,335   | 3,762   | 4,180   | 3,811   | 3,808   | 5,890   |
| <b>Slovakia<sup>b</sup></b>       |                   |         |         |         | 4,446   | 4,446   | 4,435   | 5,138   |
| <b>Spain</b>                      | 1,367             | 2,959   | 3,564   | 3,972   | 4,672   | 5,642   | 6,350   | 7,449   |
| <b>Sweden</b>                     | 184               | 285     | 301     | 281     | 304     | 320     | 293     | 326     |
| <b>Switzerland</b>                | 2,141             |         |         |         |         |         |         | 3,661   |
| <b>United Kingdom</b>             | 72,878            | 82,169  | 93,501  | 86,721  | 89,519  | 90,715  | 93,221  | 95,420  |
| <b>United States</b>              | 381,365           | 427,293 | 455,431 | 444,503 | 410,031 | 421,691 | 444,627 | 436,638 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 9.7          | -3.7         | 2.3          | 3.3          | 3.6          | 5.5          | 101.8        |
| <b>Belgium</b>            |              |              |              |              |              | 5.0          |              |
| <b>Bulgaria</b>           |              |              |              | 4.0          | 16.0         | 30.0         |              |
| <b>Canada</b>             | 8.5          | -4.0         | -10.2        | 6.4          | 9.5          | -6.1         | 16.9         |
| <b>Czech Republic</b>     |              |              |              | 0.1          | 1.7          | 5.7          | 92.0         |
| <b>Denmark</b>            | 19.3         | -6.1         | -2.7         | 4.4          | -6.4         | 6.7          | 75.3         |
| <b>Estonia</b>            |              |              |              |              | 1.4          | 0.1          |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | 108.6        | 8.5          | -25.3        | 7.9          | -30.4        | 18.9         | 118.3        |
| <b>France</b>             | 15.6         | -5.3         | 8.4          | -0.3         | -0.1         | 6.1          | 47.3         |
| <b>Germany</b>            | 20.1         | -6.7         | 1.0          | -1.5         | -2.0         | 9.5          | 85.0         |
| <b>Greece</b>             | 0.0          | 4.4          | 56.6         | -14.8        | 15.0         | -0.4         | 78.6         |
| <b>Iceland</b>            |              |              |              |              |              |              |              |
| <b>Ireland</b>            | 18.3         | -2.2         | 14.6         | 12.0         | 15.6         | 8.7          | 290.2        |
| <b>Italy</b>              |              |              |              |              |              |              |              |
| <b>Latvia</b>             | 76.8         | -49.7        | 3.2          | -12.5        | -2.3         | 22.9         | -40.7        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | 13.3         | -15.9        | -5.4         | -2.7         | 4.9          | 4.6          | 9.4          |
| <b>New Zealand</b>        | 3.7          | -0.9         |              |              |              |              |              |
| <b>Norway</b>             |              |              |              | 106.4        | 6.2          | 435.6        |              |
| <b>Poland</b>             |              |              |              |              |              | 10.2         |              |
| <b>Portugal</b>           | 7.2          | 0.8          | 34.5         | 53.0         | 21.1         | 26.4         | 394.6        |
| <b>Romania</b>            | -8.9         | 12.8         | 11.1         | -8.8         | -0.1         | 54.7         |              |
| <b>Slovakia</b>           |              |              |              | 0.0          | -0.2         | 15.8         |              |
| <b>Spain</b>              | 20.4         | 11.4         | 17.6         | 20.8         | 12.5         | 17.3         | 444.8        |
| <b>Sweden</b>             | 5.6          | -6.6         | 8.3          | 5.2          | -8.5         | 11.4         | 77.3         |
| <b>Switzerland</b>        |              |              |              |              |              | 4.6          | 71.0         |
| <b>United Kingdom</b>     | 13.8         | -7.3         | 3.2          | 1.3          | 2.8          | 2.4          | 30.9         |
| <b>United States</b>      | 6.6          | -2.4         | -7.8         | 2.8          | 5.4          | -1.8         | 14.5         |

**Table 1.28****Contribution of fuels in CO<sub>2</sub> emissions from Other sectors (%)**

|                           | Liquid fuels      |       | Solid fuels       |      | Gaseous fuels     |      |
|---------------------------|-------------------|-------|-------------------|------|-------------------|------|
|                           | 1990 <sup>a</sup> | 2001  | 1990 <sup>a</sup> | 2001 | 1990 <sup>a</sup> | 2001 |
| <b>Austria</b>            | 63.0              | 63.2  | 20.5              | 5.8  | 16.5              | 31.0 |
| <b>Belgium</b>            |                   | 59.7  |                   | 2.5  |                   | 37.6 |
| <b>Bulgaria</b>           |                   | 43.3  |                   | 52.0 |                   | 4.7  |
| <b>Canada</b>             | 32.0              | 25.9  | 0.3               | 0.2  | 67.7              | 73.9 |
| <b>Czech Republic</b>     | 8.0               | 4.6   | 77.9              | 35.0 | 14.1              | 60.4 |
| <b>Denmark</b>            | 79.7              | 64.7  | 3.6               | 1.6  | 16.5              | 33.7 |
| <b>Estonia</b>            |                   | 31.0  |                   | 30.5 |                   | 32.4 |
| <b>European Community</b> |                   |       |                   |      |                   |      |
| <b>Finland</b>            | 96.1              | 94.0  | 0.7               | 0.3  | 1.3               | 3.6  |
| <b>France</b>             | 63.4              | 56.5  | 4.7               | 0.9  | 31.8              | 42.6 |
| <b>Germany</b>            | 45.0              | 52.7  | 32.5              | 2.2  | 22.5              | 45.1 |
| <b>Greece<sup>b</sup></b> | 97.4              | 98.7  | 2.2               | 1.0  | 0.3               | 0.3  |
| <b>Iceland</b>            |                   | 100.0 |                   | 0.0  |                   | 0.0  |
| <b>Ireland</b>            | 37.7              | 60.2  | 57.4              | 22.2 | 4.8               | 17.6 |
| <b>Italy</b>              |                   | 25.8  |                   | 0.3  |                   | 66.4 |
| <b>Latvia</b>             | 67.9              | 43.3  | 22.1              | 24.7 | 10.0              | 32.0 |
| <b>Luxembourg</b>         |                   |       |                   |      |                   |      |
| <b>Netherlands</b>        | 4.0               | 1.4   | 0.2               | 0.1  | 94.9              | 98.2 |
| <b>New Zealand</b>        |                   | 54.2  |                   | 16.5 |                   | 29.2 |
| <b>Norway</b>             | 99.1              | 99.1  | 0.8               | 0.3  | 0.0               | 0.5  |
| <b>Poland</b>             |                   | 26.7  |                   | 54.8 |                   | 18.5 |
| <b>Portugal</b>           | 98.2              | 94.3  | 0.0               | 0.0  | 1.8               | 5.7  |
| <b>Romania</b>            |                   | 15.9  |                   | 0.5  |                   | 80.8 |
| <b>Slovakia</b>           |                   | 0.5   |                   | 21.7 |                   | 77.8 |
| <b>Spain</b>              | 85.9              | 76.9  | 8.9               | 1.2  | 5.3               | 22.0 |
| <b>Sweden</b>             | 96.8              | 95.8  | 1.5               | 0.0  | 1.7               | 4.2  |
| <b>Switzerland</b>        | 88.2              | 79.7  | 0.3               | 0.1  | 11.5              | 20.2 |
| <b>United Kingdom</b>     | 17.9              | 13.7  | 17.3              | 7.4  | 64.8              | 78.8 |
| <b>United States</b>      | 28.0              | 25.5  | 2.7               | 1.6  | 69.3              | 72.9 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Table 1.29****Transport: all fuels – trend information****CO<sub>2</sub> emissions (Gg)**

|                               | 1990 <sup>a</sup> | 1995      | 1996      | 1997      | 1998      | 1999      | 2000      | 2001      |
|-------------------------------|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Austria</b>                | 12,739            | 14,451    | 16,103    | 15,051    | 17,136    | 16,497    | 17,481    | 18,887    |
| <b>Belgium</b>                | 19,610            | 21,727    | 22,195    | 22,903    | 23,276    | 23,832    | 24,107    | 24,162    |
| <b>Bulgaria</b>               | 12,639            | 6,845     | 6,306     | 5,315     | 6,475     | 6,212     | 5,881     | 6,014     |
| <b>Canada</b>                 | 146,123           | 159,470   | 163,962   | 170,373   | 174,291   | 179,053   | 180,627   | 177,882   |
| <b>Czech Republic</b>         | 7,275             |           | 9,896     | 11,392    | 10,779    | 12,016    | 11,110    | 12,061    |
| <b>Denmark</b>                | 10,404            | 11,775    | 11,976    | 12,102    | 12,125    | 12,182    | 12,046    | 12,077    |
| <b>Estonia</b>                | 2,693             | 1,103     | 1,047     | 1,212     | 1,352     | 1,203     | 1,030     | 1,921     |
| <b>European Community</b>     | 695,003           | 752,889   | 769,248   | 778,309   | 802,558   | 822,186   | 823,606   | 833,925   |
| <b>Finland</b>                | 12,475            | 11,125    | 10,994    | 11,531    | 12,299    | 12,734    | 12,379    | 12,569    |
| <b>France</b>                 | 119,135           | 129,301   | 130,748   | 132,972   | 135,140   | 138,227   | 137,738   | 140,670   |
| <b>Germany</b>                | 162,281           | 176,563   | 176,658   | 177,157   | 180,420   | 186,065   | 182,697   | 178,313   |
| <b>Greece<sup>b</sup></b>     | 18,039            | 19,435    | 19,925    | 20,523    | 22,149    | 22,908    | 21,678    | 22,448    |
| <b>Iceland</b>                | 721               | 749       | 735       | 776       | 781       | 819       | 830       | 832       |
| <b>Ireland</b>                | 5,020             | 6,369     | 7,128     | 7,753     | 8,848     | 9,819     | 10,211    | 11,063    |
| <b>Italy</b>                  | 102,023           | 112,240   | 113,348   | 115,150   | 118,977   | 120,016   | 120,571   | 125,191   |
| <b>Latvia</b>                 | 3,538             | 2,246     | 2,074     | 2,063     | 2,040     | 1,978     | 2,006     | 2,587     |
| <b>Luxembourg<sup>b</sup></b> |                   |           |           |           |           | 1,337     | 1,451     | 1,504     |
| <b>Netherlands</b>            | 29,122            | 32,163    | 32,642    | 33,067    | 33,785    | 34,795    | 35,212    | 35,608    |
| <b>New Zealand</b>            | 8,664             | 10,869    | 10,989    | 11,242    | 11,439    | 11,732    | 11,955    | 12,307    |
| <b>Norway</b>                 | 11,098            | 12,074    | 12,717    | 12,962    | 13,305    | 13,902    | 13,024    | 13,388    |
| <b>Poland</b>                 | 28,238            | 25,285    | 28,098    | 26,662    | 28,126    | 31,382    | 28,207    | 30,121    |
| <b>Portugal</b>               | 10,701            | 13,855    | 14,556    | 15,177    | 16,694    | 17,645    | 19,185    | 19,077    |
| <b>Romania</b>                | 7,893             | 6,065     | 7,788     | 7,715     | 7,600     | 6,176     | 6,917     | 11,625    |
| <b>Slovakia</b>               | 5,070             | 4,378     | 4,434     | 4,591     | 4,950     | 4,821     | 4,319     | 4,887     |
| <b>Spain</b>                  | 57,497            | 65,634    | 70,181    | 70,803    | 77,831    | 82,668    | 85,108    | 89,341    |
| <b>Sweden</b>                 | 18,337            | 18,955    | 18,784    | 19,015    | 19,603    | 19,726    | 19,582    | 19,848    |
| <b>Switzerland</b>            | 14,206            | 13,847    | 13,911    | 14,488    | 14,716    | 15,342    | 15,611    | 15,325    |
| <b>United Kingdom</b>         | 116,753           | 118,112   | 122,769   | 123,872   | 123,004   | 123,736   | 124,218   | 123,165   |
| <b>United States</b>          | 1,470,453         | 1,577,807 | 1,617,381 | 1,626,942 | 1,653,911 | 1,713,040 | 1,762,734 | 1,780,871 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 11.4         | -6.5         | 13.9         | -3.7         | 6.0          | 8.0          | 48.3         |
| <b>Belgium</b>            | 2.2          | 3.2          | 1.6          | 2.4          | 1.2          | 0.2          | 23.2         |
| <b>Bulgaria</b>           | -7.9         | -15.7        | 21.8         | -4.1         | -5.3         | 2.2          | -52.4        |
| <b>Canada</b>             | 2.8          | 3.9          | 2.3          | 2.7          | 0.9          | -1.5         | 21.7         |
| <b>Czech Republic</b>     |              | 15.1         | -5.4         | 11.5         | -7.5         | 8.6          | 65.8         |
| <b>Denmark</b>            | 1.7          | 1.1          | 0.2          | 0.5          | -1.1         | 0.3          | 16.1         |
| <b>Estonia</b>            | -5.1         | 15.7         | 11.6         | -11.0        | -14.4        | 86.5         | -28.7        |
| <b>European Community</b> | 2.2          | 1.2          | 3.1          | 2.4          | 0.2          | 1.3          | 20.0         |
| <b>Finland</b>            | -1.2         | 4.9          | 6.7          | 3.5          | -2.8         | 1.5          | 0.8          |
| <b>France</b>             | 1.1          | 1.7          | 1.6          | 2.3          | -0.4         | 2.1          | 18.1         |
| <b>Germany</b>            | 0.1          | 0.3          | 1.8          | 3.1          | -1.8         | -2.4         | 9.9          |
| <b>Greece</b>             | 2.5          | 3.0          | 7.9          | 3.4          | -5.4         | 3.6          | 24.4         |
| <b>Iceland</b>            | -1.9         | 5.6          | 0.6          | 4.9          | 1.3          | 0.3          | 15.5         |
| <b>Ireland</b>            | 11.9         | 8.8          | 14.1         | 11.0         | 4.0          | 8.3          | 120.4        |
| <b>Italy</b>              | 1.0          | 1.6          | 3.3          | 0.9          | 0.5          | 3.8          | 22.7         |
| <b>Latvia</b>             | -7.7         | -0.5         | -1.1         | -3.0         | 1.4          | 29.0         | -26.9        |
| <b>Luxembourg</b>         |              |              |              |              | 8.5          | 3.7          |              |
| <b>Netherlands</b>        | 1.5          | 1.3          | 2.2          | 3.0          | 1.2          | 1.1          | 22.3         |
| <b>New Zealand</b>        | 1.1          | 2.3          | 1.8          | 2.6          | 1.9          | 2.9          | 42.0         |
| <b>Norway</b>             | 5.3          | 1.9          | 2.6          | 4.5          | -6.3         | 2.8          | 20.6         |
| <b>Poland</b>             | 11.1         | -5.1         | 5.5          | 11.6         | -10.1        | 6.8          | 6.7          |
| <b>Portugal</b>           | 5.1          | 4.3          | 10.0         | 5.7          | 8.7          | -0.6         | 78.3         |
| <b>Romania</b>            | 28.4         | -0.9         | -1.5         | -18.7        | 12.0         | 68.1         | 47.3         |
| <b>Slovakia</b>           | 1.3          | 3.5          | 7.8          | -2.6         | -10.4        | 13.2         | -3.6         |
| <b>Spain</b>              | 6.9          | 0.9          | 9.9          | 6.2          | 3.0          | 5.0          | 55.4         |
| <b>Sweden</b>             | -0.9         | 1.2          | 3.1          | 0.6          | -0.7         | 1.4          | 8.2          |
| <b>Switzerland</b>        | 0.5          | 4.1          | 1.6          | 4.3          | 1.7          | -1.8         | 7.9          |
| <b>United Kingdom</b>     | 3.9          | 0.9          | -0.7         | 0.6          | 0.4          | -0.8         | 5.5          |
| <b>United States</b>      | 2.5          | 0.6          | 1.7          | 3.6          | 2.9          | 1.0          | 21.1         |

**Table 1.29 (continued)****Transport: all fuels – trend information****N<sub>2</sub>O emissions (Gg)**

|                               | 1990 <sup>a</sup> | 1995   | 1996   | 1997   | 1998   | 1999   | 2000   | 2001   |
|-------------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|
| <b>Austria</b>                | 1.57              | 3.03   | 2.97   | 2.85   | 3.04   | 2.83   | 2.77   | 2.76   |
| <b>Belgium</b>                | 0.99              | 1.73   | 1.86   | 1.98   | 2.07   | 2.39   | 2.72   | 2.75   |
| <b>Bulgaria</b>               | 0.23              | 0.14   | 0.13   | 0.12   | 0.13   | 0.12   | 0.11   | 0.11   |
| <b>Canada</b>                 | 20.71             | 28.34  | 28.37  | 29.00  | 28.84  | 32.42  | 29.08  | 28.70  |
| <b>Czech Republic</b>         | 0.26              |        | 1.77   | 1.94   | 1.41   | 1.58   | 1.66   | 1.75   |
| <b>Denmark</b>                | 0.47              | 0.87   | 0.94   | 1.05   | 1.12   | 1.16   | 1.22   | 1.27   |
| <b>Estonia</b>                | 0.02              | 0.01   | 0.01   | 0.01   | 0.01   | 0.01   | 0.01   | 0.02   |
| <b>European Community</b>     | 37.61             | 59.14  | 63.70  | 67.63  | 72.83  | 77.42  | 80.24  | 85.04  |
| <b>Finland</b>                | 2.03              | 1.80   | 1.94   | 2.02   | 2.45   | 2.30   | 2.21   | 2.24   |
| <b>France</b>                 | 5.24              | 8.25   | 9.10   | 9.83   | 10.53  | 11.35  | 11.83  | 12.77  |
| <b>Germany</b>                | 9.87              | 17.49  | 18.02  | 18.50  | 18.88  | 19.65  | 19.85  | 20.85  |
| <b>Greece<sup>b</sup></b>     | 1.66              | 1.88   | 1.95   | 2.04   | 2.12   | 2.15   | 2.18   | 2.32   |
| <b>Iceland</b>                | 0.02              | 0.04   | 0.04   | 0.07   | 0.07   | 0.10   | 0.10   | 0.10   |
| <b>Ireland</b>                | 0.28              | 0.56   | 0.71   | 0.86   | 1.03   | 1.26   | 1.21   | 1.33   |
| <b>Italy</b>                  | 5.58              | 7.03   | 7.58   | 8.13   | 9.18   | 9.91   | 10.26  | 11.14  |
| <b>Latvia</b>                 | 0.41              | 0.09   | 0.08   | 0.09   | 0.09   | 0.17   | 0.17   | 0.22   |
| <b>Luxembourg<sup>b</sup></b> |                   |        |        |        |        | 0.14   | 0.16   | 0.17   |
| <b>Netherlands</b>            | 1.20              | 1.94   | 1.97   | 2.00   | 2.01   | 2.03   | 2.00   | 1.98   |
| <b>New Zealand</b>            | 0.36              | 0.46   | 0.47   | 0.48   | 0.49   | 0.50   | 0.52   | 0.53   |
| <b>Norway</b>                 | 0.53              | 1.01   | 1.19   | 1.37   | 1.57   | 1.79   | 1.91   | 2.21   |
| <b>Poland</b>                 | 1.30              | 1.31   | 1.44   | 1.36   | 1.67   | 1.87   | 1.89   | 2.00   |
| <b>Portugal</b>               | 0.44              | 0.87   | 1.01   | 1.13   | 1.33   | 1.48   | 1.68   | 1.83   |
| <b>Romania</b>                | 0.27              | 0.07   | 0.10   | 0.09   | 0.09   | 0.07   | 0.08   | 0.11   |
| <b>Slovakia</b>               | 0.23              | 0.36   | 0.40   | 0.45   | 0.53   | 0.54   | 0.50   | 0.58   |
| <b>Spain</b>                  | 2.51              | 3.79   | 4.28   | 4.67   | 5.40   | 6.02   | 6.42   | 6.98   |
| <b>Sweden</b>                 | 1.38              | 1.69   | 1.81   | 1.88   | 1.86   | 2.02   | 2.17   | 2.28   |
| <b>Switzerland</b>            | 1.13              | 1.76   | 1.87   | 1.97   | 2.02   | 2.09   | 2.06   | 1.95   |
| <b>United Kingdom</b>         | 4.35              | 8.10   | 9.45   | 10.56  | 11.67  | 12.73  | 13.55  | 14.38  |
| <b>United States</b>          | 163.33            | 196.55 | 195.83 | 194.58 | 192.42 | 189.52 | 185.36 | 176.63 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | -1.9         | -4.2         | 6.7          | -6.9         | -2.1         | -0.5         | 75.9         |
| <b>Belgium</b>            | 7.2          | 6.4          | 4.9          | 15.2         | 13.7         | 1.1          | 177.8        |
| <b>Bulgaria</b>           | -7.6         | -11.8        | 9.4          | -2.7         | -9.9         | -0.1         | -51.4        |
| <b>Canada</b>             | 0.1          | 2.2          | -0.6         | 12.4         | -10.3        | -1.3         | 38.6         |
| <b>Czech Republic</b>     |              | 9.5          | -27.6        | 12.4         | 5.1          | 5.7          | 575.8        |
| <b>Denmark</b>            | 8.6          | 11.5         | 6.2          | 3.8          | 5.4          | 3.7          | 168.3        |
| <b>Estonia</b>            | -4.4         | 17.0         | 6.7          | -7.0         | -13.9        | 74.4         | -29.8        |
| <b>European Community</b> | 7.7          | 6.2          | 7.7          | 6.3          | 3.6          | 6.0          | 126.1        |
| <b>Finland</b>            | 7.5          | 4.1          | 21.5         | -6.0         | -4.1         | 1.3          | 9.9          |
| <b>France</b>             | 10.3         | 8.1          | 7.1          | 7.8          | 4.2          | 7.9          | 143.5        |
| <b>Germany</b>            | 3.0          | 2.6          | 2.0          | 4.1          | 1.1          | 5.0          | 111.4        |
| <b>Greece</b>             | 4.0          | 4.5          | 4.1          | 1.7          | 1.2          | 6.3          | 39.6         |
| <b>Iceland</b>            | -0.9         | 56.2         | 2.0          | 46.1         | -0.6         | 0.6          | 391.0        |
| <b>Ireland</b>            | 27.2         | 20.5         | 20.2         | 22.0         | -4.1         | 10.7         | 376.9        |
| <b>Italy</b>              | 7.8          | 7.3          | 12.9         | 8.0          | 3.5          | 8.6          | 99.6         |
| <b>Latvia</b>             | -6.1         | 5.8          | 2.8          | 85.4         | 2.1          | 28.1         | -46.0        |
| <b>Luxembourg</b>         |              |              |              |              | 17.5         | 3.4          |              |
| <b>Netherlands</b>        | 1.6          | 1.2          | 0.5          | 1.1          | -1.7         | -1.1         | 64.9         |
| <b>New Zealand</b>        | 2.2          | 2.1          | 2.1          | 2.0          | 4.0          | 1.3          | 46.3         |
| <b>Norway</b>             | 17.8         | 14.9         | 14.6         | 14.0         | 7.1          | 15.5         | 319.6        |
| <b>Poland</b>             | 9.9          | -5.6         | 22.8         | 12.0         | 1.1          | 5.7          | 53.7         |
| <b>Portugal</b>           | 15.7         | 12.7         | 16.9         | 11.7         | 13.8         | 8.6          | 314.3        |
| <b>Romania</b>            | 33.6         | -1.7         | -2.1         | -19.4        | 8.4          | 33.1         | -60.9        |
| <b>Slovakia</b>           | 11.3         | 12.1         | 17.0         | 1.7          | -8.0         | 17.4         | 154.3        |
| <b>Spain</b>              | 12.7         | 9.3          | 15.7         | 11.3         | 6.8          | 8.7          | 178.3        |
| <b>Sweden</b>             | 7.0          | 4.0          | -1.1         | 8.5          | 7.5          | 4.8          | 64.7         |
| <b>Switzerland</b>        | 6.2          | 5.6          | 2.3          | 3.8          | -1.4         | -5.5         | 72.9         |
| <b>United Kingdom</b>     | 16.7         | 11.8         | 10.5         | 9.0          | 6.5          | 6.1          | 230.7        |
| <b>United States</b>      | -0.4         | -0.6         | -1.1         | -1.5         | -2.2         | -4.7         | 8.1          |

**Table 1.30**

**Road transportation, CO<sub>2</sub>, N<sub>2</sub>O (2001)**

|                              | CO <sub>2</sub> emissions |                             |                                  |          |                     |                            |                            | N <sub>2</sub> O emissions |                             |                                  |                  |                      |                            |                           |
|------------------------------|---------------------------|-----------------------------|----------------------------------|----------|---------------------|----------------------------|----------------------------|----------------------------|-----------------------------|----------------------------------|------------------|----------------------|----------------------------|---------------------------|
|                              | Key source                | Share of national total (%) | Methods and EF used <sup>a</sup> |          | CO <sub>2</sub> IEF |                            |                            | Key source                 | Share of national total (%) | Methods and EF used <sup>a</sup> |                  | N <sub>2</sub> O IEF |                            |                           |
|                              |                           |                             | Methods                          | EF       | IEF in CRF based on | Gasoline                   | Diesel oil                 |                            |                             | Methods                          | EF               | IEF in CRF based on  | Gasoline                   | Diesel oil                |
|                              |                           |                             |                                  |          |                     | (t/TJ)                     |                            |                            |                             |                                  |                  |                      | (kg/TJ)                    |                           |
| IPCC default EF <sup>b</sup> |                           |                             |                                  |          | NCV                 | 72.1 (US)<br>73.0 (Europe) | 72.1 (US)<br>74.0 (Europe) |                            |                             |                                  |                  | NCV                  | 3-43 (US)<br>1-20 (Europe) | 1-14 (US)<br>3-4 (Europe) |
| Austria                      | L, T                      | 20.8                        | M                                | CS       | NCV                 | 73.95                      | 73.67                      | L, T                       | 1.0                         | M                                | CS               | NCV                  | 27.37                      | 2.78                      |
| Belgium                      | L                         | 15.6                        |                                  |          | NCV                 | 66.28                      | 71.92                      | L                          | 0.5                         |                                  |                  | NCV                  | 7.36                       | 7.42                      |
| Bulgaria                     | L                         | 7.9                         | T2                               | C, CS, D | NCV                 | 72.16                      | 76.14                      |                            | 0.0                         | T2                               | C, CS, D         | NCV                  | 1.08                       | 1.91                      |
| Canada                       | L, T                      | 17.8                        | CS                               | CS       | GCV                 | 67.43                      | 71.28                      | L, T                       | 0.8                         | CS                               | CS               | GCV                  | 13.41                      | 2.19                      |
| Czech Republic               | L                         | 7.6                         | T1                               | D        | NCV                 | 68.61                      | 73.33                      |                            | 0.4                         | T2                               | D, PS            | NCV                  | 18.91                      | 3.08                      |
| Denmark                      | L, T                      | 16.2                        | M/C                              | CS       | NCV                 | 73.00                      | 74.00                      | T                          | 0.5                         | M/C                              | M/C              | NCV                  | 10.60                      | 5.00                      |
| Estonia                      | L                         | 8.7                         |                                  |          | NCV                 | 68.61                      | 73.33                      |                            | 0.0                         |                                  |                  | NCV                  | 0.60                       | 0.60                      |
| European Community           |                           |                             | C, CS, D, M, T1, T2              | C, CS, M |                     | NE                         | NE                         |                            | 0.0                         | C, CS, D, M, T1, T2, T3          | C, CS, D, M      |                      | NE                         | NE                        |
| Finland                      | L, T                      | 13.5                        | CS (M)                           | CS       | NCV                 | 72.70                      | 73.00                      | L, T                       | 0.7                         | CS (M)                           | CS/M             | NCV                  | 16.62                      | 3.22                      |
| France                       | L, T                      | 23.4                        | C /CS                            | C /M /CS | NCV                 | 72.35                      | 75.02                      | L, T                       | 0.7                         | C /CS                            | C /M /CS         | NCV                  | 8.19                       | 6.52                      |
| Germany                      | L, T                      | 16.8                        | CS                               | CS       | NCV                 | 72.00                      | 74.00                      | L, T                       | 0.6                         | CS                               | CS               | NCV                  | 9.89                       | 7.80                      |
| Greece                       | L, T                      | 12.4                        | C                                | C        | NCV                 | 68.61                      | 72.43                      | T                          | 0.3                         | C                                | C                | NCV                  | 5.45                       | 4.48                      |
| Iceland                      | L                         | 29.5                        | T1                               | D        | NCV                 | 68.61                      | 73.33                      |                            | 1.1                         | T1                               | D                | NCV                  | 13.20                      | 2.74                      |
| Ireland                      | L, T                      | 14.7                        | T1                               | CS       | NCV                 | 69.96                      | 73.30                      | T                          | 0.5                         | T1                               | C                | NCV                  | 9.95                       | 5.65                      |
| Italy                        | L                         | 21.1                        | D, T2                            | CS       | NCV                 | 71.11                      | 73.15                      | L                          | 0.6                         | D, T3                            | D, C             | NCV                  | 7.62                       | 5.78                      |
| Latvia                       | L, T                      | 20.3                        | T1                               | D        | NCV                 | 68.60                      | 74.00                      |                            | 0.3                         | T1                               | D                | NCV                  | 4.15                       | 3.58                      |
| Luxembourg                   |                           |                             | C                                | C        |                     |                            |                            |                            |                             | C                                | C                |                      |                            |                           |
| Netherlands                  | L, T                      | 14.6                        | CS/T2(Box 2)                     | CS       | NCV                 | 72.30                      | 73.30                      |                            | 0.3                         | CS/T3(road);T1(rest)             | CS(road)/D(rest) | NCV                  | 4.83                       | 3.61                      |
| New Zealand                  | L                         | 15.4                        | T1                               | CS/D     | GCV                 | 65.93                      | 68.01                      |                            | 0.2                         | T1                               | D                | GCV                  | 3.00                       | 3.00                      |
| Norway                       | L, T                      | 16.6                        | M, T1, CS/T2                     | CS       | NCV                 | 71.30                      | 73.55                      | L, T                       | 1.1                         | CS, T2, CS/T2                    | CS, D, C         | NCV                  | 24.48                      | 3.36                      |
| Poland                       | L                         | 7.4                         | T2                               | CS       | NCV                 | 64.80                      | 71.03                      |                            | 0.2                         | T2                               | CS               | NCV                  | 5.22                       | 3.55                      |
| Portugal                     | L, T                      | 20.8                        | C                                | C        | NCV                 | 71.10                      | 72.45                      | L, T                       | 0.7                         | C                                | C                | NCV                  | 12.37                      | 3.98                      |
| Romania                      | L                         | 6.5                         | D                                | D        | NCV                 | 68.61                      | 73.33                      |                            | 0.0                         | T1                               | T1               | NCV                  | 0.60                       | 0.60                      |
| Slovakia                     | L                         | 9.3                         | M                                | M        | NCV                 | 72.94                      | 73.75                      |                            | 0.3                         | M                                | M                | NCV                  | 10.98                      | 4.18                      |
| Spain                        | L, T                      | 21.2                        | C                                | C        | NCV                 | 71.26                      | 72.63                      | L, T                       | 0.5                         | C                                | C                | NCV                  | 6.10                       | 5.73                      |
| Sweden                       | L, T                      | 25.8                        | CS                               | CS       | NCV                 | 72.60                      | 75.30                      | L, T                       | 0.9                         | CS                               | CS               | NCV                  | 10.29                      | 3.54                      |
| Switzerland                  | L, T                      | 28.0                        | CS                               | CS       | NCV                 | 73.90                      | 73.60                      | L, T                       | 1.1                         | CS                               | CS, D            | NCV                  | 11.39                      | 2.77                      |
| United Kingdom               | L, T                      | 17.8                        | T2                               | CS       | NCV                 | 70.06                      | 72.54                      | L, T                       | 0.6                         | T2/T3                            | D                | NCV                  | 11.15                      | 4.64                      |
| United States                | L, T                      | 20.2                        | T1, T2                           | CS       | GCV                 | 66.54                      | 67.73                      | L                          | 0.7                         | T1, T2, M                        | D, CS, M         | GCV                  | 9.37                       | 2.30                      |

<sup>a</sup> 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.

<sup>b</sup> Source of default emission factors: IPCC Guidelines, volume 3, pages 1.70–1.83. For updates on the default emission factors for N<sub>2</sub>O for US gasoline vehicles, see table 2.7, page 2.47 in the IPCC good practice guidance.

**Table 1.31****Road transportation – trend information****CO<sub>2</sub> emissions (Gg)**

|                                   | 1990 <sup>a</sup> | 1995      | 1996      | 1997      | 1998      | 1999      | 2000      | 2001      |
|-----------------------------------|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Austria</b>                    | 12,280            | 13,918    | 15,567    | 14,504    | 16,461    | 15,703    | 16,583    | 17,895    |
| <b>Belgium</b>                    | 18,976            | 21,116    | 21,575    | 22,326    | 22,654    | 23,100    | 23,386    | 23,500    |
| <b>Bulgaria<sup>b</sup></b>       |                   |           |           |           | 5,151     | 5,324     | 5,008     | 5,187     |
| <b>Canada</b>                     | 102,868           | 112,440   | 114,246   | 119,533   | 120,502   | 115,782   | 125,582   | 127,487   |
| <b>Czech Republic<sup>b</sup></b> | 5,995             |           |           |           | 10,316    | 11,348    | 10,344    | 11,286    |
| <b>Denmark</b>                    | 9,351             | 10,648    | 10,821    | 11,026    | 11,215    | 11,350    | 11,230    | 11,273    |
| <b>Estonia<sup>b</sup></b>        |                   |           |           |           |           | 909       | 761       | 1,695     |
| <b>European Community</b>         | NE                | NE        | NE        | NE        | NE        | NE        | NE        | NE        |
| <b>Finland</b>                    | 11,111            | 10,325    | 10,192    | 10,701    | 10,807    | 10,880    | 10,648    | 10,905    |
| <b>France</b>                     | 111,403           | 120,789   | 121,884   | 124,078   | 126,008   | 128,833   | 128,462   | 131,482   |
| <b>Germany</b>                    | 150,183           | 164,990   | 165,025   | 165,942   | 169,374   | 174,878   | 171,505   | 167,658   |
| <b>Greece<sup>b</sup></b>         | 11,873            | 13,872    | 14,509    | 14,851    | 15,561    | 15,845    | 16,031    | 16,407    |
| <b>Iceland<sup>b</sup></b>        |                   |           |           |           |           | 769       | 786       | 788       |
| <b>Ireland</b>                    | 4,680             | 5,915     | 6,609     | 7,205     | 8,264     | 9,121     | 9,544     | 10,300    |
| <b>Italy</b>                      |                   |           |           |           |           |           |           | 114,835   |
| <b>Latvia</b>                     | 2,666             | 2,208     | 2,045     | 2,029     | 2,002     | 1,732     | 1,756     | 2,317     |
| <b>Luxembourg<sup>b</sup></b>     |                   |           |           |           |           | 1,313     |           |           |
| <b>Netherlands</b>                | 25,374            | 28,399    | 29,158    | 29,518    | 30,236    | 31,111    | 31,468    | 31,984    |
| <b>New Zealand</b>                |                   | 9,527     | 9,727     | 10,067    |           |           |           | 11,103    |
| <b>Norway</b>                     | 7,850             |           |           |           | 9,065     | 9,283     | 8,749     | 9,319     |
| <b>Poland<sup>b</sup></b>         |                   |           |           |           |           |           | 26,920    | 28,353    |
| <b>Portugal</b>                   | 9,249             | 12,406    | 13,055    | 13,719    | 15,165    | 15,934    | 17,486    | 17,420    |
| <b>Romania<sup>b</sup></b>        |                   | 5,195     | 7,027     | 6,870     | 6,843     | 5,758     | 6,469     | 9,662     |
| <b>Slovakia<sup>b</sup></b>       |                   |           |           |           | 4,580     | 4,493     | 4,017     | 4,587     |
| <b>Spain</b>                      | 51,390            | 60,341    | 64,251    | 64,879    | 71,387    | 75,304    | 77,315    | 81,072    |
| <b>Sweden</b>                     | 16,624            | 17,482    | 17,359    | 17,477    | 17,970    | 18,004    | 17,896    | 18,182    |
| <b>Switzerland</b>                | 13,762            |           |           |           |           |           |           | 14,954    |
| <b>United Kingdom</b>             | 109,211           | 110,737   | 115,048   | 116,515   | 115,784   | 116,778   | 117,372   | 116,777   |
| <b>United States</b>              | 1,120,931         | 1,227,893 | 1,258,241 | 1,280,491 | 1,316,430 | 1,361,491 | 1,378,938 | 1,402,462 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 11.8         | -6.8         | 13.5         | -4.6         | 5.6          | 7.9          | 45.7         |
| <b>Belgium</b>            | 2.2          | 3.5          | 1.5          | 2.0          | 1.2          | 0.5          | 23.8         |
| <b>Bulgaria</b>           |              |              |              | 3.4          | -5.9         | 3.6          |              |
| <b>Canada</b>             | 1.6          | 4.6          | 0.8          | -3.9         | 8.5          | 1.5          | 23.9         |
| <b>Czech Republic</b>     |              |              |              | 10.0         | -8.8         | 9.1          | 88.2         |
| <b>Denmark</b>            | 1.6          | 1.9          | 1.7          | 1.2          | -1.1         | 0.4          | 20.6         |
| <b>Estonia</b>            |              |              |              |              | -16.3        | 122.6        |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | -1.3         | 5.0          | 1.0          | 0.7          | -2.1         | 2.4          | -1.9         |
| <b>France</b>             | 0.9          | 1.8          | 1.6          | 2.2          | -0.3         | 2.4          | 18.0         |
| <b>Germany</b>            | 0.0          | 0.6          | 2.1          | 3.2          | -1.9         | -2.2         | 11.6         |
| <b>Greece</b>             | 4.6          | 2.4          | 4.8          | 1.8          | 1.2          | 2.3          | 38.2         |
| <b>Iceland</b>            |              |              |              |              | 2.1          | 0.2          |              |
| <b>Ireland</b>            | 11.7         | 9.0          | 14.7         | 10.4         | 4.6          | 7.9          | 120.1        |
| <b>Italy</b>              |              |              |              |              |              |              |              |
| <b>Latvia</b>             | -7.4         | -0.8         | -1.3         | -13.5        | 1.4          | 32.0         | -13.1        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | 2.7          | 1.2          | 2.4          | 2.9          | 1.1          | 1.6          | 26.0         |
| <b>New Zealand</b>        | 2.1          | 3.5          |              |              |              |              |              |
| <b>Norway</b>             |              |              |              | 2.4          | -5.8         | 6.5          | 18.7         |
| <b>Poland</b>             |              |              |              |              |              | 5.3          |              |
| <b>Portugal</b>           | 5.2          | 5.1          | 10.5         | 5.1          | 9.7          | -0.4         | 88.3         |
| <b>Romania</b>            | 35.3         | -2.2         | -0.4         | -15.9        | 12.4         | 49.3         |              |
| <b>Slovakia</b>           |              |              |              | -1.9         | -10.6        | 14.2         |              |
| <b>Spain</b>              | 6.5          | 1.0          | 10.0         | 5.5          | 2.7          | 4.9          | 57.8         |
| <b>Sweden</b>             | -0.7         | 0.7          | 2.8          | 0.2          | -0.6         | 1.6          | 9.4          |
| <b>Switzerland</b>        |              |              |              |              |              | -1.8         | 8.7          |
| <b>United Kingdom</b>     | 3.9          | 1.3          | -0.6         | 0.9          | 0.5          | -0.5         | 6.9          |
| <b>United States</b>      | 2.5          | 1.8          | 2.8          | 3.4          | 1.3          | 1.7          | 25.1         |

**Table 1.31****Road transportation – trend information (continued)****N<sub>2</sub>O emissions (Gg)**

|                                   | 1990 <sup>a</sup> | 1995   | 1996   | 1997   | 1998   | 1999   | 2000   | 2001   |
|-----------------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|
| <b>Austria</b>                    | 1.53              | 3.00   | 2.94   | 2.81   | 3.00   | 2.79   | 2.73   | 2.72   |
| <b>Belgium</b>                    | 0.85              | 1.60   | 1.73   | 1.84   | 1.93   | 2.23   | 2.45   | 2.48   |
| <b>Bulgaria<sup>b</sup></b>       |                   |        |        |        | 0.97   | 0.10   | 0.09   | 0.09   |
| <b>Canada</b>                     | 11.76             | 19.11  | 18.86  | 19.10  | 18.69  | 18.51  | 18.05  | 18.53  |
| <b>Czech Republic<sup>b</sup></b> | 0.23              |        |        |        | 1.39   | 1.57   | 1.64   | 1.74   |
| <b>Denmark</b>                    | 0.42              | 0.81   | 0.89   | 1.00   | 1.07   | 1.12   | 1.18   | 1.23   |
| <b>Estonia<sup>b</sup></b>        |                   |        |        |        |        | 0.01   | 0.01   | 0.01   |
| <b>European Community</b>         | NE                | NE     | NE     | NE     | NE     | NE     | NE     | NE     |
| <b>Finland</b>                    | 1.34              | 1.41   | 1.55   | 1.62   | 1.68   | 1.75   | 1.75   | 1.79   |
| <b>France</b>                     | 5.14              | 8.14   | 8.99   | 9.72   | 10.42  | 11.23  | 11.72  | 12.65  |
| <b>Germany</b>                    | 9.39              | 17.07  | 17.60  | 18.10  | 18.49  | 19.26  | 19.47  | 20.49  |
| <b>Greece<sup>b</sup></b>         | 0.46              | 0.80   | 0.86   | 0.95   | 1.00   | 1.03   | 1.09   | 1.20   |
| <b>Iceland<sup>b</sup></b>        |                   |        |        |        |        | 0.10   | 0.10   | 0.10   |
| <b>Ireland</b>                    | 0.18              | 0.43   | 0.55   | 0.68   | 0.85   | 1.05   | 1.00   | 1.10   |
| <b>Italy</b>                      |                   |        |        |        | 8.79   | 9.57   | 9.92   | 10.54  |
| <b>Latvia</b>                     | 0.07              | 0.08   | 0.08   | 0.08   | 0.08   | 0.08   | 0.08   | 0.12   |
| <b>Luxembourg<sup>b</sup></b>     |                   |        |        |        |        | 0.14   |        |        |
| <b>Netherlands</b>                | 1.10              | 1.84   | 1.88   | 1.90   | 1.91   | 1.93   | 1.90   | 1.88   |
| <b>New Zealand</b>                | 0.34              | 0.43   | 0.44   | 0.45   | 0.46   | 0.48   | 0.49   | 0.50   |
| <b>Norway</b>                     | 0.30              |        |        |        | 1.29   | 1.50   | 1.64   | 1.93   |
| <b>Poland<sup>b</sup></b>         |                   |        |        |        |        |        | 1.82   | 1.90   |
| <b>Portugal</b>                   | 0.38              | 0.81   | 0.94   | 1.07   | 1.27   | 1.42   | 1.62   | 1.77   |
| <b>Romania<sup>b</sup></b>        |                   | 0.06   | 0.08   | 0.08   | 0.08   | 0.07   | 0.08   | 0.08   |
| <b>Slovakia<sup>b</sup></b>       |                   |        |        |        | 0.38   | 0.41   | 0.38   | 0.47   |
| <b>Spain</b>                      | 2.17              | 3.51   | 3.96   | 4.35   | 5.08   | 5.66   | 6.05   | 6.58   |
| <b>Sweden</b>                     | 0.82              | 1.26   | 1.36   | 1.44   | 1.56   | 1.71   | 1.85   | 1.97   |
| <b>Switzerland</b>                | 1.11              |        |        |        |        |        |        | 1.94   |
| <b>United Kingdom</b>             | 3.32              | 7.10   | 8.46   | 9.69   | 10.81  | 11.90  | 12.76  | 13.64  |
| <b>United States</b>              | 153.85            | 186.88 | 185.93 | 185.08 | 182.99 | 179.49 | 174.72 | 166.59 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | -1.9         | -4.3         | 6.7          | -7.1         | -2.1         | -0.4         | 77.6         |
| <b>Belgium</b>            | 7.7          | 6.8          | 4.8          | 15.6         | 9.7          | 1.2          | 190.6        |
| <b>Bulgaria</b>           |              |              |              | -89.5        | -11.7        | 1.6          |              |
| <b>Canada</b>             | -1.3         | 1.2          | -2.2         | -1.0         | -2.5         | 2.7          | 57.5         |
| <b>Czech Republic</b>     |              |              |              | 12.5         | 4.9          | 5.7          | 661.9        |
| <b>Denmark</b>            | 8.9          | 12.9         | 7.4          | 4.4          | 5.7          | 3.8          | 190.7        |
| <b>Estonia</b>            |              |              |              |              | -17.5        | 127.6        |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | 9.7          | 4.3          | 3.9          | 4.3          | 0.0          | 2.3          | 33.6         |
| <b>France</b>             | 10.4         | 8.2          | 7.2          | 7.8          | 4.4          | 7.9          | 146.4        |
| <b>Germany</b>            | 3.1          | 2.8          | 2.1          | 4.2          | 1.1          | 5.2          | 118.1        |
| <b>Greece</b>             | 7.8          | 10.1         | 5.8          | 2.7          | 5.6          | 10.1         | 159.4        |
| <b>Iceland</b>            |              |              |              |              | -0.4         | 0.6          |              |
| <b>Ireland</b>            | 26.0         | 24.3         | 24.6         | 23.6         | -5.0         | 10.8         | 509.4        |
| <b>Italy</b>              |              |              |              | 8.9          | 3.6          | 6.3          |              |
| <b>Latvia</b>             | -1.8         | 5.3          | 2.8          | -8.9         | 4.4          | 51.6         | 77.7         |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | 2.0          | 1.2          | 0.5          | 1.1          | -1.8         | -0.9         | 71.3         |
| <b>New Zealand</b>        | 2.1          | 3.4          | 2.0          | 2.9          | 2.7          | 2.1          | 45.6         |
| <b>Norway</b>             |              |              |              | 16.0         | 9.5          | 17.9         | 550.3        |
| <b>Poland</b>             |              |              |              |              |              | 4.2          |              |
| <b>Portugal</b>           | 17.1         | 13.8         | 17.9         | 12.0         | 14.4         | 9.0          | 369.4        |
| <b>Romania</b>            | 45.3         | -4.3         | -0.3         | -15.6        | 14.0         | 7.3          |              |
| <b>Slovakia</b>           |              |              |              | 6.8          | -7.3         | 22.4         |              |
| <b>Spain</b>              | 12.9         | 9.8          | 16.8         | 11.5         | 6.9          | 8.7          | 202.9        |
| <b>Sweden</b>             | 8.2          | 6.1          | 8.1          | 9.6          | 8.4          | 6.3          | 141.2        |
| <b>Switzerland</b>        |              |              |              |              |              | -5.5         | 74.0         |
| <b>United Kingdom</b>     | 19.1         | 14.6         | 11.6         | 10.1         | 7.2          | 6.9          | 310.6        |
| <b>United States</b>      | -0.5         | -0.5         | -1.1         | -1.9         | -2.7         | -4.7         | 8.3          |

**Table 1.31****Road transportation – trend information (continued)****N<sub>2</sub>O implied emission factors for gasoline (kg/TJ)**

|                                   | 1990 <sup>a</sup> | 1995  | 1996  | 1997  | 1998  | 1999  | 2000  | 2001  |
|-----------------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|
| <b>Austria</b>                    | 12.56             | 27.02 | 27.63 | 28.22 | 28.31 | 28.26 | 28.11 | 27.37 |
| <b>Belgium</b>                    |                   |       |       |       |       |       | 7.09  | 7.36  |
| <b>Bulgaria<sup>b</sup></b>       |                   |       |       |       | 0.94  |       | 1.12  | 1.08  |
| <b>Canada</b>                     | 9.89              | 15.62 | 15.31 | 15.00 | 14.34 | 13.97 | 13.34 | 13.41 |
| <b>Czech Republic<sup>b</sup></b> | 2.44              |       |       |       | 16.54 | 16.71 | 19.44 | 18.91 |
| <b>Denmark</b>                    | 2.24              | 6.37  | 7.09  | 8.22  | 8.86  | 9.28  | 10.05 | 10.60 |
| <b>Estonia<sup>b</sup></b>        |                   |       |       |       |       | 0.60  | 0.37  | 0.60  |
| <b>European Community</b>         |                   |       |       |       |       |       | NE    | NE    |
| <b>Finland</b>                    | 3.90              | 6.00  | 9.00  | 10.51 | 11.70 | 12.62 | 13.97 | 16.62 |
| <b>France</b>                     | 1.77              | 3.55  | 4.44  | 5.24  | 5.94  | 6.68  | 7.47  | 8.19  |
| <b>Germany</b>                    | 5.39              | 10.86 | 11.20 | 11.37 | 11.14 | 10.71 | 10.32 | 9.89  |
| <b>Greece<sup>b</sup></b>         | 1.82              | 3.84  | 4.09  | 4.46  | 4.61  | 4.70  | 5.04  | 5.45  |
| <b>Iceland<sup>b</sup></b>        |                   |       |       |       |       | 13.20 | 13.20 | 13.20 |
| <b>Ireland</b>                    | 1.92              | 6.17  | 7.44  | 9.10  | 10.50 | 12.44 | 9.50  | 9.95  |
| <b>Italy</b>                      |                   |       |       |       |       |       |       | 7.62  |
| <b>Latvia</b>                     | 1.60              | 2.15  | 2.33  | 2.47  | 2.67  | 3.00  | 3.26  | 4.15  |
| <b>Luxembourg<sup>b</sup></b>     |                   |       |       |       |       | 11.50 |       |       |
| <b>Netherlands</b>                | 3.35              | 5.96  | 5.83  | 5.81  | 5.59  | 5.40  | 5.09  | 4.83  |
| <b>New Zealand</b>                |                   |       |       |       |       |       | 3.00  | 3.00  |
| <b>Norway</b>                     | 2.56              |       |       |       | 15.52 | 18.43 | 21.38 | 24.48 |
| <b>Poland<sup>b</sup></b>         |                   |       |       |       |       |       | 5.12  | 5.22  |
| <b>Portugal</b>                   | 1.76              | 5.42  | 6.57  | 7.68  | 8.85  | 10.03 | 11.24 | 12.37 |
| <b>Romania<sup>b</sup></b>        |                   | 0.60  | 0.60  | 0.60  | 0.60  | 0.60  | 0.60  | 0.60  |
| <b>Slovakia<sup>b</sup></b>       |                   |       |       |       |       | 9.45  | 10.15 | 10.98 |
| <b>Spain</b>                      | 1.76              | 3.41  | 3.83  | 4.30  | 4.75  | 5.24  | 5.68  | 6.10  |
| <b>Sweden</b>                     | 3.67              | 6.09  | 6.72  | 7.28  | 8.10  | 8.79  | 9.71  | 10.29 |
| <b>Switzerland</b>                | 6.71              |       |       |       |       |       |       | 11.39 |
| <b>United Kingdom</b>             | 1.71              | 4.95  | 6.01  | 7.11  | 8.30  | 9.18  | 10.04 | 11.15 |
| <b>United States</b>              | 10.50             | 11.84 | 11.53 | 11.34 | 10.93 | 10.41 | 10.04 | 9.37  |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 2.3          | 2.1          | 0.3          | -0.2         | -0.5         | -2.7         | 117.9        |
| <b>Belgium</b>            |              |              |              |              |              | 3.8          |              |
| <b>Bulgaria</b>           |              |              |              |              |              | -3.0         |              |
| <b>Canada</b>             | -2.0         | -2.0         | -4.4         | -2.6         | -4.5         | 0.6          | 35.7         |
| <b>Czech Republic</b>     |              |              |              | 1.0          | 16.3         | -2.7         | 675.8        |
| <b>Denmark</b>            | 11.3         | 15.9         | 7.8          | 4.7          | 8.4          | 5.5          | 373.6        |
| <b>Estonia</b>            |              |              |              |              | -39.0        | 64.0         |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | 49.8         | 16.8         | 11.4         | 7.8          | 10.7         | 19.0         | 326.5        |
| <b>France</b>             | 25.2         | 17.9         | 13.4         | 12.3         | 12.0         | 9.5          | 363.2        |
| <b>Germany</b>            | 3.2          | 1.4          | -2.0         | -3.9         | -3.7         | -4.1         | 83.4         |
| <b>Greece</b>             | 6.5          | 9.1          | 3.2          | 2.0          | 7.4          | 8.1          | 198.8        |
| <b>Iceland</b>            |              |              |              |              | 0.0          | 0.0          |              |
| <b>Ireland</b>            | 20.6         | 22.3         | 15.4         | 18.5         | -23.6        | 4.7          | 416.9        |
| <b>Italy</b>              |              |              |              |              |              |              |              |
| <b>Latvia</b>             | 8.6          | 6.0          | 8.1          | 12.1         | 8.9          | 27.1         | 159.1        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | -2.2         | -0.4         | -3.9         | -3.4         | -5.6         | -5.1         | 44.4         |
| <b>New Zealand</b>        |              |              |              |              |              | 0.0          |              |
| <b>Norway</b>             |              |              |              | 18.8         | 16.0         | 14.5         | 856.1        |
| <b>Poland</b>             |              |              |              |              |              | 1.9          |              |
| <b>Portugal</b>           | 21.3         | 16.8         | 15.2         | 13.3         | 12.1         | 10.0         | 603.5        |
| <b>Romania</b>            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |              |
| <b>Slovakia</b>           |              |              |              |              | 7.3          | 8.2          |              |
| <b>Spain</b>              | 12.1         | 12.3         | 10.6         | 10.2         | 8.3          | 7.5          | 246.0        |
| <b>Sweden</b>             | 10.3         | 8.4          | 11.2         | 8.6          | 10.5         | 6.0          | 180.7        |
| <b>Switzerland</b>        |              |              |              |              |              | -3.1         | 69.9         |
| <b>United Kingdom</b>     | 21.3         | 18.3         | 16.8         | 10.7         | 9.3          | 11.0         | 550.1        |
| <b>United States</b>      | -2.7         | -1.7         | -3.6         | -4.7         | -3.5         | -6.8         | -10.8        |



**Table 1.31****Road transportation – trend information (continued)****N<sub>2</sub>O implied emission factors for diesel (kg/TJ)**

|                                   | 1990 <sup>a</sup> | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|-----------------------------------|-------------------|------|------|------|------|------|------|------|
| <b>Austria</b>                    | 3.54              | 3.12 | 3.17 | 3.04 | 3.01 | 2.93 | 2.88 | 2.78 |
| <b>Belgium</b>                    |                   |      |      |      |      |      | 7.48 | 7.42 |
| <b>Bulgaria<sup>b</sup></b>       |                   |      |      |      | 1.91 | 1.87 | 1.91 | 1.91 |
| <b>Canada</b>                     | 2.22              | 2.17 | 2.16 | 2.16 | 2.18 | 2.19 | 2.19 | 2.19 |
| <b>Czech Republic<sup>b</sup></b> | 3.00              |      |      |      | 3.00 | 3.00 | 3.00 | 3.08 |
| <b>Denmark</b>                    | 4.54              | 4.65 | 4.67 | 4.69 | 4.71 | 4.78 | 4.96 | 5.00 |
| <b>Estonia<sup>b</sup></b>        |                   |      |      |      |      | 0.60 |      | 0.60 |
| <b>European Community</b>         |                   |      |      |      |      |      | NE   | NE   |
| <b>Finland</b>                    | 3.90              | 5.01 | 4.00 | 3.00 | 3.01 | 3.70 | 3.59 | 3.22 |
| <b>France</b>                     | 5.25              | 6.00 | 6.09 | 6.09 | 6.17 | 6.26 | 6.29 | 6.52 |
| <b>Germany</b>                    | 3.01              | 3.05 | 3.14 | 3.41 | 3.89 | 4.83 | 5.98 | 7.80 |
| <b>Greece<sup>b</sup></b>         | 4.15              | 4.31 | 4.25 | 4.45 | 4.36 | 4.31 | 4.25 | 4.48 |
| <b>Iceland<sup>b</sup></b>        |                   |      |      |      |      | 2.74 | 2.74 | 2.74 |
| <b>Ireland</b>                    | 4.04              | 4.09 | 4.21 | 4.22 | 4.15 | 4.11 | 5.50 | 5.65 |
| <b>Italy</b>                      |                   |      |      |      |      |      |      | 5.78 |
| <b>Latvia</b>                     | 3.42              | 3.27 | 3.36 | 3.47 | 3.53 | 3.52 | 3.54 | 3.58 |
| <b>Luxembourg<sup>b</sup></b>     |                   |      |      |      |      | 3.53 |      |      |
| <b>Netherlands</b>                | 2.75              | 2.92 | 3.01 | 3.13 | 3.26 | 3.39 | 3.54 | 3.61 |
| <b>New Zealand</b>                |                   |      |      |      |      |      |      | 3.00 |
| <b>Norway</b>                     | 3.08              |      |      |      | 3.44 | 3.40 | 3.38 | 3.36 |
| <b>Poland<sup>b</sup></b>         |                   |      |      |      |      |      | 3.57 | 3.55 |
| <b>Portugal</b>                   | 3.97              | 3.98 | 3.98 | 3.98 | 3.98 | 3.98 | 3.98 | 3.98 |
| <b>Romania<sup>b</sup></b>        |                   | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| <b>Slovakia<sup>b</sup></b>       |                   |      |      |      |      | 4.20 | 4.15 | 4.18 |
| <b>Spain</b>                      | 4.37              | 4.84 | 4.96 | 5.26 | 5.39 | 5.54 | 5.63 | 5.73 |
| <b>Sweden</b>                     | 3.39              | 3.10 | 3.21 | 3.15 | 3.13 | 3.43 | 3.52 | 3.54 |
| <b>Switzerland</b>                | 2.73              |      |      |      |      |      |      | 2.77 |
| <b>United Kingdom</b>             | 3.20              | 3.92 | 4.00 | 4.14 | 4.23 | 4.48 | 4.57 | 4.64 |
| <b>United States</b>              | 2.33              | 2.47 | 2.44 | 2.43 | 2.36 | 2.32 | 2.29 | 2.30 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 1.4          | -4.1         | -0.9         | -2.6         | -1.9         | -3.3         | -21.5        |
| <b>Belgium</b>            |              |              |              |              |              |              | -0.7         |
| <b>Bulgaria</b>           |              |              |              | -2.1         | 2.2          | 0.0          |              |
| <b>Canada</b>             | -0.2         | 0.0          | 0.8          | 0.6          | -0.2         | 0.0          | -1.5         |
| <b>Czech Republic</b>     |              |              |              | 0.0          | 0.0          | 2.6          | 2.7          |
| <b>Denmark</b>            | 0.4          | 0.5          | 0.5          | 1.5          | 3.8          | 0.8          | 10.2         |
| <b>Estonia</b>            |              |              |              |              |              |              |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | -20.0        | -25.0        | 0.1          | 23.0         | -2.9         | -10.4        | -17.6        |
| <b>France</b>             | 1.5          | 0.0          | 1.3          | 1.5          | 0.5          | 3.6          | 24.0         |
| <b>Germany</b>            | 2.8          | 8.5          | 14.1         | 24.3         | 23.8         | 30.3         | 158.9        |
| <b>Greece</b>             | -1.6         | 4.9          | -2.0         | -1.3         | -1.4         | 5.6          | 8.1          |
| <b>Iceland</b>            |              |              |              |              | 0.0          | 0.0          |              |
| <b>Ireland</b>            | 2.9          | 0.2          | -1.7         | -0.9         | 33.7         | 2.7          | 39.7         |
| <b>Italy</b>              |              |              |              |              |              |              |              |
| <b>Latvia</b>             | 2.7          | 3.3          | 1.8          | -0.3         | 0.6          | 1.1          | 4.5          |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | 3.4          | 4.0          | 4.0          | 4.1          | 4.5          | 1.8          | 31.2         |
| <b>New Zealand</b>        |              |              |              |              |              |              |              |
| <b>Norway</b>             |              |              |              | -1.3         | -0.4         | -0.7         | 8.9          |
| <b>Poland</b>             |              |              |              |              |              | -0.6         |              |
| <b>Portugal</b>           | 0.1          | 0.0          | 0.0          | 0.0          | -0.1         | 0.1          | 0.4          |
| <b>Romania</b>            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |              |
| <b>Slovakia</b>           |              |              |              |              | -1.2         | 0.8          |              |
| <b>Spain</b>              | 2.4          | 6.1          | 2.5          | 2.8          | 1.7          | 1.7          | 31.0         |
| <b>Sweden</b>             | 3.4          | -1.9         | -0.6         | 9.7          | 2.5          | 0.5          | 4.4          |
| <b>Switzerland</b>        |              |              |              |              |              | 0.3          | 1.5          |
| <b>United Kingdom</b>     | 2.1          | 3.3          | 2.2          | 6.0          | 2.0          | 1.5          | 45.0         |
| <b>United States</b>      | -1.5         | -0.3         | -3.0         | -1.7         | -1.0         | 0.2          | -1.6         |

**Table 1.32****Civil aviation and navigation (domestic), CO<sub>2</sub> (2001)**

|                              | Methods and EF used <sup>a</sup> |          | IEF in CRF based on | Civil aviation (domestic) |                             |                     | International aviation |                     | Navigation (domestic) |            |                             |                     | International marine |                     |                |
|------------------------------|----------------------------------|----------|---------------------|---------------------------|-----------------------------|---------------------|------------------------|---------------------|-----------------------|------------|-----------------------------|---------------------|----------------------|---------------------|----------------|
|                              | Methods                          | EF       |                     | Key source                | Share of national total (%) | CO <sub>2</sub> IEF |                        | CO <sub>2</sub> IEF |                       | Key source | Share of national total (%) | CO <sub>2</sub> IEF |                      | CO <sub>2</sub> IEF |                |
|                              |                                  |          |                     |                           |                             | Jet kerosene        | Aviation gasoline      | Jet kerosene        | Aviation gasoline     |            |                             | Residual oil        | Gas/diesel oil       | Residual oil        | Gas/diesel oil |
|                              |                                  |          |                     |                           |                             |                     |                        |                     |                       |            |                             |                     |                      |                     |                |
| IPCC default EF <sup>b</sup> |                                  |          | NCV                 |                           |                             | 72.80               | 72.10                  | 72.80               | 72.10                 |            |                             | 77.60               | 73.00                | 77.60               | 75.0-77.6      |
| Austria                      | M                                | CS       | NCV                 |                           | 0.1                         | 72.56               | 74.12                  | 72.56               |                       |            | 0.1                         |                     | 73.67                |                     |                |
| Belgium                      |                                  |          | NCV                 |                           | 0.0                         | 73.07               | 68.61                  |                     |                       | L          | 0.3                         |                     | 73.52                |                     |                |
| Bulgaria                     | T2                               | C, CS, D | NCV                 |                           | 0.1                         | 70.60               | 70.80                  | 70.60               | NO                    |            |                             | NO                  | NO                   | 81.52               | 76.08          |
| Canada                       | CS                               | CS       | GCV                 | L, T                      | 1.6                         | 68.18               | 69.51                  | 68.18               |                       | L          | 0.7                         | 72.71               | 71.28                | 72.71               | 71.28          |
| Czech Republic               | T1                               | D        | NCV                 |                           | 0.1                         | 70.79               | 68.61                  | 64.16               |                       |            | 0.0                         |                     | 73.33                |                     |                |
| Denmark                      | M/C                              | CS       | NCV                 |                           | 0.2                         | 72.00               | 73.00                  | 72.00               | 73.00                 |            | 0.6                         | 78.00               | 74.00                | 78.00               | 74.00          |
| Estonia                      |                                  |          | NCV                 |                           | 0.3                         | 70.79               |                        |                     |                       |            | 0.1                         |                     | 73.33                | 75.82               | 73.33          |
| European Community           | C, CS, D, M, T1, T2              | C, CS, M |                     |                           |                             | NE                  | NE                     | NE                  | NE                    |            |                             | NE                  | NE                   | NE                  | NE             |
| Finland                      | CS (M)                           | CS       | NCV                 |                           | 0.4                         | 70.78               | 70.92                  | 70.79               | NO                    | L, T       | 0.6                         | 76.64               | 73.37                | 76.64               | 73.31          |
| France                       | C /CS                            | C /M /CS | NCV                 | L, T                      | 1.0                         | 71.59               | IE                     | 71.59               |                       |            | 0.4                         | 78.00               | 75.00                | 78.00               | 75.00          |
| Germany                      | CS                               | CS       | NCV                 | T                         | 0.4                         | 74.00               | IE                     | NE                  | NE                    |            | 0.1                         | NO                  | 74.00                | 78.00               | 74.00          |
| Greece                       | C                                | C        | NCV                 | L, T                      | 0.9                         | 64.72               | IE                     | 89.88               | NO                    | L          | 1.6                         | 76.59               | 72.17                | 76.59               | 73.33          |
| Iceland                      | T1                               | D        | NCV                 |                           | 0.9                         | 70.79               | 68.61                  | 70.79               | 68.61                 |            | 0.8                         | 76.59               | 73.33                | 76.59               | 73.33          |
| Ireland                      | T1                               | CS       | NCV                 |                           | 0.2                         | 71.40               |                        | 71.40               | 69.96                 |            | 0.2                         | 76.00               | 73.30                |                     | 73.30          |
| Italy                        | D, T2                            | CS       | NCV                 | L                         | 0.5                         | 70.55               | 70.78                  | 70.05               | NO                    | L          | 1.2                         | 75.37               | 73.15                | 76.77               | IE             |
| Latvia                       | T1                               | D        | NCV                 |                           | 0.0                         | 70.80               | NO                     | 70.80               | NO                    | T          | 0.5                         | 76.59               | 74.00                | 76.59               | NO             |
| Luxembourg                   | C                                | C        |                     |                           |                             |                     |                        |                     |                       |            |                             |                     |                      |                     |                |
| Netherlands                  | CS/T2(Box 2)                     | CS       | NCV                 |                           | 0.1                         | 73.00               | IE                     | 73.00               |                       |            | 0.4                         |                     | 73.00                | 77.00               | 73.00          |
| New Zealand                  | T1                               | CS/D     | GCV                 | L                         | 1.0                         | 68.31               | 68.31                  | 68.31               | NE                    |            | 0.4                         | NE                  | NE                   | 72.96               | 68.01          |
| Norway                       | M, T1, CS/T2                     | CS       | NCV                 | L, T                      | 1.9                         | 73.09               | 71.30                  | 73.09               | NO                    | L, T       | 4.1                         | 78.82               | 73.55                | 78.82               | 73.55          |
| Poland                       | T2                               | CS       | NCV                 |                           | 0.1                         | 70.41               |                        | 70.42               |                       |            | 0.1                         | 72.61               | 70.44                | 72.59               | 72.03          |
| Portugal                     | C                                | C        | NCV                 | L, T                      | 1.6                         | 70.54               | 70.69                  | 70.54               |                       | T          | 0.2                         | 77.87               | 75.61                | 77.81               | 74.47          |
| Romania                      | D                                | D        | NCV                 |                           | 0.3                         | 70.79               | 68.61                  | NE                  | NE                    |            | 0.2                         |                     | 72.60                |                     |                |
| Slovakia                     | M                                | M        |                     |                           | 0.1                         |                     | based on LTO           | IE                  | IE                    |            | 0.2                         |                     | 75.01                | NO                  | NO             |
| Spain                        | C                                | C        | NCV                 | L                         | 1.5                         | 72.92               | 72.92                  | 72.70               |                       | L          | 0.5                         | 78.89               | 73.38                | 78.90               | 73.40          |
| Sweden                       | CS                               | CS       | NCV                 | L                         | 0.9                         | 73.10               | 72.30                  | 73.10               | NO                    | L          | 0.9                         | 76.20               | 75.30                | 76.20               | 75.30          |
| Switzerland                  | CS                               | CS       | NCV                 | T                         | 0.4                         | 73.20               | IE                     | 73.20               | IE                    |            | 0.2                         | IE                  | 73.78                | NO                  | NO             |
| United Kingdom               | T2                               | CS       | NCV                 | L                         | 0.4                         | 71.76               | 70.58                  | 71.76               | IE                    |            | 0.3                         | 75.42               | 72.54                | 75.42               | 72.54          |
| United States                | T1, T2                           | CS       | GCV                 | L, T                      | 2.7                         | 66.51               | 64.92                  | 66.51               | NE                    | L          | 0.8                         | 73.94               | 72.86                | 73.94               | 68.64          |

<sup>a</sup> 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.

<sup>b</sup> 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).

**Table 1.33****Domestic and international aviation, activity data (2001)**

|                    | Activity data<br>in CRF<br>based on | Civil aviation (domestic) |                  |            |                        |                  |            | International aviation |                  |            | Total jet kerosene and aviation gasoline |                  |            |
|--------------------|-------------------------------------|---------------------------|------------------|------------|------------------------|------------------|------------|------------------------|------------------|------------|--|------------------|------------|
|                    |                                     | Jet kerosene              |                  |            | Aviation gasoline      |                  |            | Jet kerosene           |                  |            |  |                  |            |
|                    |                                     | CRF                       | IEA <sup>a</sup> | Difference | CRF                    | IEA <sup>a</sup> | Difference | CRF                    | IEA <sup>a</sup> | Difference | CRF                                      | IEA <sup>a</sup> | Difference |
|                    |                                     | (TJ)                      |                  | (%)        | (TJ)                   |                  | (%)        | (TJ)                   |                  | (%)        | (TJ)                                     |                  | (%)        |
| Austria            | NCV                                 | 1,575                     | 1,338            | -15.1      | 87                     | 0                | -100.0     | 22,253                 | 23,320           | 4.8        | 23,915                                   | 24,658           | 3.1        |
| Belgium            | NCV                                 | 67                        | 1,516            | 2,151.7    | 67                     | 134              | 101.8      |                        | 48,469           | 100.0      | 134                                      | 50,119           | 37,319.6   |
| Bulgaria           | NCV                                 | 619                       |                  |            | 38                     |                  |            | 5,571                  |                  |            | 6,228                                    |                  |            |
| Canada             | GCV                                 | 168,758                   | 156,204          | -7.4       | 3,526                  | 3,537            | 0.3        | 46,371                 | 47,922           | 3.3        | 218,655                                  | 207,662          | -5.0       |
| Czech Republic     | NCV                                 | 1,765                     | 3,300            | 87.0       | 88                     | 90               | 2.3        | 6,841                  | 5,841            | -14.6      | 8,694                                    | 9,276            | 6.7        |
| Denmark            | NCV                                 | 2,239                     | 2,140            | -4.4       | 99                     | 90               | -9.9       | 33,019                 | 34,468           | 4.4        | 35,365                                   | 36,698           | 3.8        |
| Estonia            | NCV                                 | 688                       | 0                | -100.0     | 0                      | 0                | 0.0        | 0                      | 713              | 100.0      | 688                                      | 713              | 3.7        |
| European Community |                                     | NE                        |                  |            | NE                     |                  |            | NE                     |                  |            | NE                                       | 0                |            |
| Finland            | NCV                                 | 5,021                     | 6,599            | 31.4       | 65                     | 134              | 106.8      | 14,890                 | 15,339           | 3.0        | 19,976                                   | 22,072           | 10.5       |
| France             | NCV                                 | 81,922                    | 67,196           | -18.0      | IE                     | 1,254            | 100.0      | 200,025                | 222,947          | 11.5       | 281,947                                  | 291,398          | 3.4        |
| Germany            | NCV                                 | 58,000                    |                  |            | IE                     |                  |            | NE                     |                  |            | 58,000                                   |                  |            |
| Greece             | NCV                                 | 18,866                    | 18,014           | -4.5       | IE                     | 0                |            | 32,863                 | 32,862           | 0.0        | 51,728                                   | 50,877           | -1.6       |
| Iceland            | NCV                                 | 303                       | 312              | 3.1        | 44                     | 45               | 2.9        | 4,931                  | 4,949            | 0.4        | 5,278                                    | 5,306            | 0.5        |
| Ireland            | NCV                                 | 1,527                     | 1,605            | 5.1        | NE                     | 45               | 100.0      | 27,780                 | 30,365           | 9.3        | 29,350                                   | 32,015           | 9.1        |
| Italy              | NCV                                 | 38,096                    | 3,389            | -91.1      | 483                    | 493              | 2.0        | 124,042                | 147,323          | 18.8       | 162,622                                  | 151,205          | -7.0       |
| Latvia             | NCV                                 | 68                        | 0                | -100.0     | NO                     | 0                | 0.0        | 794                    | 1,159            | 46.1       | 862                                      | 1,159            | 34.5       |
| Luxembourg         |                                     |                           |                  |            |                        |                  |            |                        |                  |            | 0  | 0                |            |
| Netherlands        | NCV                                 | 2,697                     | 2,631            | -2.5       | IE                     | 134              | 100.0      | 135,122                | 138,450          | 2.5        | 137,819                                  | 141,260          | 2.5        |
| New Zealand        | GCV                                 | 9,983                     | 12,673           | 26.9       | 644                    | 660              | 2.5        | 27,885                 | 28,209           | 1.2        | 38,512                                   | 41,542           | 7.9        |
| Norway             | NCV                                 | 14,436                    | 11,816           | -18.1      | 104                    | 134              | 29.5       | 11,431                 | 15,651           | 36.9       | 25,970                                   | 27,601           | 6.3        |
| Poland             | NCV                                 | 6,457                     | 0                | -100.0     | 0                      | 0                | 0.0        | 4,774                  | 15,071           | 215.7      | 11,231                                   | 15,205           | 35.4       |
| Portugal           |                                     | 18,828                    | 7,223            | -61.6      | 94                     | 134              | 43.3       | 13,932                 | 25,550           | 83.4       | 32,855                                   | 32,908           | 0.2        |
| Romania            | NCV                                 | 5,349                     | 0                | -100.0     | 687                    | 134              | -80.5      | NE                     | 4,905            | 100.0      | 6,036                                    | 5,039            | -16.5      |
| Slovakia           |                                     |                           | 1,382            | 100.0      | based on LTO<br>cycles |                  |            | IE                     |                  |            | 0  | 1,382            | 100.0      |
| Spain              | NCV                                 | 76,617                    | 74,018           | -3.4       | 434                    | 493              | 13.6       | 116,812                | 119,856          | 2.6        | 193,863                                  | 194,368          | 0.3        |
| Sweden             | NCV                                 | 8,506                     | 10,256           | 20.6       | 51                     | 179              | 254.3      | 25,595                 | 30,811           | 20.4       | 34,152                                   | 41,246           | 20.8       |
| Switzerland        | NCV                                 | 3,207                     | 1,962            | -38.8      | IE                     | 224              | 100.0      | 60,949                 | 64,343           | 5.6        | 64,156                                   | 66,528           | 3.7        |
| United Kingdom     | NCV                                 | 38,329                    | 91,899           | 139.8      | 2,651                  | 2,554            | -3.7       | 384,779                | 365,856          | -4.9       | 425,760                                  | 460,354          | 8.1        |
| United States      | GCV                                 | 2,729,441                 | 2,842,177        | 4.1        | 36,861                 | 43,195           | 17.2       | 885,110                | 769,238          | -13.1      | 3,651,412                                | 3,654,610        | 0.1        |

<sup>a</sup> Source: IEA [unpublished].

**Table 1.34**  
Domestic and international navigation, activity data (2001)

|                    | Activity data in CRF based on | Navigation (domestic) |                  |            |                  |                  |            | International marine transport |                  |            |                  |         |            | Total residual oil and gas / diesel oil |                  |            |         |         |            |
|--------------------|-------------------------------|-----------------------|------------------|------------|------------------|------------------|------------|--------------------------------|------------------|------------|------------------|---------|------------|---|------------------|------------|---------|---------|------------|
|                    |                               | Residual oil          |                  |            | Gas / diesel oil |                  |            | Residual oil                   |                  |            | Gas / diesel oil |         |            |   |                  |            |         |         |            |
|                    |                               | CRF                   | IEA <sup>a</sup> | Difference | CRF              | IEA <sup>a</sup> | Difference | CRF                            | IEA <sup>a</sup> | Difference | CRF              | IEA     | Difference | CRF                                     | IEA <sup>a</sup> | Difference | CRF     | IEA     | Difference |
|                    |                               | (TJ)                  |                  | (%)        | (TJ)             |                  | (%)        | (TJ)                           |                  | (%)        | (TJ)             |         | (%)        | (TJ)                                    |                  | (%)        | (TJ)    |         | (%)        |
| Austria            | NCV                           | 0                     | 0                | 0.0        | 743              | 347              | -53.4      | 0                              | 0                | 0.0        | 0                | 0       | 0.0        | 0                                       | 0                | 0.0        | 743     | 347     | -53.4      |
| Belgium            | NCV                           |                       | 4,863            | 100.0      | 5,959            | 2,687            | -54.9      |                                | 186,537          | 100.0      |                  | 33,497  | 100.0      | 0                                       | 191,400          | 100.0      | 5,959   | 36,183  | 507.2      |
| Bulgaria           |                               | NO                    | 0                | 0.0        | NO               |                  | 0.0        | 42                             |                  | -100.0     | 3,975            |         | -100.0     | 42                                      | 0                | -100.0     | 3,975   | 0       | -100.0     |
| Canada             | GCV                           | 33,851                | 32,705           | -3.4       | 38,103           | 38,635           | 1.4        | 43,658                         | 37,951           | -13.1      | 7,549            | 7,709   | 2.1        | 77,509                                  | 70,656           | -8.8       | 45,652  | 46,344  | 1.5        |
| Czech Republic     | NCV                           | 0                     | 0                | 0.0        | 423              | 260              | -38.5      | NO                             | 0                | 0.0        | NO               | 0       | 0.0        | 0                                       | 0                | 0.0        | 423     | 260     | -38.5      |
| Denmark            | NCV                           | 1,513                 | 1,487            | -1.7       | 3,605            | 3,293            | -8.6       | 25,924                         | 24,799           | -4.3       | 21,389           | 21,710  | 1.5        | 27,437                                  | 26,286           | -4.2       | 24,994  | 25,003  | 0.0        |
| Estonia            | NCV                           | 0                     | 0                | 0.0        | 212              | 520              | 145.3      | 2,287                          | 2,291            | 0.2        | 1,902            | 1,950   | 2.5        | 2,287                                   | 2,291            | 0.2        | 2,114   | 2,470   | 16.8       |
| European Community |                               | NE                    |                  |            | NE               |                  | 0.0        | NE                             |                  | 0.0        | NE               |         | 0.0        | NE                                      | 0                | 0.0        | NE      | 0       | 0.0        |
| Finland            | NCV                           | 1,751                 | 1,527            | -12.8      | 2,410            | 4,247            | 76.2       | 17,914                         | 17,765           | -0.8       | 6,029            | 6,153   | 2.1        | 19,665                                  | 19,293           | -1.9       | 8,439   | 10,400  | 23.2       |
| France             | NCV                           | 1,750                 | 1,206            | -31.1      | 20,044           | 20,973           | 4.6        | 86,860                         | 102,935          | 18.5       | 18,778           | 20,930  | 11.5       | 88,610                                  | 104,141          | 17.5       | 38,822  | 41,903  | 7.9        |
| Germany            | NCV                           | NO                    |                  | 0.0        | 11,427           |                  | -100.0     | 66,000                         |                  | -100.0     | 20,750           |         | -100.0     | 66,000                                  | 0                | -100.0     | 32,177  | 0       | -100.0     |
| Greece             | NCV                           | 13,464                | 13,465           | 0.0        | 15,431           | 14,950           | -3.1       | 117,877                        | 117,887          | 0.0        | 26,518           | 26,520  | 0.0        | 131,341                                 | 131,352          | 0.0        | 41,949  | 41,470  | -1.1       |
| Iceland            | NCV                           | 113                   | 121              | 6.8        | 160              | 173              | 8.6        | 79                             | 80               | 1.8        | 1,950            | 1,907   | -2.2       | 192                                     | 201              | 4.8        | 2,110   | 2,080   | -1.4       |
| Ireland            | NCV                           | 837                   | 804              | -4.0       | 837              | 43               | -94.8      | 0                              | 1,447            | 100.0      | 5,317            | 5,417   | 1.9        | 837                                     | 2,251            | 168.8      | 6,155   | 5,460   | -11.3      |
| Italy              | NCV                           | 67,212                | 0                | -100.0     | 11,736           | 10,963           | -6.6       | 52,618                         | 85,210           | 61.9       | IE               | 31,287  | 100.0      | 119,830                                 | 85,210           | -28.9      | 11,736  | 42,250  | 260.0      |
| Latvia             | NCV                           | 213                   | 201              | -5.8       | 510              | 520              | 2.0        | 2,399                          | 3,899            | 62.5       | NO               | 4,333   | 100.0      | 2,612                                   | 4,100            | 56.9       | 510     | 4,853   | 851.6      |
| Luxembourg         |                               |                       |                  |            |                  |                  |            |                                |                  |            |                  |         |            |   |                  |            |         |         |            |
| Netherlands        | NCV                           |                       | 0                | 0.0        | 13,280           | 13,433           | 1.2        | 523,717                        | 513,469          | -2.0       | 93,626           | 95,030  | 1.5        | 523,717                                 | 513,469          | -2.0       | 106,906 | 108,463 | 1.5        |
| New Zealand        | GCV                           | NE                    | 0                | 0.0        | NE               | 4,607            | 100.0      | 8,744                          | 7,319            | -16.3      | 2,184            | 3,375   | 54.6       | 8,744                                   | 7,319            | -16.3      | 2,184   | 7,982   | 265.5      |
| Norway             | NCV                           | 250                   | 241              | -3.7       | 30,816           | 27,907           | -9.4       | 14,851                         | 14,228           | -4.2       | 19,761           | 19,847  | 0.4        | 15,102                                  | 14,470           | -4.2       | 50,577  | 47,753  | -5.6       |
| Poland             | NCV                           | 2,230                 | 0                | -100.0     | 1,170            | 87               | -92.6      | 10,425                         | 9,847            | -5.5       | 958              | 953     | -0.5       | 12,655                                  | 9,847            | -22.2      | 2,128   | 1,040   | -51.1      |
| Portugal           |                               | 521                   | 0                | -100.0     | 2,029            | 2,123            | 4.7        | 18,241                         | 13,264           | -27.3      | 5,123            | 6,630   | 29.4       | 18,762                                  | 13,264           | -29.3      | 7,151   | 8,753   | 22.4       |
| Romania            | NCV                           | 0                     | 3658             | 100.0      | 3,691            | 563              | -84.7      | NE                             | 0                | 0.0        | NE               | 0       | 0.0        | 0                                       | 3,658            | 100.0      | 3,691   | 563     | -84.7      |
| Slovakia           | NCV                           |                       |                  | 0.0        | 1,592            | 1592             | 0.0        | NO                             | 0                | 0.0        | NO               | 0       | 0.0        | 0                                       | 0                | 0.0        | 1,592   | 1,592   | 0.0        |
| Spain              | NCV                           | 19,094                | 8,722            | -54.3      | 8,057            | 49,963           | 520.1      | 236,335                        | 236,578          | 0.1        | 42,930           | 43,247  | 0.7        | 255,429                                 | 245,300          | -4.0       | 50,986  | 93,210  | 82.8       |
| Sweden             | NCV                           | 1,779                 | 1,728            | -2.8       | 4,615            | 4,853            | 5.2        | 52,968                         | 51,327           | -3.1       | 6,281            | 6,457   | 2.8        | 54,746                                  | 53,055           | -3.1       | 10,896  | 11,310  | 3.8        |
| Switzerland        | NCV                           | IE                    | 0                | 0.0        | 1,488            | 390              | -73.8      | NO                             | 0                | 0.0        | NO               | 520     | 100.0      | IE/NO                                   | 0                | 0.0        | 1,488   | 910     | -38.8      |
| United Kingdom     | NCV                           | 1,322                 | 1,246            | -5.7       | 27,960           | 26,737           | -4.4       | 34,754                         | 33,803           | -2.7       | 49,463           | 62,097  | 25.5       | 36,076                                  | 35,049           | -2.8       | 77,423  | 88,833  | 14.7       |
| United States      | GCV                           | 432,579               | 3,258            | -99.2      | 360,865          | 0                | -100.0     | 449,493                        | 556,571          | 23.8       | 76,384           | 304,748 | 299.0      | 882,071                                 | 559,829          | -36.5      | 437,249 | 304,748 | -30.3      |

<sup>a</sup> Source: IEA [unpublished]

**Table 1.35**  
**Civil aviation (domestic) – trend information**  
**CO<sub>2</sub> emissions (Gg)**

|                                   | 1990 <sup>a</sup> | 1995    | 1996    | 1997    | 1998    | 1999    | 2000    | 2001    |
|-----------------------------------|-------------------|---------|---------|---------|---------|---------|---------|---------|
| <b>Austria</b>                    | 65                | 88      | 100     | 106     | 118     | 121     | 125     | 121     |
| <b>Belgium</b>                    | 8                 | 7       | 5       | 4       | 4       | 146     | 9       | 9       |
| <b>Bulgaria<sup>b</sup></b>       |                   |         |         |         | 120     | 35      | 32      | 46      |
| <b>Canada</b>                     | 10,407            | 10,527  | 11,558  | 12,054  | 12,582  | 13,168  | 13,306  | 11,751  |
| <b>Czech Republic<sup>b</sup></b> | 82                |         |         |         | 14      | 13      | 95      | 131     |
| <b>Denmark</b>                    | 216               | 198     | 206     | 213     | 194     | 174     | 155     | 168     |
| <b>Estonia<sup>b</sup></b>        |                   |         |         |         |         | 67      | 65      | 49      |
| <b>European Community</b>         | NE                | NE      | NE      | NE      | NE      | NE      | NE      | NE      |
| <b>Finland</b>                    | 403               | 353     | 380     | 413     | 447     | 465     | 367     | 360     |
| <b>France</b>                     | 4,541             | 5,305   | 5,726   | 5,778   | 6,080   | 6,053   | 6,173   | 5,865   |
| <b>Germany</b>                    | 2,897             | 3,472   | 3,634   | 3,774   | 3,881   | 4,164   | 4,396   | 4,292   |
| <b>Greece<sup>b</sup></b>         | 1,458             | 1,215   | 1,278   | 1,228   | 1,149   | 1,679   | 1,445   | 1,221   |
| <b>Iceland<sup>b</sup></b>        |                   |         |         |         |         | 32      | 28      | 24      |
| <b>Ireland</b>                    | 59                | 63      | 64      | 69      | 80      | 84      | 96      | 109     |
| <b>Italy</b>                      |                   |         |         |         |         |         |         | 2,722   |
| <b>Latvia</b>                     | 5                 | 3       | 3       | 3       | 4       | 2       | 4       | 5       |
| <b>Luxembourg</b>                 |                   |         |         |         |         |         |         |         |
| <b>Netherlands</b>                | 492               | 346     | 298     | 321     | 362     | 420     | 282     | 197     |
| <b>New Zealand<sup>b</sup></b>    |                   | 861     | 830     | 811     |         |         |         | 726     |
| <b>Norway</b>                     | 678               |         |         |         | 1,005   | 1,155   | 1,056   | 1,062   |
| <b>Poland<sup>b</sup></b>         |                   |         |         |         |         |         | 479     | 455     |
| <b>Portugal</b>                   | 799               | 965     | 1,033   | 1,064   | 1,187   | 1,317   | 1,311   | 1,335   |
| <b>Romania<sup>b</sup></b>        |                   | 0       | 7       | 17      | 22      | 23      | 19      | 426     |
| <b>Slovakia</b>                   |                   |         |         |         | 32      | 28      | 32      | 27      |
| <b>Spain</b>                      | 4,135             | 3,308   | 3,831   | 4,128   | 4,722   | 5,188   | 5,497   | 5,618   |
| <b>Sweden</b>                     | 673               | 623     | 604     | 654     | 667     | 699     | 644     | 625     |
| <b>Switzerland</b>                | 312               |         |         |         |         |         |         | 235     |
| <b>United Kingdom</b>             | 2,158             | 2,380   | 2,487   | 2,572   | 2,689   | 2,753   | 2,801   | 2,938   |
| <b>United States</b>              | 176,881           | 171,450 | 180,156 | 178,962 | 183,025 | 186,771 | 195,318 | 183,929 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 13.9         | 5.2          | 11.4         | 2.6          | 3.6          | -3.4         | 86.1         |
| <b>Belgium</b>            | -27.2        | -18.1        | 1.7          | 3,180.1      | -93.5        | 0.0          | 14.4         |
| <b>Bulgaria</b>           |              |              |              | -70.4        | -10.1        | 45.4         |              |
| <b>Canada</b>             | 9.8          | 4.3          | 4.4          | 4.7          | 1.0          | -11.7        | 12.9         |
| <b>Czech Republic</b>     |              |              |              | -5.5         | 621.4        | 37.2         | 59.5         |
| <b>Denmark</b>            | 3.8          | 3.4          | -8.6         | -10.7        | -10.5        | 8.4          | -22.2        |
| <b>Estonia</b>            |              |              |              |              | -3.2         | -25.1        |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | 7.7          | 8.6          | 8.3          | 4.0          | -21.0        | -2.0         | -10.6        |
| <b>France</b>             | 7.9          | 0.9          | 5.2          | -0.4         | 2.0          | -5.0         | 29.2         |
| <b>Germany</b>            | 4.7          | 3.9          | 2.8          | 7.3          | 5.6          | -2.4         | 48.1         |
| <b>Greece</b>             | 5.2          | -4.0         | -6.4         | 46.2         | -14.0        | -15.5        | -16.3        |
| <b>Iceland</b>            |              |              |              |              | -12.1        | -12.1        |              |
| <b>Ireland</b>            | 2.9          | 7.4          | 15.1         | 6.2          | 13.7         | 13.5         | 84.6         |
| <b>Italy</b>              |              |              |              |              |              |              |              |
| <b>Latvia</b>             | 3.8          | 4.2          | 14.8         | -39.7        | 73.1         | 18.7         | 6.2          |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | -13.8        | 7.4          | 12.9         | 15.9         | -32.7        | -30.3        | -60.0        |
| <b>New Zealand</b>        | -3.6         | -2.3         |              |              |              |              |              |
| <b>Norway</b>             |              |              |              | 14.9         | -8.6         | 0.6          | 56.6         |
| <b>Poland</b>             |              |              |              |              |              | -5.0         |              |
| <b>Portugal</b>           | 7.1          | 3.0          | 11.5         | 11.0         | -0.4         | 1.8          | 67.0         |
| <b>Romania</b>            | 6,317.4      | 135.6        | 26.3         | 2.9          | -17.5        | 2,193.4      |              |
| <b>Slovakia</b>           |              |              |              | -12.3        | 14.3         | -14.7        |              |
| <b>Spain</b>              | 15.8         | 7.7          | 14.4         | 9.9          | 6.0          | 2.2          | 35.9         |
| <b>Sweden</b>             | -3.0         | 8.3          | 2.0          | 4.7          | -7.9         | -2.9         | -7.1         |
| <b>Switzerland</b>        |              |              |              |              |              | -0.8         | -24.8        |
| <b>United Kingdom</b>     | 4.5          | 3.4          | 4.5          | 2.4          | 1.8          | 4.9          | 36.1         |
| <b>United States</b>      | 5.1          | -0.7         | 2.3          | 2.0          | 4.6          | -5.8         | 4.0          |

**Table 1.36****International bunkers: aviation – trend information****CO<sub>2</sub> emissions (Gg)**

|                               | 1990 <sup>a</sup> | 1995   | 1996   | 1997   | 1998   | 1999   | 2000   | 2001    |
|-------------------------------|-------------------|--------|--------|--------|--------|--------|--------|---------|
| <b>Austria</b>                | 886               | 1,327  | 1,466  | 1,526  | 1,578  | 1,542  | 1,675  | 1,615   |
| <b>Belgium</b>                | 3,095             | 2,418  | 3,109  | 3,912  | 4,709  | 4,381  | 3,907  | 3,445   |
| <b>Bulgaria</b>               | 1,037             | 549    | 472    | 428    | 280    | 319    | 270    | 393     |
| <b>Canada</b>                 | 2,729             | 2,603  | 3,073  | 2,992  | 2,879  | 3,032  | 3,026  | 3,162   |
| <b>Czech Republic</b>         | 617               |        | 459    | 407    | 225    | 539    | 343    | 439     |
| <b>Denmark</b>                | 1,762             | 1,867  | 1,970  | 2,010  | 2,158  | 2,290  | 2,348  | 2,378   |
| <b>Estonia</b>                |                   |        |        |        |        |        |        |         |
| <b>European Community</b>     | 56,160            | 70,512 | 74,989 | 80,097 | 86,320 | 92,178 | 97,268 | 102,221 |
| <b>Finland</b>                | 974               | 867    | 957    | 965    | 990    | 1,058  | 1,027  | 1,054   |
| <b>France</b>                 | 8,618             | 10,513 | 11,240 | 11,634 | 12,255 | 13,761 | 14,361 | 14,320  |
| <b>Germany</b>                | 11,589            | 13,887 | 14,537 | 15,097 | 15,523 | 16,656 | 24,266 | 17,168  |
| <b>Greece<sup>b</sup></b>     | 2,840             | 3,108  | 2,959  | 2,945  | 3,090  | 2,881  | 3,139  | 2,954   |
| <b>Iceland</b>                | 220               | 236    | 272    | 292    | 338    | 363    | 408    | 349     |
| <b>Ireland</b>                | 1,059             | 1,085  | 1,206  | 1,258  | 1,296  | 1,542  | 1,566  | 1,986   |
| <b>Italy</b>                  | 4,195             | 5,854  | 6,435  | 6,648  | 7,189  | 7,712  | 8,591  | 8,689   |
| <b>Latvia</b>                 | 104               | 47     | 49     | 51     | 59     | 61     | 51     | 56      |
| <b>Luxembourg<sup>b</sup></b> |                   |        |        |        |        | 1,019  | 971    | 1,051   |
| <b>Netherlands</b>            | 4,497             | 7,665  | 8,249  | 8,979  | 9,709  | 10,070 | 10,067 | 9,864   |
| <b>New Zealand</b>            | 1,359             | 1,582  | 1,649  | 1,724  | 1,723  | 1,968  | 1,780  | 1,905   |
| <b>Norway</b>                 | 619               | 586    | 691    | 771    | 821    | 942    | 913    | 835     |
| <b>Poland</b>                 | NE                | 308    | 280    | 346    | 342    | 346    | 358    | 336     |
| <b>Portugal</b>               | 883               | 853    | 770    | 796    | 796    | 868    | 972    | 983     |
| <b>Romania</b>                |                   |        |        |        |        |        | NO     | NE      |
| <b>Slovakia</b>               |                   |        |        |        |        |        |        |         |
| <b>Spain</b>                  | 3,432             | 6,211  | 6,554  | 7,071  | 7,478  | 7,737  | 8,314  | 8,492   |
| <b>Sweden</b>                 | 1,335             | 1,437  | 1,476  | 1,560  | 1,673  | 1,879  | 1,926  | 1,871   |
| <b>Switzerland</b>            | 3,207             | 3,774  | 3,915  | 4,064  | 4,249  | 4,538  | 4,743  | 4,461   |
| <b>United Kingdom</b>         | 14,791            | 19,080 | 20,301 | 21,622 | 24,198 | 26,494 | 29,412 | 27,613  |
| <b>United States</b>          | 46,591            | 51,117 | 52,164 | 55,898 | 54,959 | 58,833 | 58,409 | 58,869  |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 10.5         | 4.0          | 3.5          | -2.3         | 8.6          | -3.6         | 82.3         |
| <b>Belgium</b>            | 28.6         | 25.8         | 20.4         | -7.0         | -10.8        | -11.8        | 11.3         |
| <b>Bulgaria</b>           | -14.1        | -9.4         | -34.5        | 14.1         | -15.5        | 45.8         | -62.1        |
| <b>Canada</b>             | 18.0         | -2.6         | -3.8         | 5.3          | -0.2         | 4.5          | 15.9         |
| <b>Czech Republic</b>     |              | -11.3        | -44.8        | 139.7        | -36.3        | 28.0         | -28.8        |
| <b>Denmark</b>            | 5.5          | 2.0          | 7.4          | 6.1          | 2.5          | 1.3          | 34.9         |
| <b>Estonia</b>            |              |              |              |              |              |              |              |
| <b>European Community</b> | 6.3          | 6.8          | 7.8          | 6.8          | 5.5          | 5.1          | 82.0         |
| <b>Finland</b>            | 10.4         | 0.8          | 2.6          | 6.9          | -2.9         | 2.6          | 8.2          |
| <b>France</b>             | 6.9          | 3.5          | 5.3          | 12.3         | 4.4          | -0.3         | 66.2         |
| <b>Germany</b>            | 4.7          | 3.9          | 2.8          | 7.3          | 45.7         | -29.3        | 48.1         |
| <b>Greece</b>             | -4.8         | -0.5         | 4.9          | -6.8         | 9.0          | -5.9         | 4.0          |
| <b>Iceland</b>            | 15.0         | 7.6          | 15.8         | 7.5          | 12.2         | -14.4        | 58.9         |
| <b>Ireland</b>            | 11.1         | 4.3          | 3.0          | 19.0         | 1.6          | 26.9         | 87.6         |
| <b>Italy</b>              | 9.9          | 3.3          | 8.1          | 7.3          | 11.4         | 1.1          | 107.1        |
| <b>Latvia</b>             | 3.8          | 4.1          | 14.9         | 4.4          | -16.5        | 9.5          | -45.9        |
| <b>Luxembourg</b>         |              |              |              |              | -4.7         | 8.2          |              |
| <b>Netherlands</b>        | 7.6          | 8.8          | 8.1          | 3.7          | 0.0          | -2.0         | 119.3        |
| <b>New Zealand</b>        | 4.2          | 4.5          | -0.1         | 14.2         | -9.5         | 7.0          | 40.2         |
| <b>Norway</b>             | 18.1         | 11.5         | 6.6          | 14.6         | -3.1         | -8.5         | 34.9         |
| <b>Poland</b>             | -9.2         | 23.6         | -1.0         | 1.0          | 3.6          | -6.1         |              |
| <b>Portugal</b>           | -9.7         | 3.4          | -0.1         | 9.1          | 12.0         | 1.1          | 11.3         |
| <b>Romania</b>            |              |              |              |              |              |              |              |
| <b>Slovakia</b>           |              |              |              |              |              |              |              |
| <b>Spain</b>              | 5.5          | 7.9          | 5.7          | 3.5          | 7.5          | 2.1          | 147.5        |
| <b>Sweden</b>             | 2.7          | 5.7          | 7.2          | 12.3         | 2.5          | -2.9         | 40.1         |
| <b>Switzerland</b>        | 3.7          | 3.8          | 4.5          | 6.8          | 4.5          | -5.9         | 39.1         |
| <b>United Kingdom</b>     | 6.4          | 6.5          | 11.9         | 9.5          | 11.0         | -6.1         | 86.7         |
| <b>United States</b>      | 2.0          | 7.2          | -1.7         | 7.0          | -0.7         | 0.8          | 26.4         |

**Table 1.37****Navigation (domestic) – trend information****CO<sub>2</sub> emissions (Gg)**

|                                   | 1990 <sup>a</sup> | 1995   | 1996   | 1997   | 1998   | 1999   | 2000   | 2001   |
|-----------------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|
| <b>Austria</b>                    | 52                | 54     | 54     | 62     | 62     | 63     | 63     | 64     |
| <b>Belgium</b>                    | 312               | 312    | 313    | 325    | 336    | 368    | 438    | 438    |
| <b>Bulgaria<sup>b</sup></b>       |                   |        |        |        | 10     | 8      | 0      | 0      |
| <b>Canada</b>                     | 4,733             | 4,064  | 4,158  | 4,216  | 4,827  | 4,646  | 4,776  | 5,177  |
| <b>Czech Republic<sup>b</sup></b> | 56                |        |        |        | 32     | 32     | 29     | 31     |
| <b>Denmark</b>                    | 539               | 625    | 648    | 571    | 468    | 426    | 433    | 424    |
| <b>Estonia<sup>b</sup></b>        |                   |        |        |        |        | 18     | 24     | 22     |
| <b>European Community</b>         | NE                | NE     | NE     | NE     | NE     | NE     | NE     | NE     |
| <b>Finland</b>                    | 227               | 264    | 258    | 249    | 257    | 501    | 481    | 464    |
| <b>France</b>                     | 1,907             | 2,014  | 1,868  | 1,905  | 1,882  | 2,056  | 1,855  | 2,150  |
| <b>Germany</b>                    | 2,050             | 1,744  | 1,602  | 1,267  | 1,161  | 946    | 877    | 846    |
| <b>Greece<sup>b</sup></b>         | 1,825             | 1,744  | 1,493  | 1,812  | 2,793  | 2,761  | 1,580  | 2,145  |
| <b>Iceland<sup>b</sup></b>        |                   |        |        |        |        | 18     | 16     | 20     |
| <b>Ireland</b>                    | 85                | 104    | 104    | 110    | 116    | 132    | 122    | 125    |
| <b>Italy</b>                      |                   |        |        |        |        |        |        | 6,639  |
| <b>Latvia</b>                     | 464               | 18     | 18     | 22     | 24     | 44     | 41     | 54     |
| <b>Luxembourg<sup>b</sup></b>     |                   |        |        |        |        | 6      |        |        |
| <b>Netherlands</b>                | 877               | 920    | 800    | 848    | 817    | 807    | 1,004  | 969    |
| <b>New Zealand</b>                | 250               | 332    | 285    | 210    | 177    | 219    | 376    | 293    |
| <b>Norway</b>                     | 1,929             |        |        |        | 2,534  | 2,766  | 2,521  | 2,286  |
| <b>Poland<sup>b</sup></b>         |                   |        |        |        |        |        | 80     | 244    |
| <b>Portugal</b>                   | 477               | 314    | 313    | 246    | 204    | 258    | 254    | 194    |
| <b>Romania</b>                    |                   | 77     | 3      | 11     | 5      | 4      | 6      | 270    |
| <b>Slovakia<sup>b</sup></b>       |                   |        |        |        | 166    | 142    | 114    | 119    |
| <b>Spain</b>                      | 1,536             | 1,603  | 1,652  | 1,317  | 1,322  | 1,770  | 1,850  | 2,098  |
| <b>Sweden</b>                     | 645               | 453    | 443    | 507    | 582    | 645    | 670    | 668    |
| <b>Switzerland</b>                | 101               |        |        |        |        |        |        | 110    |
| <b>United Kingdom</b>             | 3,461             | 3,102  | 3,415  | 3,262  | 3,005  | 2,741  | 2,648  | 2,128  |
| <b>United States</b>              | 48,596            | 51,659 | 48,111 | 33,643 | 27,399 | 38,584 | 59,672 | 58,278 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 0.1          | 14.5         | 1.0          | 0.7          | 0.7          | 0.7          | 22.5         |
| <b>Belgium</b>            | 0.1          | 3.9          | 3.5          | 9.5          | 19.0         | 0.0          | 40.4         |
| <b>Bulgaria</b>           |              |              |              | -13.8        |              |              |              |
| <b>Canada</b>             | 2.3          | 1.4          | 14.5         | -3.7         | 2.8          | 8.4          | 9.4          |
| <b>Czech Republic</b>     |              |              |              | 0.8          | -9.1         | 5.7          | -44.6        |
| <b>Denmark</b>            | 3.6          | -11.9        | -17.9        | -9.0         | 1.5          | -2.1         | -21.3        |
| <b>Estonia</b>            |              |              |              |              | 29.6         | -8.1         |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | -2.3         | -3.4         | 3.0          | 95.4         | -4.1         | -3.6         | 104.4        |
| <b>France</b>             | -7.3         | 2.0          | -1.2         | 9.2          | -9.8         | 15.9         | 12.7         |
| <b>Germany</b>            | -8.1         | -20.9        | -8.4         | -18.5        | -7.3         | -3.6         | -58.7        |
| <b>Greece</b>             | -14.3        | 21.4         | 54.1         | -1.2         | -42.8        | 35.8         | 17.5         |
| <b>Iceland</b>            |              |              |              |              | -8.9         | 23.4         |              |
| <b>Ireland</b>            | -0.2         | 6.0          | 5.6          | 13.3         | -7.2         | 2.4          | 46.9         |
| <b>Italy</b>              |              |              |              | -8.8         | -10.0        | 6.1          |              |
| <b>Latvia</b>             | -0.4         | 25.0         | 8.8          | 82.6         | -6.4         | 30.4         | -88.3        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | -12.9        | 5.9          | -3.7         | -1.1         | 24.3         | -3.4         | 10.5         |
| <b>New Zealand</b>        | -14.3        | -26.1        | -15.9        | 23.5         | 71.9         | -22.1        | 16.9         |
| <b>Norway</b>             |              |              |              | 9.2          | -8.9         | -9.3         | 18.5         |
| <b>Poland</b>             |              |              |              |              |              | 207.3        |              |
| <b>Portugal</b>           | -0.3         | -21.6        | -17.1        | 26.6         | -1.7         | -23.5        | -59.4        |
| <b>Romania</b>            | -96.3        | 269.6        | -49.6        | -16.9        | 45.0         | 4,129.3      |              |
| <b>Slovakia</b>           |              |              |              | -14.5        | -19.8        | 4.8          |              |
| <b>Spain</b>              | 3.1          | -20.3        | 0.3          | 33.9         | 4.5          | 13.4         | 36.5         |
| <b>Sweden</b>             | -2.4         | 14.5         | 14.9         | 10.7         | 3.9          | -0.3         | 3.6          |
| <b>Switzerland</b>        |              |              |              | -1.7         | -1.0         | 56.7         | 8.5          |
| <b>United Kingdom</b>     | 10.1         | -4.5         | -7.9         | -8.8         | -3.4         | -19.6        | -38.5        |
| <b>United States</b>      | -6.9         | -30.1        | -18.6        | 40.8         | 54.7         | -2.3         | 19.9         |

**Table 1.38****International bunkers: marine – trend information****CO<sub>2</sub> emissions (Gg)**

|                           | 1990 <sup>a</sup> | 1995    | 1996    | 1997    | 1998    | 1999    | 2000    | 2001    |
|---------------------------|-------------------|---------|---------|---------|---------|---------|---------|---------|
| <b>Austria</b>            | NO                | NO      | NO      | NO      | NO      | NO      | NO      | NO      |
| <b>Belgium</b>            | 13,303            | 12,955  | 15,376  | 17,605  | 18,159  | 14,586  | 16,046  | 16,057  |
| <b>Bulgaria</b>           | 1,016             | 882     | 732     | 1,092   | 1,233   | 26      | 205     | 306     |
| <b>Canada</b>             | 2,995             | 3,313   | 3,085   | 3,046   | 3,776   | 3,368   | 3,446   | 3,712   |
| <b>Czech Republic</b>     |                   |         |         |         |         |         |         |         |
| <b>Denmark</b>            | 3,095             | 5,073   | 4,820   | 4,419   | 4,429   | 4,166   | 4,281   | 3,605   |
| <b>Estonia</b>            | 0                 | 276     | 289     | 319     | 339     | 362     | 329     | 313     |
| <b>European Community</b> | 99,361            | 102,393 | 109,925 | 120,524 | 125,739 | 119,678 | 125,268 | 133,950 |
| <b>Finland</b>            | 1,800             | 1,044   | 1,181   | 1,286   | 1,658   | 1,764   | 2,032   | 1,815   |
| <b>France</b>             | 8,137             | 7,217   | 7,568   | 8,379   | 9,166   | 9,311   | 9,625   | 8,183   |
| <b>Germany</b>            | 7,980             | 6,533   | 6,472   | 6,922   | 6,565   | 6,685   | 17,582  | 6,684   |
| <b>Greece<sup>b</sup></b> | 8,028             | 11,254  | 9,864   | 9,927   | 11,058  | 9,838   | 11,359  | 11,030  |
| <b>Iceland</b>            | 99                | 141     | 124     | 149     | 177     | 164     | 219     | 149     |
| <b>Ireland</b>            | 56                | 368     | 497     | 484     | 503     | 543     | 477     | 390     |
| <b>Italy</b>              | 4,396             | 4,043   | 3,006   | 3,062   | 3,339   | 3,089   | 3,851   | 4,189   |
| <b>Latvia</b>             | 89                | 101     | 104     | 148     | 178     | 156     | 185     | 184     |
| <b>Luxembourg</b>         |                   |         |         |         |         |         |         |         |
| <b>Netherlands</b>        | 35,267            | 36,621  | 37,196  | 39,530  | 39,822  | 41,143  | 43,429  | 47,682  |
| <b>New Zealand</b>        | 1,031             | 1,125   | 1,063   | 1,112   | 1,073   | 916     | 746     | 787     |
| <b>Norway</b>             | 1,478             | 2,256   | 2,480   | 3,000   | 2,899   | 2,733   | 2,712   | 2,624   |
| <b>Poland</b>             | NE                | 1,814   | 1,789   | 1,903   | 1,749   | 1,338   | 1,265   | 826     |
| <b>Portugal</b>           | 1,194             | 1,039   | 1,112   | 1,158   | 1,225   | 1,492   | 1,624   | 1,801   |
| <b>Romania</b>            |                   |         |         |         |         |         | NO      | NE      |
| <b>Slovakia</b>           |                   |         |         |         |         |         |         |         |
| <b>Spain</b>              | 11,780            | 10,296  | 15,029  | 18,532  | 19,546  | 19,074  | 19,496  | 21,797  |
| <b>Sweden</b>             | 2,162             | 3,394   | 3,597   | 4,218   | 4,820   | 4,719   | 4,622   | 4,509   |
| <b>Switzerland</b>        | NO                | NO      | NO      | NO      | NO      | NO      | NO      | NO      |
| <b>United Kingdom</b>     | 6,559             | 6,599   | 7,213   | 8,064   | 8,788   | 6,357   | 5,594   | 6,209   |
| <b>United States</b>      | 67,272            | 49,921  | 50,109  | 53,960  | 57,900  | 46,429  | 40,859  | 38,478  |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            |              |              |              |              |              |              |              |
| <b>Belgium</b>            | 18.7         | 14.5         | 3.1          | -19.7        | 10.0         | 0.1          | 20.7         |
| <b>Bulgaria</b>           | -17.1        | 49.3         | 12.9         | -97.9        | 704.1        | 49.0         | -69.9        |
| <b>Canada</b>             | -6.9         | -1.3         | 24.0         | -10.8        | 2.3          | 7.7          | 24.0         |
| <b>Czech Republic</b>     |              |              |              |              |              |              |              |
| <b>Denmark</b>            | -5.0         | -8.3         | 0.2          | -5.9         | 2.8          | -15.8        | 16.5         |
| <b>Estonia</b>            | 4.5          | 10.7         | 6.2          | 6.7          | -9.3         | -4.8         |              |
| <b>European Community</b> | 7.4          | 9.6          | 4.3          | -4.8         | 4.7          | 6.9          | 34.8         |
| <b>Finland</b>            | 13.1         | 8.9          | 28.9         | 6.4          | 15.2         | -10.7        | 0.8          |
| <b>France</b>             | 4.9          | 10.7         | 9.4          | 1.6          | 3.4          | -15.0        | 0.6          |
| <b>Germany</b>            | -0.9         | 6.9          | -5.1         | 1.8          | 163.0        | -62.0        | -16.2        |
| <b>Greece</b>             | -12.4        | 0.6          | 11.4         | -11.0        | 15.5         | -2.9         | 37.4         |
| <b>Iceland</b>            | -11.9        | 20.0         | 18.7         | -7.2         | 33.4         | -31.8        | 50.6         |
| <b>Ireland</b>            | 35.2         | -2.7         | 3.8          | 8.0          | -12.2        | -18.2        | 592.8        |
| <b>Italy</b>              | -25.7        | 1.9          | 9.0          | -7.5         | 24.7         | 8.8          | -4.7         |
| <b>Latvia</b>             | 2.9          | 42.1         | 19.9         | -12.1        | 18.2         | -0.5         | 105.6        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | 1.6          | 6.3          | 0.7          | 3.3          | 5.6          | 9.8          | 35.2         |
| <b>New Zealand</b>        | -5.6         | 4.7          | -3.5         | -14.6        | -18.6        | 5.4          | -23.7        |
| <b>Norway</b>             | 10.0         | 21.0         | -3.4         | -5.7         | -0.8         | -3.2         | 77.5         |
| <b>Poland</b>             | -1.4         | 6.4          | -8.1         | -23.5        | -5.4         | -34.7        |              |
| <b>Portugal</b>           | 7.0          | 4.2          | 5.8          | 21.8         | 8.9          | 10.9         | 50.9         |
| <b>Romania</b>            |              |              |              |              |              |              |              |
| <b>Slovakia</b>           |              |              |              |              |              |              |              |
| <b>Spain</b>              | 46.0         | 23.3         | 5.5          | -2.4         | 2.2          | 11.8         | 85.0         |
| <b>Sweden</b>             | 6.0          | 17.3         | 14.3         | -2.1         | -2.0         | -2.5         | 108.5        |
| <b>Switzerland</b>        |              |              |              |              |              |              |              |
| <b>United Kingdom</b>     | 9.3          | 11.8         | 9.0          | -27.7        | -12.0        | 11.0         | -5.3         |
| <b>United States</b>      | 0.4          | 7.7          | 7.3          | -19.8        | -12.0        | -5.8         | -42.8        |



**Table 1.39****Fugitive emissions from fuels: coal mining and handling, CH<sub>4</sub> (2001)**

| Key source                   | Share of national total<br>(%) | Methods and EF used <sup>a</sup> |                  | Activity data     |               |        |        |            | CH <sub>4</sub> IEF |                        |                   |                        |
|------------------------------|--------------------------------|----------------------------------|------------------|-------------------|---------------|--------|--------|------------|---------------------|------------------------|-------------------|------------------------|
|                              |                                | Methods                          | EF               | CRF               |               |        | IEA    | Difference | Underground mines   |                        | Surface mines     |                        |
|                              |                                |                                  |                  | Underground mines | Surface mines | Total  | Total  |            | Mining activities   | Post-mining activities | Mining activities | Post-mining activities |
|                              |                                |                                  |                  | (Mt)              |               |        |        |            | (kg/t)              |                        |                   |                        |
| IPCC default EF <sup>b</sup> |                                |                                  |                  |                   |               |        |        |            | 4.50-16.75          | 0.60-2.68              | 0.20-1.34         | 0-0.13                 |
| Austria                      |                                | 0.0                              | C                | CS                | NO            | 1      | 1      | -17.1      |                     |                        | 0.01              |                        |
| Belgium                      |                                | 0.0                              |                  |                   | NO            | NO     | NO     | 0          |                     |                        |                   |                        |
| Bulgaria                     | L                              | 1.8                              | T1               | D                 | 3             | 24     | 27     |            | 11.73               | 1.67                   | 0.80              | 0.07                   |
| Canada                       | T                              | 0.1                              | CS               | CS                | 1             | 84     | 86     | -18.5      |                     |                        |                   |                        |
| Czech Republic               | L                              | 3.5                              | T3               | CS                | 15            | 48     | 63     | 66         | 11.93               | 1.58                   | 0.77              | 0.07                   |
| Denmark                      |                                | 0.1                              | D                | D                 | 0             | 0      | 0      | 0          |                     |                        |                   |                        |
| Estonia                      | L                              | 1.2                              |                  |                   | 7             | 5      | 12     | 12         | 1.34                | 0.13                   | 0.20              | 0.07                   |
| European Community           |                                | 0.4                              | C, CS, D, T1, T2 | C, CS, D          | NE            | NE     | 0      |            |                     |                        |                   |                        |
| Finland                      |                                | 0.0                              | CS               | CS                | NO            | NO     | 0      | 0          |                     |                        |                   |                        |
| France                       | L, T                           | 0.3                              | C                | CS                | 2             | 0      | 2      | -12.9      | 32.14               |                        | 7.36              |                        |
| Germany                      | L, T                           | 0.8                              | CS               | CS                | 27            | 175    | 203    | -100.0     | 9.11                | 0.58                   | 0.07              | NE                     |
| Greece                       | L, T                           | 1.1                              | T1               | D                 | NA            | 66     | 66     | 66         | NO                  | NO                     | 1.00              | IE                     |
| Iceland                      |                                |                                  |                  |                   | NO            | NO     | 0      | 0          | NO                  | NO                     | NO                | NO                     |
| Ireland                      |                                | 0.0                              | NA               | NA                |               |        |        | 0          |                     |                        |                   |                        |
| Italy                        |                                | 0.0                              | D, C             | D, CS             | 0             | 0      | 0      | 6.1        | 6.70                |                        | 1.34              |                        |
| Latvia                       |                                | 0.0                              | NO               | NO                | NO            | NO     | 0      | 0          | NO                  | NO                     | NO                | NO                     |
| Luxembourg                   |                                |                                  | NA               | NA                |               |        |        |            |                     |                        |                   |                        |
| Netherlands                  |                                | 0.0                              | IE               |                   | NO            | NO     | 0      | 0          | NO                  | NO                     | NO                | NO                     |
| New Zealand                  | L                              | 0.7                              | T1               | CS/D              | 1             | 3      | 4      | -5.2       | 24.70               | 1.75                   | 0.26              | 0.02                   |
| Norway                       |                                | 0.0                              | T1               | D                 | 2             |        | 2      | 2          | 0.54                | IE                     | NO                | NO                     |
| Poland                       | L                              | 3.1                              | CS               | CS                | 104           | 60     | 164    | 223        | 5.47                | IE                     | 0.01              |                        |
| Portugal                     |                                | 0.0                              | C+T2             | C                 | NO            | NO     | 0      | 0          |                     |                        |                   |                        |
| Romania                      | L                              | 2.2                              | T1               | T1                | 10            | 24     | 35     | 121        | 11.73               | 1.55                   | 0.77              | 0.06                   |
| Slovakia                     | L                              | 1.0                              | T1               | CS                | 3             | NO     | 3      | 0          | 6.70                | 0.30                   | NO                | NO                     |
| Spain                        | T                              | 0.3                              | T1               | CS                | 12,570        | 14,117 | 26,687 | 19,240     | 0.00                | 0.00                   | 0.00              | 0.00                   |
| Sweden                       |                                | 0.0                              | CS               | CS                | NO            | NO     | 0      | 0          |                     |                        |                   |                        |
| Switzerland                  |                                | 0.0                              |                  |                   | NO            | NO     | 0      | 0          |                     |                        |                   |                        |
| United Kingdom               | L, T                           | 0.8                              | T2               | CS                | 17            | 14     | 32     | 32         | 12.57               | 1.16                   | 0.34              |                        |
| United States                | L, T                           | 0.9                              | T2, T3           | CS                | 345           | 678    | 1,023  | 1,023      | 5.26                | 1.59                   | 0.67              | 0.11                   |

<sup>a</sup> 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.

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

**Table 1.40****Fugitive emissions from fuels: coal mining and handling – trend information****CH<sub>4</sub> emissions (Gg)**

|                                   | 1990 <sup>a</sup> | 1995  | 1996  | 1997  | 1998  | 1999  | 2000  | 2001  |
|-----------------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|
| <b>Austria</b>                    | 0                 | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| <b>Belgium</b>                    | NO                | NO    | NO    | NO    | NO    | NO    | NO    | NO    |
| <b>Bulgaria<sup>b</sup></b>       |                   |       |       |       | 64    | 56    | 57    | 58    |
| <b>Canada</b>                     | 91                | 82    | 84    | 78    | 65    | 51    | 45    | 47    |
| <b>Czech Republic<sup>b</sup></b> | 362               |       |       |       | 253   | 229   | 239   | 245   |
| <b>Denmark</b>                    |                   |       |       |       |       |       |       |       |
| <b>Estonia<sup>b</sup></b>        |                   |       |       |       |       | 10    | 11    | 11    |
| <b>European Community</b>         | NE                | NE    | NE    | NE    | NE    | NE    | NE    | NE    |
| <b>Finland</b>                    |                   |       |       |       |       |       |       |       |
| <b>France</b>                     | 170               | 186   | 137   | 117   | 116   | 111   | 111   | 71    |
| <b>Germany</b>                    | 1,134             | 749   | 651   | 617   | 553   | 509   | 396   | 278   |
| <b>Greece<sup>b</sup></b>         | 44                | 49    | 51    | 50    | 52    | 53    | 54    | 67    |
| <b>Iceland</b>                    |                   |       |       |       |       |       |       |       |
| <b>Ireland</b>                    | NO                | NO    | NO    | NO    | NO    | NO    | NO    | NO    |
| <b>Italy</b>                      |                   |       |       |       |       |       |       | 1     |
| <b>Latvia</b>                     | NO                | NO    | NO    | NO    | NO    | NO    | NO    | NO    |
| <b>Luxembourg</b>                 |                   |       |       |       |       |       |       |       |
| <b>Netherlands</b>                |                   |       |       |       |       |       |       |       |
| <b>New Zealand<sup>b</sup></b>    |                   | 20    | 30    | 19    |       |       |       | 25    |
| <b>Norway</b>                     | 0                 |       |       |       | 0     | 0     | 0     | 1     |
| <b>Poland</b>                     |                   |       |       |       |       |       | 567   | 570   |
| <b>Portugal</b>                   | 3                 |       |       |       |       |       |       |       |
| <b>Romania<sup>b</sup></b>        |                   | 228   | 232   | 188   | 145   | 127   | 160   | 159   |
| <b>Slovakia<sup>b</sup></b>       |                   |       |       |       | 28    | 26    | 26    | 24    |
| <b>Spain</b>                      | 84                | 67    | 69    | 67    | 61    | 56    | 56    | 49    |
| <b>Sweden</b>                     |                   | NO    | NO    | NO    | NO    | NO    |       |       |
| <b>Switzerland</b>                | NO                | NO    | NO    | NO    | NO    | NO    | NO    | NO    |
| <b>United Kingdom</b>             | 818               | 504   | 473   | 445   | 378   | 310   | 264   | 243   |
| <b>United States</b>              | 4,149             | 3,502 | 3,255 | 3,244 | 3,235 | 3,033 | 2,902 | 2,893 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | -14.6        | 2.0          | 0.9          | -0.2         | 10.3         | 0.0          | -48.7        |
| <b>Belgium</b>            |              |              |              |              |              |              |              |
| <b>Bulgaria</b>           |              |              |              | -12.1        | 1.9          | 1.1          |              |
| <b>Canada</b>             | 3.1          | -7.2         | -16.8        | -20.7        | -12.2        | 4.3          | -48.3        |
| <b>Czech Republic</b>     |              |              |              | -9.5         | 4.4          | 2.4          | -32.4        |
| <b>Denmark</b>            |              |              |              |              |              |              |              |
| <b>Estonia</b>            |              |              |              |              | 15.5         | -2.0         |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            |              |              |              |              |              |              |              |
| <b>France</b>             | -26.4        | -14.6        | -0.6         | -4.3         | 0.0          | -35.9        | -58.0        |
| <b>Germany</b>            | -13.1        | -5.2         | -10.5        | -8.0         | -22.1        | -30.0        | -75.5        |
| <b>Greece</b>             | 3.6          | -1.6         | 3.5          | 1.9          | 3.0          | 22.8         | 51.2         |
| <b>Iceland</b>            |              |              |              |              |              |              |              |
| <b>Ireland</b>            |              |              |              |              |              |              |              |
| <b>Italy</b>              |              |              |              |              |              |              |              |
| <b>Latvia</b>             |              |              |              |              |              |              |              |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        |              |              |              |              |              |              |              |
| <b>New Zealand</b>        | 51.5         | -37.6        |              |              |              |              |              |
| <b>Norway</b>             |              |              |              | 23.1         | 56.4         | 182.9        | 490.5        |
| <b>Poland</b>             |              |              |              |              |              | 0.6          |              |
| <b>Portugal</b>           |              |              |              |              |              |              |              |
| <b>Romania</b>            | 1.7          | -19.0        | -22.5        | -12.7        | 26.3         | -1.0         |              |
| <b>Slovakia</b>           |              |              |              | -5.1         | -2.7         | -6.1         |              |
| <b>Spain</b>              | 2.3          | -1.8         | -10.1        | -7.7         | 0.8          | -12.2        | -41.2        |
| <b>Sweden</b>             |              |              |              |              |              |              |              |
| <b>Switzerland</b>        |              |              |              |              |              |              |              |
| <b>United Kingdom</b>     | -6.1         | -5.9         | -15.0        | -17.9        | -14.8        | -8.2         | -70.3        |
| <b>United States</b>      | -7.0         | -0.3         | -0.3         | -6.3         | -4.3         | -0.3         | -30.3        |

Table 1.41

Fugitive emissions from fuels: oil and natural gas, CH<sub>4</sub>, CO<sub>2</sub> (2001)

|                              | CH <sub>4</sub> |                             |                                  |           | CO <sub>2</sub> |                             |                                  |                     | Oil           |                                  |                                |  |                                  |                     |               |                                   |                            |                         |   |  |
|------------------------------|-----------------|-----------------------------|----------------------------------|-----------|-----------------|-----------------------------|----------------------------------|---------------------|---------------|----------------------------------|--------------------------------|--|----------------------------------|---------------------|---------------|-----------------------------------|----------------------------|-------------------------|---|--|
|                              | Key source      | Share of national total (%) | Methods and EF used <sup>a</sup> |           | Key source      | Share of national total (%) | Methods and EF used <sup>a</sup> |                     | Production    |                                  |                                |  | Transport                        |                     |               |                                   | Refining (R) / Storage (S) |                         |   |  |
|                              |                 |                             | Methods                          | EF        |                 |                             | CH <sub>4</sub> IEF <sup>b</sup> | CO <sub>2</sub> IEF | Activity data | CH <sub>4</sub> IEF <sup>b</sup> | CO <sub>2</sub> IEF            | Activity data  | CH <sub>4</sub> IEF <sup>b</sup> | CO <sub>2</sub> IEF | Activity data |                                   |                            |                         |   |  |
|                              |                 |                             |                                  |           |                 |                             |                                  |                     |               |                                  |                                |  |                                  |                     |               |                                   |                            |                         |   |  |
|                              |                 |                             |                                  |           |                 |                             |                                  | Value               | Unit          | Description                      | Value                          | Unit   | Description                      | Value               | Unit          | Description                       |                            |                         |   |  |
| IPCC default EF <sup>c</sup> |                 |                             |                                  |           |                 |                             |                                  | 300-5,000           |               | PJ                               | Oil produced                   | 745  |                                  | PJ                  | Oil tankered  | 20-250 (S)<br>90-1,400 (R)        |                            | PJ                      | Oil refined                                 |  |
| Austria                      |                 | 0.1                         | C                                | CS        |                 | 0.2                         | C, CS                            | CS, PS              | IE            | IE                               |                                | IE   | IE                               |                     | 31,663        | NE                                | Mt                         | Oil refined (SNAP 0401) |   |  |
| Belgium                      | L               | 0.6                         |                                  |           |                 |                             |                                  |                     |               |                                  |                                |  |                                  |                     |               |                                   |                            |                         |   |  |
| Bulgaria                     | L               | 2.4                         | 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            | 5.4                         | CS                               | CS        | L, T            | 2.1                         | CS                               | CS                  | 6,758         | 792                              | 10 <sup>3</sup> m <sup>3</sup> | Conventional oil, heavy oil and crude oil production | NA                               | NA                  |               | Liquid product transport          | NE                         | NE                      | NA  |  |
| Czech Republic               |                 | 0.3                         | T1, T3                           | D, CS     |                 |                             | NE                               |                     | 5,287         |                                  | PJ                             | (e.g. PJ of oil produced)                            | NO                               |                     |               | (e.g. PJ oil loaded in tankers)   | 1,320                      |                         | PJ (e.g. PJ oil refined)                    |  |
| Denmark                      |                 | 0.1                         | C                                | C         | L, T            | 0.9                         | C                                | C                   |               |                                  |                                | (e.g. PJ of oil produced)                            |                                  |                     |               | (e.g. PJ oil loaded in tankers)   |                            |                         | (e.g. PJ oil refined)                       |  |
| Estonia                      | L               | 2.4                         |                                  |           |                 |                             |                                  |                     | 4,000         |                                  |                                | (e.g. PJ of oil produced)                            | 745                              |                     |               | (e.g. PJ oil loaded in tankers)   |                            |                         | (e.g. PJ oil refined)                       |  |
| European Community           |                 |                             | C, CS, T1, T2, T3                | C, CS, PS |                 | 0.4                         | C, CS, MB <sup>d</sup> , T1, T3  | C, CS, PS           | NE            | NE                               |                                |  | NE                               | NE                  |               |                                   | NE                         | NE                      |   |  |
| Finland                      |                 | 0.0                         | CS                               | PS        |                 | 0.0                         | CS                               | PS                  | NO            | NO                               |                                | (e.g. PJ of oil produced)                            | NE/0                             | NE/0                | kt            | kt oil loaded in tankers          | NE/0                       | NE/0                    | kt oil refined                              |  |
| France                       | L, T            | 0.3                         | C                                | CS        |                 | 0.8                         | C                                | CS                  |               |                                  | PJ                             | PJ Produced  |                                  |                     | PJ            | PJ loaded                         | 42                         | 914,464                 | PJ PJ refined                               |  |
| Germany                      | L, T            | 0.7                         | CS                               | CS        |                 |                             | NE                               | NE                  | NE            | NE                               |                                | (e.g. PJ of oil produced)                            | NE                               | NE                  |               | (e.g. PJ oil loaded in tankers)   | 0.02                       | NE                      | t (crude oil and products)                  |  |
| Greece                       |                 | 0.1                         | C                                | C         |                 |                             |                                  |                     | 2,650         |                                  | PJ                             | Oil production                                       | 745                              |                     | PJ            | Imports of crude oil              | 745                        |                         | PJ Refinery input (crude oil & NGL)         |  |
| Iceland                      |                 |                             |                                  |           |                 |                             |                                  |                     | NO            | NO                               |                                |  | NO                               | NO                  |               |                                   | NO                         | NO                      |   |  |
| Ireland                      |                 | 0.1                         | T1                               | CS        |                 | 0.2                         | T1                               | CS                  |               |                                  |                                | (e.g. PJ of oil produced)                            |                                  |                     |               | (e.g. PJ oil loaded in tankers)   |                            |                         | (e.g. PJ oil refined)                       |  |
| Italy                        | L               | 0.9                         | C, CS                            | CS        |                 | 0.2                         | C, CS                            | CS                  | 289           |                                  | Gg                             | (Gg of oil produced)                                 |                                  |                     |               | 20                                | 11,647                     | Gg                      | (Gg oil refined)                            |  |
| Latvia                       | L               | 1.4                         | CS                               | PS        |                 |                             | NE                               | NE                  | NO            | NO                               |                                | (e.g. PJ of oil produced)                            | NE                               | NE                  |               | (e.g. PJ oil loaded in tankers)   | NO                         | NO                      | (e.g. PJ oil refined)                       |  |
| Luxembourg                   |                 |                             | C                                | C         |                 |                             | C                                | C                   |               |                                  |                                |  |                                  |                     |               |                                   |                            |                         |   |  |
| Netherlands                  | L, T            | 1.3                         | CS/T1                            | CS        | L, T            | 0.8                         | CS/T3;>97                        | CS                  | IE            | IE                               | 10 <sup>6</sup> m <sup>3</sup> | m <sup>3</sup> oil produced                          |                                  |                     |               | 13                                | 597,275                    | PJ                      | Refinery input: Crude oil, NGL, Other input |  |
| New Zealand                  |                 | 0.5                         | T1                               | CS/D      | L               | 0.8                         | T1                               | CS/D                | NE            | NE                               |                                | (e.g. PJ of oil produced)                            | 0.8                              | NE                  | TJ            | Transport of crude oil            | 1                          | NE                      | TJ Refining/storage                         |  |
| Norway                       | L, T            | 1.2                         | CS                               | CS        | L, T            | 4.4                         | CS                               | CS                  |               |                                  |                                | 2,439  | 98,347                           | PJ                  |               | Oil loaded                        | 47,362                     | PJ                      | Oil refined                                 |  |
| Poland                       | L               | 1.2                         | CS                               | CS        |                 | 0.1                         |                                  |                     | 61,803        | 6,314,989                        | PJ                             | PJ of oil produced                                   | NE                               | NE                  |               | NE                                | NE                         | NE                      | NE  |  |
| Portugal                     | T               | 0.2                         | C+T2                             | C         |                 | 0.4                         | MB                               |                     | NO            | NO                               |                                |  | 60,000                           | 1,100,000           | Mt            | Consumption of crude              | 84,385                     | 9,984,085               | Mt Production (crude and other materials)   |  |
| Romania                      | L               | 5.3                         | T1                               | T1        |                 |                             | NE                               | NE                  | 300           |                                  | PJ                             | (e.g. PJ of oil produced)                            | 745                              |                     | PJ            | (e.g. PJ oil loaded in tankers)   | 45                         |                         | PJ (e.g. PJ oil refined)                    |  |
| Slovakia                     | L               | 1.6                         | D                                | D,CS      |                 |                             | NA                               | NA                  | 2,650         |                                  |                                | Production   | 745                              |                     | PJ            | Transport of crude oil (transfer) | 745                        |                         | Refining                                    |  |
| Spain                        |                 | 0.3                         | CS,C                             | PS,C      | L               | 0.6                         |                                  |                     | 9             |                                  | Mg                             | Crude oil produced                                   | 27                               |                     | Gg            | Transport of crude oil            | 1                          | 32,855                  | Gg Oil refined                              |  |
| Sweden                       |                 | 0.0                         | CS                               | CS        |                 | 0.0                         | CS                               | CS                  | NO            | NO                               |                                | (e.g. PJ of oil produced)                            | IE                               | IE                  |               | (e.g. PJ oil loaded in tankers)   | IE                         | IE                      | (e.g. PJ oil refined)                       |  |
| Switzerland                  |                 | 0.5                         | C                                | CS        |                 | 0.2                         | C                                | CS                  |               |                                  |                                |  |                                  |                     |               | 1,042                             | NO                         | PJ                      | Crude oil used                              |  |
| United Kingdom               | L               | 1.3                         | T3                               | CS        | L, T            | 0.9                         | T3                               | CS                  | 600           | 64,797                           | PJ                             | Oil and gas produced.                                | 113                              | NO                  | Gg            | Offshore loading of oil only      | 27                         | NO                      | PJ Oil refinery throughput                  |  |
| United States                | L, T            | 2.0                         | M                                | M         |                 | 0.1                         | T2                               | CS                  | 462,395       | NE                               | MM Bbl/yr                      | Total oil produced                                   | 925                              | MM Bbl/yr           |               | Total oil produced                | 4,894                      | NE                      | MM Bbl/yr Total oil produced                |  |

<sup>a</sup> 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.<sup>b</sup> 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.<sup>c</sup> Source of emissions factors: IPCC Guidelines, vol. 3, pages 1.119–1.121. For updated detailed emission factors on CH<sub>4</sub> and implied emissions factors on CO<sub>2</sub> and N<sub>2</sub>O see the IPCC good practice guidance, table 2.16, pages 2.86–2.87.<sup>d</sup> M = mass balance

Table 1.41

Fugitive emissions from fuels: oil and natural gas, CH<sub>4</sub>, CO<sub>2</sub> (2001) (continued)

|                              | Natural Gas                      |                     |                                |   |                                  |                     |                                |  |                                  |                     |                                |                                       |                                  |                     |  |
|------------------------------|----------------------------------|---------------------|--------------------------------|---|----------------------------------|---------------------|--------------------------------|--|----------------------------------|---------------------|--------------------------------|---------------------------------------|----------------------------------|---------------------|--|
|                              | Production/processing            |                     |                                |   | Transmission                     |                     |                                |  | Distribution                     |                     |                                |                                       | Other leakage                    |                     |  |
|                              | CH <sub>4</sub> IEF <sup>a</sup> | CO <sub>2</sub> IEF | Unit                           | Activity data   | CH <sub>4</sub> IEF <sup>a</sup> | CO <sub>2</sub> IEF | Unit                           | Activity data                              | CH <sub>4</sub> IEF <sup>a</sup> | CO <sub>2</sub> IEF | Unit                           | Activity data                         | CH <sub>4</sub> IEF <sup>a</sup> | CO <sub>2</sub> IEF | Activity data                            |
|                              | Value                            |                     |                                | Description   | Value                            |                     |                                | Description                                | Value                            |                     |                                | Description                           | Value                            |                     | Description                              |
| IPCC default EF <sup>c</sup> | 46,000-314,000                   |                     | PJ                             | Gas produced  | 57,000-628,000                   |                     | PJ                             | Gas consumed/produced                      | 57,000-288,000                   |                     | PJ                             | Gas consumed/produced                 | 0-384,000                        |                     | PJ Gas consumed                          |
| Austria                      | IE                               | 314,696             | 10 <sup>6</sup> m <sup>3</sup> | NG Production (SNAP 0503)   | IE                               | IE                  |                                |  | 698                              | 2,950               | 10 <sup>6</sup> m <sup>3</sup> | NG distribution (SNAP 0506)           | IE                               | IE                  |  |
| Belgium                      |                                  |                     |                                |   |                                  |                     |                                |  |                                  |                     |                                |                                       |                                  |                     |  |
| Bulgaria                     | 227,000                          | NE                  | PJ                             | (e.g. PJ gas produced)  | 500,000                          | NE                  | PJ                             | (e.g. PJ gas consumed)                     |                                  |                     |                                |                                       |                                  |                     |  |
| Canada                       | 2,837                            | 115                 | 10 <sup>6</sup> m <sup>3</sup> | Gross new production of natural gas (also includes oil and gas well drilling and servicing) | 3,255                            | 24                  | km                             | Pipeline distance                          | 744                              | NE                  | km                             | Pipeline distance - leakage           | NA                               | NA                  |  |
| Czech Republic               | 49,741                           |                     | PJ                             | (e.g. PJ gas produced)  | 3,188                            |                     | PJ                             | (e.g. PJ gas consumed)                     | 106,388                          |                     | PJ                             | (e.g. PJ gas consumed)                | 49,748                           |                     | PJ (e.g. PJ gas consumed)                |
| Denmark                      | 0.7                              |                     | 10 <sup>3</sup> m <sup>3</sup> | (e.g. PJ gas produced)  | 26                               |                     | 10 <sup>6</sup> m <sup>3</sup> | Gas produced and stock change              |                                  |                     |                                |                                       |                                  |                     |  |
| Estonia                      | 458,000                          |                     |                                | (e.g. PJ gas produced)  | 458,000                          |                     |                                | (e.g. PJ gas consumed)                     |                                  |                     |                                |                                       |                                  |                     |  |
| European Community           | NE                               | NE                  |                                |   | NE                               | NE                  |                                |  | NE                               | NE                  |                                |                                       | NE                               | NE                  |  |
| Finland                      | NO                               | NO                  |                                | (e.g. PJ gas produced)  | NE/0                             | NE/0                | PJ                             | PJ gas consumed                            | NE/0                             | NE/0                | PJ                             | PJ gas distributed via local networks | 1,000                            |                     | t of natural gas released from pipelines |
| France                       | 492                              | 2,443,430           | PJ                             | PJ Production (natural gas from crude oil extraction)                                       | 58,945                           |                     | PJ                             | PJ Consumed (total amount of gas consumed) |                                  |                     |                                |                                       |                                  |                     |  |
| Germany                      | 62                               | NE                  | TJ                             |   | 9                                | NE                  | TJ                             |  | 472                              | NE                  | km                             | (distribution net)                    | 42                               | NO                  | TJ (gas consumed)                        |
| Greece                       | 21,000                           |                     | PJ                             | Natural gas production  |                                  |                     |                                |  | 102,500                          |                     | PJ                             | Natural gas consumption               |                                  |                     |  |
| Iceland                      | NO                               | NO                  |                                |   | NO                               | NO                  |                                |  | NO                               | NO                  |                                |                                       | NO                               | NO                  |  |
| Ireland                      | 43,680                           | 2,821,084           | PJ                             | PJ of gas produced  |                                  |                     |                                | (e.g. PJ gas consumed)                     | 71,674                           |                     | PJ                             | PJ of gas consumed                    |                                  |                     | (e.g. PJ gas consumed)                   |
| Italy                        | 179                              |                     | 10 <sup>6</sup> m <sup>3</sup> | (Mm <sup>3</sup> gas produced)  | 384                              |                     | 10 <sup>6</sup> m <sup>3</sup> | (Mm <sup>3</sup> gas transported)          | 7,704                            |                     | 10 <sup>6</sup> m <sup>3</sup> | (Mm <sup>3</sup> gas transported)     |                                  |                     |  |
| Latvia                       | NO                               | NO                  |                                | (e.g. PJ gas produced)  | NE                               | NE                  |                                | (e.g. PJ gas consumed)                     | NE                               | NE                  |                                | (e.g. PJ gas consumed)                |                                  | NE/NO               |  |
| Luxembourg                   |                                  |                     |                                |   |                                  |                     |                                |  |                                  |                     |                                |                                       |                                  |                     |  |
| Netherlands                  | 30,265                           | 86,191              | PJ                             | Gas produced  | 1,474                            | 71                  | PJ                             | gas transported                            | 81,049                           | 2,859               | PJ                             | gas distributed                       |                                  |                     |  |
| New Zealand                  | NE                               | NE                  |                                | (e.g. PJ gas produced)  | 207                              | 20                  | TJ                             | Energy content of fugitive emission        | NE                               | NE                  |                                | (e.g. PJ gas consumed)                | NE                               | NE                  | (e.g. PJ gas consumed)                   |
| Norway                       |                                  |                     |                                |   |                                  |                     |                                |  |                                  |                     |                                |                                       |                                  |                     |  |
| Poland                       | 100,982                          | 56,154              | PJ                             | PJ of gas produced  | 442,072                          | 3,240               | PJ                             | PJ of gas used                             | NE                               | NE                  |                                | NE                                    | NE                               | NE                  | NE                                       |
| Portugal                     | NO                               | NO                  |                                |   | 100                              |                     | TJ                             | Gas consumed                               |                                  |                     |                                |                                       | NE                               | NE                  |  |
| Romania                      | 288,000                          |                     | PJ                             | (e.g. PJ gas produced)  | 364,300                          |                     | PJ                             | (e.g. PJ gas consumed)                     |                                  |                     |                                |                                       |                                  |                     | PJ (e.g. PJ gas consumed)                |
| Slovakia                     | 67,000                           |                     | PJ                             | Production  | 2,000                            |                     | PJ                             | Transfer                                   |                                  |                     |                                |                                       | 120,000                          |                     | PJ Consumed                              |
| Spain                        | 70,889                           |                     | PJ                             | PJ gas produced (NCV)   | 27,414                           | 380                 | PJ                             | PJ gas (NCV)                               | 36,023                           | 505                 | PJ                             | PJ gas consumed (NCV)                 |                                  |                     |  |
| Sweden                       | NO                               | NO                  |                                | (e.g. PJ gas produced)  | IE                               | IE                  |                                | (e.g. PJ gas consumed)                     | IE                               | IE                  |                                | (e.g. PJ gas consumed)                |                                  |                     |  |
| Switzerland                  |                                  |                     |                                |   | 112126.64                        | 497503.06           | PJ                             | Apparent gas consumption                   |                                  |                     |                                |                                       |                                  |                     |  |
| United Kingdom               | IE                               | IE                  |                                | (e.g. PJ gas produced)  | IE                               | IE                  |                                | (e.g. PJ gas consumed)                     | 101,253                          | NO                  | PJ                             | Gas consumed                          | IE                               | IE                  | (e.g. PJ gas consumed)                   |
| United States                | 111,077                          | NE                  | bill ft <sup>3</sup> yr        | Total natural gas produced  | 87,111                           | IE                  | bill ft <sup>3</sup> yr        | Total natural gas consumed                 | 72,627                           | NE                  | bill ft <sup>3</sup> yr        | Total Natural Gas Consumed            | IE                               |                     | NA                                       |

<sup>a</sup> 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.<sup>b</sup> 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.<sup>c</sup> Source of emissions factors: IPCC Guidelines, vol. 3, pages 1.119–1.121. For updated detailed emission factors on CH<sub>4</sub> and implied emissions factors on CO<sub>2</sub> and N<sub>2</sub>O 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, CH<sub>4</sub>, CO<sub>2</sub> (2001) (continued)**

|                              | Venting and flaring              |               |                        |                                  |               |                        |                                  |            |               |                           |                                  |                                |                                |                                  |              |                                |             |                                      |
|------------------------------|----------------------------------|---------------|------------------------|----------------------------------|---------------|------------------------|----------------------------------|------------|---------------|---------------------------|----------------------------------|--------------------------------|--------------------------------|----------------------------------|--------------|--------------------------------|-------------|--------------------------------------|
|                              | Oil                              |               |                        | Gas                              |               |                        |                                  |            |               |                           |                                  |                                |                                |                                  |              |                                |             |                                      |
|                              | Venting <sup>a</sup>             |               |                        | Venting <sup>a</sup>             |               |                        | Flaring <sup>a</sup>             |            |               | Venting <sup>a</sup>      |                                  |                                | Combined                       |                                  |              |                                |             |                                      |
|                              | CH <sub>4</sub> IEF <sup>b</sup> | Activity data |                        | CH <sub>4</sub> IEF <sup>b</sup> | Activity data |                        | CH <sub>4</sub> IEF <sup>b</sup> | CO2 IEF    | Activity data |                           | CH <sub>4</sub> IEF <sup>b</sup> | Activity data                  |                                | CH <sub>4</sub> IEF <sup>b</sup> | CO2 IEF      | Activity data                  |             |                                      |
|                              | value                            | unit          | Description            | value                            | unit          | Description            | value                            |            | unit          | Description               | value                            | unit                           | Description                    | value                            |              | unit                           | Description |                                      |
| IPCC default EF <sup>c</sup> | 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                 |
| Austria                      |                                  |               |                        |                                  |               |                        |                                  |            |               |                           |                                  |                                |                                |                                  |              |                                |             |                                      |
| Belgium                      |                                  |               |                        |                                  |               |                        |                                  |            |               | (e.g. PJ gas consumption) |                                  |                                |                                |                                  |              |                                |             |                                      |
| Bulgaria                     | 2,000                            | PJ            | (e.g. PJ oil produced) | 18,000                           | PJ            | (e.g. PJ gas produced) | NE                               | NE         |               |                           |                                  | NE                             |                                |                                  | NE           | NE                             |             |                                      |
| Canada                       | NE                               |               | NA                     | NE                               |               | NA                     | IE                               | IE         |               | NA                        | NE                               | 10 <sup>6</sup> m <sup>3</sup> | Net withdrawals of natural gas | 141                              | 33,285       | 10 <sup>6</sup> m <sup>3</sup> |             | Gross new production of natural gas  |
| Czech Republic               |                                  |               | (e.g. PJ oil produced) |                                  |               | (e.g. PJ gas produced) |                                  |            |               | (e.g. PJ gas consumption) |                                  |                                |                                |                                  |              |                                |             |                                      |
| Denmark                      |                                  |               |                        |                                  |               |                        | 0                                | 57         | GJ            | (e.g. PJ gas consumption) |                                  |                                |                                |                                  |              |                                |             |                                      |
| Estonia                      | 4,000                            |               | (e.g. PJ oil produced) | 18,000                           |               | (e.g. PJ gas produced) |                                  |            |               |                           |                                  |                                |                                |                                  |              |                                |             |                                      |
| European Community           |                                  |               |                        |                                  |               |                        |                                  |            |               |                           |                                  |                                |                                |                                  |              |                                |             |                                      |
| Finland                      |                                  | kt            | kt oil refined         |                                  |               | (e.g. PJ gas produced) |                                  |            |               | (e.g. PJ gas consumption) |                                  |                                |                                |                                  |              |                                |             |                                      |
| France                       |                                  |               |                        |                                  |               |                        |                                  |            |               |                           |                                  |                                |                                | 470,612                          | 96,807,000   | PJ                             |             | PJ consumed                          |
| Germany                      | NE                               |               | (e.g. PJ oil produced) | NE                               |               | (e.g. PJ gas produced) | NE                               | NE         |               | (natural gas)             | NE                               |                                |                                | NE                               | NE           |                                |             |                                      |
| Greece                       | 2,000                            | PJ            | Oil production         | NE                               | PJ            | Natural gas production |                                  |            |               |                           |                                  |                                |                                |                                  |              |                                |             |                                      |
| Hungary                      |                                  |               |                        |                                  |               |                        |                                  |            |               |                           |                                  |                                |                                |                                  |              |                                |             |                                      |
| Iceland                      | NO                               |               |                        | NO                               |               |                        | NO                               | NO         |               |                           |                                  | NO                             |                                |                                  | NO           | NO                             |             |                                      |
| Ireland                      |                                  |               | (e.g. PJ oil produced) |                                  |               | (e.g. PJ gas consumed) |                                  | 2,299,795  | kt            | Quantity of gas flared    |                                  |                                |                                |                                  |              |                                |             |                                      |
| Italy                        |                                  |               |                        | IE                               |               |                        |                                  |            |               | (e.g. PJ gas consumption) |                                  |                                |                                |                                  |              |                                |             |                                      |
| Latvia                       | NO                               |               | (e.g. PJ oil produced) | NO                               |               | (e.g. PJ gas produced) | C                                | NO         |               |                           |                                  | NO                             |                                |                                  | NO           | NO                             |             |                                      |
| Luxembourg                   |                                  |               |                        |                                  |               |                        |                                  |            |               |                           |                                  |                                |                                |                                  |              |                                |             |                                      |
| Netherlands                  |                                  |               |                        |                                  |               |                        |                                  |            |               |                           |                                  | IE                             |                                |                                  | IE           | IE                             |             |                                      |
| New Zealand                  | IE                               |               | (e.g. PJ oil produced) | IE                               |               | (e.g. PJ gas produced) | IE                               | IE         |               | (e.g. PJ gas consumption) | IE                               |                                |                                | 87                               | 35,462       | TJ                             |             | Venting and flaring from oil and gas |
| Norway                       | IE                               |               | (e.g. PJ oil produced) | IE                               |               | (e.g. PJ gas produced) | 7,161                            | 60,421,004 | PJ            | Gas flared                | 1,375                            | PJ                             | Oil and gas produced           | IE                               | IE           |                                |             |                                      |
| Poland                       | NE                               |               | NE                     | NE                               |               | NE                     | NE                               | NE         |               | NE                        | NE                               |                                | NE                             | NE                               | NE           | NE                             |             | NE                                   |
| Portugal                     | 340                              | Mt            | Oil refined            |                                  |               |                        |                                  |            |               |                           |                                  |                                |                                |                                  |              |                                |             |                                      |
| Romania                      |                                  | PJ            | (e.g. PJ oil produced) | 6,000                            | PJ            | (e.g. PJ gas produced) |                                  |            | PJ            | (e.g. PJ gas consumption) |                                  | PJ                             |                                |                                  |              | PJ                             |             |                                      |
| Slovakia                     |                                  |               |                        |                                  |               |                        |                                  |            |               |                           |                                  |                                |                                |                                  |              |                                |             |                                      |
| Spain                        |                                  |               | (e.g. PJ oil produced) |                                  |               | (e.g. PJ gas produced) | 5.4                              | 56,291     | PJ            | PJ gas consumption (NCV)  |                                  |                                |                                |                                  |              |                                |             |                                      |
| Sweden                       | IE                               |               | (e.g. PJ oil produced) | IE                               |               | (e.g. PJ gas produced) | IE                               | IE         |               | (e.g. PJ gas consumption) | IE                               |                                |                                | IE                               | IE           |                                |             |                                      |
| Switzerland                  |                                  |               |                        |                                  |               |                        |                                  |            |               |                           |                                  |                                |                                |                                  |              |                                |             |                                      |
| United Kingdom               |                                  |               | (e.g. PJ oil produced) |                                  |               | (e.g. PJ gas produced) |                                  |            |               | (e.g. PJ gas consumption) |                                  |                                |                                | 291,025                          | 77,725,144   | 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                               |                                | NA                             | IE                               | 54,706,668   | TBtu                           |             | Flared gas                           |

<sup>a</sup> 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.<sup>b</sup> 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.<sup>c</sup> Source of emissions factors: IPCC Guidelines, vol. 3, pages 1.119–1.121. For updated detailed emission factors on CH<sub>4</sub> and implied emissions factors on CO<sub>2</sub> and N<sub>2</sub>O 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<sub>2</sub> emissions (Gg)**

|                          | 1990 <sup>a</sup> | 1995   | 1996   | 1997   | 1998   | 1999   | 2000   | 2001   |
|--------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|
| Austria                  | 120               | 149    | 95     | 143    | 165    | 194    | 187    | 207    |
| Belgium                  | NE                | NE     | NE     | NE     | NE     | NE     | 0      | NE     |
| Bulgaria                 | NE                | NE     | NE     | NE     | NE     | NE     | NE     | NE     |
| Canada                   | 9,833             | 12,974 | 13,485 | 13,632 | 13,787 | 14,395 | 14,802 | 15,307 |
| Czech Republic           |                   |        |        |        |        |        |        | 0      |
| Denmark                  | 240               | 365    | 400    | 565    | 422    | 903    | 593    | 633    |
| Estonia                  |                   |        |        |        |        |        |        | 0      |
| European Community       | 17,247            | 15,886 | 16,256 | 15,778 | 16,210 | 16,098 | 15,880 | 16,377 |
| Finland                  | 42                | 40     | 24     | 26     | 24     | 24     | 25     | 23     |
| France                   | 4,306             | 3,921  | 4,005  | 4,237  | 4,145  | 3,997  | 4,077  | 4,208  |
| Germany                  | NE                | NE     | NE     | NE     | NE     | NE     | NE     | NE     |
| Greece                   |                   |        |        |        |        |        |        | 0      |
| Iceland                  | NO                | NO     | NO     | NO     | NO     | NO     | NO     | NO     |
| Ireland                  | 139               | 167    | 161    | 141    | 108    | 117    | 71     | 134    |
| Italy                    | 999               | 1,053  | 1,054  | 1,108  | 1,204  | 1,202  | 1,291  | 1,296  |
| Latvia                   | NO/NE             | NO/NE  | NO/NE  | NO/NE  | NO/NE  | NO/NE  | NO/NE  | NO/NE  |
| Luxembourg               |                   |        |        |        |        |        |        | 0      |
| Netherlands              | 308               | 810    | 1,003  | 1,018  | 1,554  | 1,516  | 1,591  | 1,666  |
| New Zealand <sup>b</sup> | 615               | 628    | 673    | 760    |        |        |        | 574    |
| Norway                   | 2,003             | 1,989  | 2,196  | 2,169  | 2,122  | 2,606  | 2,729  | 2,490  |
| Poland                   | 53                | 86     | 94     | 86     | 105    | 125    | 184    | 216    |
| Portugal                 | 155               | 224    | 215    | 227    | 247    | 272    | 289    | 347    |
| Romania                  |                   |        |        |        |        |        | NA     | NE     |
| Slovakia                 |                   |        |        |        |        |        |        | 0      |
| Spain                    | 1,779             | 1,923  | 1,903  | 1,974  | 2,045  | 1,982  | 2,244  | 2,193  |
| Sweden                   | 22                | 11     | 26     | 27     | 19     | NO     | 3      | 15     |
| Switzerland              | 75                | 83     | 92     | 89     | 91     | 93     | 89     | 93     |
| United Kingdom           | 9,138             | 7,224  | 7,372  | 6,312  | 6,277  | 5,891  | 5,509  | 5,658  |
| United States            | 5,514             | 8,729  | 8,233  | 7,565  | 6,250  | 6,679  | 5,525  | 5,179  |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            | -36.6        | 51.5         | 15.3         | 17.7         | -3.5         | 10.4         | 72.5         |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              |              |              |              |              |
| Canada             | 3.9          | 1.1          | 1.1          | 4.4          | 2.8          | 3.4          | 55.7         |
| Czech Republic     |              |              |              |              |              |              |              |
| Denmark            | 9.6          | 41.1         | -25.3        | 113.8        | -34.3        | 6.8          | 163.9        |
| Estonia            |              |              |              |              |              |              |              |
| European Community | 2.3          | -2.9         | 2.7          | -0.7         | -1.4         | 3.1          | -5.0         |
| Finland            | -39.9        | 11.3         | -7.9         | 0.0          | 3.0          | -9.8         | -46.0        |
| France             | 2.1          | 5.8          | -2.2         | -3.6         | 2.0          | 3.2          | -2.3         |
| Germany            |              |              |              |              |              |              |              |
| Greece             |              |              |              |              |              |              |              |
| Iceland            |              |              |              |              |              |              |              |
| Ireland            | -3.6         | -12.3        | -23.5        | 8.5          | -39.5        | 89.2         | -3.5         |
| Italy              | 0.2          | 5.1          | 8.6          | -0.1         | 7.4          | 0.4          | 29.8         |
| Latvia             |              |              |              |              |              |              |              |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        | 23.8         | 1.5          | 52.6         | -2.4         | 5.0          | 4.7          | 440.6        |
| New Zealand        | 7.2          | 12.9         | -11.8        |              |              |              | -6.7         |
| Norway             | 10.4         | -1.2         | -2.2         | 22.8         | 4.7          | -8.7         | 24.3         |
| Poland             | 9.3          | -8.5         | 22.1         | 19.0         | 47.1         | 17.4         | 307.3        |
| Portugal           | -3.6         | 5.4          | 8.9          | 10.0         | 6.4          | 20.0         | 124.4        |
| Romania            |              |              |              |              |              |              |              |
| Slovakia           |              |              |              |              |              |              |              |
| Spain              | -1.0         | 3.7          | 3.6          | -3.1         | 13.2         | -2.3         | 23.2         |
| Sweden             | 131.2        | 5.3          | -29.6        |              |              | 496.7        | -29.8        |
| Switzerland        | 10.5         | -3.3         | 2.5          | 2.2          | -4.5         | 4.4          | 24.7         |
| United Kingdom     | 2.0          | -14.4        | -0.5         | -6.2         | -6.5         | 2.7          | -38.1        |
| United States      | -5.7         | -8.1         | -17.4        | 6.9          | -17.3        | -6.3         | -6.1         |

**Table 1.42****Fugitive emissions from fuels: oil and natural gas – trend information (continued)****CH<sub>4</sub> emissions (Gg)**

|                                | 1990 <sup>a</sup> | 1995  | 1996  | 1997  | 1998  | 1999  | 2000  | 2001  |
|--------------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|
| <b>Austria</b>                 | 5                 | 6     | 6     | 6     | 6     | 6     | 6     | 6     |
| <b>Belgium</b>                 | 36                | 33    | 36    | 36    | 40    | 43    | 42    | 41    |
| <b>Bulgaria</b>                | 133               | 122   | 124   | 99    | 88    | 73    | 83    | 76    |
| <b>Canada</b>                  | 1,247             | 1,671 | 1,785 | 1,787 | 1,774 | 1,776 | 1,822 | 1,832 |
| <b>Czech Republic</b>          | 32                |       | 32    | 35    | 28    | 29    | 29    | 23    |
| <b>Denmark</b>                 | 1                 | 3     | 3     | 4     | 3     | 4     | 4     | 4     |
| <b>Estonia</b>                 | 38                | 18    | 20    | 19    | 18    | 18    | 20    | 22    |
| <b>European Community</b>      | 1,570             | 1,463 | 1,480 | 1,416 | 1,404 | 1,375 | 1,340 | 1,349 |
| <b>Finland</b>                 | 0                 | 0     | 1     | 0     | 1     | 0     | 0     | 1     |
| <b>France</b>                  | 118               | 96    | 92    | 92    | 92    | 91    | 91    | 91    |
| <b>Germany</b>                 | 368               | 359   | 374   | 362   | 360   | 355   | 350   | 353   |
| <b>Greece<sup>b</sup></b>      | 0                 | 0     | 0     | 0     | 1     | 1     | 2     | 8     |
| <b>Iceland</b>                 |                   |       |       |       |       |       |       |       |
| <b>Ireland</b>                 | 7                 | 6     | 6     | 6     | 5     | 5     | 5     | 5     |
| <b>Italy</b>                   | 317               | 274   | 271   | 267   | 266   | 263   | 261   | 242   |
| <b>Latvia</b>                  | 13                | 10    | 10    | 9     | 9     | 9     | 8     | 8     |
| <b>Luxembourg<sup>b</sup></b>  |                   |       |       |       |       | 2     | 2     | 2     |
| <b>Netherlands</b>             | 179               | 170   | 188   | 156   | 147   | 144   | 131   | 134   |
| <b>New Zealand<sup>b</sup></b> | 15                | 14    | 15    | 17    | 18    | 18    |       | 18    |
| <b>Norway</b>                  | 14                | 25    | 25    | 28    | 25    | 24    | 29    | 33    |
| <b>Poland</b>                  | 205               | 186   | 197   | 193   | 196   | 191   | 206   | 216   |
| <b>Portugal</b>                | 2                 | 2     | 2     | 2     | 5     | 12    | 10    | 9     |
| <b>Romania</b>                 |                   | 534   | 525   | 440   | 404   | 386   | 381   | 378   |
| <b>Slovakia</b>                | 35                | 35    | 36    | 36    | 35    | 36    | 35    | 37    |
| <b>Spain</b>                   | 28                | 35    | 36    | 42    | 45    | 35    | 40    | 47    |
| <b>Sweden</b>                  | 0                 | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| <b>Switzerland</b>             | 15                | 13    | 13    | 13    | 12    | 12    | 12    | 12    |
| <b>United Kingdom</b>          | 513               | 477   | 464   | 441   | 433   | 413   | 396   | 405   |
| <b>United States</b>           | 7,119             | 7,212 | 7,207 | 7,124 | 6,994 | 6,756 | 6,782 | 6,599 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

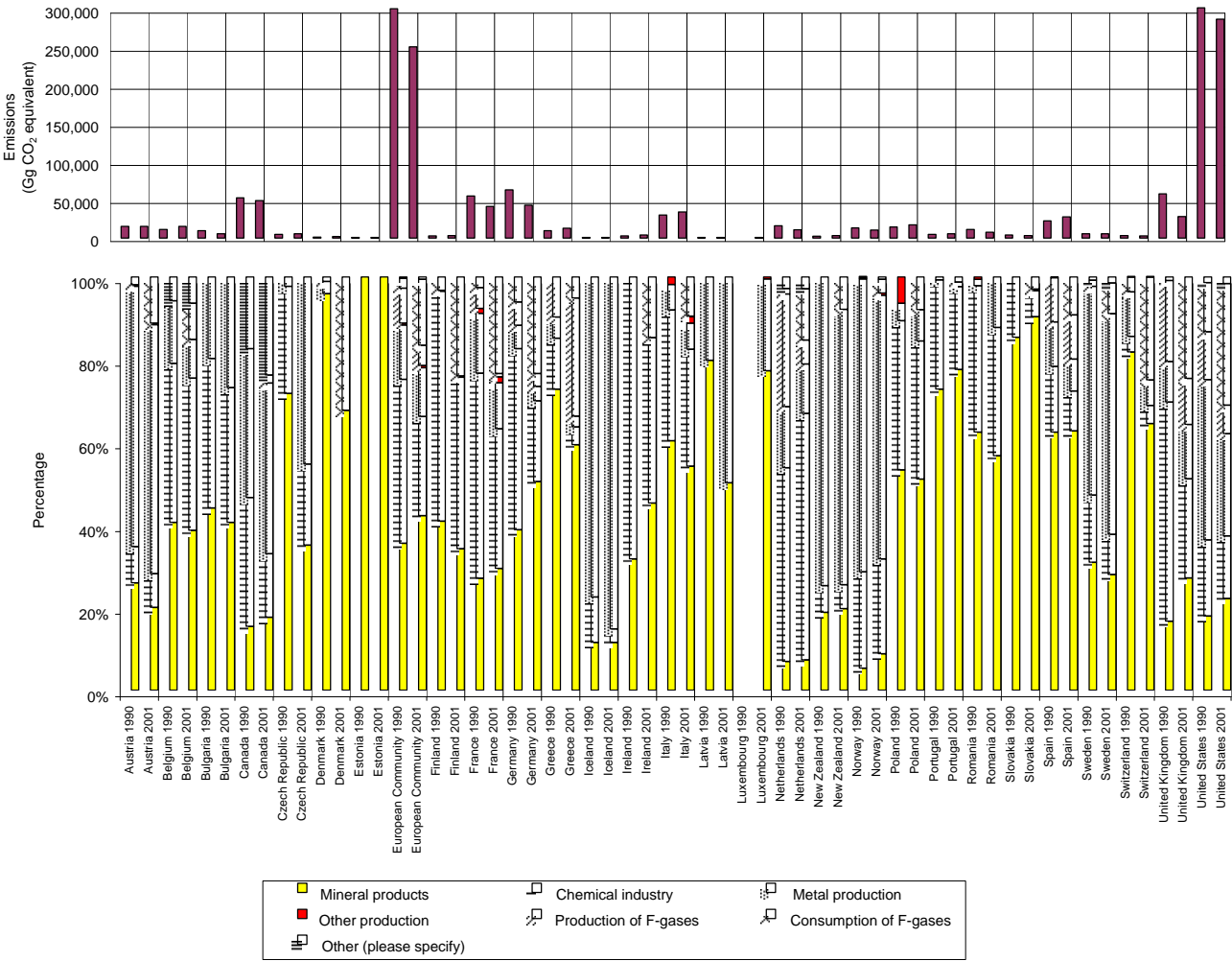
<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 6.3          | -3.1         | 2.5          | 1.8          | -3.4         | 5.1          | 33.3         |
| <b>Belgium</b>            | 8.7          | -0.4         | 12.0         | 8.0          | -1.4         | -3.0         | 15.6         |
| <b>Bulgaria</b>           | 1.6          | -19.9        | -11.6        | -17.1        | 13.5         | -7.6         | -42.8        |
| <b>Canada</b>             | 6.8          | 0.1          | -0.7         | 0.1          | 2.6          | 0.5          | 46.9         |
| <b>Czech Republic</b>     |              | 8.4          | -19.4        | 2.1          | 0.0          | -19.1        | -27.7        |
| <b>Denmark</b>            | -6.5         | 16.7         | -14.0        | 45.9         | -20.1        | 5.4          | 278.0        |
| <b>Estonia</b>            | 10.6         | -2.6         | -5.5         | -2.6         | 14.8         | 7.5          | -42.0        |
| <b>European Community</b> | 1.1          | -4.3         | -0.8         | -2.1         | -2.6         | 0.7          | -14.0        |
| <b>Finland</b>            | 194.0        | -30.3        | 47.1         | -41.6        | 5.4          | 144.7        | 434.1        |
| <b>France</b>             | -4.5         | 0.0          | -0.1         | -0.5         | 0.1          | -0.7         | -23.0        |
| <b>Germany</b>            | 4.1          | -3.0         | -0.8         | -1.2         | -1.5         | 1.0          | -4.1         |
| <b>Greece</b>             | 12.2         | 101.0        | 230.5        | 59.2         | 42.5         | 452.9        | 3,814.1      |
| <b>Iceland</b>            |              |              |              |              |              |              |              |
| <b>Ireland</b>            | -2.9         | -3.4         | -11.1        | -2.4         | -3.6         | 1.3          | -31.4        |
| <b>Italy</b>              | -1.3         | -1.5         | -0.2         | -1.2         | -0.7         | -7.3         | -23.7        |
| <b>Latvia</b>             | -3.6         | -6.7         | -4.1         | -4.7         | -7.5         | -3.0         | -41.0        |
| <b>Luxembourg</b>         |              |              |              |              | 2.2          | 3.6          |              |
| <b>Netherlands</b>        | 10.6         | -16.9        | -6.3         | -1.5         | -9.3         | 2.6          | -24.9        |
| <b>New Zealand</b>        | 8.0          | 14.7         | 7.7          | -3.0         | -0.6         |              | 19.5         |
| <b>Norway</b>             | 0.3          | 12.8         | -8.5         | -5.2         | 18.8         | 15.0         | 139.9        |
| <b>Poland</b>             | 5.9          | -2.0         | 1.6          | -2.2         | 7.5          | 5.0          | 5.4          |
| <b>Portugal</b>           | -7.2         | 18.8         | 101.6        | 136.1        | -15.0        | -6.2         | 420.3        |
| <b>Romania</b>            | -1.7         | -16.1        | -8.4         | -4.4         | -1.2         | -1.0         | -64.0        |
| <b>Slovakia</b>           | 4.7          | 0.9          | -4.6         | 3.1          | -2.5         | 5.0          | 4.6          |
| <b>Spain</b>              | 2.6          | 17.6         | 7.2          | -23.5        | 14.5         | 19.5         | 70.0         |
| <b>Sweden</b>             | 173.7        | 8.7          | -35.4        | -100.0       |              | 667.6        | -8.4         |
| <b>Switzerland</b>        | -0.5         | -0.9         | -0.8         | -0.8         | -1.0         | -0.7         | -16.9        |
| <b>United Kingdom</b>     | -2.7         | -5.0         | -1.8         | -4.5         | -4.1         | 2.1          | -21.1        |
| <b>United States</b>      | -0.1         | -1.2         | -1.8         | -3.4         | 0.4          | -2.7         | -7.3         |

Industrial processes

Figure 2.1  
Emissions and contribution of subsectors in industrial processes<sup>a</sup>



<sup>a</sup> 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), Poland (1988) and Romania (1989).



**Table 2.1**  
**Mineral products, CO<sub>2</sub> (2001)**

|                              | Methods and EF used <sup>a</sup> |                  | Cement production |                         |                                     |        |                 |                         | Lime production     |            |                         |                     |
|------------------------------|----------------------------------|------------------|-------------------|-------------------------|-------------------------------------|--------|-----------------|-------------------------|---------------------|------------|-------------------------|---------------------|
|                              | Methods                          | EF               | Key source        | Share of national total | Activity data (production)          |        |                 |                         | CO <sub>2</sub> IEF | Key source | Share of national total | CO <sub>2</sub> IEF |
|                              |                                  |                  |                   |                         | Description <sup>b</sup>            | CRF    | UN <sup>c</sup> | Difference <sup>d</sup> |                     |            |                         |                     |
|                              |                                  |                  |                   |                         |                                     | (kt)   | (%)             | (t/t)                   |                     |            |                         |                     |
| IPCC default EF <sup>e</sup> |                                  |                  |                   |                         |                                     |        |                 |                         | 0.499 (cement)      |            |                         |                     |
| IPCC default EF <sup>f</sup> |                                  |                  |                   |                         |                                     |        |                 |                         | 0.51 (clinker)      |            |                         | 0.59-0.86           |
| Austria                      | C, CS                            | CS               | L, T              | 2.7                     | Cement produced                     | 3,581  | 3,863           | 7.9                     | 0.66                |            | 0.34                    | 0.87                |
| Belgium                      |                                  |                  | L                 | 2.3                     |                                     |        | 8,000           |                         |                     | L          | 1.42                    |                     |
| Bulgaria                     | D                                | D                | L                 | 1.6                     | Clinker production                  | 1,984  | 2,088           | 5.3                     | 0.52                | L          | 1.39                    | 0.79                |
| Canada                       | T1                               | CS               | L                 | 0.9                     | Cement production data              | 12,986 | 12,986          | 0.0                     | 0.50                |            | 0.24                    | 0.79                |
| Czech Republic               | T1                               | D                | L                 | 1.2                     | (e.g. cement production)            | 3,591  | 3,591           | 0.0                     | 0.50                |            | 0.00                    |                     |
| Denmark                      | CS                               | CS               | L, T              | 2.0                     | Cement production                   | 2,529  | 2,678           | 5.9                     | 0.54                |            | 0.15                    | 0.23                |
| Estonia                      |                                  |                  | L                 | 1.7                     | (e.g. cement or clinker production) | 682    | 405             | -40.6                   | 0.50                |            | 0.08                    | 0.79                |
| European Community           | C, CS, D, T2                     | C, CS, D, PS, T2 |                   |                         |                                     |        |                 |                         | NE                  |            |                         | NE                  |
| Finland                      | D                                | PS/D             | L, T              | 0.8                     | Cement production                   | 1,325  | 1,325           | 0.0                     | 0.47                |            | 0.52                    | 0.79                |
| France                       | C                                | CS               | L, T              | 1.5                     | kt of clinker                       | 16,503 | 20,652          | 25.1                    | 0.53                |            | 0.49                    | 0.79                |
| Germany                      | CS                               | CS               | L                 | 1.4                     | (Clinker production)                | 24,523 | 33,689          | 37.4                    | 0.56                | L          | 0.59                    | 0.76                |
| Greece                       | C                                | C                | L, T              | 5.7                     | (Cement production)                 | 15,000 | 15,563          | 3.8                     | 0.50                |            | 0.21                    | 0.79                |
| Iceland                      | D                                | D                | L                 | 2.1                     | (e.g. cement or clinker production) | 128    | 125             | -2.1                    | 0.44                |            |                         |                     |
| Ireland                      | D                                | D                | L, T              | 2.4                     | Clinker production                  | 3,300  | 2,500           | -24.2                   | 0.50                |            | 0.26                    | 0.75                |
| Italy                        | D                                | D                | L                 | 2.8                     | (Clinker production)                | 30,438 | 38,965          | 28.0                    | 0.51                |            | 0.47                    | 0.79                |
| Latvia                       | T1/C                             | D                | L                 | 1                       | (e.g. cement or clinker production) | C      | 500             |                         | C                   |            |                         | NE                  |
| Luxembourg                   | C                                | C                |                   |                         |                                     |        | 725             |                         |                     |            |                         |                     |
| Netherlands                  | CS/T2 (clinker)                  | PS, CS           |                   | 0.2                     | Clinker production                  | 886    | 3,400           | 283.9                   | 0.49                |            |                         | IE                  |
| New Zealand                  | T1                               | CS               |                   | 0.7                     | Cement production                   | 1,088  | 950             | -12.7                   | 0.48                |            | 0.14                    | 0.72                |
| Norway                       | D                                | CS               | L, T              | 1.5                     |                                     |        | 1,870           |                         |                     |            | 0.07                    |                     |
| Poland                       | T1                               | CS               | L                 | 1.6                     | Production                          | 12,074 | 12,074          | 0.0                     | 0.50                |            | 0.42                    | 0.79                |
| Portugal                     | D+C                              | D+C              | L, T              | 4.5                     | Total cement production             | 6,682  | 10,079          | 50.8                    | 0.56                |            |                         |                     |
| Romania                      | D                                | D                | L                 | 1.9                     | (Cement production)                 | 5,668  | 5,668           | 0.0                     | 0.50                | L          | 0.95                    | 0.79                |
| Slovakia                     | D                                | D                | L                 | 2.5                     | Clinker production                  | 2,400  | 3,123           | 30.1                    | 0.51                | L          | 1.08                    | 0.76                |
| Spain                        | CS,C,D,T2                        | CS,C,D,T2        | L, T              | 4.0                     | Clinker production                  | 28,383 | 40,512          | 42.7                    | 0.54                |            | 0.34                    | 0.72                |
| Sweden                       | CS                               | CS               | L, T              | 1.7                     | Use of limestone                    | 3,011  | 2,644           | -12.2                   | 0.40                |            | 0.52                    | 0.77                |
| Switzerland                  | C                                | CS               | L, T              | 3.2                     | Clinker production                  | 3,275  | 3,600           | 9.9                     |                     |            | 0.07                    |                     |
| United Kingdom               | T2                               | D                | L                 | 0.8                     | Clinker production                  | 10,573 | 12,800          |                         | 0.50                |            | 0.15                    | 0.44                |
| United States                | D,CS                             | D,CS             | L, T              | 0.6                     | Clinker production                  | 79,979 | 88,900          | 11.2                    | 0.52                |            | 0.19                    | 0.68                |

<sup>a</sup> 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.

<sup>b</sup> 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.

<sup>c</sup> Cement production from the United Nations Industrial Commodity Production Statistics Database (as of 6 June 2003), United Nations, Department of Economic and Social Affairs, Statistics Division, United Nations, New York. Data are for the year 2001, except for Belgium and the United Kingdom for which data are for the year 2000.

<sup>d</sup> 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. In instances where only 2000 data from the United Nations were available, no percentage comparisons with the CRF data for 2001 are given here.

<sup>e</sup> Source of default emission factors: IPCC Guidelines, volume 3, pages 2.6.

<sup>f</sup> Source of default emission factors: IPCC good practice guidance, pages 3.13 and 3.22.

**Table 2.2****Mineral products – trend information****CO<sub>2</sub> emissions (Gg)**

|                               | 1990 <sup>a</sup> | 1995    | 1996   | 1997    | 1998    | 1999    | 2000    | 2001    |
|-------------------------------|-------------------|---------|--------|---------|---------|---------|---------|---------|
| <b>Austria</b>                | 3,975             | 3,232   | 3,229  | 3,370   | 3,110   | 3,108   | 3,060   | 3,074   |
| <b>Belgium</b>                | 4,569             | 5,620   | 5,620  | 5,254   | 5,327   | 5,298   | 5,875   | 5,875   |
| <b>Bulgaria</b>               | 4,607             | 2,320   | 2,437  | 2,037   | 1,403   | 1,878   | 2,140   | 2,243   |
| <b>Canada</b>                 | 8,161             | 7,691   | 8,034  | 8,184   | 8,683   | 9,097   | 8,704   | 8,650   |
| <b>Czech Republic</b>         | 3,380             |         | 2,479  | 2,498   | 2,661   | 2,362   | 2,251   | 2,000   |
| <b>Denmark</b>                | 1,005             | 1,311   | 1,388  | 1,539   | 1,436   | 1,402   | 1,453   | 1,464   |
| <b>Estonia</b>                | 614               | 221     | 207    | 226     | 368     | 347     | 354     | 356     |
| <b>European Community</b>     | 106,934           | 103,242 | 99,457 | 102,528 | 104,698 | 105,931 | 107,476 | 105,952 |
| <b>Finland</b>                | 1,175             | 836     | 863    | 878     | 921     | 1,002   | 1,072   | 1,042   |
| <b>France</b>                 | 14,945            | 12,285  | 12,021 | 11,724  | 12,363  | 11,978  | 12,203  | 12,231  |
| <b>Germany</b>                | 24,512            | 23,794  | 22,007 | 22,660  | 23,115  | 23,525  | 23,515  | 21,802  |
| <b>Greece<sup>b</sup></b>     | 6,984             | 7,386   | 7,579  | 7,635   | 7,565   | 7,619   | 7,625   | 7,752   |
| <b>Iceland</b>                | 50                | 36      | 40     | 45      | 52      | 59      | 63      | 57      |
| <b>Ireland</b>                | 941               | 1,068   | 1,080  | 1,190   | 1,192   | 1,279   | 1,761   | 1,833   |
| <b>Italy</b>                  | 18,223            | 17,768  | 16,302 | 16,513  | 16,722  | 17,488  | 18,061  | 18,473  |
| <b>Latvia</b>                 | 570               | 129     | 187    | 154     | 237     | 163     | 131     | 126     |
| <b>Luxembourg<sup>b</sup></b> |                   |         |        |         |         | 520     | 547     | 483     |
| <b>Netherlands</b>            | 1,124             | 1,114   | 899    | 1,084   | 1,025   | 975     | 857     | 805     |
| <b>New Zealand</b>            | 448               | 586     | 581    | 599     | 574     | 635     | 630     | 628     |
| <b>Norway</b>                 | 707               | 959     | 962    | 1,027   | 969     | 960     | 967     | 925     |
| <b>Poland</b>                 | 12,036            | 9,364   | 8,193  | 9,872   | 9,790   | 9,983   | 10,573  | 8,841   |
| <b>Portugal</b>               | 3,426             | 3,908   | 3,788  | 4,140   | 4,194   | 4,333   | 4,349   | 4,330   |
| <b>Romania</b>                | 9,223             | 4,831   | 5,460  | 5,213   | 5,205   | 4,875   | 4,799   | 4,420   |
| <b>Slovakia</b>               | 3,354             | 2,688   | 2,572  | 2,676   | 3,382   | 3,459   | 2,998   | 2,950   |
| <b>Spain</b>                  | 14,076            | 14,534  | 14,168 | 14,911  | 16,077  | 16,719  | 17,074  | 17,457  |
| <b>Sweden</b>                 | 1,765             | 1,801   | 1,709  | 1,642   | 1,645   | 1,590   | 1,592   | 1,630   |
| <b>Switzerland</b>            | 2,568             | 1,981   | 1,787  | 1,607   | 1,607   | 1,606   | 1,722   | 1,754   |
| <b>United Kingdom</b>         | 9,629             | 8,585   | 8,804  | 9,623   | 9,639   | 9,097   | 8,500   | 7,702   |
| <b>United States</b>          | 54,127            | 60,998  | 62,427 | 63,418  | 64,788  | 65,345  | 64,449  | 63,645  |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | -0.1         | 4.4          | -7.7         | 0.0          | -1.6         | 0.4          | -22.7        |
| <b>Belgium</b>            | 0.0          | -6.5         | 1.4          | -0.6         | 10.9         | 0.0          | 28.6         |
| <b>Bulgaria</b>           | 5.0          | -16.4        | -31.1        | 33.9         | 13.9         | 4.8          | -51.3        |
| <b>Canada</b>             | 4.5          | 1.9          | 6.1          | 4.8          | -4.3         | -0.6         | 6.0          |
| <b>Czech Republic</b>     |              | 0.8          | 6.5          | -11.2        | -4.7         | -11.1        | -40.8        |
| <b>Denmark</b>            | 5.9          | 10.9         | -6.7         | -2.4         | 3.7          | 0.8          | 45.6         |
| <b>Estonia</b>            | -6.5         | 9.2          | 62.7         | -5.7         | 2.2          | 0.4          | -42.1        |
| <b>European Community</b> | -3.7         | 3.1          | 2.1          | 1.2          | 1.5          | -1.4         | -0.9         |
| <b>Finland</b>            | 3.1          | 1.8          | 4.9          | 8.7          | 7.0          | -2.8         | -11.4        |
| <b>France</b>             | -2.1         | -2.5         | 5.5          | -3.1         | 1.9          | 0.2          | -18.2        |
| <b>Germany</b>            | -7.5         | 3.0          | 2.0          | 1.8          | 0.0          | -7.3         | -11.1        |
| <b>Greece</b>             | 2.6          | 0.7          | -0.9         | 0.7          | 0.1          | 1.7          | 11.0         |
| <b>Iceland</b>            | 10.7         | 11.4         | 16.9         | 13.4         | 6.7          | -10.4        | 12.0         |
| <b>Ireland</b>            | 1.2          | 10.2         | 0.2          | 7.3          | 37.7         | 4.1          | 94.7         |
| <b>Italy</b>              | -8.3         | 1.3          | 1.3          | 4.6          | 3.3          | 2.3          | 1.4          |
| <b>Latvia</b>             | 45.3         | -17.7        | 54.0         | -31.3        | -19.6        | -3.9         | -77.9        |
| <b>Luxembourg</b>         |              |              |              |              | 5.3          | -11.7        |              |
| <b>Netherlands</b>        | -19.3        | 20.5         | -5.4         | -4.9         | -12.1        | -6.1         | -28.4        |
| <b>New Zealand</b>        | -0.9         | 3.1          | -4.1         | 10.6         | -0.8         | -0.3         | 40.0         |
| <b>Norway</b>             | 0.2          | 6.8          | -5.7         | -0.9         | 0.8          | -4.4         | 30.7         |
| <b>Poland</b>             | -12.5        | 20.5         | -0.8         | 2.0          | 5.9          | -16.4        | -26.5        |
| <b>Portugal</b>           | -3.1         | 9.3          | 1.3          | 3.3          | 0.4          | -0.4         | 26.4         |
| <b>Romania</b>            | 13.0         | -4.5         | -0.2         | -6.3         | -1.6         | -7.9         | -52.1        |
| <b>Slovakia</b>           | -4.3         | 4.0          | 26.4         | 2.3          | -13.3        | -1.6         | -12.0        |
| <b>Spain</b>              | -2.5         | 5.2          | 7.8          | 4.0          | 2.1          | 2.2          | 24.0         |
| <b>Sweden</b>             | -5.1         | -3.9         | 0.2          | -3.4         | 0.1          | 2.4          | -7.6         |
| <b>Switzerland</b>        | -9.8         | -10.1        | 0.0          | -0.1         | 7.3          | 1.9          | -31.7        |
| <b>United Kingdom</b>     | 2.6          | 9.3          | 0.2          | -5.6         | -6.6         | -9.4         | -20.0        |
| <b>United States</b>      | 2.3          | 1.6          | 2.2          | 0.9          | -1.4         | -1.2         | 17.6         |

**Table 2.3**

**Cement production – trend information**

**CO<sub>2</sub> emissions (Gg)**

|                                   | 1990 <sup>a</sup> | 1995   | 1996   | 1997   | 1998   | 1999   | 2000   | 2001   |
|-----------------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|
| <b>Austria</b>                    | 3,088             | 2,498  | 2,496  | 2,643  | 2,382  | 2,381  | 2,347  | 2,347  |
| <b>Belgium</b>                    | 2,760             | 3,496  | 3,203  | 3,398  | 3,410  | 3,344  | 3,511  | 3,511  |
| <b>Bulgaria</b>                   |                   |        |        |        |        |        | 1,092  | 1,032  |
| <b>Canada</b>                     | 5,873             | 5,361  | 5,794  | 5,868  | 6,062  | 6,312  | 6,306  | 6,493  |
| <b>Czech Republic<sup>b</sup></b> | 3,207             |        |        |        | 2430   | 2,114  | 2,040  | 1,790  |
| <b>Denmark</b>                    | 883               | 1,203  | 1,282  | 1,426  | 1,333  | 1,295  | 1,348  | 1,361  |
| <b>Estonia<sup>b</sup></b>        |                   |        |        |        |        | 321    | 339    | 340    |
| <b>European Community</b>         | NE                | NE     | NE     | NE     | NE     | NE     | NE     | NE     |
| <b>Finland</b>                    | 777               | 428    | 460    | 543    | 581    | 618    | 670    | 625    |
| <b>France</b>                     | 10,948            | 8,644  | 8,444  | 8,120  | 8,695  | 8,395  | 8,570  | 8,664  |
| <b>Germany</b>                    | 16,146            | 15,780 | 14,571 | 14,969 | 15,549 | 15,673 | 15,639 | 13,855 |
| <b>Greece<sup>b</sup></b>         | 6,760             | 7,129  | 7,328  | 7,278  | 7,328  | 7,328  | 7,328  | 7,478  |
| <b>Iceland<sup>b</sup></b>        |                   |        |        |        |        | 59     | 63     | 56     |
| <b>Ireland</b>                    | 750               | 900    | 900    | 1,000  | 1,000  | 1,125  | 1,575  | 1,650  |
| <b>Italy<sup>b</sup></b>          |                   |        |        |        | 17,756 | 18,413 | 19,151 | 15,435 |
| <b>Latvia</b>                     | 371               | 102    | 162    | 123    | 183    | 151    | 120    | 124    |
| <b>Luxembourg</b>                 |                   |        |        |        |        |        |        |        |
| <b>Netherlands</b>                | 400               | 339    | 251    | 376    | 376    | 486    | 437    | 432    |
| <b>New Zealand<sup>b</sup></b>    | 367               | 503    | 503    | 503    | 479    | 528    | 520    | 524    |
| <b>Norway</b>                     | 653               |        |        |        | 882    | 876    | 889    | 838    |
| <b>Poland<sup>b</sup></b>         |                   |        |        |        |        |        | 7,523  | 6,037  |
| <b>Portugal</b>                   | 3,024             | 3,367  | 3,313  | 3,483  | 3,458  | 3,740  | 3,773  | 3,754  |
| <b>Romania<sup>b</sup></b>        |                   | 3,411  | 3,468  | 3,267  | 3,279  | 3,117  | 3,020  | 2,825  |
| <b>Slovakia</b>                   |                   |        |        |        |        |        | 1,158  | 1,217  |
| <b>Spain</b>                      | 12,534            | 12,622 | 12,367 | 13,017 | 14,096 | 14,732 | 15,034 | 15,327 |
| <b>Sweden</b>                     | 1,366             | 1,399  | 1,313  | 1,192  | 1,224  | 1,230  | 1,209  | 1,192  |
| <b>Switzerland</b>                | 2,524             |        |        |        |        |        |        | 1,720  |
| <b>United Kingdom</b>             | 6,659             | 5,737  | 5,857  | 6,126  | 6,242  | 5,962  | 5,780  | 5,334  |
| <b>United States</b>              | 33,278            | 36,847 | 37,079 | 38,323 | 39,218 | 39,991 | 41,190 | 41,357 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | -0.1         | 5.9          | -9.9         | -0.1         | -1.4         | 0.0          | -24.0        |
| <b>Belgium</b>            | -8.4         | 6.1          | 0.4          | -1.9         | 5.0          | 0.0          | 27.2         |
| <b>Bulgaria</b>           |              |              |              |              |              |              | -5.5         |
| <b>Canada</b>             | 8.1          | 1.3          | 3.3          | 4.1          | -0.1         | 3.0          | 10.6         |
| <b>Czech Republic</b>     |              |              |              |              | -3.5         | -12.3        | -44.2        |
| <b>Denmark</b>            | 6.6          | 11.2         | -6.5         | -2.9         | 4.1          | 0.9          | 54.1         |
| <b>Estonia</b>            |              |              |              |              | 5.3          | 0.4          |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | 7.5          | 18.1         | 7.0          | 6.3          | 8.6          | -6.8         | -19.7        |
| <b>France</b>             | -2.3         | -3.8         | 7.1          | -3.5         | 2.1          | 1.1          | -20.9        |
| <b>Germany</b>            | -7.7         | 2.7          | 3.9          | 0.8          | -0.2         | -11.4        | -14.2        |
| <b>Greece</b>             | 2.8          | -0.7         |              |              | 0.0          | 2.0          | 10.6         |
| <b>Iceland</b>            |              |              |              |              | 7.3          | -11.0        |              |
| <b>Ireland</b>            | 0.0          | 11.1         | 0.0          | 12.5         | 40.0         | 4.8          | 120.0        |
| <b>Italy</b>              |              |              |              | 3.7          | 4.0          | -19.4        |              |
| <b>Latvia</b>             | 59.3         | -24.3        | 48.9         | -17.4        | -20.7        | 3.5          | -66.6        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | -26.0        | 49.8         | 0.0          | 29.2         | -10.1        | -1.1         | 8.0          |
| <b>New Zealand</b>        | -0.1         | 0.1          | -4.9         | 10.3         | -1.5         | 0.8          | 42.9         |
| <b>Norway</b>             |              |              |              | -0.7         | 1.5          | -5.8         | 28.3         |
| <b>Poland</b>             |              |              |              |              |              | -19.8        |              |
| <b>Portugal</b>           | -1.6         | 5.1          | -0.7         | 8.1          | 0.9          | -0.5         | 24.1         |
| <b>Romania</b>            | 1.7          | -5.8         | 0.4          | -4.9         | -3.1         | -6.4         |              |
| <b>Slovakia</b>           |              |              |              |              |              | 5.1          |              |
| <b>Spain</b>              | -2.0         | 5.3          | 8.3          | 4.5          | 2.1          | 1.9          | 22.3         |
| <b>Sweden</b>             | -6.1         | -9.2         | 2.7          | 0.5          | -1.7         | -1.5         | -12.8        |
| <b>Switzerland</b>        |              |              |              |              |              |              | -31.9        |
| <b>United Kingdom</b>     | 2.1          | 4.6          | 1.9          | -4.5         | -3.0         | -7.7         | -19.9        |
| <b>United States</b>      | 0.6          | 3.4          | 2.3          | 2.0          | 3.0          | 0.4          | 24.3         |

**Table 2.3****Cement production – trend information (continued)****CO<sub>2</sub> implied emission factors (t/t)**

|                             | 1990 <sup>a</sup> | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|-----------------------------|-------------------|------|------|------|------|------|------|------|
| Austria                     | 0.66              | 0.65 | 0.66 | 0.68 | 0.65 | 0.65 | 0.66 | 0.66 |
| Belgium                     |                   |      |      |      |      |      |      |      |
| Bulgaria                    |                   |      |      |      |      |      | 0.52 | 0.52 |
| Canada                      |                   |      |      |      |      |      |      |      |
| Czech Republic <sup>b</sup> | 0.50              |      |      |      | 0.50 | 0.50 | 0.50 | 0.50 |
| Denmark                     | 0.55              | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.54 | 0.54 |
| Estonia <sup>b</sup>        |                   |      |      |      |      | 0.50 | 0.50 | 0.50 |
| European Community          |                   |      |      |      |      |      | NE   | NE   |
| Finland                     | 0.47              | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 |
| France                      | 0.52              | 0.53 | 0.52 | 0.52 | 0.52 | 0.52 | 0.53 | 0.53 |
| Germany                     | 0.56              | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 |
| Greece <sup>b</sup>         | 0.50              | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 |
| Iceland <sup>b</sup>        |                   |      |      |      |      | 0.44 | 0.44 | 0.44 |
| Ireland                     | 0.50              | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 |
| Italy <sup>b</sup>          |                   |      |      |      | 0.50 | 0.50 | 0.50 | 0.51 |
| Latvia                      | 0.50              | 0.50 | 0.50 | 0.50 | 0.50 |      |      | C    |
| Luxembourg                  |                   |      |      |      |      |      |      |      |
| Netherlands                 | 0.43              | 0.43 | 0.43 | 0.54 | 0.47 | 0.51 | 0.49 | 0.49 |
| New Zealand <sup>b</sup>    | 0.51              | 0.51 | 0.51 | 0.49 | 0.50 | 0.49 | 0.49 | 0.48 |
| Norway                      |                   |      |      |      |      |      |      |      |
| Poland <sup>b</sup>         |                   |      |      |      |      |      | 0.50 | 0.50 |
| Portugal                    | 0.42              | 0.42 | 0.39 | 0.37 | 0.38 | 0.40 | 0.39 | 0.56 |
| Romania <sup>b</sup>        |                   | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 |
| Slovakia                    |                   |      |      |      |      |      | 0.51 | 0.51 |
| Spain                       | 0.54              | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 |
| Sweden                      | 0.40              | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 |
| Switzerland                 | 0.53              |      |      |      |      |      |      | 0.53 |
| United Kingdom              | 0.50              | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 |
| United States               | 0.52              | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            | 1.5          | 2.4          | -3.9         | 0.2          | 0.7          | 0.0          | -0.7         |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              |              |              | 0.0          |              |
| Canada             |              |              |              |              |              |              |              |
| Czech Republic     |              |              |              | 0.0          | 0.0          | 0.0          | 0.0          |
| Denmark            | 0.2          | 0.0          | -0.5         | 1.1          | 0.9          | 0.0          | -1.3         |
| Estonia            |              |              |              |              | 0.0          | 0.0          |              |
| European Community |              |              |              |              |              |              |              |
| Finland            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| France             | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Germany            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Greece             | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Iceland            |              |              |              |              | 0.6          | -0.6         |              |
| Ireland            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Italy              |              |              |              | 0.0          | 0.0          | 1.4          |              |
| Latvia             | 0.0          | 0.0          | 0.1          |              |              |              |              |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        | 0.0          | 26.1         | -13.0        | 8.0          | -3.9         | 0.0          | 14.5         |
| New Zealand        | 0.0          | -3.3         | 1.6          | -2.2         | -0.3         | -1.4         | -5.6         |
| Norway             |              |              |              |              |              |              |              |
| Poland             |              |              |              |              |              | 0.0          |              |
| Portugal           | -5.9         | -5.3         | 1.7          | 5.4          | -1.6         | 42.6         | 33.5         |
| Romania            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |              |
| Slovakia           |              |              |              |              |              | 0.0          |              |
| Spain              | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Sweden             | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Switzerland        |              |              |              |              |              |              | 0.0          |
| United Kingdom     | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| United States      | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |

**Table 2.4**  
**Chemical industry, CO<sub>2</sub> and N<sub>2</sub>O (2001)**

|                              | Methods and EF used <sup>a</sup> |              | CO <sub>2</sub>          |                             |                            |                         |                   |                              |                           | Methods and EF used <sup>a</sup> |              | N <sub>2</sub> 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 <sub>2</sub> IEF (t/t) | Methods                          | EF           | Key source       | Share of national total (%)  | Activity data (production) |                         |                   |                | N <sub>2</sub> O IEF (t/t) | Key source | Share of national total (%) | N <sub>2</sub> O IEF (t/t) |      |
|                              |                                  |              |                          |                             | CRF (2001) <sup>b</sup>    | CRF (2000) <sup>b</sup> | UN <sup>b,c</sup> | Difference (%)               |                           |                                  |              |                  |                              | CRF (2001) <sup>b</sup>    | CRF (2000) <sup>b</sup> | UN <sup>b,c</sup> | Difference (%) |                            |            |                             |                            |      |
|                              |                                  |              |                          |                             |                            |                         |                   |                              |                           |                                  |              |                  |                              |                            |                         |                   |                |                            |            |                             |                            | (kt) |
| IPCC default EF <sup>d</sup> |                                  |              |                          |                             |                            |                         |                   |                              | 1.5 - 1.6                 |                                  |              |                  |                              |                            |                         |                   |                | 0.002 - 0.019              |            |                             |                            | 0.3  |
| Austria                      | C                                | PS           | L                        | 0.5                         | 448                        | 482                     |                   |                              | 0.99                      | C                                | PS           | L, T             | 0.9                          | 511                        | 534                     |                   |                | 0.005                      |            |                             |                            |      |
| Belgium                      |                                  |              | L                        | 1.0                         |                            |                         | 788               |                              |                           |                                  |              | L                | 2.7                          |                            |                         |                   |                |                            |            |                             |                            |      |
| Bulgaria                     | T1b                              | D            |                          | 0.8                         | 580                        | 647                     | 585               | 0.9                          | 0.86                      | D                                | D            | L                | 2.0                          | 696                        | 707                     | 707               | 0              | 0.006                      |            |                             |                            | NO   |
| Canada                       | T1                               | CS           | L                        | 0.8                         | 4,297                      | 4,888                   | 4,297             | 0.0                          | 1.38                      | T2-T3                            | CS           |                  | 0.1                          | 1,054                      | 1,074                   | 1,054             | 0              | 0.002                      | T          | 0.1                         |                            | C    |
| Czech Republic               | IE                               |              |                          |                             | 251                        | 307                     | 213               | -15.1                        |                           | T2                               | PS           | L                | 0.7                          | 505                        | 505                     | 114               | -77.4          | 0.007                      |            |                             |                            |      |
| Denmark                      |                                  |              |                          |                             | 0                          | 0                       | 0                 |                              |                           |                                  |              |                  |                              | 382                        | 433                     |                   |                |                            |            |                             |                            |      |
| Estonia                      |                                  |              |                          |                             |                            |                         | 108               |                              |                           |                                  |              |                  | 0.0                          | 0                          | 0                       |                   |                |                            |            | 0.0                         |                            |      |
| European Community           | C, CS, D, MB, T1, T1a            | C, CS, D, PS |                          |                             |                            |                         |                   |                              | NE                        | C, CS, D, PS, T2                 | C, CS, D, PS |                  |                              |                            |                         |                   | NE             |                            |            |                             | NE                         |      |
| Finland                      | NO                               | NO           |                          |                             | NO                         | NO                      | 80,000            |                              |                           | D                                | PS           | L, T             | 1.6                          | 430                        | 451                     |                   | 0.009          |                            |            |                             |                            |      |
| France                       | C                                | CS           | T                        | 0.5                         | 1,680                      | 1,862                   | 1,370             | -18.5                        | 1.56                      | C                                | CS/ PS       | T                | 0.9                          | 2,671                      | 3,065                   |                   | 0.006          | T                          | 0.9        |                             |                            |      |
| Germany                      | CS                               | CS           |                          | 0                           | 2,603                      | 2,634                   | 1,082             | -58.4                        | 0.69                      | CS                               | CS           |                  | 0.4                          | 2,139                      | 2,436                   |                   | 0.005          | T                          | 0.3        | 0.04                        |                            |      |
| Greece                       | C                                | C            |                          |                             |                            | NA                      | 57                |                              |                           | C                                | C            | T                | 0.4                          | 0                          | 406                     |                   | 4.507          |                            |            |                             |                            | NO   |
| Iceland                      | D                                | D            |                          |                             |                            |                         | 7                 |                              |                           | CS                               | CS           |                  |                              |                            |                         |                   |                |                            |            |                             |                            |      |
| Ireland                      | D,T1a                            | D            | L, T                     | 1.5                         | 451                        | 384                     | 443               | -1.8                         | 2.30                      | D                                | CS           | T                | 0.8                          | 260                        | 260                     |                   | 0.007          |                            |            | 0.0                         |                            |      |
| Italy                        | D                                | D, C, CS     |                          | 0.1                         | 430                        | 508                     | 434               | 0.9                          | 1.50                      | D                                | D, CS        |                  | 0.2                          | 527                        | 556                     |                   | 0.007          | L                          | 1.4        | 0.33                        |                            |      |
| Latvia                       | NO                               | NO           |                          |                             | NO                         | NO                      |                   |                              | NO                        | NO                               | NO           |                  |                              | NO                         | NO                      |                   | NO             |                            |            |                             |                            | NO   |
| Luxembourg                   | C                                | C            |                          |                             |                            |                         |                   |                              |                           | C                                | C            |                  |                              |                            |                         |                   |                |                            |            |                             |                            |      |
| Netherlands                  | CS/IE                            | PS, CS       |                          |                             | C                          | C                       | 1,940             |                              | IE                        | CS/T2                            | PS           | L, T             | 2.4                          | C                          | C                       |                   | C              |                            |            |                             | NO                         |      |
| New Zealand                  | T1                               | CS           |                          |                             | 163                        | 163                     | 117               | -28.3                        | NO                        |                                  |              |                  |                              | NA                         | NA                      |                   | NA             |                            |            |                             | NA                         |      |
| Norway                       | D                                | CS,D         | L, T                     | 0.7                         |                            |                         | 323               |                              |                           | CS3                              | PS           | L, T             | 3.0                          |                            |                         |                   |                |                            |            |                             |                            |      |
| Poland                       | T1/CS                            | CS           |                          | 0.3                         | 1,169                      | 1,208                   | 1,169             | 0                            | 1.00                      | CS                               | CS           | L                | 1.1                          | 2,060                      | 2,007                   | 2,060             | 0.0            | 0.006                      |            |                             |                            | NO   |
| Portugal <sup>e</sup>        | MB+D+C                           | D+C          | T                        | 0.5                         | 138                        | 138                     | 202               | 46.4                         | 2.87                      | D+C                              | D+C          | L, T             | 0.7                          | 244                        | 244                     |                   | 0.008          |                            | 0.0        |                             |                            |      |
| Romania                      | T1b                              | T1b          | L                        | 1.2                         | 1,155                      | 1,255                   | 1,155             | 0                            | 1.60                      | D                                | D            |                  | 0.4                          | 215                        | 344                     |                   | 0.008          |                            |            |                             |                            |      |
| Slovakia                     |                                  |              |                          |                             | IE                         | IE                      | 354               |                              | IE                        | D                                | CS           |                  | 0.4                          | 464                        | 407                     |                   | 0.001          |                            |            |                             |                            | NO   |
| Spain                        | C,D                              | C,D          |                          | 0.1                         | 539                        | 545                     | 436               | -19.1                        | 0.92                      | C                                | CS,C         | L, T             | 0.5                          | 942                        | 1,063                   |                   | 0.007          |                            |            |                             |                            |      |
| Sweden                       | CS                               | CS           |                          |                             | NE                         | NE                      | 4                 |                              |                           | C                                | CS           | L, T             | 0.7                          | 282                        | 425                     | 57                | -79.8          |                            |            |                             |                            | NO   |
| Switzerland                  | C                                | CS           |                          |                             |                            |                         |                   |                              |                           | C                                | CS           |                  | 0.2                          | 65                         | 65                      |                   |                |                            |            |                             |                            |      |
| United Kingdom               | T1                               | CS           |                          | 0.2                         | 35                         | 45                      | 850               | 2309.5                       | 38.92                     | PS                               | CS           | L                | 0.5                          | 1,651                      | 2,029                   |                   | 0.007          | T                          | 0.3        | 0.04                        |                            |      |
| United States                | D                                | D            | T                        | 0.2                         | 11,374                     | 14,342                  | 9,730             | -14.5                        | 1.46                      | D                                | CS,PS        |                  | 0.3                          | 7,097                      | 7,692                   | 7,074             | -0.3           | 0.008                      | T          | 0.1                         | 0.02                       |      |

<sup>a</sup> 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.

<sup>b</sup> As United Nations data for the year 2001 were not available for all Parties 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 2001 and 2000 from the CRF are provided together with the respective United Nations data for 2001 or 2000.

<sup>c</sup> Source of data: Industrial Commodity Production Statistics Database (as of 6 June 2003), Department of Economic and Social Affairs, Statistics Division, United Nations, New York. Data are for 2001, except for ammonia data are for 2000 for Iceland, and for nitric acid data are for 2000 for Bulgaria.

<sup>d</sup> 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

<sup>e</sup> Mass balance is indicated by MB.

**Table 2.5****Chemical industry – trend information****CO<sub>2</sub> emissions (Gg)**

|                            | 1990 <sup>a</sup> | 1995   | 1996   | 1997   | 1998   | 1999   | 2000   | 2001   |
|----------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|
| <b>Austria</b>             | 424               | 489    | 484    | 475    | 521    | 492    | 484    | 462    |
| <b>Belgium</b>             | 778               | 1,575  | 1,504  | 1,525  | 1,477  | 1,536  | 1,498  | 1,562  |
| <b>Bulgaria</b>            | 1,246             | 1,072  | 1,063  | 878    | 474    | 338    | 570    | 507    |
| <b>Canada</b>              | 5,008             | 6,482  | 6,524  | 6,675  | 6,610  | 6,847  | 6,845  | 5,923  |
| <b>Czech Republic</b>      |                   |        |        |        |        |        |        |        |
| <b>Denmark</b>             | 0                 | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| <b>Estonia<sup>b</sup></b> |                   |        |        |        |        | 218    |        |        |
| <b>European Community</b>  | 12,884            | 11,490 | 11,079 | 10,742 | 10,877 | 10,329 | 10,781 | 10,769 |
| <b>Finland</b>             | NE                | NE     | NE     | NE     | NE     | NE     | NE     | NE     |
| <b>France</b>              | 3,029             | 2,846  | 2,988  | 2,908  | 2,868  | 2,749  | 2,933  | 2,649  |
| <b>Germany</b>             | 2,190             | 1,815  | 1,791  | 1,778  | 1,785  | 1,721  | 1,835  | 1,811  |
| <b>Greece<sup>b</sup></b>  | 470               | 120    | 165    | 151    | 181    |        |        |        |
| <b>Iceland</b>             | 0                 | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| <b>Ireland</b>             | 989               | 973    | 922    | 1,074  | 1,058  | 943    | 883    | 1,037  |
| <b>Italy</b>               | 2,237             | 938    | 639    | 719    | 666    | 588    | 673    | 694    |
| <b>Latvia</b>              | NO                | NO     | NO     | NO     | NO     | NO     | NO     | NO     |
| <b>Luxembourg</b>          |                   |        |        |        |        |        |        |        |
| <b>Netherlands</b>         | 0                 | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| <b>New Zealand</b>         | 152               | 145    | 167    | 174    | 190    | 191    | 179    | 183    |
| <b>Norway</b>              | 1,029             | 1,156  | 1,091  | 1,007  | 791    | 513    | 733    | 717    |
| <b>Poland</b>              | 29                | 199    | 163    | 136    | 79     | 61     | 1,263  | 1,214  |
| <b>Portugal</b>            | 633               | 640    | 477    | 473    | 499    | 497    | 499    | 507    |
| <b>Romania</b>             |                   | 2,963  | 3,026  | 1,591  | 804    | 1,375  | 2,050  | 1,888  |
| <b>Slovakia</b>            |                   |        |        |        |        |        |        |        |
| <b>Spain</b>               | 673               | 628    | 640    | 660    | 629    | 607    | 603    | 603    |
| <b>Sweden</b>              | 104               | 87     | 89     | 88     | 82     | 81     | 72     | 71     |
| <b>Switzerland</b>         | 13                | 13     | 13     | 13     | 13     | 13     | 13     | 13     |
| <b>United Kingdom</b>      | 1,358             | 1,379  | 1,379  | 888    | 1,111  | 1,113  | 1,301  | 1,373  |
| <b>United States</b>       | 21,510            | 23,211 | 23,077 | 23,648 | 24,939 | 23,677 | 22,738 | 19,703 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | -0.9         | -1.9         | 9.6          | -5.4         | -1.7         | -4.5         | 9.1          |
| <b>Belgium</b>            | -4.5         | 1.4          | -3.2         | 4.0          | -2.5         | 4.2          | 100.7        |
| <b>Bulgaria</b>           | -0.8         | -17.4        | -46.0        | -28.7        | 68.4         | -11.1        | -59.3        |
| <b>Canada</b>             | 0.6          | 2.3          | -1.0         | 3.6          | 0.0          | -13.5        | 18.3         |
| <b>Czech Republic</b>     |              |              |              |              |              |              |              |
| <b>Denmark</b>            |              |              |              |              |              |              |              |
| <b>Estonia</b>            |              |              |              |              |              |              |              |
| <b>European Community</b> | -3.6         | -3.0         | 1.3          | -5.0         | 4.4          | -0.1         | -16.4        |
| <b>Finland</b>            |              |              |              |              |              |              |              |
| <b>France</b>             | 5.0          | -2.7         | -1.4         | -4.1         | 6.7          | -9.7         | -12.5        |
| <b>Germany</b>            | -1.3         | -0.7         | 0.4          | -3.6         | 6.6          | -1.3         | -17.3        |
| <b>Greece</b>             | 38.1         | -8.8         | 20.3         |              |              |              |              |
| <b>Iceland</b>            |              |              |              |              |              |              |              |
| <b>Ireland</b>            | -5.2         | 16.5         | -1.5         | -10.9        | -6.3         | 17.4         | 4.9          |
| <b>Italy</b>              | -31.9        | 12.6         | -7.4         | -11.7        | 14.3         | 3.2          | -69.0        |
| <b>Latvia</b>             |              |              |              |              |              |              |              |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        |              |              |              |              |              |              |              |
| <b>New Zealand</b>        | 14.5         | 4.4          | 9.3          | 0.7          | -6.2         | 1.9          | 20.1         |
| <b>Norway</b>             | -5.6         | -7.7         | -21.4        | -35.2        | 43.0         | -2.2         | -30.3        |
| <b>Poland</b>             | -18.1        | -16.6        | -41.9        | -22.8        | 1,971.1      | -3.9         | 4,085.9      |
| <b>Portugal</b>           | -25.5        | -0.8         | 5.5          | -0.5         | 0.5          | 1.5          | -20.0        |
| <b>Romania</b>            | 2.1          | -47.4        | -49.4        | 71.0         | 49.0         | -7.9         |              |
| <b>Slovakia</b>           |              |              |              |              |              |              |              |
| <b>Spain</b>              | 1.8          | 3.2          | -4.8         | -3.4         | -0.7         | 0.1          | -10.4        |
| <b>Sweden</b>             | 2.0          | -0.9         | -7.5         | -0.7         | -11.0        | -2.1         | -32.1        |
| <b>Switzerland</b>        | 0.0          | 0.0          | -2.1         | 0.0          | 0.0          | 0.0          | -2.1         |
| <b>United Kingdom</b>     | 0.0          | -35.6        | 25.0         | 0.2          | 16.9         | 5.6          | 1.1          |
| <b>United States</b>      | -0.6         | 2.5          | 5.5          | -5.1         | -4.0         | -13.3        | -8.4         |

**Table 2.5****Chemical industry – trend information (continued)****N<sub>2</sub>O emissions (Gg)**

|                           | 1990 <sup>a</sup> | 1995  | 1996  | 1997  | 1998  | 1999  | 2000  | 2001  |
|---------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|
| <b>Austria</b>            | 2.9               | 2.8   | 2.8   | 2.8   | 2.9   | 3.0   | 3.1   | 2.5   |
| <b>Belgium</b>            | 11.5              | 13.8  | 15.1  | 14.5  | 15.1  | 14.4  | 13.6  | 13.0  |
| <b>Bulgaria</b>           | 7.8               | 6.2   | 6.3   | 5.2   | 3.1   | 2.4   | 4.2   | 4.2   |
| <b>Canada</b>             | 37.1              | 37.1  | 39.6  | 34.4  | 18.8  | 8.2   | 5.5   | 5.2   |
| <b>Czech Republic</b>     | 3.9               |       | 3.3   | 3.6   | 3.9   | 3.2   | 3.6   | 3.6   |
| <b>Denmark</b>            | 0.0               | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| <b>Estonia</b>            |                   |       |       |       |       |       |       |       |
| <b>European Community</b> | 342.2             | 314.5 | 324.8 | 311.2 | 236.3 | 162.7 | 160.6 | 158.6 |
| <b>Finland</b>            | 5.1               | 4.5   | 4.5   | 4.5   | 4.3   | 4.3   | 4.3   | 4.1   |
| <b>France</b>             | 78.5              | 84.1  | 84.5  | 83.6  | 59.8  | 41.3  | 36.6  | 36.6  |
| <b>Germany</b>            | 82.4              | 82.3  | 87.1  | 74.1  | 29.9  | 16.6  | 16.4  | 21.4  |
| <b>Greece<sup>b</sup></b> | 2.3               | 1.8   | 2.1   | 1.8   | 1.8   | 1.8   | 1.8   | 1.8   |
| <b>Iceland</b>            | 0.2               | 0.1   | 0.2   | 0.1   | 0.1   | 0.1   | 0.1   | 0.1   |
| <b>Ireland</b>            | 3.3               | 2.6   | 2.6   | 2.6   | 2.6   | 2.6   | 2.6   | 1.9   |
| <b>Italy</b>              | 23.4              | 25.2  | 24.3  | 24.5  | 24.9  | 25.7  | 27.5  | 28.6  |
| <b>Latvia</b>             | NO                | NO    | NO    | NO    | NO    | NO    | NO    | NO    |
| <b>Luxembourg</b>         |                   |       |       |       |       |       |       |       |
| <b>Netherlands</b>        | 24.4              | 24.2  | 24.2  | 24.2  | 24.1  | 23.2  | 23.0  | 21.2  |
| <b>New Zealand</b>        |                   |       |       |       |       |       |       |       |
| <b>Norway</b>             | 6.7               | 5.3   | 5.2   | 4.8   | 5.4   | 6.1   | 5.6   | 5.5   |
| <b>Poland</b>             | 20.1              | 15.8  | 16.2  | 15.7  | 12.9  | 12.1  | 14.0  | 14.4  |
| <b>Portugal</b>           | 1.9               | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   |
| <b>Romania</b>            | 24.4              | 5.9   | 5.5   | 4.6   | 1.0   | 1.6   | 2.7   | 1.7   |
| <b>Slovakia</b>           | 1.9               | 2.3   | 0.5   | 0.5   | 0.5   | 0.5   | 0.5   | 0.7   |
| <b>Spain</b>              | 9.3               | 7.7   | 7.9   | 7.5   | 7.0   | 7.6   | 7.4   | 6.6   |
| <b>Sweden</b>             | 2.7               | 2.3   | 2.2   | 2.2   | 2.5   | 2.2   | 2.1   | 1.6   |
| <b>Switzerland</b>        | 0.3               | 0.3   | 0.3   | 0.3   | 0.3   | 0.3   | 0.3   | 0.3   |
| <b>United Kingdom</b>     | 94.4              | 61.3  | 65.5  | 67.0  | 59.4  | 18.1  | 20.2  | 17.4  |
| <b>United States</b>      | 106.6             | 119.7 | 121.8 | 101.7 | 86.7  | 82.6  | 81.0  | 72.6  |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 2.0          | -1.4         | 4.0          | 3.0          | 3.3          | -17.4        | -13.3        |
| <b>Belgium</b>            | 9.5          | -3.7         | 4.2          | -4.7         | -5.6         | -4.3         | 13.2         |
| <b>Bulgaria</b>           | 2.1          | -17.7        | -40.0        | -24.4        | 79.5         | -1.5         | -46.5        |
| <b>Canada</b>             | 6.6          | -13.0        | -45.3        | -56.6        | -33.0        | -6.0         | -86.1        |
| <b>Czech Republic</b>     |              | 8.3          | 7.1          | -16.5        | 12.6         | -1.1         | -8.1         |
| <b>Denmark</b>            |              |              |              |              |              |              |              |
| <b>Estonia</b>            |              |              |              |              |              |              |              |
| <b>European Community</b> | 3.3          | -4.2         | -24.1        | -31.1        | -1.3         | -1.2         | -53.7        |
| <b>Finland</b>            | 0.0          | 0.6          | -5.8         | 0.3          | -0.3         | -4.7         | -21.0        |
| <b>France</b>             | 0.5          | -1.1         | -28.4        | -31.0        | -11.3        | -0.2         | -53.4        |
| <b>Germany</b>            | 5.9          | -14.9        | -59.7        | -44.6        | -1.0         | 30.5         | -74.0        |
| <b>Greece</b>             | 14.2         | -12.0        | -0.2         | 0.2          | 0.0          | 0.0          | -20.4        |
| <b>Iceland</b>            | 16.9         | -16.6        | -12.8        | 1.0          | -48.5        | -13.3        | -66.6        |
| <b>Ireland</b>            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | -28.1        | -43.6        |
| <b>Italy</b>              | -3.4         | 0.7          | 1.8          | 3.1          | 7.2          | 4.0          | 22.4         |
| <b>Latvia</b>             |              |              |              |              |              |              |              |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | 0.1          | -0.2         | -0.2         | -3.8         | -1.0         | -7.8         | -13.1        |
| <b>New Zealand</b>        |              |              |              |              |              |              |              |
| <b>Norway</b>             | -1.1         | -8.6         | 14.0         | 11.2         | -7.7         | -2.3         | -17.8        |
| <b>Poland</b>             | 2.6          | -3.1         | -17.8        | -6.5         | 16.2         | 2.4          | -28.5        |
| <b>Portugal</b>           | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.6          |
| <b>Romania</b>            | -6.8         | -16.4        | -77.8        | 52.8         | 71.9         | -37.5        | -93.1        |
| <b>Slovakia</b>           | -77.8        | 3.7          | -6.4         | 4.8          | -7.5         | 38.9         | -64.1        |
| <b>Spain</b>              | 2.4          | -5.4         | -6.1         | 8.3          | -1.7         | -11.4        | -29.1        |
| <b>Sweden</b>             | -3.9         | -1.2         | 12.3         | -11.3        | -4.9         | -23.9        | -40.3        |
| <b>Switzerland</b>        | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| <b>United Kingdom</b>     | 6.8          | 2.3          | -11.3        | -69.5        | 11.3         | -13.9        | -81.6        |
| <b>United States</b>      | 1.8          | -16.5        | -14.8        | -4.7         | -1.9         | -10.3        | -31.8        |

**Table 2.6****Chemical industry: ammonia production – trend information (continued)****CO<sub>2</sub> implied emission factors (t/t)**

|                          | 1990 <sup>a</sup> | 1995  | 1996  | 1997  | 1998  | 1999  | 2000  | 2001  |
|--------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|
| Austria                  | 0.86              | 0.99  | 0.96  | 0.95  | 1.03  | 0.96  | 0.96  | 0.99  |
| Belgium                  |                   |       |       |       |       |       |       |       |
| Bulgaria <sup>b</sup>    |                   |       |       |       | 0.86  | 0.86  | 0.86  | 0.86  |
| Canada                   |                   |       |       |       |       |       |       |       |
| Czech Republic           |                   |       |       |       |       |       |       |       |
| Denmark                  |                   |       |       |       |       |       |       |       |
| Estonia <sup>b</sup>     |                   |       |       |       |       | 1.50  |       |       |
| European Community       |                   |       |       |       |       |       | NE    | NE    |
| Finland                  |                   |       |       |       |       |       |       |       |
| France                   | 1.56              | 1.56  | 1.56  | 1.56  | 1.56  | 1.56  | 1.56  | 1.56  |
| Germany                  | 0.69              | 0.69  | 0.69  | 0.69  | 0.69  | 0.69  | 0.69  | 0.69  |
| Greece <sup>b</sup>      | 1.50              |       |       |       |       |       |       |       |
| Iceland                  |                   |       |       |       |       |       |       |       |
| Ireland                  | 2.30              | 2.30  | 2.30  | 2.30  | 2.30  | 2.30  | 2.30  | 2.30  |
| Italy <sup>b</sup>       |                   |       |       |       | 1.00  | 1.00  | 1.50  | 1.50  |
| Latvia                   |                   |       |       |       |       |       | NO    | NO    |
| Luxembourg               |                   |       |       |       |       |       |       |       |
| Netherlands              | NO                | IE    | IE    | IE    | IE    | IE    | IE    | IE    |
| New Zealand <sup>b</sup> | NE                | 0.00  | 0.00  | NA    | 0.00  | 0.00  | NO    | NO    |
| Norway                   |                   |       |       |       |       |       |       |       |
| Poland <sup>b</sup>      |                   |       |       |       |       |       | 1.00  | 1.00  |
| Portugal                 | 3.08              | 3.00  | 2.87  | 2.87  | 2.87  | 2.87  | 2.87  | 2.87  |
| Romania <sup>b</sup>     |                   | 1.60  | 1.60  | 1.60  | 1.60  | 1.60  | 1.60  | 1.60  |
| Slovakia                 |                   |       |       |       |       |       |       |       |
| Spain                    | 0.91              | 0.91  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Sweden                   |                   |       |       |       |       |       |       | NE    |
| Switzerland              |                   |       |       |       |       |       |       |       |
| United Kingdom           | 31.75             | 31.46 | 31.46 | 25.12 | 28.62 | 26.54 | 29.15 | 38.92 |
| United States            | 1.25              | 1.30  | 1.25  | 1.27  | 1.31  | 1.31  | 1.37  | 1.46  |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            | -3.1         | -0.7         | 8.6          | -7.0         | -0.3         | 2.7          | 14.8         |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              | 0.0          | 0.0          | 0.0          |              |
| Canada             |              |              |              |              |              |              |              |
| Czech Republic     |              |              |              |              |              |              |              |
| Denmark            |              |              |              |              |              |              |              |
| Estonia            |              |              |              |              |              |              |              |
| European Community |              |              |              |              |              |              |              |
| Finland            |              |              |              |              |              |              |              |
| France             | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Germany            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Greece             |              |              |              |              |              |              |              |
| Iceland            |              |              |              |              |              |              |              |
| Ireland            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Italy              |              |              |              | 0.0          | 50.0         | 0.0          |              |
| Latvia             |              |              |              |              |              |              |              |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        |              |              |              |              |              |              |              |
| New Zealand        |              |              |              |              |              |              |              |
| Norway             |              |              |              |              |              |              |              |
| Poland             |              |              |              |              |              | 0.0          |              |
| Portugal           | -4.2         | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | -6.6         |
| Romania            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |              |
| Slovakia           |              |              |              |              |              |              |              |
| Spain              | 0.4          | -0.2         | 0.1          | -0.2         | 0.0          | 0.0          | 0.2          |
| Sweden             |              |              |              |              |              |              |              |
| Switzerland        |              |              |              |              |              |              |              |
| United Kingdom     | 0.0          | -20.2        | 14.0         | -7.3         | 9.8          | 33.5         | 22.6         |
| United States      | -3.7         | 2.0          | 2.9          | 0.2          | 4.2          | 6.8          | 16.5         |



**Table 2.6****Chemical industry: ammonia production – trend information****CO<sub>2</sub> emissions (Gg)**

|                                   | 1990 <sup>a</sup> | 1995   | 1996   | 1997   | 1998   | 1999   | 2000   | 2001   |
|-----------------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|
| <b>Austria</b>                    | 396               | 468    | 465    | 457    | 501    | 472    | 463    | 442    |
| <b>Belgium</b>                    | 778               | 1,571  | 1,501  | 1,505  | 1,452  | 1,504  | 1,443  | 1,510  |
| <b>Bulgaria<sup>b</sup></b>       |                   |        |        |        | 454    | 326    | 558    | 500    |
| <b>Canada</b>                     | 5,008             | 6,482  | 6,524  | 6,675  | 6,610  | 6,847  | 6,845  | 5,923  |
| <b>Czech Republic<sup>b</sup></b> |                   |        |        |        |        |        | IE     | IE     |
| <b>Denmark</b>                    |                   |        |        |        |        |        |        |        |
| <b>Estonia<sup>b</sup></b>        |                   |        |        |        |        | 218    |        |        |
| <b>European Community</b>         | NE                | NE     | NE     | NE     | NE     | NE     | NE     | NE     |
| <b>Finland</b>                    | NO                | NO     | NO     | NO     | NO     | NO     | NO     | NO     |
| <b>France</b>                     | 3,007             | 2,826  | 2,966  | 2,889  | 2,844  | 2,723  | 2,905  | 2,622  |
| <b>Germany</b>                    | 1,747             | 1,789  | 1,770  | 1,757  | 1,765  | 1,704  | 1,817  | 1,796  |
| <b>Greece<sup>b</sup></b>         | 470               | 120    | 165    | 151    | 181    | NO     | NO     |        |
| <b>Iceland</b>                    |                   |        |        |        |        |        |        |        |
| <b>Ireland</b>                    | 989               | 973    | 922    | 1,074  | 1,058  | 943    | 883    | 1,037  |
| <b>Italy<sup>b</sup></b>          |                   |        |        |        | 497    | 451    | 762    | 645    |
| <b>Latvia</b>                     | NO                | NO     | NO     | NO     | NO     | NO     | NO     | NO     |
| <b>Luxembourg</b>                 |                   |        |        |        |        |        |        |        |
| <b>Netherlands</b>                | IE                | IE     | IE     | IE     | IE     | IE     | IE     | IE     |
| <b>New Zealand<sup>b</sup></b>    | NE                | NE     | NE     | 163    | 163    | NO     | NO     | NO     |
| <b>Norway</b>                     | 579               |        |        |        | 407    | 180    | 400    | 367    |
| <b>Poland<sup>b</sup></b>         |                   |        |        |        |        |        | 1,208  | 1,169  |
| <b>Portugal</b>                   | 569               | 563    | 396    | 396    | 396    | 396    | 396    | 396    |
| <b>Romania<sup>b</sup></b>        |                   | 2,894  | 2,946  | 1,522  | 749    | 1,334  | 2,008  | 1,848  |
| <b>Slovakia<sup>b</sup></b>       |                   |        |        |        |        | IE     | IE     | IE     |
| <b>Spain</b>                      | 550               | 505    | 519    | 546    | 512    | 487    | 499    | 493    |
| <b>Sweden</b>                     | NE                | NE     | NE     | NE     | NE     | NE     | NE     | NE     |
| <b>Switzerland</b>                | NO                |        |        |        |        |        |        | NO     |
| <b>United Kingdom</b>             | 1,358             | 1,379  | 1,379  | 888    | 1,111  | 1,113  | 1,301  | 1,373  |
| <b>United States</b>              | 19,306            | 20,453 | 20,282 | 20,650 | 21,934 | 20,615 | 19,587 | 16,588 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | -0.6         | -1.8         | 9.7          | -5.8         | -1.9         | -4.5         | 11.6         |
| <b>Belgium</b>            | -4.4         | 0.2          | -3.5         | 3.5          | -4.0         | 4.7          | 94.1         |
| <b>Bulgaria</b>           |              |              |              | -28.2        | 71.1         | -10.4        |              |
| <b>Canada</b>             | 0.6          | 2.3          | -1.0         | 3.6          | 0.0          | -13.5        | 18.3         |
| <b>Czech Republic</b>     |              |              |              |              |              |              |              |
| <b>Denmark</b>            |              |              |              |              |              |              |              |
| <b>Estonia</b>            |              |              |              |              |              |              |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            |              |              |              |              |              |              |              |
| <b>France</b>             | 5.0          | -2.6         | -1.5         | -4.3         | 6.7          | -9.8         | -12.8        |
| <b>Germany</b>            | -1.1         | -0.7         | 0.4          | -3.4         | 6.6          | -1.2         | 2.8          |
| <b>Greece</b>             | 38.1         | -8.8         | 20.3         |              |              |              |              |
| <b>Iceland</b>            |              |              |              |              |              |              |              |
| <b>Ireland</b>            | -5.2         | 16.5         | -1.5         | -10.9        | -6.3         | 17.4         | 4.9          |
| <b>Italy</b>              |              |              |              | -9.4         | 69.1         | -15.3        |              |
| <b>Latvia</b>             |              |              |              |              |              |              |              |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        |              |              |              |              |              |              |              |
| <b>New Zealand</b>        |              |              |              |              |              |              |              |
| <b>Norway</b>             |              |              |              | -55.7        | 121.9        | -8.2         | -36.7        |
| <b>Poland</b>             |              |              |              |              |              | -3.2         |              |
| <b>Portugal</b>           | -29.6        | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | -30.3        |
| <b>Romania</b>            | 1.8          | -48.3        | -50.8        | 78.2         | 50.5         | -8.0         |              |
| <b>Slovakia</b>           |              |              |              |              |              |              |              |
| <b>Spain</b>              | 2.7          | 5.2          | -6.2         | -5.0         | 2.6          | -1.2         | -10.2        |
| <b>Sweden</b>             |              |              |              |              |              |              |              |
| <b>Switzerland</b>        |              |              |              |              |              |              |              |
| <b>United Kingdom</b>     | 0.0          | -35.6        | 25.0         | 0.2          | 16.9         | 5.6          | 1.1          |
| <b>United States</b>      | -0.8         | 1.8          | 6.2          | -6.0         | -5.0         | -15.3        | -14.1        |

**Table 2.7****Chemical industry: nitric acid production – trend information****N<sub>2</sub>O emissions (Gg)**

|                                   | 1990 <sup>a</sup> | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|-----------------------------------|-------------------|------|------|------|------|------|------|------|
| <b>Austria</b>                    | 2.9               | 2.8  | 2.8  | 2.8  | 2.9  | 3.0  | 3.1  | 2.5  |
| <b>Belgium</b>                    | 11.5              | 13.8 | 15.1 | NE   | 15.1 | 14.4 | 13.6 | 13.0 |
| <b>Bulgaria<sup>b</sup></b>       |                   |      |      |      | 3.1  | 2.4  | 4.2  | 4.2  |
| <b>Canada</b>                     | 2.5               | 2.5  | 2.6  | 2.5  | 2.5  | 2.5  | 2.6  | 2.6  |
| <b>Czech Republic<sup>b</sup></b> | 3.6               |      |      |      | 3.6  | 3.0  | 3.4  | 3.3  |
| <b>Denmark</b>                    |                   |      |      |      |      |      |      |      |
| <b>Estonia<sup>b</sup></b>        |                   |      |      |      |      | 0.0  | 0.0  | 0.0  |
| <b>European Community</b>         | NE                | NE   | NE   | NE   | NE   | NE   | NE   | NE   |
| <b>Finland</b>                    | 5.1               | 4.5  | 4.5  | 4.5  | 4.3  | 4.3  | 4.3  | 4.1  |
| <b>France</b>                     | 21.2              | 18.8 | 18.8 | 19.3 | 19.2 | 18.5 | 19.1 | 16.0 |
| <b>Germany</b>                    | 15.1              | 12.7 | 12.1 | 12.1 | 12.0 | 12.5 | 13.4 | 11.8 |
| <b>Greece<sup>b</sup></b>         | 2.3               | 1.8  | 2.1  | 1.8  | 1.8  | 1.8  | 1.8  | 1.8  |
| <b>Iceland</b>                    |                   |      |      |      |      |      |      |      |
| <b>Ireland</b>                    | 3.3               | 2.6  | 2.6  | 2.6  | 2.6  | 2.6  | 2.6  | 1.9  |
| <b>Italy<sup>b</sup></b>          |                   |      |      |      | 3.2  | 2.9  | 3.8  | 3.6  |
| <b>Latvia</b>                     | NO                | NO   | NO   | NO   | NO   | NO   | NO   | NO   |
| <b>Luxembourg</b>                 |                   |      |      |      |      |      |      |      |
| <b>Netherlands</b>                | 20.4              | 20.3 | 20.2 | 20.2 | 20.1 | 19.1 | 19.0 | 17.2 |
| <b>New Zealand<sup>b</sup></b>    | NA                | NA   |      |      |      |      |      |      |
| <b>Norway</b>                     | 6.7               |      |      |      | 5.4  | 6.1  | 5.6  | 5.5  |
| <b>Poland<sup>b</sup></b>         |                   |      |      |      |      |      | 12.9 | 13.3 |
| <b>Portugal</b>                   | 1.9               | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  |
| <b>Romania<sup>b</sup></b>        |                   | 4.0  | 3.6  | 1.9  | 1.0  | 1.6  | 2.7  | 1.7  |
| <b>Slovakia<sup>b</sup></b>       |                   |      |      |      | 0.2  | 0.2  | 0.5  | 0.7  |
| <b>Spain</b>                      | 9.3               | 7.7  | 7.9  | 7.5  | 7.0  | 7.6  | 7.4  | 6.6  |
| <b>Sweden</b>                     | 2.6               | 2.3  | 2.2  | 2.2  | 2.4  | 2.1  | 2.1  | 1.5  |
| <b>Switzerland</b>                | 0.3               |      |      |      |      |      |      | 0.3  |
| <b>United Kingdom</b>             | 13.3              | 9.9  | 10.2 | 9.7  | 11.1 | 16.0 | 14.9 | 11.6 |
| <b>United States</b>              | 57.6              | 64.2 | 66.8 | 68.5 | 67.4 | 64.9 | 61.5 | 56.8 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 2.0          | -1.4         | 4.0          | 3.0          | 3.3          | -17.4        | -13.3        |
| <b>Belgium</b>            | 9.5          |              |              | -4.7         | -5.6         | -4.3         | 13.2         |
| <b>Bulgaria</b>           |              |              |              | -24.4        | 79.5         | -1.5         |              |
| <b>Canada</b>             | 1.3          | -0.8         | -1.9         | 1.9          | 1.8          | -0.5         | 2.3          |
| <b>Czech Republic</b>     |              |              |              | -17.8        | 13.8         | -1.1         | -8.7         |
| <b>Denmark</b>            |              |              |              |              |              |              |              |
| <b>Estonia</b>            |              |              |              |              | 0.0          | 0.0          |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | 0.0          | 0.6          | -5.8         | 0.3          | -0.3         | -4.7         | -21.0        |
| <b>France</b>             | 0.0          | 2.7          | -0.5         | -3.5         | 3.0          | -16.1        | -24.4        |
| <b>Germany</b>            | -4.8         | 0.3          | -0.6         | 4.1          | 6.9          | -12.2        | -22.0        |
| <b>Greece</b>             | 14.2         | -12.0        | -0.2         | 0.2          | 0.0          | 0.0          | -20.4        |
| <b>Iceland</b>            |              |              |              |              |              |              |              |
| <b>Ireland</b>            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | -28.1        | -43.6        |
| <b>Italy</b>              |              |              |              | -10.0        | 28.9         | -5.4         |              |
| <b>Latvia</b>             |              |              |              |              |              |              |              |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | -0.2         | -0.3         | -0.3         | -4.9         | -0.8         | -9.4         | -15.7        |
| <b>New Zealand</b>        |              |              |              |              |              |              |              |
| <b>Norway</b>             |              |              |              | 11.2         | -7.7         | -2.3         | -17.8        |
| <b>Poland</b>             |              |              |              |              |              | 2.6          |              |
| <b>Portugal</b>           | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.6          |
| <b>Romania</b>            | -10.5        | -46.4        | -46.9        | 52.8         | 71.6         | -37.4        |              |
| <b>Slovakia</b>           |              |              |              | -13.7        | 136.9        | 38.9         |              |
| <b>Spain</b>              | 2.4          | -5.4         | -6.1         | 8.3          | -1.7         | -11.4        | -29.1        |
| <b>Sweden</b>             | -4.0         | -1.2         | 12.7         | -12.3        | -3.7         | -25.0        | -41.1        |
| <b>Switzerland</b>        |              |              |              |              |              |              | 0.0          |
| <b>United Kingdom</b>     | 2.8          | -5.4         | 15.2         | 43.5         | -7.0         | -21.9        | -12.8        |
| <b>United States</b>      | 4.1          | 2.5          | -1.6         | -3.7         | -5.2         | -7.7         | -1.4         |

**Table 2.7****Chemical industry: nitric acid production – trend information (continued)****N<sub>2</sub>O implied emission factors (t/t)**

|                             | 1990 <sup>a</sup> | 1995  | 1996  | 1997  | 1998  | 1999  | 2000  | 2001  |
|-----------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|
| Austria                     | 0.006             | 0.006 | 0.006 | 0.006 | 0.006 | 0.006 | 0.006 | 0.005 |
| Belgium                     |                   |       |       |       |       |       |       |       |
| Bulgaria <sup>b</sup>       |                   |       |       |       | 0.006 | 0.006 | 0.006 | 0.006 |
| Canada                      |                   |       |       |       |       |       |       |       |
| Czech Republic <sup>b</sup> | 0.007             |       |       |       | 0.007 | 0.006 | 0.007 | 0.007 |
| Denmark                     |                   |       |       |       |       |       |       |       |
| Estonia                     |                   |       |       |       |       |       |       |       |
| European Community          |                   |       |       |       |       |       | NE    | NE    |
| Finland                     | 0.009             | 0.009 | 0.009 | 0.009 | 0.009 | 0.009 | 0.009 | 0.009 |
| France                      | 0.007             | 0.007 | 0.006 | 0.006 | 0.007 | 0.006 | 0.006 | 0.006 |
| Germany                     | 0.005             | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 |
| Greece <sup>b</sup>         | 0.005             | 0.005 | 0.004 | 0.005 | 0.004 | 0.005 | 0.005 | 4.507 |
| Iceland                     |                   |       |       |       |       |       |       |       |
| Ireland                     | 0.010             | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 | 0.007 |
| Italy <sup>b</sup>          |                   |       |       |       | 0.007 | 0.007 | 0.007 | 0.007 |
| Latvia                      |                   |       |       |       |       |       | NO    | NO    |
| Luxembourg                  |                   |       |       |       |       |       |       |       |
| Netherlands                 | C                 | C     | C     | C     | C     | C     | C     | C     |
| New Zealand <sup>b</sup>    |                   |       |       |       |       |       | NA    | NA    |
| Norway                      |                   |       |       |       |       |       |       |       |
| Poland <sup>b</sup>         |                   |       |       |       |       |       | 0.006 | 0.006 |
| Portugal                    | 0.008             | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 |
| Romania <sup>b</sup>        |                   | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 |
| Slovakia <sup>b</sup>       |                   |       |       |       | 0.001 | 0.000 | 0.001 | 0.001 |
| Spain                       | 0.007             | 0.007 | 0.007 | 0.007 | 0.007 | 0.007 | 0.007 | 0.007 |
| Sweden                      | 0.007             | 0.005 | 0.005 | 0.006 | 0.006 | 0.006 | 0.005 | 0.006 |
| Switzerland                 | 0.005             |       |       |       |       |       |       | 0.005 |
| United Kingdom              | 0.006             | 0.004 | 0.004 | 0.004 | 0.004 | 0.007 | 0.007 | 0.007 |
| United States               | 0.008             | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            | -0.4         | -0.1         | 0.8          | 1.4          | -0.8         | -13.7        | -10.0        |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              | 0.0          | 0.0          | 0.0          |              |
| Canada             |              |              |              |              |              |              |              |
| Czech Republic     |              |              |              | -3.8         | 2.5          | -1.2         | -4.2         |
| Denmark            |              |              |              |              |              |              |              |
| Estonia            |              |              |              |              |              |              |              |
| European Community |              |              |              |              |              |              |              |
| Finland            | 0.0          | 0.0          | 0.0          | 0.0          | 0.1          | 0.1          | 0.8          |
| France             | -9.3         | 8.8          | 2.0          | -2.6         | -2.4         | -3.7         | -9.4         |
| Germany            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Greece             | 0.0          | 0.2          | -0.2         | 0.2          | 0.0          | 99,900.0     | 100,049.3    |
| Iceland            |              |              |              |              |              |              |              |
| Ireland            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | -28.1        | -26.5        |
| Italy              |              |              |              | 0.0          | 0.0          | 0.0          |              |
| Latvia             |              |              |              |              |              |              |              |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        |              |              |              |              |              |              |              |
| New Zealand        |              |              |              |              |              |              |              |
| Norway             |              |              |              |              |              |              |              |
| Poland             |              |              |              |              |              | 0.0          |              |
| Portugal           | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Romania            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |              |
| Slovakia           |              |              |              | -17.8        | 156.5        | 22.0         |              |
| Spain              | -4.0         | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Sweden             | 0.0          | 1.4          | 9.9          | -8.5         | -13.1        | 12.9         | -21.9        |
| Switzerland        |              |              |              |              |              |              | 0.0          |
| United Kingdom     | 1.2          | -1.7         | 3.8          | 53.6         | 11.8         | -4.0         | 27.1         |
| United States      | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |

**Table 2.8****Chemical industry: adipic acid production – trend information****N<sub>2</sub>O emissions (Gg)**

|                             | 1990 <sup>a</sup> | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|-----------------------------|-------------------|------|------|------|------|------|------|------|
| Austria                     | NE                | NE   | NE   | NE   | NE   | NE   | NE   | NE   |
| Belgium                     |                   |      |      | NO   |      |      | NO   | NO   |
| Bulgaria <sup>b</sup>       |                   |      |      |      | NO   | NO   | NO   | NO   |
| Canada                      | 34.6              | 34.6 | 37.0 | 31.9 | 16.3 | 5.6  | 2.9  | 2.6  |
| Czech Republic <sup>b</sup> | NO                |      |      |      |      | NO   | NO   | NO   |
| Denmark                     |                   |      |      |      |      |      |      |      |
| Estonia <sup>b</sup>        |                   |      |      |      |      | 0.0  | 0.0  | 0.0  |
| European Community          | NE                | NE   | NE   | NE   | NE   | NE   | NE   | NE   |
| Finland                     | NO                | NO   | NO   | NO   | NO   | NO   | NO   | NO   |
| France                      | 47.8              | 55.2 | 56.7 | 56.2 | 31.4 | 14.7 | 10.3 | 15.6 |
| Germany                     | 67.3              | 69.6 | 75.1 | 62.0 | 17.8 | 4.0  | 3.0  | 9.6  |
| Greece                      |                   |      |      |      |      |      |      | NO   |
| Iceland                     |                   |      |      |      |      |      |      |      |
| Ireland                     | NO                | NO   | 0.0  | NO   | NO   | NO   | 0.0  | 0.0  |
| Italy <sup>b</sup>          |                   |      |      |      | 18.6 | 18.6 | 21.4 | 25.1 |
| Latvia                      | NO                | NO   | NO   | NO   | NO   | NO   | NO   | NO   |
| Luxembourg                  |                   |      |      |      |      |      |      |      |
| Netherlands                 | NO                | NO   | NO   | NO   | NO   | NO   | NO   | NO   |
| New Zealand                 |                   |      |      |      |      |      |      |      |
| Norway                      |                   |      |      |      |      |      |      |      |
| Poland <sup>b</sup>         |                   |      |      |      |      |      | NO   | NO   |
| Portugal                    | 0.0               | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Romania <sup>b</sup>        |                   | 1.9  | 1.9  | 2.7  | 0.0  | 0.0  | NO   | NE   |
| Slovakia <sup>b</sup>       |                   |      |      |      |      | NO   | NO   | NO   |
| Spain                       |                   |      |      |      |      |      |      |      |
| Sweden                      | NO                | NO   | NO   | NO   | NO   | NO   | NO   | NO   |
| Switzerland                 | NO                |      |      |      |      |      |      | NO   |
| United Kingdom              | 81.1              | 51.3 | 55.2 | 57.3 | 48.3 | 2.1  | 5.3  | 5.8  |
| United States               | 49.0              | 55.5 | 55.0 | 33.3 | 19.3 | 17.7 | 19.5 | 15.9 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            |              |              |              |              |              |              |              |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              |              |              |              |              |
| Canada             | 6.9          | -13.8        | -48.8        | -65.5        | -48.6        | -10.8        | -92.5        |
| Czech Republic     |              |              |              |              |              |              |              |
| Denmark            |              |              |              |              |              |              |              |
| Estonia            |              |              |              |              | 0.0          | 0.0          |              |
| European Community |              |              |              |              |              |              |              |
| Finland            |              |              |              |              |              |              |              |
| France             | 2.8          | -0.9         | -44.2        | -53.2        | -29.6        | 51.0         | -67.3        |
| Germany            | 7.8          | -17.4        | -71.2        | -77.4        | -25.5        | 221.1        | -85.7        |
| Greece             |              |              |              |              |              |              |              |
| Iceland            |              |              |              |              |              |              |              |
| Ireland            |              |              |              |              |              |              |              |
| Italy              |              |              |              | 0.0          | 14.9         | 17.0         |              |
| Latvia             |              |              |              |              |              |              |              |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        |              |              |              |              |              |              |              |
| New Zealand        |              |              |              |              |              |              |              |
| Norway             |              |              |              |              |              |              |              |
| Poland             |              |              |              |              |              |              |              |
| Portugal           |              |              |              |              |              |              |              |
| Romania            | 0.8          | 39.7         | -100.0       | 0.0          |              |              |              |
| Slovakia           |              |              |              |              |              |              |              |
| Spain              |              |              |              |              |              |              |              |
| Sweden             |              |              |              |              |              |              |              |
| Switzerland        |              |              |              |              |              |              |              |
| United Kingdom     | 7.6          | 3.8          | -15.8        | -95.6        | 148.0        | 8.8          | -92.9        |
| United States      | -1.0         | -39.5        | -41.9        | -8.5         | 10.2         | -18.5        | -67.6        |

**Table 2.8****Chemical industry: adipic acid production – trend information (continued)****N<sub>2</sub>O implied emission factors (t/t)**

|                          | 1990 <sup>a</sup> | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|--------------------------|-------------------|------|------|------|------|------|------|------|
| Austria                  |                   |      |      |      |      |      |      |      |
| Belgium                  |                   |      |      |      |      |      |      |      |
| Bulgaria                 |                   |      |      |      |      |      | NO   | NO   |
| Canada                   |                   |      |      |      |      |      |      |      |
| Czech Republic           |                   |      |      |      |      |      |      |      |
| Denmark                  |                   |      |      |      |      |      |      |      |
| Estonia                  |                   |      |      |      |      |      |      |      |
| European Community       |                   |      |      |      |      |      | NE   | NE   |
| Finland                  |                   |      |      |      |      |      |      |      |
| France                   |                   |      |      |      |      |      |      |      |
| Germany                  | 0.33              | 0.33 | 0.33 | 0.25 | 0.07 | 0.02 | 0.01 | 0.04 |
| Greece                   |                   |      |      |      |      |      |      | NO   |
| Iceland                  |                   |      |      |      |      |      |      |      |
| Ireland                  |                   |      |      |      |      |      |      |      |
| Italy <sup>b</sup>       |                   |      |      |      | 0.30 | 0.30 | 0.30 | 0.33 |
| Latvia                   |                   |      |      |      |      |      | NO   | NO   |
| Luxembourg               |                   |      |      |      |      |      |      |      |
| Netherlands              | NO                | NO   | NO   | NO   | NO   | NO   | NO   | NO   |
| New Zealand <sup>b</sup> |                   |      |      |      |      |      | NA   | NA   |
| Norway                   |                   |      |      |      |      |      |      |      |
| Poland                   |                   |      |      |      |      |      | NO   | NO   |
| Portugal                 |                   |      |      |      |      |      |      |      |
| Romania <sup>b</sup>     |                   | 0.30 | 0.30 | 0.30 |      |      |      |      |
| Slovakia                 |                   |      |      |      |      |      | NO   | NO   |
| Spain                    |                   |      |      |      |      |      |      |      |
| Sweden                   |                   |      |      |      |      |      |      | NO   |
| Switzerland              | NO                |      |      |      |      |      |      |      |
| United Kingdom           | 0.31              | 0.33 | 0.36 | 0.37 | 0.29 | 0.01 | 0.03 | 0.04 |
| United States            | 0.07              | 0.07 | 0.07 | 0.04 | 0.02 | 0.02 | 0.02 | 0.02 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            |              |              |              |              |              |              |              |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              |              |              |              |              |
| Canada             |              |              |              |              |              |              |              |
| Czech Republic     |              |              |              |              |              |              |              |
| Denmark            |              |              |              |              |              |              |              |
| Estonia            |              |              |              |              |              |              |              |
| European Community |              |              |              |              |              |              |              |
| Finland            |              |              |              |              |              |              |              |
| France             |              |              |              |              |              |              |              |
| Germany            | 0.0          | -24.3        | -70.4        | -78.6        | -34.4        | 318.1        | -86.8        |
| Greece             |              |              |              |              |              |              |              |
| Iceland            |              |              |              |              |              |              |              |
| Ireland            |              |              |              |              |              |              |              |
| Italy              |              |              |              | 0.0          | 0.0          | 11.0         |              |
| Latvia             |              |              |              |              |              |              |              |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        |              |              |              |              |              |              |              |
| New Zealand        |              |              |              |              |              |              |              |
| Norway             |              |              |              |              |              |              |              |
| Poland             |              |              |              |              |              |              |              |
| Portugal           |              |              |              |              |              |              |              |
| Romania            | 0.0          | 0.0          |              |              |              |              |              |
| Slovakia           |              |              |              |              |              |              |              |
| Spain              |              |              |              |              |              |              |              |
| Sweden             |              |              |              |              |              |              |              |
| Switzerland        |              |              |              |              |              |              |              |
| United Kingdom     | 8.9          | 0.9          | -20.5        | -94.9        | 111.0        | 24.0         | -87.3        |
| United States      | -2.0         | -41.7        | -41.3        | -13.0        | 8.1          | -9.7         | -71.5        |

**Table 2.9**  
**Metal production, CO<sub>2</sub> (2001)**

|                              | Methods and EF used <sup>a</sup> |              | Iron & steel <sup>b</sup> |                         |                     |            |                     |                            |                         |                     |            |                     |                         |            | Aluminium production |                         |                            |            |            |                 |                     |      |
|------------------------------|----------------------------------|--------------|---------------------------|-------------------------|---------------------|------------|---------------------|----------------------------|-------------------------|---------------------|------------|---------------------|-------------------------|------------|----------------------|-------------------------|----------------------------|------------|------------|-----------------|---------------------|------|
|                              |                                  |              | Key source                | Share of national total | CO <sub>2</sub> IEF | Steel      |                     |                            |                         | CO <sub>2</sub> IEF | Pig iron   |                     |                         |            | Key source           | Share of national total | Activity data (production) |            |            |                 | CO <sub>2</sub> IEF |      |
|                              | Activity data (production)       |              |                           |                         |                     | Difference | CO <sub>2</sub> IEF | Activity data (production) |                         |                     | Difference | CO <sub>2</sub> IEF | CRF (2000) <sup>c</sup> | CRF (2001) |                      |                         | UN <sup>d</sup>            | Difference |            |                 |                     |      |
|                              | CRF (2000) <sup>c</sup>          | CRF (2001)   |                           |                         |                     |            |                     | UN <sup>d</sup>            | CRF (2000) <sup>c</sup> |                     |            |                     |                         |            |                      |                         |                            |            | CRF (2001) | UN <sup>d</sup> |                     |      |
|                              | (%)                              | (t/t)        |                           |                         |                     |            |                     | (kt)                       | (%)                     |                     |            |                     |                         |            |                      |                         |                            |            | (t/t)      | (kt)            |                     | (%)  |
| IPCC default EF <sup>e</sup> |                                  |              |                           |                         | 1.5 - 1.6           |            |                     |                            |                         |                     |            |                     |                         |            |                      |                         |                            |            |            |                 | 1.5 - 1.8           |      |
| Austria                      | C                                | CS, PS       | L                         | 10.8                    |                     | 5,150      | 5,108               | 1,539                      | -69.9                   | 1.81                | 5,150      | 5,108               | 4,375                   | -14.3      |                      |                         |                            | NO         | NO         |                 |                     |      |
| Belgium                      |                                  |              | L                         | 0.9                     |                     |            |                     | 12,000                     |                         |                     |            |                     | 8,500                   |            |                      |                         |                            |            |            |                 |                     |      |
| Bulgaria                     | D                                | D            | L                         | 2.1                     |                     | 1,776      | 1,695               | 2,000                      | 18.0                    | 0.82                | 2,216      | 1,121               | 1,200                   | 7.0        | NO                   | 0.0                     | 3.2                        | 1.6        |            |                 | 1.65                |      |
| Canada                       | T1-T2                            | CS           | L, T                      | 1.1                     | NA                  | NA         | NA                  | 16,300                     |                         | NA                  | NA         | NA                  | 8,302                   |            | NA                   | T                       | 0.6                        | 2,385      | 2,583      | 2,583           | 0.0                 | 1.61 |
| Czech Republic               | T1                               | D            | L                         | 1.7                     |                     | 6,219      | 6,316               | 2,430                      | -61.5                   |                     | 4,620      | 4,671               | 4,651                   | -0.4       | 0.54                 |                         | NO                         | NO         |            |                 |                     |      |
| Denmark                      |                                  |              |                           |                         |                     | 0          | 0                   | 5                          |                         |                     | 0          | 0                   |                         |            |                      |                         | 0                          | 0          | 33         |                 |                     |      |
| Estonia                      |                                  |              |                           |                         |                     |            |                     |                            |                         |                     |            |                     |                         |            |                      |                         | 0                          | 0          |            |                 |                     |      |
| European Community           | C, CS, D, T2                     | C, CS, D, PS |                           |                         |                     |            |                     |                            |                         | NE                  |            |                     |                         |            | NE                   |                         |                            |            |            |                 |                     | NE   |
| Finland                      | NO                               | NO           |                           |                         |                     | NA         | NA                  | 4,100                      |                         |                     | NA         | NA                  | 31,455                  |            |                      |                         | NO                         | NO         |            |                 |                     |      |
| France                       | C                                | CS           |                           | 0.4                     |                     | 21,215     | 19,614              | 20,000                     | 2.0                     | 0.05                | 13,660     | 12,040              | 12,270                  | 1.9        | 0.08                 | 0.1                     | 438                        | 458        | 460        | 0.5             | 1.46                |      |
| Germany                      | CS                               | CS           |                           | NE                      |                     | 46,375     | 44,803              | 10,289                     | -77.0                   | NE                  | 30,845     | 29,184              | 30,000                  | 2.8        | NE                   | 0.1                     | 1,216                      | 1,275      | 652        | -48.9           | 0.62                |      |
| Greece                       | C                                | C            |                           |                         |                     | NA         | NA                  | 1,000                      |                         | NE                  | NA         | NA                  |                         |            | NE                   | 0.2                     | C                          | C          | 163        |                 | C                   |      |
| Iceland                      | D                                | D            |                           |                         |                     |            |                     |                            |                         |                     |            |                     |                         |            | L                    | 5.1                     | 226                        | 244        | 169        | -30.6           | 0.56                |      |
| Ireland                      | NA                               | NA           |                           |                         |                     |            |                     | 100                        |                         |                     |            |                     |                         |            |                      |                         | 0                          | 0          |            |                 |                     |      |
| Italy                        | D, C                             | D, C, CS     |                           | 0.2                     |                     | 26,623     | 26,526              | 26,526                     | 0.0                     | 0.04                | 11,176     | 10,562              | 10,263                  | -2.8       | IE                   | 0.1                     | 190                        | 188        | 188        | 0.0             | 1.55                |      |
| Latvia                       | T1a                              | D            | L, T                      | 1.1                     |                     | NE         | NE                  | 510                        |                         | NE                  | NE         | NE                  |                         |            | NE                   |                         | NO                         | NO         |            |                 |                     | NO   |
| Luxembourg                   | C                                | C            |                           |                         |                     |            |                     | 2,725                      |                         |                     |            |                     | 0                       |            |                      |                         |                            |            |            |                 |                     |      |
| Netherlands                  | CS/IE                            | PS, CS       |                           |                         |                     | 5,659      | 6,000               | 6,000                      | 0.0                     | IE                  |            |                     | 5,305                   |            | IE                   |                         | 303                        | 293        | 294        | 0.3             | IE                  |      |
| New Zealand                  | T1                               | CS           | L                         | 2.2                     |                     | 730        | 801                 | 700                        | -12.6                   | 1.95                | 12,000     | 14,426              | 600                     | -95.8      | IE                   | 0.7                     | 329                        | 324        | 322        | -0.6            | 1.56                |      |
| Norway                       | D, CS3                           | D, PS        |                           | 0.4                     |                     |            |                     |                            |                         |                     |            |                     | 60                      |            | L, T                 | 3.1                     | 1,270                      | 1,241      | 1,068      | -14.0           | 1.41                |      |
| Poland                       | T1/CS                            | CS           |                           | 0.0                     |                     | IE         | IE                  | 11,000                     |                         | IE                  | IE         | IE                  | 5,343                   |            | IE                   | 0.0                     | 47                         | 55         | 45         | -18.1           | 1.80                |      |
| Portugal                     | D+C                              | D+C          |                           | 0.0                     | 0.04                | IE         | IE                  |                            |                         |                     | NO         | NO                  | 82                      |            |                      | 0.0                     | 19                         | 20         | 18         | -9.0            | 1.80                |      |
| Romania                      | T1b                              | T1b          |                           |                         |                     | 4,672      |                     | 4,936                      |                         |                     |            | 3243                | 3,212                   | -1.0       |                      | 0.2                     | 181                        | 183        | 182        | -0.6            | 1.50                |      |
| Slovakia                     | IE                               |              |                           |                         |                     | IE         | IE                  | 17                         |                         | IE                  | IE         | IE                  | 3,000                   |            | IE                   |                         | IE                         | IE         | 110        |                 | IE                  |      |
| Spain                        | C                                | C            |                           | 0.2                     |                     | 16,000     | 16,631              | 15,000                     | -9.8                    | 0.05                | 4,267      | 4,322               | 4,094                   | -5.3       |                      | 0.2                     | 366                        | 376        | 376        | 0.0             | 1.55                |      |
| Sweden                       | CS                               | CS           | L, T                      | 3.0                     |                     | IE         | IE                  | 5,450                      |                         | IE                  | 116        | 88                  | 1,433                   | 1532.1     | 0.48                 |                         | 0.3                        | 101        | 102        | 102             | 0.0                 | 1.84 |
| Switzerland                  | C                                | CS           |                           | 0.1                     |                     | 765        | 950                 | 1,100                      | 15.8                    |                     |            | IE                  |                         |            | T                    | 0.1                     | 36                         | 36         | 36         | -0.3            |                     |      |
| United Kingdom               | T2                               | CS           |                           | 0.3                     |                     | 3,518      | 3,184               | 15,000                     | 371.2                   | 0.01                | 10,891     | 9,870               | 9,900                   | 0.3        | -0.15                | 0.1                     | 305                        | 341        | 341        | 0.0             | 1.54                |      |
| United States                | D                                | D,CS         | L, T                      | 0.9                     |                     | 47,859     | 42,743              | 90,100                     | 110.8                   | 0.00                | 1,588      | 5,433               | 42,100                  | 674.9      | 0.15                 | 0.1                     | 3,468                      | 2,637      | 2,637      | 0.0             | 1.56                |      |

<sup>a</sup> 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.

<sup>b</sup> CO<sub>2</sub> emission estimates from sinter (2.C.1.3) were reported by only Poland; CO<sub>2</sub> emission estimates from coke (2.C.1.4) were reported by only Canada, Latvia, Sweden, the United Kingdom and the United States.

<sup>c</sup> As UN data for 2001 were not available for all Parties 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 2001 and 2000 from the CRF are provided along with the respective UN data for 2001 and 2000.

<sup>d</sup> Source of data for crude steel: UN Industrial Commodity Production Statistics Database (as of 6 June 2003), Department of Economic and Social Affairs, Statistics Division, United Nations, New York.

<sup>e</sup> Source of data for pig iron: UN Industrial Commodity Production Statistics Database (as of 6 June 2003), Department of Economic and Social Affairs, Statistics Division, United Nations, New York.

<sup>f</sup> Source of data for aluminium: UN Industrial Commodity Production Statistics Database (as of 6 June 2003), Department of Economic and Social Affairs, Statistics Division, United Nations, New York. Data are for primary production, except for Denmark and Portugal where only total production data were available.

<sup>g</sup> Source of default emission factors: IPCC Guidelines, Volume 3, pages 2.28 and 2.33.

**Table 2.10****Metal production: CO<sub>2</sub> – trend information****CO<sub>2</sub> emissions (Gg)**

|                               | 1990 <sup>a</sup> | 1995   | 1996   | 1997   | 1998   | 1999   | 2000   | 2001   |
|-------------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|
| <b>Austria</b>                | 8,461             | 8,585  | 8,084  | 9,107  | 8,385  | 8,456  | 8,591  | 9,245  |
| <b>Belgium</b>                | 1,671             | 1,615  | 1,602  | 1,512  | 1,627  | 1,622  | 1,514  | 1,391  |
| <b>Bulgaria</b>               | 2,485             | 2,323  | 2,101  | 2,260  | 1,877  | 1,711  | 1,483  | 1,422  |
| <b>Canada</b>                 | 10,222            | 11,984 | 12,015 | 11,895 | 12,133 | 12,420 | 12,403 | 12,083 |
| <b>Czech Republic</b>         | IE                |        | IE     | IE     | IE     | IE     | IE     | 2,524  |
| <b>Denmark</b>                | 0                 | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| <b>Estonia</b>                |                   |        |        |        |        |        |        |        |
| <b>European Community</b>     | 25,702            | 24,759 | 23,716 | 24,126 | 22,763 | 23,640 | 23,976 | 23,856 |
| <b>Finland</b>                | IE                | IE     | IE     | IE     | IE     | IE     | IE     | IE     |
| <b>France</b>                 | 4,559             | 4,621  | 3,415  | 3,946  | 3,824  | 3,402  | 3,025  | 2,892  |
| <b>Germany</b>                | 904               | 703    | 704    | 699    | 748    | 775    | 787    | 797    |
| <b>Greece<sup>b</sup></b>     | 232               | 203    | 203    | 206    | 226    | 248    | 252    | 251    |
| <b>Iceland</b>                | 340               | 389    | 384    | 438    | 458    | 482    | 427    | 340    |
| <b>Ireland</b>                | NE                | NO     | NO     | NO     | NO     | NE     | NO     | NO     |
| <b>Italy</b>                  | 1,804             | 1,660  | 1,669  | 1,659  | 1,627  | 1,481  | 1,592  | 1,585  |
| <b>Latvia</b>                 | 144               | 16     | 91     | 136    | 125    | 137    | 182    | 125    |
| <b>Luxembourg<sup>b</sup></b> |                   |        |        |        |        | 147    | 131    | 139    |
| <b>Netherlands</b>            | 0                 | 17     | 0      | 3      | 0      | 0      | 0      | 0      |
| <b>New Zealand</b>            | 1,786             | 2,005  | 1,994  | 1,854  | 1,991  | 2,043  | 2,013  | 2,065  |
| <b>Norway</b>                 | 4,289             | 4,469  | 4,798  | 4,707  | 5,126  | 5,231  | 5,248  | 5,084  |
| <b>Poland</b>                 | 738               | 581    | 582    | 656    | 617    | 565    | 510    | 458    |
| <b>Portugal</b>               | 35                | 45     | 44     | 52     | 53     | 56     | 60     | 62     |
| <b>Romania</b>                |                   | 3,780  | 3,566  | 3,800  | 3,589  | 2,489  | 2,769  | 275    |
| <b>Slovakia</b>               |                   |        |        |        |        |        |        |        |
| <b>Spain</b>                  | 1,579             | 1,604  | 1,584  | 1,706  | 1,778  | 1,796  | 1,860  | 1,947  |
| <b>Sweden</b>                 | 2,445             | 2,900  | 3,048  | 2,898  | 2,747  | 2,704  | 2,976  | 2,808  |
| <b>Switzerland</b>            | 235               | 107    | 116    | 118    | 127    | 131    | 134    | 136    |
| <b>United Kingdom</b>         | 3,161             | 2,540  | 3,132  | 2,073  | 1,610  | 2,953  | 3,187  | 2,738  |
| <b>United States</b>          | 93,708            | 81,488 | 75,857 | 79,523 | 75,249 | 72,268 | 72,885 | 64,517 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | -5.8         | 12.7         | -7.9         | 0.9          | 1.6          | 7.6          | 9.3          |
| <b>Belgium</b>            | -0.8         | -5.7         | 7.6          | -0.4         | -6.6         | -8.1         | -16.8        |
| <b>Bulgaria</b>           | -9.5         | 7.5          | -16.9        | -8.9         | -13.3        | -4.1         | -42.8        |
| <b>Canada</b>             | 0.3          | -1.0         | 2.0          | 2.4          | -0.1         | -2.6         | 18.2         |
| <b>Czech Republic</b>     |              |              |              |              |              |              |              |
| <b>Denmark</b>            |              |              |              |              |              |              |              |
| <b>Estonia</b>            |              |              |              |              |              |              |              |
| <b>European Community</b> | -4.2         | 1.7          | -5.7         | 3.9          | 1.4          | -0.5         | -7.2         |
| <b>Finland</b>            |              |              |              |              |              |              |              |
| <b>France</b>             | -26.1        | 15.5         | -3.1         | -11.0        | -11.1        | -4.4         | -36.6        |
| <b>Germany</b>            | 0.2          | -0.7         | 7.0          | 3.6          | 1.6          | 1.2          | -11.9        |
| <b>Greece</b>             | 0.0          | 1.3          | 10.1         | 9.5          | 1.7          | -0.3         | 8.3          |
| <b>Iceland</b>            | -1.2         | 14.0         | 4.6          | 5.3          | -11.5        | -20.3        | 0.0          |
| <b>Ireland</b>            |              |              |              |              |              |              |              |
| <b>Italy</b>              | 0.5          | -0.6         | -2.0         | -9.0         | 7.5          | -0.4         | -12.2        |
| <b>Latvia</b>             | 455.3        | 49.8         | -8.2         | 9.1          | 33.3         | -31.3        | -13.2        |
| <b>Luxembourg</b>         |              |              |              |              | -10.6        | 6.0          |              |
| <b>Netherlands</b>        | -99.8        | 9,270.3      | -100.0       |              |              |              |              |
| <b>New Zealand</b>        | -0.5         | -7.0         | 7.4          | 2.6          | -1.5         | 2.6          | 15.6         |
| <b>Norway</b>             | 7.4          | -1.9         | 8.9          | 2.1          | 0.3          | -3.1         | 18.5         |
| <b>Poland</b>             | 0.2          | 12.7         | -5.9         | -8.4         | -9.7         | -10.2        | -37.9        |
| <b>Portugal</b>           | -2.5         | 17.4         | 1.6          | 6.9          | 7.0          | 3.0          | 78.0         |
| <b>Romania</b>            | -5.7         | 6.5          | -5.5         | -30.7        | 11.3         | -90.1        |              |
| <b>Slovakia</b>           |              |              |              |              |              |              |              |
| <b>Spain</b>              | -1.3         | 7.7          | 4.2          | 1.0          | 3.6          | 4.7          | 23.3         |
| <b>Sweden</b>             | 5.1          | -4.9         | -5.2         | -1.5         | 10.1         | -5.7         | 14.8         |
| <b>Switzerland</b>        | 8.4          | 1.2          | 8.0          | 2.9          | 2.1          | 1.7          | -42.3        |
| <b>United Kingdom</b>     | 23.3         | -33.8        | -22.3        | 83.4         | 7.9          | -14.1        | -13.4        |
| <b>United States</b>      | -6.9         | 4.8          | -5.4         | -4.0         | 0.9          | -11.5        | -31.2        |

**Table 2.11****Metal production: iron and steel – trend information****CO<sub>2</sub> emissions (Gg)**

|                                | 1990 <sup>a</sup> | 1995   | 1996   | 1997   | 1998   | 1999   | 2000   | 2001   |
|--------------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|
| <b>Austria</b>                 | 8,461             | 8,585  | 8,084  | 9,107  | 8,385  | 8,456  | 8,591  | 9,245  |
| <b>Belgium</b>                 | 1,671             | 1,615  | 1,602  | 1,512  | 1,627  | 1,622  | 1,514  | 1,391  |
| <b>Bulgaria<sup>b</sup></b>    |                   |        |        |        | 1,837  | 1,668  | 1,458  | 1,391  |
| <b>Canada</b>                  | 7,585             | 8,440  | 8,289  | 8,100  | 8,316  | 8,501  | 8,511  | 7,920  |
| <b>Czech Republic</b>          |                   |        |        |        |        |        |        | 2,524  |
| <b>Denmark</b>                 |                   |        |        |        |        |        |        |        |
| <b>Estonia<sup>b</sup></b>     |                   |        |        |        |        | 0      |        | 0      |
| <b>European Community</b>      | NE                | NE     | NE     | NE     | NE     | NE     | NE     | NE     |
| <b>Finland</b>                 | IE                | IE     | IE     | IE     | IE     | IE     | IE     | IE     |
| <b>France</b>                  | 4,047             | 4,049  | 2,818  | 3,330  | 3,186  | 2,730  | 2,386  | 2,224  |
| <b>Germany</b>                 |                   | NE     | NE     | NE     | NE     | NE     | NE     | NE     |
| <b>Greece</b>                  |                   |        |        |        |        |        |        |        |
| <b>Iceland<sup>b</sup></b>     |                   |        |        |        |        | NO     |        |        |
| <b>Ireland</b>                 | NE                | NO     | 0      | NO     | NO     | NE     | NO     | 0      |
| <b>Italy<sup>b</sup></b>       |                   |        |        |        | 997    | 962    | 991    | 988    |
| <b>Latvia</b>                  | 144               | 16     | 91     | 136    | 125    | 137    | 182    | 125    |
| <b>Luxembourg</b>              |                   |        |        |        |        |        |        |        |
| <b>Netherlands</b>             |                   |        |        |        |        |        |        |        |
| <b>New Zealand<sup>b</sup></b> |                   |        |        |        |        |        | 1,493  | 1,561  |
| <b>Norway</b>                  | 170               |        |        |        | 191    | 194    | 207    | 245    |
| <b>Poland<sup>b</sup></b>      |                   |        |        |        |        |        | 207    | 170    |
| <b>Portugal</b>                | 15                | 17     | 15     | 21     | 20     | 22     | 24     | 24     |
| <b>Romania</b>                 |                   | 3,324  | 3,084  | 3,384  | 3,212  | 2,227  | 2,369  | 0      |
| <b>Slovakia</b>                |                   |        |        |        |        |        |        |        |
| <b>Spain</b>                   | 690               | 659    | 604    | 716    | 776    | 777    | 826    | 858    |
| <b>Sweden</b>                  | 1,866             | 2,237  | 2,332  | 2,242  | 2,053  | 2,021  | 2,263  | 2,095  |
| <b>Switzerland</b>             | 111               |        |        |        |        |        |        | 77     |
| <b>United Kingdom</b>          | 2,711             | 2,171  | 2,759  | 1,689  | 1,209  | 2,532  | 2,717  | 2,214  |
| <b>United States</b>           | 85,414            | 74,357 | 68,324 | 71,864 | 67,429 | 64,376 | 65,755 | 59,074 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | -5.8         | 12.7         | -7.9         | 0.9          | 1.6          | 7.6          | 9.3          |
| <b>Belgium</b>            | -0.8         | -5.7         | 7.6          | -0.4         | -6.6         | -8.1         | -16.8        |
| <b>Bulgaria</b>           |              |              |              | -9.2         | -12.6        | -4.6         |              |
| <b>Canada</b>             | -1.8         | -2.3         | 2.7          | 2.2          | 0.1          | -6.9         | 4.4          |
| <b>Czech Republic</b>     |              |              |              |              |              |              |              |
| <b>Denmark</b>            |              |              |              |              |              |              |              |
| <b>Estonia</b>            |              |              |              |              |              |              |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            |              |              |              |              |              |              |              |
| <b>France</b>             | -30.4        | 18.2         | -4.3         | -14.3        | -12.6        | -6.8         | -45.0        |
| <b>Germany</b>            |              |              |              |              |              |              |              |
| <b>Greece</b>             |              |              |              |              |              |              |              |
| <b>Iceland</b>            |              |              |              |              |              |              |              |
| <b>Ireland</b>            |              |              |              |              |              |              |              |
| <b>Italy</b>              |              |              |              | -3.5         | 3.1          | -0.4         |              |
| <b>Latvia</b>             | 455.3        | 49.8         | -8.2         | 9.1          | 33.3         | -31.3        | -13.2        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        |              |              |              |              |              |              |              |
| <b>New Zealand</b>        |              |              |              |              |              | 4.5          |              |
| <b>Norway</b>             |              |              |              | 1.1          | 7.1          | 18.0         | 43.9         |
| <b>Poland</b>             |              |              |              |              |              | -17.8        |              |
| <b>Portugal</b>           | -11.1        | 39.3         | -4.7         | 9.1          | 9.9          | 0.0          | 55.0         |
| <b>Romania</b>            | -7.2         | 9.7          | -5.1         | -30.7        | 6.4          | -100.0       |              |
| <b>Slovakia</b>           |              |              |              |              |              |              |              |
| <b>Spain</b>              | -8.3         | 18.7         | 8.3          | 0.1          | 6.4          | 3.8          | 24.4         |
| <b>Sweden</b>             | 4.3          | -3.9         | -8.4         | -1.5         | 12.0         | -7.4         | 12.3         |
| <b>Switzerland</b>        |              |              |              |              |              |              | -30.6        |
| <b>United Kingdom</b>     | 27.1         | -38.8        | -28.4        | 109.3        | 7.3          | -18.5        | -18.3        |
| <b>United States</b>      | -8.1         | 5.2          | -6.2         | -4.5         | 2.1          | -10.2        | -30.8        |



**Table 2.11****Metal production: iron and steel – trend information (continued)****CO<sub>2</sub> implied emission factors steel (t/t)**

|                          | 1990 <sup>a</sup> | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|--------------------------|-------------------|------|------|------|------|------|------|------|
| Austria                  | 2.16              | 1.90 | 2.00 | 1.94 | 1.78 | 1.78 | 1.67 | 1.81 |
| Belgium                  |                   |      |      |      |      |      |      |      |
| Bulgaria <sup>b</sup>    |                   |      |      |      | 0.82 | 0.82 | 0.82 | 0.82 |
| Canada                   | NA                | NA   | NA   | NA   | NA   | NA   | NA   | NA   |
| Czech Republic           |                   |      |      |      |      |      |      |      |
| Denmark                  |                   |      |      |      |      |      |      |      |
| Estonia                  |                   |      |      |      |      |      |      |      |
| European Community       |                   |      |      |      |      |      | NE   | NE   |
| Finland                  |                   |      |      |      |      |      |      |      |
| France                   | 0.08              | 0.07 | 0.06 | 0.06 | 0.06 | 0.06 | 0.04 | 0.05 |
| Germany                  | NE                | NE   | NE   | NE   | NE   | NE   | NE   | NE   |
| Greece                   |                   |      |      |      |      |      |      | NE   |
| Iceland                  |                   |      |      |      |      |      |      |      |
| Ireland                  |                   |      |      |      |      |      |      |      |
| Italy <sup>b</sup>       |                   |      |      |      | 0.04 | 0.04 | 0.04 | 0.04 |
| Latvia                   |                   |      |      |      |      |      |      | NE   |
| Luxembourg               |                   |      |      |      |      |      |      |      |
| Netherlands              | IE                | IE   | IE   | IE   | IE   | IE   | IE   | IE   |
| New Zealand <sup>b</sup> |                   |      |      |      |      |      | 2.05 | 1.95 |
| Norway                   |                   |      |      |      |      |      |      |      |
| Poland <sup>b</sup>      |                   |      |      |      |      |      | IE   | IE   |
| Portugal                 |                   |      |      |      |      |      |      |      |
| Romania                  |                   |      |      |      |      |      |      |      |
| Slovakia                 |                   |      |      |      |      |      | IE   | IE   |
| Spain                    | 0.05              | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| Sweden                   |                   |      |      |      |      |      |      |      |
| Switzerland              | 0.09              |      |      |      |      |      |      | 0.08 |
| United Kingdom           | 0.01              | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| United States            | 0.00              | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            | 5.5          | -3.1         | -8.1         | -0.1         | -6.3         | 8.5          | -16.1        |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              | 0.0          | 0.0          | 0.0          |              |
| Canada             |              |              |              |              |              |              |              |
| Czech Republic     |              |              |              |              |              |              |              |
| Denmark            |              |              |              |              |              |              |              |
| Estonia            |              |              |              |              |              |              |              |
| European Community |              |              |              |              |              |              |              |
| Finland            |              |              |              |              |              |              |              |
| France             | -12.1        | -2.9         | 0.0          | -2.0         | -25.1        | 14.9         | -36.6        |
| Germany            |              |              |              |              |              |              |              |
| Greece             |              |              |              |              |              |              |              |
| Iceland            |              |              |              |              |              |              |              |
| Ireland            |              |              |              |              |              |              |              |
| Italy              |              |              |              | 0.4          | -4.1         | 0.0          |              |
| Latvia             |              |              |              |              |              |              |              |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        |              |              |              |              |              |              |              |
| New Zealand        |              |              |              |              |              | -4.7         |              |
| Norway             |              |              |              |              |              |              |              |
| Poland             |              |              |              |              |              |              |              |
| Portugal           |              |              |              |              |              |              |              |
| Romania            |              |              |              |              |              |              |              |
| Slovakia           |              |              |              |              |              |              |              |
| Spain              | 0.0          | -0.2         | -0.1         | -0.1         | -0.2         | -0.1         | -2.1         |
| Sweden             |              |              |              |              |              |              |              |
| Switzerland        |              |              |              |              |              |              | -5.9         |
| United Kingdom     | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| United States      | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |

**Table 2.12****Metal production: aluminium – trend information****CO<sub>2</sub> emissions (Gg)**

|                             | 1990 <sup>a</sup> | 1995  | 1996  | 1997  | 1998  | 1999  | 2000  | 2001  |
|-----------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|
| <b>Austria</b>              | NE                | NE    | NE    | NE    | NE    | NE    | NE    | NE    |
| <b>Belgium</b>              |                   |       |       |       |       |       | NA    | NA    |
| <b>Bulgaria<sup>b</sup></b> |                   |       |       |       | 11    | 7     | 5     | 3     |
| <b>Canada</b>               | 2,636             | 3,545 | 3,726 | 3,794 | 3,817 | 3,919 | 3,892 | 4,163 |
| <b>Czech Republic</b>       |                   |       |       |       |       |       |       | NO    |
| <b>Denmark</b>              |                   |       |       |       |       |       |       |       |
| <b>Estonia<sup>b</sup></b>  |                   |       |       |       |       | 0     | 0     | 0     |
| <b>European Community</b>   | NE                | NE    | NE    | NE    | NE    | NE    | NE    | NE    |
| <b>Finland</b>              | NO                | NO    | NO    | NO    | NO    | NO    | NO    | NO    |
| <b>France</b>               | 512               | 572   | 597   | 616   | 637   | 672   | 639   | 668   |
| <b>Germany</b>              | 904               | 703   | 704   | 699   | 748   | 775   | 787   | 797   |
| <b>Greece<sup>b</sup></b>   | 232               | 203   | 203   | 206   | 226   | 248   | 252   | 251   |
| <b>Iceland</b>              |                   |       |       |       |       | 347   | 223   | 136   |
| <b>Ireland</b>              | NE                | NO    | 0     | NO    | NO    | NE    | NO    | 0     |
| <b>Italy<sup>b</sup></b>    |                   |       |       |       | 290   | 290   | 294   | 291   |
| <b>Latvia</b>               | NO                | NO    | NO    | NO    | NO    | NO    | NO    | NO    |
| <b>Luxembourg</b>           |                   |       |       |       |       |       |       |       |
| <b>Netherlands</b>          | IE                | IE    | IE    | IE    | IE    | IE    | IE    | IE    |
| <b>New Zealand</b>          | 458               | 470   | 493   | 504   | 541   | 535   | 520   | 504   |
| <b>Norway</b>               | 1,431             |       |       |       | 1,645 | 1,700 | 1,734 | 1,752 |
| <b>Poland<sup>b</sup></b>   |                   |       |       |       |       |       | 84    | 98    |
| <b>Portugal</b>             | 17                | 26    | 27    | 28    | 30    | 32    | 34    | 36    |
| <b>Romania<sup>b</sup></b>  |                   | 216   | 218   | 246   | 263   | 261   | 272   | 275   |
| <b>Slovakia<sup>b</sup></b> |                   |       |       |       |       | IE    | IE    | IE    |
| <b>Spain</b>                | 551               | 560   | 560   | 558   | 558   | 564   | 567   | 583   |
| <b>Sweden</b>               | 179               | 174   | 184   | 184   | 187   | 188   | 195   | 187   |
| <b>Switzerland</b>          | 115               |       |       |       |       |       |       | 58    |
| <b>United Kingdom</b>       | 450               | 369   | 372   | 384   | 401   | 421   | 470   | 525   |
| <b>United States</b>        | 6,315             | 5,265 | 5,580 | 5,621 | 5,792 | 5,895 | 5,410 | 4,114 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            |              |              |              |              |              |              |              |
| <b>Belgium</b>            |              |              |              |              |              |              |              |
| <b>Bulgaria</b>           |              |              |              | -37.3        | -23.9        | -50.8        |              |
| <b>Canada</b>             | 5.1          | 1.8          | 0.6          | 2.7          | -0.7         | 7.0          | 57.9         |
| <b>Czech Republic</b>     |              |              |              |              |              |              |              |
| <b>Denmark</b>            |              |              |              |              |              |              |              |
| <b>Estonia</b>            |              |              |              |              |              |              |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            |              |              |              |              |              |              |              |
| <b>France</b>             | 4.3          | 3.2          | 3.5          | 5.5          | -4.9         | 4.6          | 30.6         |
| <b>Germany</b>            | 0.2          | -0.7         | 7.0          | 3.6          | 1.6          | 1.2          | -11.9        |
| <b>Greece</b>             | 0.0          | 1.3          |              |              | 1.7          | -0.3         | 8.3          |
| <b>Iceland</b>            |              |              |              |              | -35.7        | -38.9        |              |
| <b>Ireland</b>            |              |              |              |              |              |              |              |
| <b>Italy</b>              |              |              |              | 0.1          | 1.4          | -1.2         |              |
| <b>Latvia</b>             |              |              |              |              |              |              |              |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        |              |              |              |              |              |              |              |
| <b>New Zealand</b>        | 4.9          | 2.2          | 7.4          | -1.2         | -2.8         | -3.0         | 10.1         |
| <b>Norway</b>             |              |              |              | 3.3          | 2.0          | 1.0          | 22.4         |
| <b>Poland</b>             |              |              |              |              |              | 16.5         |              |
| <b>Portugal</b>           | 2.9          | 6.8          | 6.4          | 6.0          | 5.7          | 5.4          | 111.5        |
| <b>Romania</b>            | 0.7          | 13.1         | 6.7          | -0.6         | 4.0          | 1.1          |              |
| <b>Slovakia</b>           |              |              |              |              |              |              |              |
| <b>Spain</b>              | 0.0          | -0.5         | 0.2          | 1.0          | 0.5          | 3.0          | 5.9          |
| <b>Sweden</b>             | 6.1          | -0.5         | 2.1          | 0.6          | 3.6          | -4.2         | 4.3          |
| <b>Switzerland</b>        |              |              |              |              |              |              | -49.4        |
| <b>United Kingdom</b>     | 0.9          | 3.2          | 4.3          | 5.2          | 11.5         | 11.7         | 16.5         |
| <b>United States</b>      | 6.0          | 0.7          | 3.1          | 1.8          | -8.2         | -24.0        | -34.9        |

**Table 2.12****Metal production: aluminium – trend information (continued)****CO<sub>2</sub> implied emission factors (t/t)**

|                       | 1990 <sup>a</sup> | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|-----------------------|-------------------|------|------|------|------|------|------|------|
| Austria               |                   |      |      |      |      |      |      |      |
| Belgium               |                   |      |      |      |      |      |      |      |
| Bulgaria <sup>b</sup> |                   |      |      |      | 1.65 | 1.65 | 1.65 | 1.65 |
| Canada                | 1.68              | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.61 |
| Czech Republic        |                   |      |      |      |      |      |      |      |
| Denmark               |                   |      |      |      |      |      |      |      |
| Estonia               |                   |      |      |      |      |      |      |      |
| European Community    |                   |      |      |      |      |      |      |      |
| Finland               |                   |      |      |      |      |      |      |      |
| France                | 1.57              | 1.57 | 1.57 | 1.54 | 1.52 | 1.49 | 1.46 | 1.46 |
| Germany               | 0.71              | 0.71 | 0.71 | 0.70 | 0.68 | 0.67 | 0.65 | 0.62 |
| Greece                |                   |      |      |      |      |      |      | C    |
| Iceland <sup>b</sup>  |                   |      |      |      |      | 1.56 | 0.99 | 0.56 |
| Ireland               |                   |      |      |      |      |      |      |      |
| Italy <sup>b</sup>    |                   |      |      |      | 1.55 | 1.55 | 1.55 | 1.55 |
| Latvia                |                   |      |      |      |      |      | NO   | NO   |
| Luxembourg            |                   |      |      |      |      |      |      |      |
| Netherlands           | IE                | IE   | IE   | IE   | IE   | IE   | IE   | IE   |
| New Zealand           | 1.73              | 1.73 | 1.73 | 1.62 | 1.70 | 1.63 | 1.58 | 1.56 |
| Norway                | 1.65              |      |      |      | 1.58 | 1.45 | 1.37 | 1.41 |
| Poland <sup>b</sup>   |                   |      |      |      |      |      | 1.80 | 1.80 |
| Portugal              | 1.80              | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 |
| Romania <sup>b</sup>  |                   | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 |
| Slovakia              |                   |      |      |      |      |      | IE   | IE   |
| Spain                 | 1.55              | 1.55 | 1.55 | 1.55 | 1.55 | 1.55 | 1.55 | 1.55 |
| Sweden                | 1.86              | 1.83 | 1.89 | 1.88 | 1.95 | 1.90 | 1.93 | 1.84 |
| Switzerland           | 1.60              |      |      |      |      |      |      |      |
| United Kingdom        | 1.55              | 1.55 | 1.55 | 1.55 | 1.55 | 1.55 | 1.54 | 1.54 |
| United States         | 1.56              | 1.56 | 1.56 | 1.56 | 1.56 | 1.56 | 1.56 | 1.56 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            |              |              |              |              |              |              |              |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              | 0.0          | 0.0          | 0.0          |              |
| Canada             |              |              |              |              |              |              |              |
| Czech Republic     |              |              |              |              |              |              |              |
| Denmark            |              |              |              |              |              |              |              |
| Estonia            |              |              |              |              |              |              |              |
| European Community |              |              |              |              |              |              |              |
| Finland            |              |              |              |              |              |              |              |
| France             | 0.0          | -1.8         | -1.8         | -1.8         | -1.8         | 0.0          | -7.0         |
| Germany            | 0.3          | -1.8         | -3.0         | -0.2         | -4.0         | -3.4         | -11.6        |
| Greece             |              |              |              |              |              |              |              |
| Iceland            |              |              |              |              | -36.9        | -43.3        |              |
| Ireland            |              |              |              |              |              |              |              |
| Italy              |              |              |              | 0.0          | 0.0          | 0.0          |              |
| Latvia             |              |              |              |              |              |              |              |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        |              |              |              |              |              |              |              |
| New Zealand        | 0.1          | -6.4         | 5.1          | -4.3         | -3.1         | -1.5         | -10.3        |
| Norway             |              |              |              | -8.0         | -6.1         | 3.4          | -14.5        |
| Poland             |              |              |              |              |              | 0.0          |              |
| Portugal           | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Romania            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |              |
| Slovakia           |              |              |              |              |              |              |              |
| Spain              | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Sweden             | 3.4          | -0.6         | 3.7          | -2.7         | 1.8          |              |              |
| Switzerland        |              |              |              |              |              |              |              |
| United Kingdom     | 0.0          | -0.1         | 0.0          | -0.1         | -0.5         | 0.0          | -0.9         |
| United States      | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |

**Table 2.13**  
**Metal production, PFCs and SF<sub>6</sub> (2001)**

|                              | PFCs                             |                |                                   |                         |                                      |                           |                 |            |                 |                               |   | SF <sub>6</sub>                  |    |   |                         |   |        |                      |   |
|------------------------------|----------------------------------|----------------|-----------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|------------|-----------------|-------------------------------|---|----------------------------------|----|---|-------------------------|---|--------|----------------------|---|
|                              | Methods and EF used <sup>a</sup> |                | 2.C.3 Aluminium production - PFCs |                         |                                      |                           |                 |            |                 |                               |   | Methods and EF used <sup>b</sup> |    | 2.C.4.2 SF <sub>6</sub> used in magnesium foundries |                         |   |        |                      |   |
|                              | Methods                          | EF             | Key source                        | Share of national total | Activity data (Aluminium production) |                           |                 |            | IEF             |                               | Ratio <sup>f</sup><br>IEF CF <sub>4</sub> / IEF C <sub>2</sub> F <sub>6</sub> | Methods                          | EF | Key source  | Share of national total | Activity data   |        | SF <sub>6</sub> -IEF | Actual emissions SF <sub>6</sub> <sup>h</sup> |
|                              |                                  |                |                                   |                         | CRF (2000) <sup>c</sup>              | CRF (2001) <sup>c,d</sup> | UN <sup>e</sup> | Difference | CF <sub>4</sub> | C <sub>2</sub> F <sub>6</sub> |   |                                  |    |   |                         | Description   | Value  |                      |   |
|                              |                                  |                |                                   |                         |                                      |                           |                 |            |                 |                               |   |                                  |    |   |                         |   |        |                      |   |
| IPCC default EF <sup>f</sup> |                                  |                |                                   |                         |                                      |                           |                 |            | 0.31-1.7        | 0.04-0.17                     |   |                                  |    |   |                         |   |        | 1 <sup>g</sup>       |   |
| Austria                      |                                  |                |                                   |                         | NO                                   | NO                        |                 |            |                 |                               |   |                                  |    |   |                         | Cast magnesium [t]  | 3,600  |                      | 0.0   |
| Belgium                      |                                  |                |                                   |                         |                                      |                           |                 |            |                 |                               |   |                                  |    |   |                         |   |        |                      |   |
| Bulgaria                     | D                                | D              |                                   | 0.0                     | 3.2                                  | 1.6                       |                 |            | 0.00            | 0.01                          | 0.1   | NE                               | NE |   |                         | NO  |        |                      | NO  |
| Canada                       | T2                               | CS             | L, T                              | 0.9                     | 2,384.9                              | 2,582.7                   | 2,582.7         | 0.0        | 0.00            | 0.00                          | 12.5  | T3                               | PS | T   | 0.3                     | Point source SF <sub>6</sub> data from magnesium smelters | 70,000 | 0                    | 84.6  |
| Czech Republic               |                                  |                |                                   |                         |                                      | NO                        |                 |            |                 |                               |   |                                  |    |   |                         | NO  |        |                      |   |
| Denmark                      |                                  |                |                                   |                         |                                      |                           | 32.6            |            |                 |                               |   |                                  |    |   |                         |   |        |                      |   |
| Estonia                      |                                  |                |                                   |                         |                                      |                           |                 |            |                 |                               |   |                                  |    |   |                         |   |        |                      |   |
| European Community           | CS, D, PS, T1, T2, T3a, T3b      | CS, D, PS, T3a |                                   |                         |                                      |                           |                 |            | NE              | NE                            |   | NE                               | NE |   |                         |   |        | NE                   | NE  |
| Finland                      | NO                               | NO             |                                   |                         | NO                                   | NO                        |                 |            |                 |                               |   | T2, T1a                          | NA |   |                         | (SF <sub>6</sub> consumption)                             | C      |                      | C   |
| France                       |                                  |                |                                   | 0.1                     | 437.7                                | 457.7                     | 459.8           | 0.5        | 0.17            | 0.02                          | 10.0  |                                  |    |   | 0.2                     | (SF <sub>6</sub> consumption)                             | 48     | 1000                 | 47.5  |
| Germany                      | T3a                              | T3a            |                                   | 0.0                     | 643.8                                | 652.8                     | 651.6           | -0.2       | 0.00            | 0.00                          | 10.0  | T1                               | T1 |   | 0.0                     | Cover gas   | 17,723 | 0                    | 14.0  |
| Greece                       |                                  |                | T                                 | 0.1                     | C                                    | C                         | 163.0           |            | C               | C                             |   |                                  |    |   |                         | NA  | NA     | NE                   | NE  |
| Iceland                      | CS                               | CS             | L                                 | 3.0                     | 226.0                                | 244.0                     | 169.5           | -30.5      | 0.04            | 0.00                          | 9.0   |                                  |    |   |                         |   |        |                      |   |
| Ireland                      | NA                               | NA             |                                   |                         | NO                                   |                           |                 |            |                 |                               |   | NA                               | NA |   |                         |   |        |                      |   |
| Italy                        | D, T1                            | CS             |                                   | 0.0                     | 189.8                                | 187.5                     | 187.5           | 0.0        | 0.00            | 0.00                          | 10.0  |                                  |    |   | 0.1                     | SF <sub>6</sub> consumption                               | 19     | 1                    | 18.8  |
| Latvia                       | NO                               | NO             |                                   |                         | NO                                   | NO                        |                 |            | NO              | NO                            |   | NO                               | NO |   |                         |   | NO     | NO                   | NO  |
| Luxembourg                   |                                  |                |                                   |                         |                                      |                           |                 |            |                 |                               |   |                                  |    |   |                         |   |        |                      |   |
| Netherlands                  | CS/T2&T3b                        | PS             | L, T                              | 0.6                     | 302.6                                | 293.2                     | 294.0           | 0.3        | 0.00            | 0.00                          | 4.6   | NO                               |    |   |                         |   |        |                      |   |
| New Zealand                  |                                  |                |                                   | 0.1                     | 329.0                                | 0.3                       | 322.3           |            | 0.02            | 0.00                          | 9.0   |                                  |    |   |                         |   |        | NO                   | NO  |
| Norway                       |                                  |                | L, T                              | 1.8                     | 1,031.0                              | 1,038.7                   | 1,067.6         | 2.8        | 0.00            | 0.00                          | 24.5  |                                  |    |   |                         |   |        |                      |   |
| Poland                       | T1c                              | D              |                                   | 0.2                     | 46.9                                 | 54.6                      | 44.7            | -18.1      | 2.00            | 0.20                          | 10.0  |                                  |    |   |                         |   |        |                      |   |
| Portugal                     | D                                | D              |                                   |                         | NO                                   | NO                        | 18.0            |            |                 |                               |   |                                  |    |   |                         |   |        |                      |   |
| Romania                      | T1c                              | T1c            |                                   | 0.5                     | 181.0                                | 183.0                     | 181.8           | -0.6       | 0.50            | 0.05                          | 10.2  | NE                               | NE |   |                         |   | NE     |                      |   |
| Slovakia                     |                                  |                |                                   | 0.0                     | 109.8                                | 110.1                     | 110.1           | 0.0        | 0.00            | 0.00                          | 10.0  |                                  |    |   |                         |   | NO     | NO                   | NO  |
| Spain                        | NO                               |                | T                                 | 0.0                     | 365.6                                | 376.4                     | 376.4           | 0.0        | 0.07            | 0.00                          | 14.8  | NO                               |    |   |                         |   | NO     |                      |   |
| Sweden                       | T2                               | CS             | T                                 | 0.4                     | 101.1                                | 101.8                     | 101.8           | 0.0        | 0.00            | 0.00                          | 9.0   | D                                | D  | T   | 0.1                     | SF <sub>6</sub> consumption                               | 2      | 1                    | 2.0   |
| Switzerland                  | T2                               | M              | T                                 | 0.0                     | 35.5                                 | 36.0                      | 36.2            | 0.6        | 0.03            | 0.00                          | 10.0  | T2                               | M  |   | 0.0                     |   |        |                      | 1.0   |
| United Kingdom               | T2/PS                            | CS             | T                                 | 0.0                     | 305.1                                | 340.8                     | 340.8           | 0.0        | 0.10            |                               |   | T2/PS                            | CS |   | 0.1                     | SF <sub>6</sub> consumption                               | 32     | 1000                 | 32.0  |
| United States                | CS                               | PS             | T                                 | 0.1                     | 3,468.0                              | 2,637.0                   | 2,637.0         | 0.0        | 0.00            | 0.00                          | 9.2   | CS                               | CS | T   | 0.0                     | Primary and secondary production and casting activity     | C      | C                    | 105.7   |

**Note**

IEF for SF<sub>6</sub> used in aluminium foundries is reported only by Germany. This category has therefore not been included in this table.

<sup>a</sup> 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.

<sup>b</sup> 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 SF<sub>6</sub> for all subcategories within the category 2.C. Metal production.

<sup>c</sup> As United Nations data for 2001 were not available for all Parties for the comparisons of United Nations and CRF data in this table, data for the years 2000 from the CRF are provided together with the respective United Nations data for 2000.

<sup>d</sup> This column includes aluminium production data provided for CF<sub>4</sub> and C<sub>2</sub>F<sub>6</sub> in tables 2 (II), C.E of the CRF.

<sup>e</sup> Source of data for aluminium: United Nations Industrial Commodity Production Statistics Database (as of 6 June 2003), Department of Economic and Social Affairs, Statistics Division, United Nations, New York. Data are for primary production, except for Denmark and Portugal where only total production data were available.

<sup>f</sup> Source of default emission factors: IPCC good practice guidance, page 3.44.

<sup>g</sup> The default emission factor is 1 kg/t magnesium produced or smelted.

<sup>h</sup> IPCC good practice guidance state that emissions equal consumption (IPCC good practice, page 3.48).

**Table 2.14****Metal production: aluminium – trend information****CF<sub>4</sub> emissions (t)**

|                          | 1990 <sup>a</sup> | 1995    | 1996    | 1997    | 1998    | 1999    | 2000    | 2001  |
|--------------------------|-------------------|---------|---------|---------|---------|---------|---------|-------|
| Austria                  | 129.5             | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0   |
| Belgium                  |                   | NO      | NO      | NO      | NO      | NO      |         |       |
| Bulgaria <sup>b</sup>    |                   |         |         |         | 9.4     | 5.9     | 4.5     | 2.2   |
| Canada                   | 813.9             | 826.6   | 807.8   | 819.5   | 827.6   | 849.6   | 843.8   | 850.1 |
| Czech Republic           |                   |         |         |         |         |         |         |       |
| Denmark                  |                   |         |         |         |         |         |         |       |
| Estonia <sup>b</sup>     |                   |         |         |         |         | 0.0     | 0.0     | 0.0   |
| European Community       | NE                | NE      | NE      | NE      | NE      | NE      | NE      | NE    |
| Finland                  | NO                | NO      | NO      | NO      | NO      | NO      | NO      | NO    |
| France                   | 308.6             | 88.9    | 87.4    | 92.7    | 120.8   | 157.3   | 115.1   | 78.7  |
| Germany                  | NE                | 209.0   | 198.0   | 145.0   | 157.0   | 116.0   | 48.0    | 50.1  |
| Greece <sup>b</sup>      | 34.7              | 11.2    | 9.7     | 22.3    | 27.5    | 17.8    | 20.0    | 12.3  |
| Iceland <sup>b</sup>     |                   |         |         |         |         | 17.7    | 14.3    | 10.5  |
| Ireland                  | NO                | NO      | NO      | NO      | NO      | NO      | NO      | 0.0   |
| Italy <sup>b</sup>       |                   |         |         |         | 11.2    | 11.2    | 11.4    | 11.3  |
| Latvia                   | NO                | NO      | NO      | NO      | NO      | NO      | NO      | NO    |
| Luxembourg               |                   |         |         |         |         |         |         |       |
| Netherlands              | 301.0             | 223.0   | 247.0   | 261.0   | 195.2   | 153.9   | 160.4   | 155.0 |
| New Zealand <sup>b</sup> | 80.1              | 24.3    | 24.3    | 27.8    | 8.3     | 9.9     | 7.6     | 7.8   |
| Norway                   | 441.0             |         |         |         | 184.8   | 163.7   | 131.1   | 149.2 |
| Poland <sup>b</sup>      |                   |         |         |         |         |         | 93.9    | 109.2 |
| Portugal                 | NO                | NO      | NO      | NO      | NO      | NO      | NO      | NO    |
| Romania <sup>b</sup>     |                   | 72.0    | 72.5    | 82.0    | 87.5    | 87.0    | 90.5    | 91.5  |
| Slovakia <sup>b</sup>    |                   |         |         |         |         | 1.5     | 1.5     | 1.5   |
| Spain                    | 114.3             | 108.0   | 103.0   | 105.7   | 99.7    | 91.2    | 50.0    | 24.7  |
| Sweden                   | 58.5              | 50.6    | 43.9    | 40.1    | 38.9    | 42.8    | 35.1    | 34.5  |
| Switzerland              | 13.8              |         |         |         |         |         |         | 1.0   |
| United Kingdom           | 300.0             | 55.0    | 44.0    | 35.0    | 33.0    | 28.1    | 38.6    | 33.0  |
| United States            | 2,433.9           | 1,613.9 | 1,709.3 | 1,510.4 | 1,243.1 | 1,231.0 | 1,091.4 | 551.3 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            |              |              |              |              |              |              | -100         |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              | -37.3        | -23.9        | -50.8        |              |
| Canada             | -2.3         | 1.5          | 1.0          | 2.7          | -0.7         | 0.7          | 4.4          |
| Czech Republic     |              |              |              |              |              |              |              |
| Denmark            |              |              |              |              |              |              |              |
| Estonia            |              |              |              |              |              |              |              |
| European Community |              |              |              |              |              |              |              |
| Finland            |              |              |              |              |              |              |              |
| France             | -1.7         | 6.0          | 30.3         | 30.2         | -26.8        | -31.6        | -74.5        |
| Germany            | -5.3         | -26.8        | 8.3          | -26.1        | -58.6        | 4.3          |              |
| Greece             | -13.5        | 130.2        | 23.4         | -35.4        | 12.6         | -38.4        | -64.5        |
| Iceland            |              |              |              |              | -19.5        | -26.1        |              |
| Ireland            |              |              |              |              |              |              |              |
| Italy              |              |              |              | 0.1          | 1.4          | -1.2         |              |
| Latvia             |              |              |              |              |              |              |              |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        | 10.8         | 5.7          | -25.2        | -21.1        | 4.2          | -3.4         | -48.5        |
| New Zealand        | 0.0          | 14.4         | -70.0        | 18.8         | -23.6        | 3.6          | -90.2        |
| Norway             |              |              |              | -11.4        | -19.9        | 13.8         | -66.2        |
| Poland             |              |              |              |              |              | 16.3         |              |
| Portugal           |              |              |              |              |              |              |              |
| Romania            | 0.7          | 13.1         | 6.7          | -0.6         | 4.0          | 1.1          |              |
| Slovakia           |              |              |              |              | 0.5          | 0.3          |              |
| Spain              | -4.6         | 2.6          | -5.7         | -8.5         | -45.2        | -50.7        | -78.4        |
| Sweden             | -13.2        | -8.6         | -3.1         | 10.0         | -17.9        | -1.8         | -41.1        |
| Switzerland        |              |              |              |              |              |              | -92.5        |
| United Kingdom     | -20.0        | -20.5        | -5.7         | -14.8        | 37.3         | -14.5        | -89.0        |
| United States      | 5.9          | -11.6        | -17.7        | -1.0         | -11.3        | -49.5        | -77.4        |

**Table 2.15**  
**Production of halocarbons and SF<sub>6</sub> (2001)**

|                              | HFCs                             |                   |   |                         |                                    |                            |       | PFCs                             |       | SF <sub>6</sub>                  |    |        |
|------------------------------|----------------------------------|-------------------|---|-------------------------|------------------------------------|----------------------------|-------|----------------------------------|-------|----------------------------------|----|--------|
|                              | Methods and EF used <sup>a</sup> |                   | By-product emissions, production of HCFC-22 |                         |                                    |                            |       | Methods and EF used <sup>a</sup> |       | Methods and EF used <sup>a</sup> |    |        |
|                              |                                  |                   | Key source                                  | Share of national total | Activity data (HCFC-22 production) |                            | IEF   |                                  |       |                                  |    |        |
|                              |                                  |                   |   |                         | CRF                                | International <sup>b</sup> |       |                                  |       |                                  |    | HFC 23 |
|                              |                                  |                   |   |                         |                                    |                            |       |                                  |       |                                  |    |        |
| IPCC default EF <sup>c</sup> |                                  |                   |   |                         |                                    |                            | 40    |                                  |       |                                  |    |        |
| Austria                      |                                  |                   |   |                         | NO                                 |                            |       |                                  |       |                                  |    |        |
| Belgium                      |                                  |                   |   |                         |                                    |                            |       |                                  |       |                                  |    |        |
| Bulgaria                     | NE                               | NE                |   |                         | NO                                 |                            | NO    | NE                               | NE    | NE                               | NE |        |
| Canada                       | NA                               | NA                |   |                         | NA                                 | X                          |       | NA                               | NA    | NA                               | NA |        |
| Czech Republic               | NO                               |                   |   |                         | NO                                 |                            |       | NO                               |       | NO                               |    |        |
| Denmark                      | NO                               |                   |   |                         |                                    |                            |       | NO                               |       | NO                               |    |        |
| Estonia                      |                                  |                   |   |                         |                                    |                            |       |                                  |       |                                  |    |        |
| European Community           | CS, D, PS, T1, T2                | CS, D, PS, T1, T2 |   |                         |                                    |                            | NE    | NE                               | NE    | NE                               | NE |        |
| Finland                      | NO                               | NO                |   |                         | NO                                 |                            |       | NO                               | NO    | NO                               | NO |        |
| France                       | CS                               | CS                | T   | 0.0                     | C                                  | X                          | 0.00  | CS                               | CS    |                                  |    |        |
| Germany                      | T1                               | T1                |   | 0.1                     | 30,000.00                          | X                          | 0.00  | NO                               | NO    | T1                               | T1 |        |
| Greece                       | T1                               | D                 | L, T  | 2.8                     | C                                  | X                          | C     | CS                               | CS    |                                  |    |        |
| Iceland                      |                                  |                   |   |                         |                                    |                            |       |                                  |       |                                  |    |        |
| Ireland                      | NA                               | NA                |   |                         |                                    |                            |       | NA                               | NA    | NA                               | NA |        |
| Italy                        | CS                               | CS                |   |                         |                                    | X                          |       | CS                               | CS    | CS                               | CS |        |
| Latvia                       | NO                               | NO                |   |                         | NO                                 |                            | NO    | NO                               | NO    | NO                               | NO |        |
| Luxembourg                   | NA                               | NA                |   |                         |                                    |                            |       | NA                               | NA    | NA                               | NA |        |
| Netherlands                  | CS/T2                            | PS                | T   | 0.2                     | C                                  | X                          | C     | NO                               |       | NO                               |    |        |
| New Zealand                  |                                  |                   |   |                         | NO                                 |                            | NO    |                                  |       |                                  |    |        |
| Norway                       |                                  |                   |   |                         |                                    |                            |       |                                  |       |                                  |    |        |
| Poland                       |                                  |                   |   |                         | NE                                 |                            | NE    |                                  |       |                                  |    |        |
| Portugal                     |                                  |                   |   |                         | NO                                 |                            |       |                                  |       |                                  |    |        |
| Romania                      | NE                               | NE                |   |                         | NE                                 |                            |       | NE                               | NE    | NE                               | NE |        |
| Slovakia                     | NO                               | NO                |   |                         | NO                                 |                            | NO    | NO                               | NO    | NO                               | NO |        |
| Spain                        | D,CS,T2                          | D,PS,T2           | L, T  | 0.8                     | 11,269                             | X                          | 22.02 | CS,T3                            | PS,T3 | NO                               | NO |        |
| Sweden <sup>a</sup>          | NO                               | NO                |   |                         | NO                                 |                            | NO    | NO                               | NO    | NO                               | NO |        |
| Switzerland                  |                                  |                   |   |                         |                                    |                            |       |                                  |       |                                  |    |        |
| United Kingdom <sup>d</sup>  | T2/PS                            | CS                |   | 0.5                     | IE                                 | X                          |       | T2/PS                            | CS    | NO                               | NO |        |
| United States                | M, T2a                           | M, CS             | T   | 0.3                     | 152,368                            | X                          | 0.01  | M, T2a                           | M, CS | CS                               | CS |        |

<sup>a</sup> 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 SF<sub>6</sub> for all subcategories within the category 2.E. Production of halocarbons and SF<sub>6</sub>.

<sup>b</sup> An 'X' in this column indicates that an estimate of aggregated production of HCFCs for 2000 is available from the Secretariat of the Montreal Protocol. Usually HFC-23 occurs only during the production of HCFC-22.

<sup>c</sup> Source of default emission factors: IPCC Guidelines, volume 3, page 2.35.

<sup>d</sup> 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 31,311 t for 2000 and the implied emission factor was 9.23.

**Table 2.16****Production of halocarbons and SF<sub>6</sub>, HFC-23 – trend information****HFC-23 emissions (t)**

|                          | 1990 <sup>a</sup> | 1995  | 1996  | 1997  | 1998  | 1999  | 2000  | 2001  |
|--------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|
| Austria                  | NO                | NO    | NO    | NO    | NO    | NO    | NO    | NO    |
| Belgium                  |                   | NO    | NO    | NO    | NO    | NO    |       |       |
| Bulgaria <sup>b</sup>    |                   |       |       |       | NO    |       |       | NO    |
| Canada                   | NO                | NO    | NO    | NO    | NO    | NO    | NO    | NO    |
| Czech Republic           |                   |       |       |       |       |       |       |       |
| Denmark                  |                   |       |       |       |       |       |       |       |
| Estonia                  |                   |       |       |       |       |       |       |       |
| European Community       | NE                | NE    | NE    | NE    | NE    | NE    | NE    | NE    |
| Finland                  | NO                | NO    | NO    | NO    | NO    | NO    | NO    | NO    |
| France                   | 166               | 15    | 10    | 10    | 19    | 28    | 17    | 19    |
| Germany                  | NE                | 360   | 260   | 250   | 240   | 226   | 100   | 90    |
| Greece <sup>b</sup>      | 80                | 278   | 320   | 338   | 320   | 320   | 320   | 320   |
| Iceland                  |                   |       |       |       |       |       |       |       |
| Ireland                  | NE                | NO    | NO    | NO    | NO    | NO    | NO    |       |
| Italy <sup>b</sup>       |                   |       |       |       | 0     |       | 0     | 0     |
| Latvia                   | NO                | NO    | NO    | NO    | NO    | NO    | NO    | NO    |
| Luxembourg               |                   |       |       |       |       |       |       |       |
| Netherlands              | 379               | 492   | 589   | 573   | 666   | 294   | 207   | 38    |
| New Zealand <sup>b</sup> | 0                 | NA    | NA    | NA    | NA    | NA    | NO    | NO    |
| Norway                   |                   |       |       |       |       |       |       |       |
| Poland <sup>b</sup>      |                   |       |       |       |       |       | NE    | NE    |
| Portugal                 | NO                | NO    | NO    | NO    | NO    | NO    | NO    | NO    |
| Romania                  |                   |       |       |       |       |       |       |       |
| Slovakia <sup>b</sup>    |                   |       |       |       |       | NO    | NO    | NO    |
| Spain                    | 205               | 396   | 432   | 495   | 434   | 504   | 540   | 248   |
| Sweden                   | NO                | NO    | NO    | NO    | NO    | NO    | NO    | NO    |
| Switzerland              | NO                |       |       |       |       |       |       | NO    |
| United Kingdom           | IE                | IE    | IE    | IE    | IE    | IE    | IE    | IE    |
| United States            | 2,990             | 2,310 | 2,660 | 2,563 | 3,432 | 2,599 | 2,546 | 1,694 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            |              |              |              |              |              |              |              |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              |              |              |              |              |
| Canada             |              |              |              |              |              |              |              |
| Czech Republic     |              |              |              |              |              |              |              |
| Denmark            |              |              |              |              |              |              |              |
| Estonia            |              |              |              |              |              |              |              |
| European Community |              |              |              |              |              |              |              |
| Finland            |              |              |              |              |              |              |              |
| France             | -33.3        | 0.0          | 90.0         | 47.9         | -40.2        | 11.3         | -88.7        |
| Germany            | -27.8        | -3.8         | -4.0         | -5.8         | -55.8        | -10.0        |              |
| Greece             | 15.2         | 5.7          | -5.5         | 0.0          | 0.0          | 0.0          | 300.4        |
| Iceland            |              |              |              |              |              |              |              |
| Ireland            |              |              |              |              |              |              |              |
| Italy              |              |              |              |              |              |              |              |
| Latvia             |              |              |              |              |              |              |              |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        | 19.6         | -2.6         | 16.1         | -55.8        | -29.6        | -81.4        | -89.9        |
| New Zealand        |              |              |              |              |              |              |              |
| Norway             |              |              |              |              |              |              |              |
| Poland             |              |              |              |              |              |              |              |
| Portugal           |              |              |              |              |              |              |              |
| Romania            |              |              |              |              |              |              |              |
| Slovakia           |              |              |              |              |              |              |              |
| Spain              | 9.0          | 14.4         | -12.2        | 16.0         | 7.3          | -54.1        | 20.8         |
| Sweden             |              |              |              |              |              |              |              |
| Switzerland        |              |              |              |              |              |              |              |
| United Kingdom     |              |              |              |              |              |              |              |
| United States      | 15.2         | -3.6         | 33.9         | -24.3        | -2.0         | -33.5        | -43.3        |

**Table 2.17**  
Consumption of halocarbons and SF<sub>6</sub>, HFCs (2001)

|                          | Methods and EF <sup>a</sup> |               | HFC-23                    |                |           | HFC-32                    |        |           | HFC-41                    |        |           | HFC-431-0mee              |        |           | HFC-125                   |          |           | HFC-134                   |        |           | HFC-134a                  |           |           |  |
|--------------------------|-----------------------------|---------------|---------------------------|----------------|-----------|---------------------------|--------|-----------|---------------------------|--------|-----------|---------------------------|--------|-----------|---------------------------|----------|-----------|---------------------------|--------|-----------|---------------------------|-----------|-----------|--|
|                          | Method                      | EF            | P <sup>d</sup>            | A <sup>e</sup> | 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 <sub>2</sub> equ.) |                |           | (Gg CO <sub>2</sub> equ.) |        |           | (Gg CO <sub>2</sub> equ.) |        |           | (Gg CO <sub>2</sub> equ.) |        |           | (Gg CO <sub>2</sub> equ.) |          |           | (Gg CO <sub>2</sub> equ.) |        |           | (Gg CO <sub>2</sub> equ.) |           |           |  |
| Austria                  | CS                          | CS            | 362.70                    | 6.44           | 56.34     | 15.99                     | 1.14   | 14.09     |                           |        |           |                           |        |           | 817.59                    | 61.33    | 13.33     |                           |        |           | 3,115.80                  | 848.99    | 3.67      |  |
| Belgium                  |                             |               |                           |                |           | 8.25                      | 4.03   | 2.05      |                           |        |           |                           |        |           | 376.72                    | 260.40   | 1.45      |                           |        |           | 1,100.58                  | 589.42    | 1.87      |  |
| Bulgaria                 | T1a                         | D             | 7.04                      |                |           |                           |        |           |                           |        |           |                           |        |           | 19.82                     |          |           |                           |        |           | 33.16                     |           |           |  |
| Canada                   | T2                          | D             | 1.65                      | 1.64           | 1.01      | 0.42                      | 0.14   | 2.96      |                           |        |           |                           |        |           | 39.19                     | 118.00   | 0.33      |                           |        |           | 1,720.42                  | 679.53    | 2.53      |  |
| Czech Republic           | T1                          |               | 3.38                      |                |           | 3.06                      |        |           |                           |        |           |                           |        |           | 179.91                    |          |           |                           |        |           | 574.59                    |           |           |  |
| Denmark                  | M/CS                        | CS            |                           |                |           |                           | 7.18   |           |                           |        |           |                           |        |           |                           | 136.56   |           |                           |        |           |                           | 349.37    |           |  |
| Estonia                  |                             |               |                           |                |           |                           |        |           |                           |        |           |                           |        |           |                           |          |           |                           |        |           |                           |           |           |  |
| European Community       | C, CS, D, M,                | C, CS, D, PS, | NE                        | NE             |           | NE                        | NE     |           | NE                        | NE     |           | NE                        | NE     |           | NE                        | NE       |           | NE                        | NE     |           | NE                        | NE        |           |  |
| Finland                  | T2, T1a & T1b               | D             |                           |                |           | 9.05                      | 5.03   | 1.80      |                           |        |           |                           |        |           | 295.43                    | 144.31   | 2.05      |                           |        |           | 505.65                    | 263.69    | 1.92      |  |
| France                   | CS/ T2                      | CS            |                           | 71.96          |           |                           | 23.98  |           |                           |        |           |                           | 173.88 |           |                           | 1,174.63 |           |                           |        |           |                           | 3,790.74  |           |  |
| Germany                  | T2                          | T2            | 362.70                    | 82.28          | 4.41      | 89.56                     | 11.05  | 8.10      | NO                        | NO     |           | 6.50                      | 6.50   | 1.00      | 1,803.23                  | 888.42   | 2.03      | NO                        | NO     |           | 5,395.19                  | 4,613.32  | 1.17      |  |
| Greece                   |                             |               |                           |                |           |                           | 70.54  |           |                           |        |           |                           |        |           |                           | 310.89   |           |                           |        |           |                           | 284.55    |           |  |
| Iceland                  | T1                          | D             |                           |                |           | 0.03                      |        |           |                           |        |           |                           |        |           | 23.17                     |          |           |                           |        |           | 6.76                      |           |           |  |
| Ireland                  | NA                          | NA            | 13.85                     | 11.68          | 1.19      | 29.17                     | 1.46   | 20.00     |                           |        |           |                           |        |           | 628.49                    | 56.80    | 11.07     |                           |        |           | 364.21                    | 78.12     | 4.66      |  |
| Italy                    | D, T2                       | CS            |                           | 13.45          |           | 3.25                      | 93.13  | 0.03      |                           |        |           |                           |        |           | 1,671.60                  | 671.68   | 2.49      |                           | 0.06   |           | 4,371.90                  | 1,548.45  | 2.82      |  |
| Latvia                   | NE                          | NE            | NO/NE                     | NE             |           | NO/NE                     | NE     |           | NO/NE                     | NE     |           | NO/NE                     | NE     |           | NO/NE                     | NE       |           | NO/NE                     | NE     |           | NO/NE                     | NE        | NE        |  |
| Luxembourg               | C                           | C             |                           |                |           |                           |        |           |                           |        |           |                           |        |           |                           |          |           |                           |        |           |                           |           |           |  |
| Netherlands <sup>b</sup> | M,CS/T2                     | CS            |                           |                |           |                           |        |           |                           |        |           |                           |        |           | 753.20                    | 119.38   | 6.31      |                           |        |           | 702.00                    | 638.90    | 1.10      |  |
| New Zealand              | T2                          | D             | NO                        | NO             |           | NE                        | 0.03   | NE        | NO                        | NO     |           | NO                        | NO     |           | NE                        | 35.94    | NE        | NO                        | NO     |           | NE                        | 138.50    | NE        |  |
| Norway                   | T2                          | CS            | 0.90                      | 0.84           | 1.07      | 6.34                      | 0.98   | 6.44      |                           |        |           |                           |        |           | 314.65                    | 92.21    | 3.41      |                           |        |           | 429.68                    | 93.39     | 4.60      |  |
| Poland                   | T1a, T1b, T2                | D             | 13.57                     | 1.99           | 6.82      | 3.11                      | 1.29   | 2.41      |                           |        |           |                           |        |           | 290.47                    | 131.18   | 2.21      |                           |        |           | 813.70                    | 961.50    | 0.85      |  |
| Portugal                 | D                           | D             |                           |                |           |                           |        |           |                           |        |           |                           |        |           |                           | 0.98     |           |                           |        |           |                           | 59.46     |           |  |
| Romania                  | NE                          | NE            |                           |                |           |                           |        |           |                           |        |           |                           |        |           |                           |          |           |                           |        |           |                           |           |           |  |
| Slovakia                 | D                           | D,CS          | 0.87                      | 0.65           | 1.33      | 1.88                      | 0.38   | 4.95      |                           |        |           |                           |        |           | 44.88                     | 9.42     | 4.76      |                           |        |           | 87.31                     | 55.74     | 1.57      |  |
| Spain                    | D,CS,T2                     | D,PS,T2       |                           | 603.15         |           |                           |        |           |                           |        |           |                           |        |           |                           | 151.88   |           |                           |        |           |                           | 1,248.81  |           |  |
| Sweden                   | T2                          | CS,D          | 1.14                      | 0.80           | 1.43      | 8.12                      | 0.25   | 31.94     |                           |        |           |                           |        |           | 195.25                    | 9.26     | 21.08     |                           |        |           | 414.53                    | 326.78    | 1.27      |  |
| Switzerland              | T2                          | M             | NO                        | NO             | NA        | 12.06                     | 2.04   | 5.92      | NO                        | NO     | NA        | NO                        | NO     | NA        | 128.97                    | 56.47    | 2.28      | NO                        | NO     | NA        | 811.48                    | 338.48    | 2.40      |  |
| United Kingdom           | T2                          | D/CS          | 11,536.23                 | 5,498.43       | 2.10      |                           | IE     |           |                           | IE     |           |                           | IE     |           |                           | IE       |           |                           | IE     |           |                           | IE        |           |  |
| United States            | M, T2a                      | M, CS         | 5,348.41                  | 644.91         | 8.29      | 2,790.41                  | 156.19 | 17.87     |                           |        |           |                           |        |           | 37,880.21                 | 5,233.47 | 7.24      |                           |        |           | 92,435.50                 | 41,017.38 | 2.25      |  |

|                             | 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)                    |           | 2.F(p) |
|                             | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) |           |        |
| Austria                     | 64.68                     | 63.31                     | 1.02                      |                           |                           |                           | 680.34                    | 51.55                     | 13.20                     | 33.35                     | 0.50                      | 67.32                     |                           |                           |                           |                           |                           |                           | 5,090.46                  | 1,033.25                  | 4.93      |        |
| Belgium                     | 11.04                     | 7.25                      | 1.52                      |                           |                           |                           | 706.06                    | 366.32                    | 1.93                      |                           |                           |                           |                           |                           |                           |                           |                           |                           | 2,202.65                  | 1,227.42                  | 1.79      |        |
| Bulgaria                    |                           |                           |                           |                           |                           |                           | 28.90                     |                           |                           | 8.58                      |                           |                           |                           |                           |                           |                           |                           |                           | 97.50                     |                           |           |        |
| Canada                      | 2.57                      | 4.39                      | 0.59                      |                           |                           |                           | 47.18                     | 113.67                    | 0.42                      | 3.10                      |                           |                           |                           |                           |                           |                           |                           |                           | 1,814.53                  | 917.38                    | 1.98      |        |
| Czech Republic              | 0.33                      |                           |                           |                           |                           |                           | 256.99                    |                           |                           | 2.90                      |                           |                           | 24.00                     |                           |                           |                           |                           |                           | 1,045.17                  |                           |           |        |
| Denmark                     |                           | 1.88                      |                           |                           |                           |                           |                           | 152.33                    |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           | 1,138.48                  | 647.32                    |           |        |
| Estonia                     |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |           |        |
| European Community          | NE                        | NE                        |                           | NE                        | NE                        |                           | NE                        | NE                        |                           | NE                        | NE                        |                           | NE                        | NE                        |                           | NE                        | NE                        |                           | NE                        | 31,383.12                 |           |        |
| Finland                     | 10.28                     | 0.52                      | 19.67                     |                           |                           |                           | 363.85                    | 168.42                    | 2.16                      |                           |                           |                           |                           |                           |                           |                           |                           |                           | 1,191.50                  | 656.87                    | 1.81      |        |
| France                      |                           |                           |                           |                           |                           |                           |                           | 2,749.00                  |                           | 23.83                     |                           |                           |                           |                           |                           |                           |                           |                           |                           | 8,008.01                  |           |        |
| Germany                     | 256.20                    | 258.39                    | 0.99                      | NO                        | NO                        |                           | 2,220.42                  | 1,061.19                  | 2.09                      | 1,152.78                  | 110.43                    | 10.44                     | NO                        | NO                        |                           | NO                        | NO                        |                           | 11,286.59                 | 7,031.59                  | 1.61      |        |
| Greece                      |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           | 665.98                    |           |        |
| Iceland                     | 0.06                      |                           |                           |                           |                           |                           | 23.77                     |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           | 53.78                     |                           |           |        |
| Ireland                     |                           |                           |                           |                           |                           |                           | 659.45                    | 73.56                     | 8.96                      | 103.11                    | 9.29                      | 11.10                     |                           |                           |                           |                           |                           |                           | 1,798.28                  | 230.90                    | 7.79      |        |
| Italy                       |                           |                           |                           |                           |                           |                           | 258.40                    | 381.18                    | 0.68                      | 133.40                    | 0.14                      | 920.00                    |                           |                           |                           |                           |                           |                           | 6,438.55                  | 2,708.10                  | 2.38      |        |
| Latvia                      | NO/NE                     | NE                        | NE                        | NO/NE                     | NE                        | NE                        | NO/NE                     | NE                        | NE                        | NO/NE                     | NE                        | NE                        | NO/NE                     | NE                        | NE                        | NO/NE                     | NE                        | NE                        | NONE                      | NE                        | NE        |        |
| Luxembourg                  |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |           |        |
| Netherlands <sup>b</sup>    |                           |                           |                           |                           |                           |                           | 828.40                    | 147.06                    | 5.63                      | 150.00                    | 37.40                     | 4.01                      |                           |                           |                           |                           |                           |                           | 2,433.60                  | 942.73                    |           |        |
| New Zealand                 | NE                        | NO                        | NE                        | NO                        | NO                        |                           | NE                        | 56.74                     | NE                        | NO                        | 0.46                      | NE                        | NO                        | NO                        |                           | NO                        | NO                        |                           |                           | 231.67                    |           |        |
| Norway                      | 10.64                     | 1.42                      | 7.49                      |                           |                           |                           | 400.96                    | 102.03                    | 3.93                      | 14.27                     | 0.81                      | 17.61                     |                           |                           |                           |                           |                           |                           | 1,177.44                  | 291.68                    | 4.04      |        |
| Poland                      | 0.86                      | 1.05                      | 0.82                      |                           |                           |                           | 425.30                    | 174.50                    | 2.44                      | 31.56                     | 11.05                     | 2.86                      |                           |                           |                           |                           |                           |                           | 1,578.57                  | 1,282.56                  | 1.23      |        |
| Portugal                    |                           | 0.20                      |                           |                           |                           |                           |                           | 1.58                      |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           | 62.22                     |           |        |
| Romania                     |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |                           |           |        |
| Slovakia                    | 0.45                      | 0.14                      | 3.20                      |                           |                           |                           | 64.59                     | 13.21                     | 4.89                      | 23.20                     | 2.32                      | 10.00                     | 13.61                     | 1.36                      | 10.00                     |                           |                           |                           | 236.79                    | 83.23                     | 2.85      |        |
| Spain                       |                           |                           |                           |                           |                           |                           |                           | 238.08                    |                           |                           | 48.88                     |                           |                           | 4.24                      |                           |                           |                           |                           |                           | 2,295.04                  |           |        |
| Sweden                      | 25.24                     | 24.14                     | 1.05                      |                           |                           |                           | 142.89                    | 10.71                     | 13.34                     | 3.43                      | 0.00                      | 986.67                    |                           |                           |                           |                           |                           |                           | 790.60                    | 371.96                    | 2.13      |        |
| Switzerland                 | 12.23                     | 3.16                      | 3.87                      | NO                        | NO                        | NA                        | 111.35                    | 73.58                     | 1.51                      | 0.29                      | 0.14                      | 2.00                      | NO                        | NO                        | NA                        | NO                        | NO                        | NA                        | 1,076.39                  | 473.86                    | 2.27      |        |
| United Kingdom <sup>c</sup> |                           | IE                        |                           |                           | IE                        |                           |                           | IE                        |                           |                           | IE                        |                           |                           | IE                        |                           |                           | IE                        |                           |                           | 11,536.23                 | 5,498.43  | 2.10   |
| United States               |                           |                           |                           |                           |                           |                           | 33,766.78                 | 4,338.29                  | 7.78                      |                           |                           |                           | 3,429.28                  | 2,329.03                  | 1.47                      |                           |                           |                           | 225,282.05                | 63,830.35                 | 3.53      |        |

<sup>a</sup> 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 HFCs for all subcategories within the category 2.F. Consumption of halocarbons and SF<sub>6</sub>.

<sup>b</sup> The Netherlands reported aggregated emissions of some HFCs. They are reported as unspecified and not as HFC-227ea.

<sup>c</sup> The United Kingdom reported aggregated HFCs emissions for the industrial processes sector in the HFC-23 column.

<sup>d</sup> P = potential emissions

<sup>e</sup> A = Actual emissions



Table 2.17 (continued)

Consumption of halocarbons and SF<sub>6</sub>, PFCs and SF<sub>6</sub> (2001) (continued)

|                             | Methods and EF <sup>a</sup> |         | CF <sub>4</sub>           |                           |           | C <sub>2</sub> F <sub>6</sub> |                           |           | C <sub>3</sub> F <sub>8</sub> |                           |           | C <sub>4</sub> F <sub>10</sub> |                           |           | c-C <sub>4</sub> F <sub>8</sub> |                           |           | C <sub>2</sub> F <sub>12</sub> |                           |           | C <sub>2</sub> F <sub>14</sub> |                           |           | Total                     |                           |           |
|-----------------------------|-----------------------------|---------|---------------------------|---------------------------|-----------|-------------------------------|---------------------------|-----------|-------------------------------|---------------------------|-----------|--------------------------------|---------------------------|-----------|---------------------------------|---------------------------|-----------|--------------------------------|---------------------------|-----------|--------------------------------|---------------------------|-----------|---------------------------|---------------------------|-----------|
|                             | Method                      | EF      | P <sup>d</sup>            | A <sup>e</sup>            | 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)                    |           |
|                             |                             |         | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) |           | (Gg CO <sub>2</sub> equ.)     | (Gg CO <sub>2</sub> equ.) |           | (Gg CO <sub>2</sub> equ.)     | (Gg CO <sub>2</sub> equ.) |           | (Gg CO <sub>2</sub> equ.)      | (Gg CO <sub>2</sub> equ.) |           | (Gg CO <sub>2</sub> equ.)       | (Gg CO <sub>2</sub> equ.) |           | (Gg CO <sub>2</sub> equ.)      | (Gg CO <sub>2</sub> equ.) |           | (Gg CO <sub>2</sub> equ.)      | (Gg CO <sub>2</sub> equ.) |           | (Gg CO <sub>2</sub> equ.) | (Gg CO <sub>2</sub> equ.) |           |
| Austria                     | CS                          | CS      |                           | 9.53                      |           |                               | 15.63                     |           |                               |                           |           |                                |                           |           |                                 |                           |           |                                |                           |           |                                |                           |           | NE                        | 25.16                     |           |
| Belgium                     |                             |         |                           |                           |           |                               |                           |           |                               |                           |           |                                |                           |           |                                 |                           |           |                                |                           |           |                                |                           |           |                           |                           |           |
| Bulgaria                    | NE                          | NE      |                           |                           |           |                               |                           |           |                               |                           |           |                                |                           |           |                                 |                           |           |                                |                           |           |                                |                           |           |                           |                           |           |
| Canada                      | T2                          | D       | 5.46                      | 3.12                      | 1.75      | 29.49                         | 11.75                     | 2.51      | 18.88                         | 1.67                      | 11.32     | 0.12                           | 0.00                      | 336.63    | 0.00                            | 0.07                      | 0.01      | 0.15                           | 0.08                      | 1.85      | 2.23                           | 2.42                      | 0.92      | 56.34                     | 19.12                     | 2.95      |
| Czech Republic              | T1                          |         | 1.84                      |                           |           | 5.46                          |                           |           | 7.18                          |                           |           |                                |                           |           |                                 |                           |           |                                |                           |           |                                |                           |           | 14.49                     |                           |           |
| Denmark                     | M/CS                        | CS      |                           |                           |           |                               |                           |           |                               | 22.13                     |           |                                |                           |           |                                 |                           |           |                                |                           |           |                                |                           |           | 26.19                     | 22.13                     |           |
| Estonia                     |                             |         |                           |                           |           |                               |                           |           |                               |                           |           |                                |                           |           |                                 |                           |           |                                |                           |           |                                |                           |           |                           |                           |           |
| European Community          | NE                          | NE      | NE                        | NE                        |           | NE                            | NE                        |           | NE                            | NE                        |           | NE                             | NE                        |           | NE                              | NE                        |           | NE                             | NE                        |           | NE                             | NE                        |           | NE                        | 2,346.95                  |           |
| Finland                     | T2, T1a, T1b                | NA      |                           |                           |           |                               |                           |           | 21.60                         | 19.74                     | 1.07      |                                |                           |           |                                 |                           |           |                                |                           |           |                                |                           |           | 21.94                     | 20.06                     | 1.09      |
| France                      | CS/ T2                      | CS      |                           | 192.73                    |           |                               | 413.75                    |           |                               | 0.03                      |           |                                |                           |           |                                 |                           |           |                                |                           |           |                                |                           |           | 128.38                    |                           | 734.89    |
| Germany                     | T2                          | T2      | 240.50                    | 125.11                    | 1.92      | 294.40                        | 122.21                    | 2.41      | 110.60                        | 103.29                    | 1.07      | NO                             | NO                        |           | 5.22                            | 0.79                      | 6.59      | NO                             | NO                        |           | NO                             | NO                        |           | 650.72                    | 351.40                    | 1.85      |
| Greece                      |                             |         |                           |                           |           |                               |                           |           |                               |                           |           |                                |                           |           |                                 |                           |           |                                |                           |           |                                |                           |           |                           |                           |           |
| Iceland                     |                             |         |                           |                           |           |                               |                           |           |                               |                           |           |                                |                           |           |                                 |                           |           |                                |                           |           |                                |                           |           |                           |                           |           |
| Ireland                     | NA                          | NA      | 56.67                     | 47.32                     | 1.20      | 395.60                        | 249.18                    | 1.59      |                               |                           |           |                                |                           |           |                                 |                           |           |                                |                           |           |                                |                           |           | 452.27                    | 296.50                    | 1.53      |
| Italy                       | D, T1                       | CS      |                           | 107.81                    |           |                               | 99.12                     |           |                               |                           |           |                                |                           |           |                                 | 11.30                     |           |                                |                           |           |                                |                           |           |                           | 218.23                    |           |
| Latvia                      | NE                          | NE      | NO/NE                     | NE                        | NE        | NO/NE                         | NE                        | NE        | NO/NE                         | NE                        | NE        | NO/NE                          | NE                        | NE        | NO/NE                           | NE                        | NE        | NO/NE                          | NE                        | NE        | NO/NE                          | NE                        | NE        | NO/NE                     | NE                        | NE        |
| Luxembourg                  | NA                          | NA      |                           |                           |           |                               |                           |           |                               |                           |           |                                |                           |           |                                 |                           |           |                                |                           |           |                                |                           |           |                           |                           |           |
| Netherlands <sup>b</sup>    | T2, T3b                     | D       |                           |                           |           |                               |                           |           |                               |                           |           |                                |                           |           |                                 | 136.08                    |           |                                |                           |           |                                |                           |           |                           | 136.08                    |           |
| New Zealand                 | T2                          | D       | 0.00                      | 107.81                    |           | 0.00                          | 99.12                     |           | NE                            | 0.00                      |           | 0.00                           | 0.00                      |           | 0.00                            | 11.30                     |           | 0.00                           | 0.00                      |           | 0.00                           | 0.00                      |           | 0.00                      | 0.00                      |           |
| Norway                      |                             |         |                           |                           |           |                               |                           |           | 0.39                          | 0.39                      | 1.00      |                                |                           |           |                                 |                           |           |                                |                           |           |                                |                           |           | 0.39                      | 0.39                      | 1.00      |
| Poland                      | T1a, T2                     | D       |                           |                           |           |                               |                           |           | 0.63                          |                           |           | 202.30                         | 70.81                     | 2.86      |                                 |                           |           |                                |                           |           |                                |                           |           | 202.93                    | 70.81                     | 2.87      |
| Portugal                    |                             |         |                           |                           |           |                               |                           |           |                               |                           |           |                                |                           |           |                                 |                           |           |                                |                           |           |                                |                           |           |                           |                           |           |
| Romania                     | NE                          | NE      |                           |                           |           |                               |                           |           |                               |                           |           |                                |                           |           |                                 |                           |           |                                |                           |           |                                |                           |           |                           |                           |           |
| Slovakia                    | D                           | D/CS    | 4.16                      |                           |           |                               |                           |           |                               |                           |           |                                |                           |           |                                 |                           |           |                                |                           |           |                                |                           |           | 4.16                      |                           |           |
| Spain                       | D/CS,T2                     | D/PS,T2 |                           |                           |           |                               |                           |           |                               | 50.69                     |           |                                | 2.62                      |           |                                 |                           |           |                                |                           |           |                                |                           |           |                           | 53.31                     |           |
| Sweden                      | T2                          | CS      | 7.80                      | 2.54                      | 3.07      | 8.28                          | 4.79                      | 1.73      | 0.70                          | 0.62                      | 1.14      |                                |                           |           |                                 |                           |           |                                |                           |           |                                |                           | 16.78     | 7.95                      | 2.11                      |           |
| Switzerland                 | T2                          | M       | 5.85                      | 4.30                      | 1.36      | 19.32                         | 12.10                     | 1.60      | 0.70                          | 2.03                      | 0.34      | NO                             | NO                        | NA        | NO                              | NO                        | NA        | NO                             | NO                        | NA        | NO                             | NO                        | NA        | 25.87                     | 18.43                     | 1.40      |
| United Kingdom <sup>c</sup> | T2                          | D/CS    |                           |                           |           |                               |                           | IE        |                               |                           | IE        |                                | IE                        | NA        |                                 | IE                        | NA        |                                | IE                        |           |                                | IE                        |           | 547.42                    | 481.23                    | 1.14      |
| United States               | M, T2a                      | M, CS   | 1,341.34                  | 1,414.91                  | 0.95      | 4,287.63                      | 3,001.34                  | 1.43      | 459.39                        | 183.76                    | 2.50      |                                |                           |           |                                 |                           |           |                                |                           |           |                                |                           | 6,088.36  | 4,600.01                  | 1.32                      |           |

| Total PFCs                  | Method and EF used <sup>a</sup>        |                      | SF <sub>6</sub>           |           | Ratio P/A |
|-----------------------------|--|----------------------|---------------------------|-----------|-----------|
|                             | Method                                 | EF                   | P                         | A         |           |
|                             |  |                      | 2.F(p)                    | 2.F(a)    |           |
|                             |  |                      | (Gg CO <sub>2</sub> equ.) |           |           |
| Austria                     | CS                                     | CS                   | 9,184.46                  | 669.30    | 13.72     |
| Belgium                     |  |                      | 193.14                    | 105.16    | 1.84      |
| Bulgaria                    | D                                      | D                    | 2.39                      | 1.10      | 2.17      |
| Canada                      | NA                                     | NA                   |                           |           |           |
| Czech Republic              | T1                                     |                      | 223.20                    |           |           |
| Denmark                     | M/CS                                   | CS                   | 30.43                     |           |           |
| Estonia                     |  |                      |                           |           |           |
| European Community          | C, CS, D, M, T1, T1a, T1b, T2, T3b, T2 | C, CS, D, PS, T1, T2 | NE                        | 6,543.03  |           |
| Finland                     | T2, T1a & T1b                          | D                    | 68.49                     | 55.03     | 1.24      |
| France                      | CS/ T2                                 | CS                   |                           | 965.75    |           |
| Germany                     | CS, T2, T1                             | CS, T2, T1           | 7,042.85                  | 2,740.62  | 2.57      |
| Greece                      |  |                      |                           |           |           |
| Iceland                     | D                                      | D                    |                           |           |           |
| Ireland                     | NA                                     | NA                   | 82.84                     | 66.75     | 1.24      |
| Italy                       | D, T3c                                 | CS                   | 5,903.30                  | 345.06    | 17.11     |
| Latvia                      | T2                                     | D                    | NO/NE                     | 0.02      | NE        |
| Luxembourg                  | C                                      | C                    |                           |           |           |
| Netherlands                 | T2, T3b                                | PS/CS/D              |                           | 296.09    |           |
| New Zealand                 | T2                                     | D                    | 35.46                     | 16.86     | 2.10      |
| Norway                      |  |                      | 257.37                    | 66.09     | 3.89      |
| Poland                      | T1a, T2                                | D                    | 55.54                     | 17.56     | 3.16      |
| Portugal                    | D                                      | CS                   |                           | 6.53      |           |
| Romania                     | NE                                     | NE                   |                           |           |           |
| Slovakia                    | D                                      | D/CS                 | 71.89                     | 13.48     | 5.33      |
| Spain                       | CS, T2                                 | CS, T2               |                           | 212.31    |           |
| Sweden                      | T2                                     | CS                   | 270.02                    | 52.64     | 5.13      |
| Switzerland                 | T2                                     | M                    | 375.80                    | 185.88    | 2.02      |
| United Kingdom <sup>c</sup> | T2                                     | CS                   | 1,865.63                  | 997.36    | 1.87      |
| United States               | CS                                     | CS                   | 28,096.16                 | 16,051.58 | 1.75      |

<sup>a</sup> 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 SF<sub>6</sub>.<sup>b</sup> The Netherlands reported aggregated emissions of all PFCs for the industrial processes sector. They are reported as unspecified and not as c-C<sub>4</sub>F<sub>10</sub>.<sup>c</sup> The United Kingdom reported aggregated PFCs emissions for the industrial processes sector under fugitive emissions.<sup>d</sup> P = Potential emissions<sup>e</sup> A = Actual emissions

**Table 2.18**
**Consumption of halocarbons and SF<sub>6</sub> – trend information**  
**HFC-134a emissions (t)**

|                          | 1990 <sup>a</sup> | 1995   | 1996   | 1997   | 1998   | 1999   | 2000   | 2001   |
|--------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|
| Austria                  | 1                 | 414    | 458    | 509    | 568    | 602    | 653    | 653    |
| Belgium                  |                   | 253    | 296    | 351    | 369    | 405    | 415    | 453    |
| Bulgaria                 |                   |        |        |        |        |        |        |        |
| Canada                   |                   | 285    | 543    | 406    | 523    | 523    | 523    | 523    |
| Czech Republic           |                   |        |        |        |        |        |        |        |
| Denmark                  |                   | 155    | 210    | 190    | 230    | 259    | 278    | 269    |
| Estonia                  |                   |        |        |        |        |        |        |        |
| European Community       | NE                | NE     | NE     | NE     | NE     | NE     | NE     | NE     |
| Finland                  |                   | 15     | 38     | 89     | 91     | 127    | 240    | 203    |
| France                   |                   | 787    | 1,441  | 1,977  | 2,158  | 2,438  | 2,826  | 2,916  |
| Germany                  | NE                | 1,451  | 1,735  | 2,033  | 2,318  | 2,375  | 2,691  | 3,549  |
| Greece <sup>b</sup>      |                   | 29     | 47     | 70     | 95     | 132    | 174    | 219    |
| Iceland                  |                   |        |        |        |        |        |        |        |
| Ireland                  | NE                | 7      | 10     | 17     | 31     | 34     | 44     | 60     |
| Italy <sup>b</sup>       |                   |        |        |        | 554    | 1,789  | 971    | 1,191  |
| Latvia                   | NO                | NE     | NE     | NE     | NE     | NE     | NE     | NE     |
| Luxembourg               |                   |        |        |        |        |        |        |        |
| Netherlands              |                   | 178    | 389    | 602    | 696    | 709    | 629    | 491    |
| New Zealand <sup>b</sup> | NA                | NE     | NE     | NE     | NE     | 103    | 104    | 107    |
| Norway                   |                   |        |        |        | 38     | 50     | 61     | 72     |
| Poland <sup>b</sup>      |                   |        |        |        |        |        | 538    | 740    |
| Portugal                 |                   |        | 0      | 1      | 5      | 14     | 27     | 46     |
| Romania                  |                   |        |        |        |        |        |        |        |
| Slovakia <sup>b</sup>    |                   |        |        |        |        | 44     | 48     | 43     |
| Spain                    |                   | 2      | 62     | 143    | 353    | 617    | 807    | 961    |
| Sweden                   | 3                 | 90     | 120    | 180    | 204    | 243    | 255    | 251    |
| Switzerland              | 0                 |        |        |        | 223    | 187    | 239    | 260    |
| United Kingdom           |                   |        |        |        |        |        |        |        |
| United States            | 564               | 12,232 | 16,211 | 20,166 | 23,089 | 26,095 | 28,906 | 31,552 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            | 10.5         | 11.2         | 11.5         | 6.0          | 8.5          | 0.0          | 48,146.9     |
| Belgium            | 16.8         | 18.7         | 5.1          | 9.8          | 2.4          | 9.3          |              |
| Bulgaria           |              |              |              |              |              |              |              |
| Canada             | 90.7         | -25.3        | 28.9         | 0.0          | 0.0          | 0.0          |              |
| Czech Republic     |              |              |              |              |              |              |              |
| Denmark            | 35.6         | -9.6         | 21.1         | 12.7         | 7.5          | -3.5         |              |
| Estonia            |              |              |              |              |              |              |              |
| European Community |              |              |              |              |              |              |              |
| Finland            | 158.8        | 136.6        | 1.7          | 39.2         | 90.0         | -15.6        |              |
| France             | 83.0         | 37.2         | 9.2          | 13.0         | 15.9         | 3.2          |              |
| Germany            | 19.6         | 17.2         | 14.0         | 2.4          | 13.3         | 31.9         |              |
| Greece             | 62.9         | 46.7         | 36.7         | 38.5         | 31.9         | 26.1         |              |
| Iceland            |              |              |              |              |              |              |              |
| Ireland            | 30.8         | 77.3         | 80.2         | 12.2         | 27.5         | 37.0         |              |
| Italy              |              |              |              | 222.9        | -45.7        | 22.7         |              |
| Latvia             |              |              |              |              |              |              |              |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        | 117.9        | 55.0         | 15.6         | 1.8          | -11.2        | -21.9        |              |
| New Zealand        |              |              |              |              | 1.2          | 2.5          |              |
| Norway             |              |              |              | 31.5         | 21.6         | 17.6         |              |
| Poland             |              |              |              |              |              | 37.4         |              |
| Portugal           |              | 421.9        | 288.4        | 185.4        | 94.4         | 67.9         |              |
| Romania            |              |              |              |              |              |              |              |
| Slovakia           |              |              |              |              | 7.4          | -10.2        |              |
| Spain              | 3,734.0      | 130.4        | 147.0        | 74.5         | 30.9         | 19.0         |              |
| Sweden             | 32.7         | 49.7         | 13.2         | 19.6         | 5.0          | -1.6         | 8,392.3      |
| Switzerland        |              |              |              | -16.0        | 27.7         | 9.0          | 1,502,340.6  |
| United Kingdom     |              |              |              |              |              |              |              |
| United States      | 32.5         | 24.4         | 14.5         | 13.0         | 10.8         | 9.2          | 5,493.3      |

**Table 2.18****Consumption of halocarbons and SF<sub>6</sub> – trend information (continued)****SF<sub>6</sub> emissions (t)**

|                          | 1990 <sup>a</sup> | 1995  | 1996  | 1997  | 1998 | 1999 | 2000 | 2001 |
|--------------------------|-------------------|-------|-------|-------|------|------|------|------|
| Austria                  | 11                | 31    | 27    | 33    | 33   | 30   | 28   | 28   |
| Belgium                  |                   | 4     | 9     | 9     | 4    | 4    | 5    | 4    |
| Bulgaria                 |                   |       |       |       |      |      | 0    | 0    |
| Canada                   |                   |       |       |       |      |      |      |      |
| Czech Republic           |                   |       |       |       |      |      |      |      |
| Denmark                  | 1                 | 3     | 2     | 2     | 2    | 2    | 2    | 1    |
| Estonia                  |                   |       |       |       |      |      |      |      |
| European Community       | 247               | 402   | 389   | 395   | 384  | 302  | 287  | 274  |
| Finland                  | 4                 | 2     | 2     | 2     | 1    | 1    | 1    | 2    |
| France                   | 44                | 49    | 50    | 50    | 48   | 41   | 40   | 40   |
| Germany                  | NE                | 267   | 252   | 246   | 234  | 166  | 147  | 115  |
| Greece                   |                   |       |       |       |      |      |      |      |
| Iceland                  |                   |       |       |       |      |      |      |      |
| Ireland                  | NE                | 3     | 4     | 6     | 4    | 3    | 2    | 3    |
| Italy <sup>b</sup>       |                   |       |       |       | 16   | 16   | 7    | 14   |
| Latvia                   | NO/NE             | 0     | 0     | 0     | 0    | 0    | 0    | 0    |
| Luxembourg               |                   |       |       |       |      |      |      |      |
| Netherlands              | 8                 | 12    | 12    | 13    | 12   | 11   | 11   | 12   |
| New Zealand <sup>b</sup> | NE                | 1     | 1     | 1     | 1    | 1    | 1    | 1    |
| Norway                   | 2                 |       |       |       | 3    | 3    | 3    | 3    |
| Poland <sup>b</sup>      |                   |       |       |       |      |      | 1    | 1    |
| Portugal                 |                   | 0     | 0     | 0     | 0    | 0    | 0    | 0    |
| Romania                  |                   |       |       |       |      |      |      |      |
| Slovakia <sup>b</sup>    |                   |       |       |       | 1    | 1    | 1    | 1    |
| Spain                    | 2                 | 4     | 4     | 5     | 6    | 8    | 9    | 9    |
| Sweden                   | 3                 | 4     | 3     | 5     | 3    | 3    | 2    | 2    |
| Switzerland              | 5                 |       |       |       |      |      |      | 8    |
| United Kingdom           | 10                | 22    | 23    | 23    | 37   | 38   | 40   | 42   |
| United States            | 1,360             | 1,185 | 1,190 | 1,095 | 916  | 732  | 689  | 672  |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            | -13.1        | 25.7         | -1.0         | -10.5        | -5.4         | 0.0          | 153.1        |
| Belgium            | 100.7        | 0.0          | -53.7        | 0.0          | 13.8         | -3.3         |              |
| Bulgaria           |              |              |              |              |              | 3.3          |              |
| Canada             |              |              |              |              |              |              |              |
| Czech Republic     |              |              |              |              |              |              |              |
| Denmark            | -28.1        | 14.2         | -27.3        | 13.9         | -22.0        | -19.8        | 154.6        |
| Estonia            |              |              |              |              |              |              |              |
| European Community | -3.2         | 1.5          | -2.7         | -21.3        | -5.0         | -4.7         | 10.7         |
| Finland            | -34.8        | 10.8         | -32.8        | 25.3         | -8.9         | 12.5         | -58.6        |
| France             | 1.3          | 0.0          | -5.0         | -14.3        | -1.3         | 0.5          | -8.9         |
| Germany            | -5.7         | -2.3         | -4.9         | -29.1        | -11.3        | -22.0        |              |
| Greece             |              |              |              |              |              |              |              |
| Iceland            |              |              |              |              |              |              |              |
| Ireland            | 21.6         | 30.8         | -31.4        | -30.0        | -18.2        | 28.6         |              |
| Italy              |              |              |              | 3.5          | -59.7        | 121.7        |              |
| Latvia             | 16.0         | 39.4         | 18.8         | 23.6         | 20.9         | 17.7         |              |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        | 3.5          | 9.3          | -5.4         | -10.0        | 1.4          | 10.2         | 58.4         |
| New Zealand        | 53.9         | 5.1          | 11.3         | 5.1          | -46.1        | 2.7          |              |
| Norway             |              |              |              | 2.1          | 2.1          | 2.1          | 65.3         |
| Poland             |              |              |              |              |              | 2.1          |              |
| Portugal           | 3.3          | 3.2          | 3.1          | 9.2          | 8.5          | 7.8          |              |
| Romania            |              |              |              |              |              |              |              |
| Slovakia           |              |              |              | 3.6          | 3.4          | 2.8          |              |
| Spain              | 8.3          | 20.3         | 15.3         | 31.9         | 13.8         | 0.6          | 280.8        |
| Sweden             | -23.0        | 45.0         | -47.6        | 1.5          | -38.5        | 41.2         | -36.9        |
| Switzerland        |              |              |              |              |              |              | 65.2         |
| United Kingdom     | 3.3          | -1.4         | 62.6         | 1.8          | 5.0          | 5.1          | 305.2        |
| United States      | 0.4          | -8.0         | -16.3        | -20.1        | -5.9         | -2.6         | -50.6        |

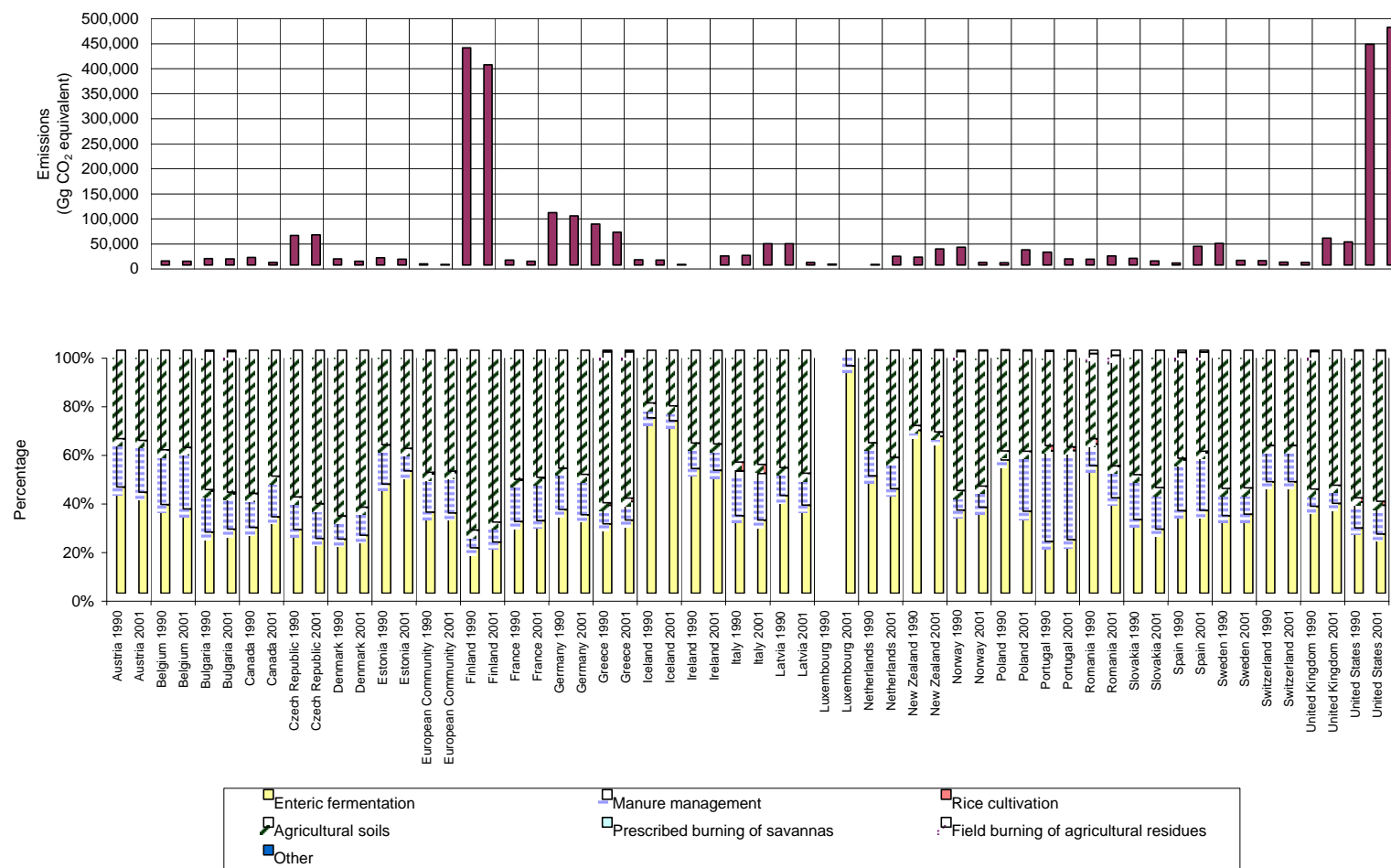
**Table 3.1****Solvent and other product use, CO<sub>2</sub> and N<sub>2</sub>O (2001)**

|                    | Methods and EF used |       | Methods and EF used |    | Key source | Paint application       |                     | Degreasing and dry cleaning |                     |                         |                      |
|--------------------|---------------------|-------|---------------------|----|------------|-------------------------|---------------------|-----------------------------|---------------------|-------------------------|----------------------|
|                    | CO <sub>2</sub>     |       | N <sub>2</sub> O    |    |            | CO <sub>2</sub>         |                     | CO <sub>2</sub>             |                     | N <sub>2</sub> O        |                      |
|                    | Method              | EF    | Method              | EF |            | Share of national total | CO <sub>2</sub> IEF | Share of national total     | CO <sub>2</sub> IEF | Share of national total | N <sub>2</sub> O IEF |
|                    |                     |       |                     |    |            |                         |                     |                             |                     |                         |                      |
| Austria            | C, CS               | CS    | CS                  | CS | T          | 0.1                     | 2.65                |                             |                     |                         |                      |
| Belgium            |                     |       |                     |    |            |                         |                     |                             |                     |                         |                      |
| Bulgaria           | NE                  | NE    | NE                  | NE |            |                         | NE                  |                             | NE                  |                         | NA                   |
| Canada             | NA                  | NA    | CS                  | CS |            |                         |                     |                             |                     |                         |                      |
| Czech Republic     | C                   | C, CS | D                   | D  |            | 0.1                     | 3.14                | 0.1                         | 3.14                |                         |                      |
| Denmark            |                     |       |                     |    |            | 0.1                     |                     |                             |                     |                         |                      |
| Estonia            |                     |       |                     |    |            |                         |                     |                             |                     |                         |                      |
| European Community | NE                  | NE    | NE                  | NE |            |                         | NE                  |                             | NE                  |                         | NE                   |
| Finland            | NO                  | NO    | CS                  | CS |            |                         | NE                  |                             | NE                  |                         | NO                   |
| France             | C                   | CS    |                     |    |            | 0.2                     | 2.97                | 0.0                         | 2.58                |                         |                      |
| Germany            | NE                  | NE    | CS                  | CS |            |                         | NE                  |                             | NE                  |                         | NE                   |
| Greece             | C                   | C     |                     |    |            | 0.0                     |                     | 0.0                         |                     |                         |                      |
| Iceland            |                     |       |                     |    |            |                         |                     |                             |                     |                         |                      |
| Ireland            | CS, C               | CS, C | NA                  | NA |            | 0.0                     | 3.12                | 0.0                         | 3.12                |                         |                      |
| Italy              | D                   | D     |                     |    |            | 0.1                     | 0.77                | 0.0                         | 2.44                |                         | NO                   |
| Latvia             | D                   | D     | T1                  | D  |            | 0.5                     | 1.56                | 0.1                         | 0.00                |                         | NO                   |
| Luxembourg         | C                   | C     | NA                  | NA |            |                         |                     |                             |                     |                         |                      |
| Netherlands        | CS                  | CS    | CS                  | CS |            |                         |                     |                             |                     |                         |                      |
| New Zealand        |                     |       |                     |    |            |                         | NE                  |                             | NE                  |                         | NE                   |
| Norway             | M                   | CS    | CS                  |    |            | 0.0                     | 3.00                | 0.0                         | 3.00                |                         | NE                   |
| Poland             |                     |       |                     |    |            |                         | NE                  |                             | NE                  |                         | NE                   |
| Portugal           | MB                  |       |                     |    |            | 0.1                     | 0.76                | 0.0                         | 3.12                |                         |                      |
| Romania            | NE                  | NE    | NE                  | NE |            |                         |                     |                             |                     |                         |                      |
| Slovakia           |                     |       |                     |    |            |                         |                     |                             |                     |                         |                      |
| Spain              | D                   | D     | CS                  | CS |            | 0.1                     | 0.65                | 0.0                         | 5.86                |                         |                      |
| Sweden             | CS                  | CS    | CS                  | CS | T          | 0.1                     | 0.51                | 0.0                         | 3.12                |                         |                      |
| Switzerland        | CS                  | CS    | CS                  | CS |            |                         | NO                  |                             | NO                  |                         | NO                   |
| 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<sup>a</sup>**



<sup>a</sup> 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), Poland (1988) and Romania (1989).

**Table 4.1****Enteric fermentation, CH<sub>4</sub> (2001)**

|                              | Key source | Share of national total<br><br>(%) | Methods and EF used <sup>a</sup> |                     | Cattle                          |                  |                               |                     |                       | Sheep                           |            |                               |                     | Swine                           |            |                     |                     |                     |            |                               |
|------------------------------|------------|------------------------------------|----------------------------------|---------------------|---------------------------------|------------------|-------------------------------|---------------------|-----------------------|---------------------------------|------------|-------------------------------|---------------------|---------------------------------|------------|---------------------|---------------------|---------------------|------------|-------------------------------|
|                              |            |                                    |                                  |                     | Activity data (population size) |                  |                               | Dairy cattle        | Non-dairy cattle      | Activity data (population size) |            |                               | CH <sub>4</sub> IEF | Activity data (population size) |            |                     | CH <sub>4</sub> IEF |                     |            |                               |
|                              |            |                                    | Methods                          | EF                  | CRF                             | FAO <sup>b</sup> | Difference                    | CH <sub>4</sub> IEF | CRF                   | FAO <sup>b</sup>                | Difference | (kg CH <sub>4</sub> /head/yr) | CRF                 | FAO <sup>b</sup>                | Difference | (thousands of head) | CRF                 | FAO <sup>b</sup>    | Difference | (kg CH <sub>4</sub> /head/yr) |
|                              |            |                                    |                                  |                     | (thousands of head)             | (%)              | (kg CH <sub>4</sub> /head/yr) | (thousands of head) | (%)                   | (thousands of head)             | (%)        | (thousands of head)           | (%)                 | (thousands of head)             | (%)        | (thousands of head) | (%)                 | (thousands of head) | (%)        | (thousands of head)           |
| IPCC default EF <sup>c</sup> |            |                                    |                                  |                     |                                 |                  |                               |                     | 56 - 118 <sup>d</sup> | 44 - 56 <sup>d</sup>            |            |                               |                     | 8.0                             |            |                     |                     | 1.5                 |            |                               |
| Austria                      | L, T       | 3.7                                | T1, T2                           | D, CS               | 2118                            | 2,155            | 1.7                           | 101                 | 53                    | 320                             | 358        | 10.5                          | 8.0                 | 3,440                           | 3,427      | -0.4                | 1.5                 |                     |            |                               |
| Belgium <sup>e</sup>         | L          | 2.8                                |                                  |                     | 3038                            | 3,245            | 6.4                           |                     |                       | 157                             | 167        | 6.0                           | 5.6                 | 6,836                           | 7,349      | 7.0                 | 0.7                 |                     |            |                               |
| Bulgaria                     | L          | 2.0                                | T1                               | D                   | 575                             | 640              | 10.2                          | 81                  | 56                    | 1,512                           | 2,286      | 33.9                          | 8.0                 | 718                             | 1,144      | 37.2                | 1.5                 |                     |            |                               |
| Canada                       | L          | 2.6                                | T1                               | D                   | 14,516                          | 13,608           | -6.7                          | 80                  | 56                    | 629                             | 948        | 33.7                          | 8.0                 | 13,903                          | 13,576     | -2.4                | 1.5                 |                     |            |                               |
| Czech Republic               | L          | 1.1                                | T2                               | CS                  | 1,582                           | 1,582            | 0.0                           | 68                  | 24                    | 90                              | 90         | 0.3                           | 5.0                 | 3,594                           | 3,594      | 0.0                 | 3.4                 |                     |            |                               |
| Denmark                      | L, T       | 4.0                                | T1/T2                            | CS                  | 1,907                           | 1,907            | 0.0                           | 104                 | 37                    | 77                              | 152        | 49.3                          | 8.0                 | 10,110                          | 12,608     | 19.8                | 1.5                 |                     |            |                               |
| Estonia                      | L          | 2.0                                |                                  |                     | 261                             | 253              | -3.0                          | 81                  | 56                    | 29                              | 29         | 0.7                           | 5.0                 | 345                             | 300        | -14.9               | 1.0                 |                     |            |                               |
| European Community           |            | 3.2                                | C, CS, D, T1, T2                 | C, CS, D, T1, T2    | 0                               |                  |                               |                     |                       | NE                              |            |                               |                     | NE                              |            |                     |                     |                     |            |                               |
| Finland                      | L, T       | 1.9                                | T1/T2                            | CS/D                | 1,037                           | 1,037            | 0.0                           | 114                 | 42                    | 96                              | 96         | 0.0                           | 8.0                 | 1,261                           | 1,261      | 0.0                 | 1.5                 |                     |            |                               |
| France                       | L, T       | 5.2                                | C                                | CS                  | 20,754                          | 20,462           | -1.4                          | 103                 | 52                    | 9,477                           | 9,443      | -0.4                          | 8.0                 | 10,397                          | 15,382     | 32.4                | 1.5                 |                     |            |                               |
| Germany                      | L, T       | 2.1                                | C/D                              | C/D                 | 14,582                          | 14,568           | -0.1                          | 100                 | 48                    | 2,767                           | 2,771      | 0.1                           | 5.0                 | 25,780                          | 25,767     | -0.1                | 1.5                 |                     |            |                               |
| Greece                       | L, T       | 2.3                                | T1                               | D                   | 598                             | 579              | -3.3                          | 81                  | 56                    | 9,017                           | 9,269      | 2.7                           | 8.0                 | 969                             | 936        | -3.6                | 1.5                 |                     |            |                               |
| Iceland                      | L          | 7.8                                | D                                | D                   | 70                              | 70               | 0.0                           | 100                 | 48                    | 474                             | 474        | 0.0                           | 8.0                 | 4.6                             | 44         | 89.6                | 1.5                 |                     |            |                               |
| Ireland                      | L, T       | 13.8                               | D                                | CS, D               | 6,894                           | 6,330            | -8.9                          | 100                 | 50                    | 6,386                           | 5,056      | -26.3                         | 8.0                 | 1,750                           | 1,732      | -1.1                | 1.5                 |                     |            |                               |
| Italy                        | L          | 2.3                                | D, T1, T2                        | D, CS               | 7,002                           | 7,211            | 2.9                           | 111                 | 51                    | 10,952                          | 11,089     | 1.2                           | 8.0                 | 8,451                           | 8,329      | -1.5                | 1.5                 |                     |            |                               |
| Latvia                       | L, T       | 5.2                                | T1                               | D                   | 385                             | 367              | -5.0                          | 81                  | 56                    | 29                              | 29         | -1.4                          | 8.0                 | 429                             | 394        | -9.0                | 1.5                 |                     |            |                               |
| Luxembourg <sup>e</sup>      |            |                                    | C                                | C                   |                                 |                  |                               |                     |                       |                                 |            |                               |                     |                                 |            |                     |                     |                     |            |                               |
| Netherlands                  | L, T       | 3.1                                | cattle 90: T2; rest: T1          | cattle: CS; rest: D | 4,047                           | 4,047            | 0.0                           | 81                  | 46                    | 1,296                           | 1,296      | 0.0                           | 8.0                 | 13,073                          | 13,073     | 0.0                 | 1.5                 |                     |            |                               |
| New Zealand                  | L          | 32.0                               | T2                               | CS                  | 9,521                           | 9,281            | -2.6                          | 75                  | 56                    | 41,361                          | 45,385     | 8.9                           | 10.6                | 356                             | 354        | -0.4                | 1.5                 |                     |            |                               |
| Norway                       | L, T       | 3.1                                | T1                               | D                   | 977                             | 987              | 1.0                           | 100                 | 48                    | 1,770                           | 2,408      | 26.5                          | 8.0                 | 608,592                         | 392        | -155351.4           | 0.0                 |                     |            |                               |
| Poland                       | L          | 2.3                                | T2                               | CS                  | 5,734                           | 5,734            | 0.0                           | 90                  | 38                    | 343                             | 343        | 0.1                           | 10.1                | 17,105                          | 17,106     | 0.0                 | 1.5                 |                     |            |                               |
| Portugal                     | L, T       | 3.1                                | T1                               | D                   | 1,414                           | 1,414            | 0.0                           | 100                 | 48                    | 3,579                           | 5,578      | 35.8                          | 8.0                 | 2,338                           | 2,338      | 0.0                 | 1.5                 |                     |            |                               |
| Romania                      | L          | 3.6                                | T1                               | T1                  | 2,740                           | 2,870            | 4.5                           | 81                  | 56                    | 7,657                           | 7,657      | 0.0                           | 5.0                 | 4,797                           | 4,797      | 0.0                 | 1.0                 |                     |            |                               |
| Slovakia                     | L          | 2.2                                | T1,T2                            | D,CS                | 645                             | 645              | 0.0                           | 100                 | 56                    | 358                             | 358        | 0.0                           | 8.0                 | 1,469                           | 1,488      | 1.3                 | 1.5                 |                     |            |                               |
| Spain                        | L, T       | 3.8                                | CS,T1,T2                         | T1,T2               | 6,375                           | 6,164            | -3.4                          | 106                 | 59                    | 24,301                          | 24,400     | 0.4                           | 8.6                 | 24,998                          | 22,149     | -12.9               | 1.3                 |                     |            |                               |
| Sweden                       | L, T       | 4.1                                | T1,CS                            | D,CS                | 1,651                           | 1,652            | 0.0                           | 127                 | 56                    | 452                             | 452        | -0.1                          | 8.0                 | 1,891                           | 1,891      | 0.0                 | 1.7                 |                     |            |                               |
| Switzerland                  | L, T       | 4.7                                | CS                               | CS                  | 1,611                           | 1,611            | 0.0                           | 104                 | 42                    | 420                             | 420        | 0.0                           | 7.1                 | 1,548                           | 1,548      | 0.0                 | 1.1                 |                     |            |                               |
| United Kingdom               | L          | 2.6                                | T2                               | D/CS                | 10,602                          | 10,600           | 0.0                           | 117                 | 43                    | 36,716                          | 36,697     |                               | 4.8                 | 5,845                           | 5,845      | 0.0                 | 1.5                 |                     |            |                               |
| United States                | L, T       | 1.7                                | M, T1, T2                        | M, CS, D            | 101,592                         | 97,277           | -4.4                          | 99                  | 44                    | 6,965                           | 6,965      | 0.0                           | 8.0                 | 58,960                          | 59,138     | 0.3                 | 1.5                 |                     |            |                               |

<sup>a</sup> 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 4 from 4.A Enteric fermentation.

<sup>b</sup> Source of international statistics: FAO, <http://apps.fao.org/>: follow the link "Agriculture" and then the link "Live Animals".

<sup>c</sup> Source of default emission factors: IPCC Guidelines, Volume 3, Tables 4-3 and 4-4 (pages 4.10-4.11).

<sup>d</sup> For dairy and non-dairy cattle, IPCC default emission factors (in kg CH<sub>4</sub> / head / yr) are provided by regions as shown below (see footnote c for source reference):

<sup>e</sup> In the FAO statistics, Belgium and Luxembourg are aggregated.

|                  | 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<sub>4</sub> emissions (Gg)**

|                               | 1990 <sup>a</sup> | 1995  | 1996  | 1997  | 1998  | 1999  | 2000  | 2001  |
|-------------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|
| <b>Austria</b>                | 169               | 159   | 158   | 155   | 155   | 154   | 152   | 150   |
| <b>Belgium</b>                | 220               | 221   | 218   | 212   | 212   | 212   | 199   | 200   |
| <b>Bulgaria</b>               | 193               | 85    | 82    | 79    | 82    | 83    | 79    | 62    |
| <b>Canada</b>                 | 762               | 861   | 867   | 875   | 855   | 849   | 843   | 895   |
| <b>Czech Republic</b>         | 156               |       | 98    | 93    | 86    | 85    | 81    | 81    |
| <b>Denmark</b>                | 152               | 145   | 145   | 140   | 140   | 130   | 129   | 131   |
| <b>Estonia</b>                | 52                | 27    | 24    | 26    | 22    | 19    | 18    | 18    |
| <b>European Community</b>     | 6,861             | 6,509 | 6,535 | 6,451 | 6,413 | 6,386 | 6,297 | 6,268 |
| <b>Finland</b>                | 89                | 78    | 78    | 79    | 77    | 76    | 75    | 75    |
| <b>France</b>                 | 1,469             | 1,409 | 1,407 | 1,389 | 1,379 | 1,378 | 1,392 | 1,396 |
| <b>Germany</b>                | 1,335             | 1,092 | 1,085 | 1,056 | 1,029 | 1,023 | 995   | 998   |
| <b>Greece<sup>b</sup></b>     | 142               | 140   | 140   | 140   | 140   | 139   | 139   | 143   |
| <b>Iceland</b>                | 11                | 10    | 10    | 10    | 10    | 10    | 9.9   | 9.9   |
| <b>Ireland</b>                | 437               | 459   | 464   | 473   | 483   | 483   | 473   | 461   |
| <b>Italy</b>                  | 649               | 636   | 628   | 627   | 619   | 608   | 603   | 609   |
| <b>Latvia</b>                 | 98                | 39    | 37    | 35    | 32    | 28    | 27    | 28    |
| <b>Luxembourg<sup>b</sup></b> |                   |       |       |       |       | 16    | 16    | 16    |
| <b>Netherlands</b>            | 402               | 377   | 366   | 353   | 341   | 334   | 319   | 322   |
| <b>New Zealand</b>            | 1,018             | 1,056 | 1,059 | 1,063 | 1,070 | 1,075 | 1,101 | 1,101 |
| <b>Norway</b>                 | 82                | 84    | 85    | 85    | 85    | 85    | 84    | 83    |
| <b>Poland</b>                 | 806               | 565   | 545   | 550   | 534   | 469   | 432   | 414   |
| <b>Portugal</b>               | 124               | 119   | 118   | 117   | 116   | 124   | 123   | 123   |
| <b>Romania</b>                | 520               | 318   | 314   | 307   | 288   | 269   | 271   | 255   |
| <b>Slovakia</b>               | 116               | 74    | 68    | 63    | 55    | 53    | 52    | 52    |
| <b>Spain</b>                  | 602               | 612   | 658   | 651   | 666   | 675   | 679   | 696   |
| <b>Sweden</b>                 | 144               | 148   | 147   | 147   | 143   | 142   | 138   | 137   |
| <b>Switzerland</b>            | 132               | 128   | 126   | 124   | 120   | 119   | 118   | 119   |
| <b>United Kingdom</b>         | 911               | 899   | 907   | 895   | 895   | 895   | 865   | 813   |
| <b>United States</b>          | 5,612             | 5,855 | 5,737 | 5,635 | 5,557 | 5,551 | 5,509 | 5,468 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | -1.2         | -1.3         | -0.3         | -0.8         | -1.0         | -1.5         | -11.4        |
| <b>Belgium</b>            | -1.2         | -2.8         | 0.1          | -0.1         | -6.2         | 0.7          | -8.9         |
| <b>Bulgaria</b>           | -3.4         | -3.5         | 2.9          | 1.5          | -4.4         | -21.5        | -67.7        |
| <b>Canada</b>             | 0.7          | 1.0          | -2.2         | -0.8         | -0.7         | 6.2          | 17.5         |
| <b>Czech Republic</b>     |              | -5.1         | -7.6         | -0.8         | -4.9         | -0.2         | -48.1        |
| <b>Denmark</b>            | -0.1         | -3.3         | 0.1          | -7.2         | -0.5         | 1.2          | -13.8        |
| <b>Estonia</b>            | -8.3         | 5.8          | -14.6        | -12.8        | -5.0         | 1.1          | -64.6        |
| <b>European Community</b> | 0.4          | -1.3         | -0.6         | -0.4         | -1.4         | -0.5         | -8.6         |
| <b>Finland</b>            | 0.4          | 1.0          | -2.4         | -1.7         | -0.6         | -1.0         | -16.3        |
| <b>France</b>             | -0.2         | -1.2         | -0.7         | -0.1         | 1.0          | 0.3          | -5.0         |
| <b>Germany</b>            | -0.6         | -2.7         | -2.5         | -0.7         | -2.7         | 0.3          | -25.3        |
| <b>Greece</b>             | 0.3          | -0.2         | -0.3         | -0.3         | -0.1         | 2.8          | 0.8          |
| <b>Iceland</b>            | 0.9          | 1.1          | 0.9          | -1.1         | -4.3         | -0.7         | -10.1        |
| <b>Ireland</b>            | 1.1          | 1.9          | 2.1          | 0.0          | -2.1         | -2.5         | 5.4          |
| <b>Italy</b>              | -1.2         | -0.2         | -1.3         | -1.8         | -0.7         | 0.8          | -6.2         |
| <b>Latvia</b>             | -5.7         | -6.4         | -8.8         | -13.1        | -2.4         | 4.5          | -71.3        |
| <b>Luxembourg</b>         |              |              |              |              | -1.4         | 0.1          |              |
| <b>Netherlands</b>        | -2.9         | -3.6         | -3.2         | -2.2         | -4.3         | 0.9          | -19.8        |
| <b>New Zealand</b>        | 0.2          | 0.4          | 0.7          | 0.5          | 2.4          | 0.1          | 8.2          |
| <b>Norway</b>             | 0.8          | 0.2          | 0.9          | -0.6         | -1.7         | -0.9         | 1.5          |
| <b>Poland</b>             | -3.5         | 1.0          | -3.0         | -12.1        | -7.9         | -4.3         | -48.7        |
| <b>Portugal</b>           | -1.1         | -0.8         | -0.3         | 6.2          | -0.5         | 0.0          | -0.9         |
| <b>Romania</b>            | -1.3         | -2.4         | -6.0         | -6.8         | 0.8          | -5.8         | -50.9        |
| <b>Slovakia</b>           | -8.1         | -7.6         | -12.1        | -3.1         | -1.8         | 0.2          | -54.9        |
| <b>Spain</b>              | 7.5          | -1.0         | 2.3          | 1.4          | 0.5          | 2.5          | 15.5         |
| <b>Sweden</b>             | -0.6         | 0.2          | -2.9         | -1.1         | -2.4         | -0.9         | -5.0         |
| <b>Switzerland</b>        | -1.3         | -1.5         | -3.0         | -1.5         | -0.4         | 0.6          | -9.8         |
| <b>United Kingdom</b>     | 0.9          | -1.3         | 0.1          | 0.0          | -3.4         | -6.0         | -10.7        |
| <b>United States</b>      | -2.0         | -1.8         | -1.4         | -0.1         | -0.8         | -0.7         | -2.6         |

**Table 4.3****Enteric fermentation: dairy cattle – trend information****CH<sub>4</sub> emissions (Gg)**

|                             | 1990 <sup>a</sup> | 1995  | 1996  | 1997  | 1998  | 1999  | 2000  | 2001  |
|-----------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|
| Austria                     | 80                | 64    | 65    | 68    | 70    | 68    | 62    | 60    |
| Belgium                     | 99                | 99    | 96    | 87    | 94    | 89    | 85    | 87    |
| Bulgaria <sup>b</sup>       |                   |       |       |       | 33    | 35    | 34    | 28    |
| Canada                      | 196               | 181   | 181   | 176   | 173   | 166   | 160   | 128   |
| Czech Republic <sup>b</sup> | 80                |       |       |       | 44    | 44    | 42    | 42    |
| Denmark                     | 78                | 73    | 73    | 70    | 70    | 67    | 66    | 65    |
| Estonia <sup>b</sup>        |                   |       |       |       |       | 11    | 11    | 10    |
| European Community          | NE                | NE    | NE    | NE    | NE    | NE    | NE    | NE    |
| Finland                     | 48                | 41    | 40    | 41    | 41    | 40    | 40    | 40    |
| France                      | 531               | 465   | 457   | 447   | 443   | 440   | 439   | 439   |
| Germany                     | 635               | 522   | 519   | 502   | 483   | 476   | 457   | 454   |
| Greece <sup>b</sup>         | 20                | 19    | 19    | 18    | 18    | 18    | 17    | 19    |
| Iceland <sup>b</sup>        |                   |       |       |       |       | 2.8   | 2.7   | 2.6   |
| Ireland                     | 136               | 126   | 126   | 126   | 126   | 125   | 123   | 122   |
| Italy <sup>b</sup>          |                   |       |       |       | 241   | 248   | 233   | 239   |
| Latvia                      | 43                | 24    | 22    | 21    | 20    | 17    | 17    | 17    |
| Luxembourg                  |                   |       |       |       |       |       |       |       |
| Netherlands                 | 291               | 266   | 262   | 252   | 248   | 242   | 230   | 235   |
| New Zealand <sup>b</sup>    | 263               | 315   | 323   | 330   | 334   | 342   | 342   | 373   |
| Norway                      | 34                |       |       |       | 35    | 35    | 34    | 34    |
| Poland <sup>b</sup>         |                   |       |       |       |       |       | 279   | 270   |
| Portugal                    | 40                | 36    | 36    | 36    | 36    | 36    | 36    | 36    |
| Romania <sup>b</sup>        |                   | 131   | 132   | 129   | 122   | 119   | 115   | 108   |
| Slovakia <sup>b</sup>       |                   |       |       |       | 26    | 26    | 24    | 24    |
| Spain                       | 143               | 128   | 130   | 127   | 129   | 127   | 122   | 122   |
| Sweden                      | 69                | 61    | 58    | 59    | 56    | 56    | 54    | 53    |
| Switzerland <sup>b</sup>    | 81                |       |       |       | 73    | 71.70 | 73    | 75    |
| United Kingdom              | 296               | 284   | 285   | 281   | 277   | 282   | 272   | 264   |
| United States               | 1,375             | 1,320 | 1,254 | 1,255 | 1,251 | 1,266 | 1,284 | 1,282 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            | 0.5          | 5.1          | 2.9          | -2.6         | -9.5         | -2.1         | -24.2        |
| Belgium            | -2.9         | -8.9         | 7.2          | -5.5         | -4.4         | 2.5          | -12.3        |
| Bulgaria           |              |              |              | 5.2          | -0.6         | -19.7        |              |
| Canada             | 0.2          | -3.2         | -1.4         | -4.3         | -3.3         | -20.3        | -35.0        |
| Czech Republic     |              |              |              | -0.3         | -4.2         | -0.7         | -48.1        |
| Denmark            | -0.3         | -4.3         | -0.2         | -4.3         | -0.7         | -1.9         | -17.2        |
| Estonia            |              |              |              |              | -5.3         | -1.8         |              |
| European Community |              |              |              |              |              |              |              |
| Finland            | -1.2         | 1.7          | -1.5         | -1.2         | 1.0          | 0.0          | -15.0        |
| France             | -1.8         | -2.0         | -1.1         | -0.7         | -0.1         | -0.1         | -17.4        |
| Germany            | -0.7         | -3.2         | -3.9         | -1.4         | -4.1         | -0.5         | -28.4        |
| Greece             | -0.7         | -1.6         | -1.6         | -1.6         | -1.5         | 11.5         | -2.8         |
| Iceland            |              |              |              |              | -4.3         | -3.1         |              |
| Ireland            | 0.0          | -0.1         | -0.2         | -1.0         | -1.3         | -1.1         | -10.2        |
| Italy              |              |              |              | 2.7          | -5.8         | 2.3          |              |
| Latvia             | -5.2         | -5.0         | -8.0         | -14.9        | -0.7         | 2.2          | -60.9        |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        | -1.2         | -3.9         | -1.7         | -2.5         | -4.6         | 2.0          | -19.1        |
| New Zealand        | 2.7          | 2.2          | 1.2          | 2.3          | 0.1          | 9.0          | 41.9         |
| Norway             |              |              |              | -0.6         | -1.6         | -1.0         | -1.1         |
| Poland             |              |              |              |              |              | -3.0         |              |
| Portugal           | -0.5         | 0.0          | -1.9         | 0.6          | -0.6         | 0.0          | -11.9        |
| Romania            | 0.4          | -1.7         | -5.8         | -2.7         | -3.1         | -5.9         |              |
| Slovakia           |              |              |              | 0.7          | -7.8         | 0.9          |              |
| Spain              | 1.3          | -2.1         | 1.0          | -1.5         | -3.6         | -0.5         | -14.8        |
| Sweden             | -5.1         | 1.7          | -4.5         | 0.5          | -4.8         | -0.7         | -23.1        |
| Switzerland        |              |              |              | -2.0         | 2.2          | 1.7          | -8.0         |
| United Kingdom     | 0.4          | -1.4         | -1.3         | 1.7          | -3.4         | -2.9         | -10.8        |
| United States      | -5.0         | 0.1          | -0.3         | 1.2          | 1.5          | -0.2         | -6.8         |



**Table 4.3****Enteric fermentation: dairy cattle – trend information (continued)****CH<sub>4</sub> implied emission factors (kg/head/year)**

|                             | 1990 <sup>a</sup> | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001  |
|-----------------------------|-------------------|------|------|------|------|------|------|-------|
| Austria                     | 88                | 91   | 93   | 95   | 96   | 98   | 99   | 101   |
| Belgium                     |                   |      |      |      |      |      | IE   |       |
| Bulgaria <sup>b</sup>       |                   |      |      |      | 81   | 81   | 81   | 81    |
| Canada                      | 99                | 99   | 99   | 99   | 99   | 100  | 100  | 80    |
| Czech Republic <sup>b</sup> | 67                |      |      |      | 68   | 68   | 68   | 68    |
| Denmark                     | 104               | 104  | 104  | 104  | 104  | 104  | 104  | 104   |
| Estonia <sup>b</sup>        |                   |      |      |      |      | 81   | 81   | 81    |
| European Community          |                   |      |      |      |      |      | NE   |       |
| Finland                     | 97                | 103  | 103  | 105  | 106  | 108  | 111  | 114   |
| France                      | 99                | 101  | 102  | 102  | 102  | 103  | 103  | 103   |
| Germany                     | 100               | 100  | 100  | 100  | 100  | 100  | 100  | 100   |
| Greece <sup>b</sup>         | 81                | 81   | 81   | 81   | 81   | 81   | 81   | 81    |
| Iceland <sup>b</sup>        |                   |      |      |      |      | 100  | 100  | 100   |
| Ireland                     | 100               | 100  | 100  | 100  | 100  | 100  | 100  | 100   |
| Italy <sup>b</sup>          |                   |      |      |      |      | 118  | 113  | 111   |
| Latvia                      | 81                | 81   | 81   | 81   | 81   | 81   | 81   | 81    |
| Luxembourg                  |                   |      |      |      |      |      |      |       |
| Netherlands                 | 81                | 81   | 80   | 80   | 81   | 81   | 81   | 81    |
| New Zealand <sup>b</sup>    | 77                | 77   | 77   | 77   | 77   | 77   | 77   | 74.74 |
| Norway                      | 100               |      |      |      | 100  | 100  | 100  | 100   |
| Poland <sup>b</sup>         |                   |      |      |      |      |      | 90   | 90    |
| Portugal                    | 100               | 100  | 100  | 100  | 100  | 100  | 100  | 100   |
| Romania <sup>b</sup>        |                   | 81   | 81   | 81   | 81   | 81   | 81   | 81    |
| Slovakia <sup>b</sup>       |                   |      |      |      | 92   | 96   | 100  | 100   |
| Spain                       | 89                | 101  | 98   | 98   | 99   | 104  | 106  | 106   |
| Sweden                      | 120               | 126  | 124  | 126  | 125  | 126  | 125  | 127   |
| Switzerland <sup>b</sup>    | 102               |      |      |      | 99   | 99   | 103  | 104   |
| United Kingdom              | 104               | 109  | 110  | 113  | 114  | 115  | 116  | 117   |
| United States               | 97                | 98   | 94   | 96   | 96   | 97   | 98   | 99    |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            | 1.8          | 1.7          | 1.8          | 1.7          | 1.7          | 1.7          | 14.7         |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              | 0.0          | 0.0          | 0.0          |              |
| Canada             | 0.0          | 0.1          | 0.0          | 0.3          | 0.2          | -19.5        | -18.6        |
| Czech Republic     |              |              |              | 0.0          | 0.0          | 0.0          | 1.5          |
| Denmark            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Estonia            |              |              |              |              | 0.0          | 0.0          |              |
| European Community |              |              |              |              |              |              |              |
| Finland            | 0.4          | 2.0          | 0.5          | 1.6          | 3.3          | 2.6          | 17.4         |
| France             | 0.2          | 0.4          | 0.2          | 0.3          | 0.2          | -0.1         | 4.1          |
| Germany            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Greece             | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Iceland            |              |              |              |              | 0.0          | 0.0          |              |
| Ireland            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Italy              |              |              |              |              | -3.9         | -1.9         |              |
| Latvia             | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        | -0.6         | 0.0          | 1.1          | 0.4          | -0.2         | 0.0          | 0.7          |
| New Zealand        | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | -2.7         | -2.7         |
| Norway             |              |              |              | 0.0          | 0.0          | 0.0          | 0.0          |
| Poland             |              |              |              |              |              | 0.0          |              |
| Portugal           | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Romania            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |              |
| Slovakia           |              |              |              | 4.3          | 4.2          | 0.0          |              |
| Spain              | -2.3         | 0.3          | 0.7          | 4.5          | 2.6          | -0.4         | 19.5         |
| Sweden             | -1.9         | 1.2          | -0.5         | 0.5          | -0.2         | 1.7          | 6.0          |
| Switzerland        |              |              |              | -0.4         | 3.8          | 0.9          | 1.5          |
| United Kingdom     | 1.0          | 3.0          | 0.9          | 1.0          | 0.9          | 0.7          | 12.8         |
| United States      | -3.6         | 1.3          | 0.8          | 0.9          | 1.1          | 0.4          | 1.5          |

**Table 4.4****Enteric fermentation: non-dairy cattle – trend information****CH<sub>4</sub> emissions (Gg)**

|                             | 1990 <sup>a</sup> | 1995  | 1996  | 1997  | 1998  | 1999  | 2000  | 2001  |
|-----------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|
| Austria                     | 80                | 85    | 83    | 77    | 75    | 76    | 81    | 80    |
| Belgium                     | 114               | 115   | 115   | 117   | 111   | 114   | 107   | 107   |
| Bulgaria <sup>b</sup>       |                   |       |       |       | 13    | 14    | 13    | 13    |
| Canada                      | 538               | 650   | 653   | 668   | 650   | 650   | 649   | 729   |
| Czech Republic <sup>b</sup> | 53                |       |       |       | 25    | 24    | 23    | 23    |
| Denmark                     | 56                | 51    | 52    | 49    | 48    | 46    | 46    | 47    |
| Estonia <sup>b</sup>        |                   |       |       |       |       | 7.2   | 6.8   | 7.4   |
| European Community          | NE                | NE    | NE    | NE    | NE    | NE    | NE    | NE    |
| Finland                     | 36                | 31    | 31    | 32    | 31    | 30    | 29    | 29    |
| France                      | 820               | 833   | 840   | 832   | 828   | 831   | 846   | 851   |
| Germany                     | 629               | 511   | 506   | 489   | 484   | 485   | 478   | 482   |
| Greece <sup>b</sup>         | 21                | 20    | 20    | 19    | 19    | 19    | 18    | 20    |
| Iceland <sup>b</sup>        |                   |       |       |       |       | 2.2   | 2.2   | 2.1   |
| Ireland                     | 246               | 272   | 279   | 289   | 298   | 299   | 292   | 284   |
| Italy <sup>b</sup>          |                   |       |       |       | 283   | 276   | 249   | 245   |
| Latvia                      | 51                | 14    | 13    | 12    | 11    | 10    | 9     | 10    |
| Luxembourg                  |                   |       |       |       |       |       |       |       |
| Netherlands                 | 75                | 74    | 66    | 63    | 59    | 57    | 55    | 53    |
| New Zealand <sup>b</sup>    | 312               | 337   | 325   | 314   | 308   | 309   | 317   | 254   |
| Norway                      | 31                |       |       |       | 33    | 32    | 31    | 31    |
| Poland <sup>b</sup>         |                   |       |       |       |       |       | 114   | 104   |
| Portugal                    | 47                | 46    | 46    | 44    | 44    | 51    | 51    | 51    |
| Romania <sup>b</sup>        |                   | 95    | 96    | 94    | 89    | 86    | 84    | 79    |
| Slovakia <sup>b</sup>       |                   |       |       |       | 24    | 17    | 23    | 22    |
| Spain                       | 210               | 259   | 275   | 271   | 281   | 291   | 292   | 311   |
| Sweden                      | 61                | 72    | 74    | 74    | 73    | 71    | 71    | 70    |
| Switzerland <sup>b</sup>    | 44                |       |       |       | 39    | 38.16 | 38    | 38    |
| United Kingdom              | 391               | 394   | 404   | 392   | 389   | 386   | 377   | 358   |
| United States               | 3,961             | 4,272 | 4,227 | 4,124 | 4,046 | 4,035 | 3,976 | 3,936 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            | -2.7         | -6.6         | -3.3         | 1.5          | 6.8          | -1.2         | -0.6         |
| Belgium            | 0.0          | 2.2          | -5.5         | 2.9          | -6.0         | -0.4         | -6.1         |
| Bulgaria           |              |              |              | 5.8          | -5.3         | -1.1         |              |
| Canada             | 0.5          | 2.3          | -2.7         | 0.1          | -0.2         | 12.3         | 35.6         |
| Czech Republic     |              |              |              | -3.0         | -5.5         | 1.3          | -56.7        |
| Denmark            | 0.3          | -4.2         | -1.9         | -4.7         | -1.2         | 4.2          | -14.5        |
| Estonia            |              |              |              |              | -5.5         | 8.3          |              |
| European Community |              |              |              |              |              |              |              |
| Finland            | 2.6          | 0.2          | -3.0         | -1.7         | -2.7         | -1.8         | -19.2        |
| France             | 0.8          | -0.9         | -0.5         | 0.3          | 1.8          | 0.6          | 3.7          |
| Germany            | -0.9         | -3.4         | -1.0         | 0.2          | -1.6         | 0.9          | -23.4        |
| Greece             | 0.7          | -1.3         | -2.0         | -2.9         | -1.5         | 10.0         | -5.8         |
| Iceland            |              |              |              |              | -2.6         | -2.5         |              |
| Ireland            | 2.4          | 3.4          | 3.4          | 0.3          | -2.5         | -2.8         | 15.2         |
| Italy              |              |              |              | -2.4         | -10.0        | -1.5         |              |
| Latvia             | -5.1         | -8.0         | -10.3        | -10.4        | -5.7         | 8.5          | -80.5        |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        | -10.4        | -4.7         | -6.0         | -3.1         | -3.7         | -3.8         | -29.0        |
| New Zealand        | -3.3         | -3.4         | -1.9         | 0.4          | 2.5          | -19.9        | -18.6        |
| Norway             |              |              |              | -3.0         | -3.6         | -0.9         | 0.4          |
| Poland             |              |              |              |              |              | -8.6         |              |
| Portugal           | -1.1         | -2.7         | -1.2         | 16.7         | -0.5         | 0.0          | 9.0          |
| Romania            | 0.5          | -1.8         | -5.8         | -2.8         | -2.9         | -6.0         |              |
| Slovakia           |              |              |              | -29.7        | 36.4         | -0.8         |              |
| Spain              | 6.1          | -1.5         | 3.9          | 3.5          | 0.2          | 6.4          | 47.7         |
| Sweden             | 2.5          | -0.4         | -1.5         | -2.1         | -0.4         | -1.7         | 14.7         |
| Switzerland        |              |              |              | -1.9         | -0.8         | -0.1         | -14.9        |
| United Kingdom     | 2.4          | -2.9         | -0.9         | -0.8         | -2.3         | -4.9         | -8.4         |
| United States      | -1.0         | -2.4         | -1.9         | -0.3         | -1.5         | -1.0         | -0.6         |

**Table 4.4****Enteric fermentation: non-dairy cattle – trend information (continued)****CH<sub>4</sub> implied emission factors (kg/head/year)**

|                             | 1990 <sup>a</sup> | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|-----------------------------|-------------------|------|------|------|------|------|------|------|
| Austria                     | 48                | 52   | 52   | 52   | 52   | 52   | 53   | 53   |
| Belgium                     |                   |      |      |      |      |      | IE   |      |
| Bulgaria <sup>b</sup>       |                   |      |      |      | 56   | 56   | 56   | 56   |
| Canada                      | 54                | 55   | 54   | 54   | 54   | 54   | 54   | 56   |
| Czech Republic <sup>b</sup> | 24                |      |      |      | 24   | 24   | 24   | 24   |
| Denmark                     | 37                | 37   | 37   | 37   | 37   | 37   | 37   | 37   |
| Estonia <sup>b</sup>        |                   |      |      |      |      | 56   | 56   | 56   |
| European Community          |                   |      |      |      |      |      | NE   |      |
| Finland                     | 41                | 41   | 42   | 42   | 42   | 42   | 42   | 42   |
| France                      | 50                | 51   | 52   | 52   | 52   | 52   | 52   | 52   |
| Germany                     | 48                | 48   | 48   | 48   | 48   | 48   | 48   | 48   |
| Greece <sup>b</sup>         | 56                | 56   | 56   | 56   | 56   | 56   | 56   | 56   |
| Iceland <sup>b</sup>        |                   |      |      |      |      | 48   | 48   | 48   |
| Ireland                     | 50                | 50   | 50   | 50   | 50   | 50   | 50   | 50   |
| Italy <sup>b</sup>          |                   |      |      |      |      | 54   | 50   | 51   |
| Latvia                      | 56                | 56   | 56   | 56   | 56   | 56   | 56   | 56   |
| Luxembourg                  |                   |      |      |      |      |      |      |      |
| Netherlands                 | 57                | 54   | 52   | 50   | 48   | 47   | 45   | 46   |
| New Zealand <sup>b</sup>    | 68                | 68   | 68   | 68   | 68   | 68   | 67   | 56   |
| Norway                      | 48                |      |      |      | 48   | 48   | 48   | 48   |
| Poland <sup>b</sup>         |                   |      |      |      |      |      | 38   | 38   |
| Portugal                    | 48                | 48   | 48   | 48   | 48   | 48   | 48   | 48   |
| Romania <sup>b</sup>        |                   | 56   | 56   | 56   | 56   | 56   | 56   | 56   |
| Slovakia <sup>b</sup>       |                   |      |      |      | 56   | 56   | 56   | 56   |
| Spain                       | 61                | 60   | 59   | 59   | 58   | 58   | 59   | 59   |
| Sweden                      | 53                | 56   | 56   | 56   | 56   | 56   | 56   | 56   |
| Switzerland <sup>b</sup>    | 42                |      |      |      | 43   | 43   | 43   | 42   |
| United Kingdom              | 42                | 43   | 43   | 43   | 43   | 43   | 43   | 43   |
| United States               | 46                | 45   | 45   | 45   | 45   | 45   | 45   | 44   |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            | 0.1          | -0.5         | -1.0         | 0.7          | 1.3          | -0.3         | 9.8          |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              | 0.0          | 0.0          | 0.0          |              |
| Canada             | -0.3         | -0.4         | 0.1          | -0.3         | -0.2         | 4.4          | 3.9          |
| Czech Republic     |              |              |              | 0.0          | 0.0          | 0.0          | -3.5         |
| Denmark            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | -1.1         |
| Estonia            |              |              |              |              | 0.0          | 0.0          |              |
| European Community |              |              |              |              |              |              |              |
| Finland            | 2.1          | 0.4          | -0.7         | 1.0          | 0.3          | -0.3         | 3.0          |
| France             | 0.3          | 0.3          | 0.0          | 0.1          | 0.0          | -0.3         | 2.6          |
| Germany            | 0.0          | 0.1          | -0.1         | 0.0          | 0.0          | 0.0          | 0.0          |
| Greece             | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Iceland            |              |              |              |              | 0.0          | 0.0          |              |
| Ireland            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Italy              |              |              |              |              | -7.0         | 1.4          |              |
| Latvia             | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        | -4.7         | -3.6         | -3.1         | -3.9         | -3.5         | 2.9          | -18.6        |
| New Zealand        | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | -17.1        | -17.1        |
| Norway             |              |              |              | 0.0          | 0.0          | 0.0          | 0.0          |
| Poland             |              |              |              |              |              | 0.0          |              |
| Portugal           | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Romania            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |              |
| Slovakia           |              |              |              | 0.0          | 0.0          | 0.0          |              |
| Spain              | -0.3         | -1.4         | -0.3         | -0.4         | 1.4          | 0.8          | -1.9         |
| Sweden             | 0.2          | 0.4          | 0.3          | -0.1         | 0.2          | 0.1          | 6.2          |
| Switzerland        |              |              |              | 0.4          | 0.3          | -2.0         | 1.2          |
| United Kingdom     | 0.3          | 0.3          | 0.1          | 0.1          | -0.2         | 0.2          | 1.2          |
| United States      | -0.9         | -0.3         | -0.2         | 0.5          | -0.6         | -0.3         | -3.5         |

**Table 4.5**

**Manure management, CH<sub>4</sub> (2001)**

|                              | Key source | Share of national total<br><br>(%) | Methods and EF used <sup>a</sup> |                    | Cattle       |                  | Sheep        | Swine   |
|------------------------------|------------|------------------------------------|----------------------------------|--------------------|--------------|------------------|--------------|---------|
|                              |            |                                    | Methods                          | EF                 | Dairy cattle | Non-dairy cattle |              |         |
|                              |            |                                    |                                  |                    |              |                  |              |         |
| IPCC default EF <sup>b</sup> |            |                                    |                                  |                    | 6 to 81      | 1 to 38          | 0.19 to 0.37 | 3 to 20 |
| Austria                      | L          | 1.1                                | T1, T2                           | D, CS              | 18.77        | 7.10             | 0.19         | 5.85    |
| Belgium                      | L          | 1.7                                |                                  |                    | NE           | NE               | 1.39         | 10.09   |
| Bulgaria                     |            | 0.6                                | T1, T2                           | D, CS              | 18.30        | 12.21            | 0.28         | 9.94    |
| Canada                       | L          | 0.8                                | T1                               | D                  | 36.00        | 1.00             | 0.19         | 10.00   |
| Czech Republic               | L          | 0.5                                | T2                               | CS                 | 3.29         | 1.01             | 0.23         | 7.87    |
| Denmark                      | L          | 1.3                                | T2                               | CS                 | 21.80        | 1.60             | 0.46         | 2.53    |
| Estonia                      |            | 0.3                                |                                  |                    | 6.00         | 4.00             | 0.19         | 4.00    |
| European Community           |            | 1.1                                | C, CS, D, T1, T2                 | C, CS, D, T1, T2   | NE           | NE               | NE           | NE      |
| Finland                      |            | 0.3                                | T2                               | CS/D               | 8.31         | 2.28             | 0.19         | 3.37    |
| France                       | L          | 2.6                                | CS/ T2                           | T2                 | 44.00        | 21.37            | 0.28         | 10.00   |
| Germany                      |            | 0.4                                | C/D                              | C/D                | 14.04        | 6.01             | 0.04         | 3.00    |
| Greece                       |            | 0.4                                | T1                               | D                  | 19.00        | 13.00            | 0.28         | 7.00    |
| Iceland                      |            | 0.7                                | D                                | D                  | 14.00        | 6.00             | 0.19         | 3.00    |
| Ireland                      | L, T       | 2.0                                | D                                | CS, D              | 15.90        | 6.40             |              | 5.40    |
| Italy                        | L          | 0.7                                | D, T1, T2                        | D, CS              | 20.05        | 11.17            | 0.19         | 7.96    |
| Latvia                       |            | 1                                  | T1                               | D                  | 6.00         | 4.00             | 0.19         | 4.00    |
| Luxembourg                   |            |                                    | C                                | C                  |              |                  |              |         |
| Netherlands                  | L          | 0.8                                | CS/T2                            | CS (=D, corrected) | 8.25         | 12.49            | 0.49         | 3.09    |
| New Zealand                  | L          | 0.8                                | T2                               | CS                 | 0.89         | 0.91             | 0.18         | 20.00   |
| Norway                       | L          | 0.6                                | T2                               | D, CS              | 14.41        | 8.57             | 0.73         | 0.00    |
| Poland                       |            | 0.2                                | T2                               | CS                 | 3.00         | 0.95             | 0.18         | 1.11    |
| Portugal                     | L, T       | 3.7                                | T2                               | D (CS)             | 25.73        | 1.88             | 1.60         | 54.53   |
| Romania                      | L          | 1.2                                | T2                               | T2                 | 19.00        | 13.00            | 0.16         | 7.00    |
| Slovakia                     |            | 0.4                                | D                                | D,CS               | 6.00         | 4.00             | 0.19         | 4.00    |
| Spain                        | L          | 2.2                                | CS,T1,T2                         | T1,T2              | 14.11        | 3.78             | 0.23         | 13.97   |
| Sweden                       | L, T       | 0.6                                | T1,T2                            | D,CS               | 12.32        | 5.66             | 0.19         | 2.94    |
| Switzerland                  |            | 0.8                                | CS                               | CS                 | 14.43        | 3.38             | 0.14         | 3.40    |
| United Kingdom               |            | 0.3                                | T2                               | D/CS               | 13.20        | 4.24             | 0.11         | 3.00    |
| United States                |            | 0.6                                | M, T1, T2                        | M, CS, D           | 55.36        | 1.75             | 0.26         | 13.82   |

<sup>a</sup> 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 CH<sub>4</sub> from 4.B Manure management.

<sup>b</sup> 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<sup>b</sup>**

|                     | 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, N<sub>2</sub>O (2001)**

|                             | Key source | Share of national total<br><br>(%) | Methods and EF used <sup>a</sup>                       |              | 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 <sub>2</sub> O IEF<br>(kg N <sub>2</sub> O-N / kg N) |              |  |                    |                           |                    |                        |                       |                       |                       |                  |                    |  |
|                             |            |                                    |  |              |  |                    |                           |                    |                        |                       |                       |                       |                  | (kg N / head / yr) |  |
| IPCC default EF             |            |                                    |  |              | 0.001 <sup>b</sup>                     | 0.001 <sup>b</sup> | 0.02 <sup>b</sup>         | 0.005 <sup>c</sup> | 60 to 100 <sup>d</sup> | 40 to 70 <sup>d</sup> | 16 to 20 <sup>d</sup> | 12 to 20 <sup>d</sup> | 0.6 <sup>d</sup> |                    |  |
| Austria                     | L, T       | 0.8                                |  |              |  |                    | 0                         |                    | 63                     | 34                    | 18                    | 20                    | 0.9              |                    |  |
| Belgium                     | L          | 0.3                                |  |              |  | IE                 |                           | IE                 |                        |                       |                       |                       |                  |                    |  |
| Bulgaria                    |            | 0.5                                | D  | D            |  | 0.001              | 0.001                     | 0.02               | 0.005                  | 70                    | 50                    | 20                    | 16               | 0.6                |  |
| Canada                      |            | 0.6                                | T1   | D            |  | 0.000              | 0.001                     | 0.02               | 0.005                  | 105                   | 45                    | 12                    | 4.1              | 0.4                |  |
| Czech Republic <sup>c</sup> |            | 0.3                                | D  | D            |  |                    | 1.000                     | 20.00              | 5.000                  | 100                   | 70                    | 20                    | 20               | 1.0                |  |
| Denmark                     |            | 0.6                                |  |              |  |                    | 0.001                     | 0.01               |                        | 125                   | 22                    | 2.4                   | 19               | 0.1                |  |
| Estonia                     |            | 0.05                               |  |              |  |                    | 0.001                     | 0.02               | 0.005                  | 0.07                  | 0.05                  | 0.02                  | 0.02             | 0.0                |  |
| European Community          |            | 0.5                                | C, CS, D, T1, T2                                       | C, CS, D, T2 |  | NE                 | NE                        | NE                 | NE                     | NE                    | NE                    | NE                    | NE               | NE                 |  |
| Finland                     | T          | 0.5                                | D  | D/CS         |  |                    | 0.001                     | 0.02               |                        | 96                    | 35                    | 9.6                   | 16               | 0.4                |  |
| France                      | L          | 0.5                                | T2   | T2           |  |                    | 0.001                     | 0.02               | 0.005                  | 100                   | 72                    | 20                    | 20               | 0.6                |  |
| Germany                     | L          | 0.6                                | C/D  | C/D          |  | NE                 | NE                        | NE                 | 126,181.8              | 100                   | 70                    | 20                    | 20               | 0.6                |  |
| Greece                      |            | 0.2                                | T1   | D            |  | NO                 | 0.001                     | 0.02               | 0.005                  | 70                    | 50                    | 16                    | 12               | 0.6                |  |
| Iceland                     |            | 0                                  |  |              |  |                    | NE                        |                    |                        | 0.07                  | 0.02                  | 0.01                  | 0.00             | 0.0                |  |
| Ireland                     | L          | 1.0                                | D  | CS, D        |  | 0.001              | 0.001                     | 0.02               |                        | 93                    | 50                    | 12                    | 8.0              | 0.6                |  |
| Italy                       | L          | 0.8                                | D  | D, CS        |  | NO                 | 0.001                     | 0.02               | 0.020                  | 104                   | 46                    | 12                    | 16               | 0.6                |  |
| Latvia                      | L          | 1                                  | T1   | D/CS         |  | 0.001              | 0.001                     | 0.02               | 0.005                  | 71                    | 51                    | 10                    | 6                | 0.9                |  |
| Luxembourg                  |            |                                    |  |              |  |                    |                           |                    |                        |                       |                       |                       |                  |                    |  |
| Netherlands                 |            | 0.09                               | CS   | CS           |  |                    |                           | 0.001              |                        |                       |                       |                       |                  |                    |  |
| New Zealand                 |            | 0.1                                |  |              |  | 0.001              |                           | 0.02               | 0.005                  | 110                   | 72                    | 16                    | 15               | 0.6                |  |
| Norway                      |            | 0.2                                | D  | D, CS        |  | NO                 | 0.001                     | 0.02               | 0.005                  | 90                    | 34                    | 7.0                   | 9.6              | 0.3                |  |
| Poland                      | L, T       | 1.5                                | T2   | CS           |  | NE                 | 0.001                     | 0.02               |                        | 70                    | 50                    | 20                    | 16               | 0.6                |  |
| Portugal                    | L, T       | 1.4                                | T2   | D (CS)       |  | 0.003              | 0.003                     | 0.02               |                        | 108                   | 54                    | 17                    | 41               | 1.1                |  |
| Romania                     |            | 0.03                               | T2   | T2           |  |                    | 0.001                     | 0.02               | 0.005                  | 0.07                  | 0.05                  | 0                     | 0.02             | 0.0                |  |
| Slovakia                    | L, T       | 1.0                                | D  | C,D,CS       |  | NO                 | 0.001                     | 0.02               |                        | 100                   | 60                    |                       | 16               |                    |  |
| Spain                       | T          | 0.4                                | CS,D   | D            |  |                    | 0.001                     | 0.02               | 0.005                  | 70                    | 33                    | 10                    | 9.7              | 0.4                |  |
| Sweden                      | L, T       | 0.8                                | T1,T2  | D,CS         |  | NO                 | 0.001                     | 0.02               | 0.020                  | 130                   | 45                    | 9                     | 6.0              | 0.4                |  |
| Switzerland                 | L          | 0.8                                | CS   | CS           |  | NO                 | 0.001                     | 0.02               | NO                     | 111                   |                       |                       | 12               | 0.5                |  |
| United Kingdom              |            | 0.2                                | T1   | D/CS         |  |                    | 0.001                     | 0.02               | 0.004                  | 120                   | 49                    | 10                    | 6.8              | 0.7                |  |
| United States               |            | 0.3                                | M, T1, T2  | D            |  | 0.005              | 0.006                     | 0.02               | 0.014                  | 84                    | 48                    | 8.4                   | 4.1              | 0.4                |  |

<sup>a</sup> 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 N<sub>2</sub>O from 4.B Manure management.

<sup>b</sup> Source of default emission factors: IPCC good practice guidance, table 4.12, page 4.43.

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

<sup>d</sup> 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:

<sup>e</sup> The Czech Republic reported activity data for N excretion per AWMS in the unit *t N/year* instead of *kg N/year* as required in the CRF. The values for the N<sub>2</sub>O IEF from the Czech Republic do therefore not correspond to the unit given in this table.

IPCC defaults:

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

**Table 4.7****Manure management – trend information****CH<sub>4</sub> emissions (Gg)**

|                               | 1990 <sup>a</sup> | 1995  | 1996  | 1997  | 1998  | 1999  | 2000  | 2001  |
|-------------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|
| <b>Austria</b>                | 41                | 47    | 46    | 46    | 46    | 44    | 43    | 43    |
| <b>Belgium</b>                | 114               | 121   | 121   | 122   | 122   | 123   | 127   | 123   |
| <b>Bulgaria</b>               | 73                | 35    | 32    | 28    | 30    | 30    | 27    | 19    |
| <b>Canada</b>                 | 219               | 238   | 241   | 236   | 242   | 243   | 242   | 261   |
| <b>Czech Republic</b>         | 48                |       | 36    | 36    | 35    | 35    | 33    | 32    |
| <b>Denmark</b>                | 43                | 45    | 44    | 44    | 46    | 40    | 41    | 42    |
| <b>Estonia</b>                | 18                | 9     | 8     | 7     | 7     | 6     | 6     | 3     |
| <b>European Community</b>     | 2,151             | 2,110 | 2,106 | 2,120 | 2,140 | 2,129 | 2,146 | 2,156 |
| <b>Finland</b>                | 9                 | 10    | 10    | 11    | 10    | 10    | 10    | 10    |
| <b>France</b>                 | 707               | 682   | 684   | 677   | 674   | 672   | 677   | 683   |
| <b>Germany</b>                | 269               | 218   | 218   | 224   | 217   | 215   | 210   | 212   |
| <b>Greece<sup>b</sup></b>     | 24                | 23    | 23    | 23    | 23    | 23    | 22    | 23    |
| <b>Iceland</b>                | 0.9               | 0.9   | 0.9   | 0.9   | 0.9   | 0.9   | 0.9   | 0.9   |
| <b>Ireland</b>                | 60                | 65    | 66    | 67    | 69    | 69    | 68    | 66    |
| <b>Italy</b>                  | 191               | 183   | 185   | 185   | 187   | 184   | 183   | 188   |
| <b>Latvia</b>                 | 13                | 5     | 5     | 4     | 4     | 4     | 4     | 4     |
| <b>Luxembourg<sup>b</sup></b> |                   |       |       |       |       | 1     | 1     | 1     |
| <b>Netherlands</b>            | 103               | 100   | 98    | 93    | 93    | 91    | 91    | 88    |
| <b>New Zealand</b>            | 27                | 27    | 27    | 27    | 27    | 27    | 26    | 26    |
| <b>Norway</b>                 | 14                | 15    | 15    | 15    | 15    | 15    | 15    | 15    |
| <b>Poland</b>                 | 56                | 49    | 45    | 46    | 46    | 39    | 36    | 36    |
| <b>Portugal</b>               | 165               | 151   | 148   | 149   | 147   | 148   | 148   | 148   |
| <b>Romania</b>                | 81                | 135   | 115   | 116   | 104   | 103   | 93    | 82    |
| <b>Slovakia</b>               | 19                | 14    | 13    | 12    | 11    | 10    | 10    | 10    |
| <b>Spain</b>                  | 296               | 336   | 332   | 350   | 374   | 380   | 402   | 408   |
| <b>Sweden</b>                 | 16                | 19    | 19    | 19    | 18    | 18    | 17    | 20    |
| <b>Switzerland</b>            | 22                | 20    | 20    | 20    | 19    | 19    | 19    | 19    |
| <b>United Kingdom</b>         | 111               | 110   | 111   | 111   | 111   | 110   | 105   | 101   |
| <b>United States</b>          | 1,490             | 1,723 | 1,661 | 1,741 | 1,858 | 1,852 | 1,820 | 1,850 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | -1.7         | 0.1          | 1.3          | -5.1         | -2.8         | 1.0          | 4.9          |
| <b>Belgium</b>            | -0.1         | 1.0          | 0.6          | 0.7          | 2.9          | -3.2         | 8.3          |
| <b>Bulgaria</b>           | -8.5         | -11.6        | 6.1          | 2.2          | -10.6        | -28.7        | -73.4        |
| <b>Canada</b>             | 1.2          | -2.2         | 2.6          | 0.5          | -0.5         | 7.8          | 19.1         |
| <b>Czech Republic</b>     |              | 0.7          | -2.6         | 0.1          | -7.3         | -2.2         | -33.8        |
| <b>Denmark</b>            | -1.4         | 0.7          | 2.9          | -11.2        | 1.2          | 2.8          | -1.7         |
| <b>Estonia</b>            | -12.3        | -7.1         | -2.0         | -12.8        | -2.1         | -53.9        | -83.8        |
| <b>European Community</b> | -0.2         | 0.7          | 0.9          | -0.5         | 0.8          | 0.4          | 0.2          |
| <b>Finland</b>            | -0.4         | 3.7          | -2.8         | -2.3         | -0.6         | -3.5         | 2.9          |
| <b>France</b>             | 0.3          | -1.0         | -0.5         | -0.4         | 0.8          | 0.8          | -3.5         |
| <b>Germany</b>            | 0.3          | 2.4          | -3.1         | -0.6         | -2.4         | 0.6          | -21.4        |
| <b>Greece</b>             | 0.0          | -0.4         | -0.5         | -0.8         | -0.5         | 3.8          | -1.3         |
| <b>Iceland</b>            | 0.4          | 0.3          | 0.5          | -1.7         | -3.5         | -1.8         | -9.2         |
| <b>Ireland</b>            | 1.6          | 2.3          | 2.6          | 0.3          | -1.7         | -2.1         | 10.7         |
| <b>Italy</b>              | 1.0          | 0.0          | 1.0          | -1.6         | -0.3         | 2.5          | -1.7         |
| <b>Latvia</b>             | -10.3        | -6.3         | -6.3         | -8.7         | -2.7         | 7.1          | -70.0        |
| <b>Luxembourg</b>         |              |              |              |              | -1.7         | 0.2          |              |
| <b>Netherlands</b>        | -2.6         | -4.7         | 0.2          | -2.4         | 0.0          | -3.0         | -14.6        |
| <b>New Zealand</b>        | 0.0          | -1.2         | -1.1         | -1.0         | -0.9         | -0.3         | -3.9         |
| <b>Norway</b>             | 1.8          | 0.2          | 1.3          | -0.9         | -0.9         | -0.4         | 6.5          |
| <b>Poland</b>             | -8.9         | 3.1          | 0.6          | -16.3        | -7.2         | -1.0         | -36.4        |
| <b>Portugal</b>           | -2.1         | 0.8          | -1.0         | 0.7          | -0.6         | 0.0          | -10.6        |
| <b>Romania</b>            | -15.0        | 0.7          | -9.9         | -1.1         | -10.2        | -11.1        | 2.2          |
| <b>Slovakia</b>           | -5.0         | -8.2         | -11.8        | -3.5         | -3.5         | 0.2          | -46.5        |
| <b>Spain</b>              | -1.2         | 5.2          | 7.0          | 1.6          | 5.7          | 1.5          | 37.8         |
| <b>Sweden</b>             | 1.7          | -3.1         | -0.9         | -1.5         | -4.1         | 13.0         | 22.6         |
| <b>Switzerland</b>        | -2.5         | -2.2         | -2.1         | -0.9         | 0.3          | 0.7          | -11.1        |
| <b>United Kingdom</b>     | 0.9          | -0.1         | 0.7          | -1.6         | -4.0         | -4.1         | -8.9         |
| <b>United States</b>      | -3.6         | 4.8          | 6.7          | -0.3         | -1.7         | 1.6          | 24.2         |

**Table 4.7****Manure management – trend information (continued)****N<sub>2</sub>O emissions (Gg)**

|                           | 1990 <sup>a</sup> | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|---------------------------|-------------------|------|------|------|------|------|------|------|
| <b>Austria</b>            | 2.4               | 2.4  | 2.4  | 2.4  | 2.4  | 2.4  | 2.3  | 2.3  |
| <b>Belgium</b>            | 1.5               | 1.5  | 1.5  | 1.5  | 6.0  | 1.5  | 1.5  | 1.6  |
| <b>Bulgaria</b>           | 3.4               | 1.6  | 1.5  | 1.4  | 1.5  | 1.5  | 1.4  | 1.0  |
| <b>Canada</b>             | 11.9              | 13.6 | 13.8 | 14.0 | 13.8 | 13.9 | 13.9 | 14.8 |
| <b>Czech Republic</b>     | 2.1               |      | 1.5  | 1.5  | 1.4  | 1.4  | 1.4  | 1.3  |
| <b>Denmark</b>            | 1.5               | 1.6  | 1.6  | 1.5  | 1.5  | 1.5  | 1.4  | 1.4  |
| <b>Estonia</b>            | 0.1               | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| <b>European Community</b> | 75.8              | 70.0 | 70.3 | 70.6 | 70.4 | 70.4 | 68.9 | 69.6 |
| <b>Finland</b>            | 1.8               | 1.5  | 1.5  | 1.5  | 1.4  | 1.4  | 1.3  | 1.3  |
| <b>France</b>             | 9.9               | 9.5  | 9.6  | 9.5  | 9.5  | 9.4  | 9.4  | 9.5  |
| <b>Germany</b>            | 26.4              | 21.4 | 21.4 | 21.7 | 21.1 | 21.1 | 20.7 | 20.8 |
| <b>Greece<sup>b</sup></b> | 1.0               | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  | 0.9  |
| <b>Iceland</b>            | 0.0               | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| <b>Ireland</b>            | 2.0               | 2.2  | 2.2  | 2.2  | 2.3  | 2.3  | 2.3  | 2.2  |
| <b>Italy</b>              | 12.4              | 12.9 | 13.0 | 13.1 | 13.3 | 13.3 | 12.8 | 13.6 |
| <b>Latvia</b>             | 1.0               | 0.6  | 0.5  | 0.5  | 0.5  | 0.4  | 0.4  | 0.4  |
| <b>Luxembourg</b>         |                   |      |      |      |      |      |      |      |
| <b>Netherlands</b>        | 0.7               | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  | 0.6  | 0.6  |
| <b>New Zealand</b>        | 0.2               | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  |
| <b>Norway</b>             | 0.4               | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  |
| <b>Poland</b>             | NE                | NE   | NE   | NE   | NE   | 20.1 | 18.7 | 18.2 |
| <b>Portugal</b>           | 3.6               | 3.6  | 3.5  | 3.6  | 3.6  | 4.0  | 3.9  | 3.9  |
| <b>Romania</b>            |                   | 0.1  | 0.1  | 0.2  | 0.1  | 0.1  | 0.5  | 0.2  |
| <b>Slovakia</b>           | 3.5               | 2.4  | 2.2  | 2.0  | 1.8  | 1.7  | 1.6  | 1.6  |
| <b>Spain</b>              | 5.3               | 5.0  | 5.1  | 5.1  | 5.2  | 5.2  | 5.2  | 5.2  |
| <b>Sweden</b>             | 2.4               | 2.0  | 2.0  | 2.1  | 2.1  | 1.9  | 1.9  | 1.8  |
| <b>Switzerland</b>        | 1.4               | 1.4  | 1.4  | 1.4  | 1.4  | 1.4  | 1.4  | 1.3  |
| <b>United Kingdom</b>     | 4.9               | 4.8  | 4.9  | 4.9  | 4.9  | 4.9  | 4.6  | 4.4  |
| <b>United States</b>      | 52.2              | 53.4 | 54.7 | 55.7 | 55.9 | 56.0 | 57.7 | 58.1 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | -1.4         | -0.7         | 0.0          | -1.5         | -1.5         | -1.3         | -5.2         |
| <b>Belgium</b>            | -1.9         | 0.0          | 298.7        | -74.6        | -0.7         | 2.6          | 2.0          |
| <b>Bulgaria</b>           | -6.9         | -8.5         | 7.0          | 3.3          | -8.0         | -25.3        | -69.6        |
| <b>Canada</b>             | 1.7          | 1.5          | -1.4         | 0.3          | 0.1          | 6.5          | 24.6         |
| <b>Czech Republic</b>     |              | -1.5         | -5.6         | 0.0          | -5.6         | -0.8         | -37.1        |
| <b>Denmark</b>            | 0.1          | -7.7         | 3.6          | -2.1         | -3.5         | 0.4          | -4.4         |
| <b>Estonia</b>            | -10.1        | -3.8         | -4.5         | -12.7        | -4.5         | 23.8         | -56.7        |
| <b>European Community</b> | 0.3          | 0.5          | -0.3         | 0.0          | -2.1         | 1.0          | -8.2         |
| <b>Finland</b>            | -1.2         | 0.0          | -4.3         | -4.5         | -1.9         | -2.9         | -27.7        |
| <b>France</b>             | 0.3          | -0.7         | -0.3         | -0.8         | 0.2          | 0.7          | -4.5         |
| <b>Germany</b>            | 0.2          | 1.3          | -2.5         | -0.2         | -1.9         | 0.7          | -21.2        |
| <b>Greece</b>             | -0.2         | -1.1         | -1.5         | -2.9         | -0.2         | 9.3          | -3.5         |
| <b>Iceland</b>            |              |              |              |              |              |              |              |
| <b>Ireland</b>            | 1.9          | 2.6          | 2.6          | 0.1          | -2.2         | -2.4         | 9.0          |
| <b>Italy</b>              | 0.9          | 1.2          | 1.6          | -0.5         | -3.4         | 6.0          | 9.6          |
| <b>Latvia</b>             | -6.5         | -6.6         | -8.4         | -11.9        | -2.7         | 6.1          | -56.5        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | -2.2         | -4.3         | -2.7         | -3.2         | -5.0         | -1.6         | -7.6         |
| <b>New Zealand</b>        | 3.6          | 2.5          | 3.4          | 3.8          | 4.6          | 3.8          | 52.4         |
| <b>Norway</b>             | 1.2          | -0.4         | 1.0          | -0.4         | -1.5         | -0.9         | 1.7          |
| <b>Poland</b>             |              |              |              |              | -7.2         | -2.5         |              |
| <b>Portugal</b>           | -1.0         | 0.4          | 1.7          | 10.3         | -2.0         | 0.0          | 7.5          |
| <b>Romania</b>            | -25.9        | 50.1         | -36.0        | 20.1         | 330.0        | -69.9        |              |
| <b>Slovakia</b>           | -7.5         | -8.3         | -12.1        | -5.3         | -2.5         | 0.2          | -53.9        |
| <b>Spain</b>              | 1.4          | 0.3          | 2.0          | 0.1          | -0.9         | 0.6          | -1.1         |
| <b>Sweden</b>             | 0.2          | 4.1          | 0.1          | -6.7         | -2.1         | -5.6         | -25.2        |
| <b>Switzerland</b>        | -0.8         | -0.6         | -0.2         | -0.9         | -0.1         | -2.3         | -8.2         |
| <b>United Kingdom</b>     | 1.1          | 0.0          | 0.0          | 1.3          | -6.1         | -4.2         | -8.9         |
| <b>United States</b>      | 2.5          | 1.8          | 0.3          | 0.1          | 3.1          | 0.6          | 11.3         |

**Table 4.8**

**Agricultural soils, N<sub>2</sub>O (2001)**

|                              | Methods and EF used <sup>a</sup> |                      | Direct soil emissions   |                                      |  |                                |                                |  |                              | Animal production        |                                |                                      | Indirect soil emissions             |                         |                                      |  |                                 |  |       |
|------------------------------|----------------------------------|----------------------|-------------------------|--------------------------------------|--|--------------------------------|--------------------------------|--|------------------------------|--------------------------|--------------------------------|--------------------------------------|-------------------------------------|-------------------------|--------------------------------------|--|---------------------------------|--|-------|
|                              |                                  |                      | Key source <sup>b</sup> | Share of national total <sup>b</sup> | Synthetic fertilizers                                  |                                | Animal wastes applied to soils | N-fixing crops   | Crop residue                 | Cultivation of histosols | Key source <sup>b</sup>        | Share of national total <sup>b</sup> | Pasture range and paddock (grazing) | Key source <sup>b</sup> | Share of national total <sup>b</sup> | Atmospheric deposition                                 |                                 | Nitrogen reaching and run-off                          |       |
|                              | Activity data                    | N <sub>2</sub> O IEF |                         |                                      | N <sub>2</sub> O IEF<br>(kg N <sub>2</sub> O-N / kg N) | Activity data<br>(kg N / year) |                                |  |                              |                          |                                |                                      |                                     |                         |                                      | N <sub>2</sub> O IEF<br>(kg N <sub>2</sub> O-N / kg N) | Activity data<br>(kg N/year )   | N <sub>2</sub> O IEF<br>(kg N <sub>2</sub> O-N / kg N) |       |
|                              | Use of synthetic fertilizers     | N <sub>2</sub> O IEF |                         |                                      |  |                                |                                |  |                              |                          |                                |                                      |                                     |                         |                                      |  |                                 |  |       |
|                              | (kg N / yr)                      |                      |                         |                                      |  |                                | (kg N <sub>2</sub> O-N / kg N) | (kg N <sub>2</sub> O-N / kg dry biomass <sup>c</sup> ) | (kg N <sub>2</sub> O-N / ha) |                          |                                |                                      |                                     |                         |                                      |  |                                 |  |       |
| IPCC default EF <sup>c</sup> |                                  |                      |                         |                                      | 0.0125 (0.0025 - 0.0225) <sup>e</sup>                  |                                |                                | 5, 10 (2-15) <sup>d</sup>                              |                              |                          | 0.02 (0.005-0.03) <sup>e</sup> |                                      |                                     |                         | 0.01 (0.002-0.2) <sup>f</sup>        |  | 0.025 (0.002-0.12) <sup>f</sup> |  |       |
| Austria                      | T1                               | D                    | L, T                    | 1.8                                  | 118,557,136  | 0.0125                         | 0.0125                         | 0.0125   | 0.0125                       |                          | 0.2                            | 0.020                                | L, T                                | 1.2                     | 23,994,910                           | 0.010  | 77,508,128                      | 0.025  |       |
| Belgium                      |                                  |                      |                         |                                      |  |                                |                                |  |                              |                          | 0.0                            |                                      |                                     | 0.0                     |                                      |  |                                 |  |       |
| Bulgaria                     | D                                | D                    | L                       | 1.8                                  | 151,165,792  | 0.0100                         | 0.0100                         | 0.0003   | 0.0001                       | 5.00                     | 0.8                            | 0.020                                | L                                   | 1.8                     | 38,551,940                           | 0.010  | 83,022,208                      | 0.025  |       |
| Canada                       | T1                               | D                    | L, T                    | 3.0                                  | 1,597,095,040  | 0.0113                         | 0.0092                         | 0.0125   | 0.0137                       | 5.00                     | 0.4                            | 0.020                                | L, T                                | 1.0                     | 394,606,016                          | 0.010  | 415,772,000                     | 0.025  |       |
| Czech Republic               | D                                | D                    | L                       | 1.8                                  | 191,689,200  | 0.0125                         | 0.0125                         | 0.0125   | 0.0125                       | 5.00                     | 0.2                            | 0.020                                | L                                   | 1.3                     | 65,828,020                           | 0.010  | 130,690,232                     | 0.025  |       |
| Denmark                      | CS/M                             | CS/M                 | L, T                    | 6.5                                  | 233,683,008  | 0.0120                         | 0.0090                         | 0.0125   | 0.0125                       | 8.00                     | 0.4                            | 0.019                                | L, T                                | 3.8                     | 73,548,656                           | 0.010  | 188,500,000                     | 0.025  |       |
| Estonia                      |                                  |                      |                         | 1.1                                  | 17,642,700   | 0.0125                         | 0.0125                         | 0.0008   | 0.0002                       |                          | 0.0                            | 0.020                                |                                     | 0.5                     | 2,438,772                            | 0.010  | 6,598,608                       | 0.025  |       |
| European Community           | C, CS, D, M, T1a,                | C, CS, D, M, T2      |                         |                                      | NE   | NE                             | NE                             | NE   | NE                           | NE                       | 0.0                            | NE                                   |                                     | 0.0                     | NE                                   | NE   | NE                              | NE   |       |
| Finland                      | D                                | D/CS                 | L, T                    | 3.2                                  | 164,705,792  | 0.0125                         | 0.0125                         | 0.0125   | 0.0125                       | 8.00                     | 0.2                            | 0.020                                | L, T                                | 0.7                     | 25,817,528                           | 0.010  | 36,866,288                      | 0.025  |       |
| France                       | T2                               | T2                   | L, T                    | 4.6                                  | 2,316,473,856  | 0.0113                         | 0.0110                         | 0.0008   | 0.0001                       |                          | L                              | 1.1                                  | 0.020                               | L, T                    | 3.4                                  | 632,842,752  | 0.010                           | 1,296,735,232  | 0.025 |
| Germany                      | CS                               | CS                   | L                       | 2.3                                  | 1,815,965,056  | 0.0125                         | 0.0030                         | 0.0125   | 0.0125                       | 5.00                     | 0.2                            | 0.012                                | L                                   | 0.9                     | 481,549,600                          | 0.010  | 805,458,816                     | 0.016  |       |
| Greece                       | T1                               | D                    | L, T                    | 1.9                                  | 283,510,016  | 0.0125                         | 0.0125                         | 0.0008   | 0.0002                       |                          | L, T                           | 2.7                                  | 0.020                               |                         |                                      |  |                                 |  |       |
| Iceland                      | D                                | D                    | L                       | 2.3                                  | 6,307,492  | 0.0191                         | 1.0000                         |  |                              |                          |                                |                                      |                                     |                         |                                      |  |                                 |  |       |
| Ireland                      | D                                | CS, D                | L, T                    | 4.2                                  | 390,544,640  | 0.0125                         | 0.0125                         | 0.0007   | 0.0001                       |                          | L, T                           | 4.2                                  | 0.020                               | L, T                    | 2.2                                  | 96,842,952   | 0.010                           | 88,282,688   | 0.025 |
| Italy                        | D                                | D, CS                | L                       | 1.6                                  | 713,545,024  | 0.0125                         | 0.0125                         | 0.0005   | 0.0001                       | 8.00                     | 0.4                            | 0.020                                | L                                   | 1.4                     | 260,052,304                          | 0.010  | 508,616,352                     | 0.025  |       |
| Latvia                       | T1                               | D                    | L                       | 4.1                                  | 28,440,000   | 0.0125                         | 0.0125                         | 0.0125   | 0.0125                       | 8.00                     | 0.7                            | 0.020                                | L, T                                | 2.5                     | 9,722,480                            | 0.010  | 19,323,720                      | 0.025  |       |
| Luxembourg                   | C                                | C                    |                         |                                      |  |                                |                                |  |                              |                          |                                |                                      |                                     |                         |                                      |  |                                 |  |       |
| Netherlands                  | CS/T1b(D&I)                      | CS                   | L, T                    | 2.2                                  | 330,200,000  | 0.0110                         | 0.0200                         | 0.0098   | NE                           | IE                       | 0.4                            | 0.016                                |                                     |                         |                                      | NE   |                                 | IE   |       |
| New Zealand                  | D                                | CS/D                 | L                       | 2.5                                  | 214,873,200  | 0.0125                         | 0.0125                         | 0.0007   | 0.0001                       | 8.01                     | L                              | 9.9                                  | 0.010                               | L                       | 4.3                                  | 331,989,856  | 0.010                           | 124,552,624  | 0.025 |
| Norway <sup>g,h</sup>        | D                                | D, CS                | L, T                    | 3.7                                  | 100,592,000  | 0.0119                         | 0.0104                         | a)   | b)                           | 8.00                     | 0.3                            | 0.019                                | L                                   | 0.9                     | 21,552,956                           | 0.008  | 35,192,504                      | 0.025  |       |
| Poland                       | T2                               | CS                   | L                       | 2.6                                  | 805,500,032  | 0.0080                         | 0.0100                         | 0.0100   | 0.0100                       | 5.00                     | 0.2                            | 0.020                                |                                     |                         | NE                                   | NE   | NE                              | NE   |       |
| Portugal                     | D                                | D                    | L, T                    | 1.8                                  | 130,000,000  | 0.0113                         | 0.0108                         | 0.0011   | 0.0001                       |                          | L, T                           | 1.9                                  | 0.019                               | L, T                    | 1.8                                  | 35,494,156   | 0.010                           | 112,354,816  | 0.025 |
| Romania                      | D                                | D                    | L                       | 3.4                                  | 241,200,000  | 0.0125                         | 0.0125                         | 0.0007   | 0.0002                       | 5.00                     | 0.0                            | 0.020                                |                                     | 0.8                     | 28,897,714                           | 0.010  | 83,546,568                      | 0.025  |       |
| Slovakia <sup>i</sup>        | C, CS                            | C,D, CS              | L                       | 3.7                                  | 73,210,496   | 0.0125                         | 0.0125                         | 0.0125   | 0.0125                       | IE                       | 0.2                            | 0.020                                |                                     | 0.8                     | 24,985,232                           | 0.010  | 23,183,812                      | 0.025  |       |
| Spain                        | CS,D                             | CS,D                 | L, T                    | 2.3                                  | 999,241,408  | 0.0125                         | 0.0125                         | 0.0125   | 0.0125                       |                          | L, T                           | 0.9                                  | 0.020                               | L, T                    | 1.4                                  | 356,301,696  | 0.010                           | 294,288,096  | 0.025 |
| Sweden                       | D,C                              | CS                   | L, T                    | 4.1                                  | 196,897,728  | 0.0079                         | 0.0250                         | 0.0006   | 0.0001                       | 8.02                     | L, T                           | 0.6                                  | 0.017                               | L, T                    | 1.3                                  | 38,153,000   | 0.010                           | 61,966,000   | 0.025 |
| Switzerland                  | CS                               | CS                   | L, T                    | 2.3                                  | 60,348,000   | 0.0125                         | 0.0125                         | 0.0004   | 0.0000                       | 5.00                     |                                | 0.3                                  | 0.020                               | L, T                    | 1.4                                  | 51,602,880   | 0.010                           | 39,454,428   | 0.025 |
| United Kingdom               | T1a/T1b                          | D                    | L                       | 1.8                                  | 1,126,368,128  | 0.0126                         | 0.0125                         | 0.0008   | 0.0002                       | 5.00                     | L                              | 0.7                                  | 0.020                               | L                       | 1.4                                  | 345,814,784  | 0.010                           | 593,930,048  | 0.025 |
| United States                | T1a, T1b                         | D                    | L                       | 2.5                                  | 9,741,246,464  | 0.0125                         | 0.0125                         | 0.0125   | 0.0125                       | 9.23                     | L, T                           | 0.6                                  | 0.020                               | L, T                    | 1.1                                  | 2,521,784,320  | 0.010                           | 5,373,900,800  | 0.025 |

<sup>a</sup> 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 N<sub>2</sub>O from 4.D Agricultural soils.

<sup>b</sup> Information on key sources and the percentage of national total refers to subcategory 4.D.1 Direct soil emissions, except for Belgium and the European Community, where the information refers to the entire category 4.D Agricultural soils.

<sup>c</sup> 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.) It should be noted that for the sub-sources N-fixing crops and crop residue the IPCC default emission factors are not directly comparable to the N<sub>2</sub>O implied emission factors because of the use of different units; the unit of default emission factors is kg N<sub>2</sub>O-N/kg N, while in the CRF the unit relates to the amount of dry biomass (kg N<sub>2</sub>O-N/kg dry biomass).

<sup>d</sup> 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).

<sup>e</sup> 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.

<sup>f</sup> 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.

<sup>g</sup> Norway indicated in the CRF that biological N-fixation is estimated to 8 Gg N/yr.

<sup>h</sup> Norway indicated in the CRF that the N amount in crop residues is assumed to be equal to the amount of N in all the yield (78,069 t in 2001).

<sup>i</sup> Slovakia reported the IEF for N-fixing crops and crop residue in the unit kg N<sub>2</sub>O-N/kg N.



**Table 4.9****Agricultural soils, N<sub>2</sub>O – trend information****N<sub>2</sub>O emissions (Gg)**

|                           | 1990 <sup>a</sup> | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|---------------------------|-------------------|------|------|------|------|------|------|------|
| <b>Austria</b>            | 10                | 10   | 9    | 10   | 9    | 9    | 9    | 9    |
| <b>Belgium</b>            | 16                | 16   | 16   | 16   | 16   | 16   | 15   | 15   |
| <b>Bulgaria</b>           | 27                | 12   | 11   | 11   | 10   | 10   | 10   | 9    |
| <b>Canada</b>             | 88                | 98   | 103  | 104  | 105  | 108  | 109  | 101  |
| <b>Czech Republic</b>     | 24                |      | 19   | 18   | 16   | 16   | 15   | 15   |
| <b>Denmark</b>            | 32                | 28   | 27   | 26   | 26   | 26   | 25   | 24   |
| <b>Estonia</b>            | 3                 | 1    | 1    | 1    | 1    | 1    | 1    | 1    |
| <b>European Community</b> | 692               | 650  | 658  | 662  | 658  | 660  | 655  | 635  |
| <b>Finland</b>            | 14                | 12   | 12   | 11   | 11   | 11   | 11   | 11   |
| <b>France</b>             | 180               | 170  | 172  | 174  | 174  | 174  | 171  | 166  |
| <b>Germany</b>            | 128               | 108  | 107  | 106  | 107  | 110  | 111  | 108  |
| <b>Greece<sup>b</sup></b> | 21                | 19   | 19   | 20   | 19   | 19   | 21   | 19   |
| <b>Iceland</b>            | 0                 | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| <b>Ireland</b>            | 22                | 24   | 24   | 24   | 25   | 25   | 25   | 24   |
| <b>Italy</b>              | 64                | 65   | 64   | 67   | 65   | 65   | 64   | 65   |
| <b>Latvia</b>             | 8                 | 2    | 2    | 3    | 2    | 2    | 2    | 3    |
| <b>Luxembourg</b>         |                   |      |      |      |      |      |      |      |
| <b>Netherlands</b>        | 22                | 26   | 26   | 25   | 25   | 25   | 23   | 23   |
| <b>New Zealand</b>        | 32                | 35   | 36   | 36   | 36   | 37   | 38   | 39   |
| <b>Norway</b>             | 9                 | 9    | 9    | 9    | 9    | 9    | 9    | 9    |
| <b>Poland</b>             | 43                | 31   | 30   | 31   | 31   | 35   | 35   | 35   |
| <b>Portugal</b>           | 15                | 15   | 15   | 14   | 15   | 15   | 15   | 15   |
| <b>Romania</b>            | 25                | 16   | 14   | 15   | 14   | 13   | 21   | 20   |
| <b>Slovakia</b>           | 13                | 8    | 8    | 8    | 8    | 7    | 7    | 8    |
| <b>Spain</b>              | 53                | 48   | 56   | 53   | 54   | 57   | 60   | 57   |
| <b>Sweden</b>             | 18                | 17   | 17   | 17   | 17   | 16   | 16   | 16   |
| <b>Switzerland</b>        | 8                 | 7    | 7    | 7    | 7    | 7    | 7    | 7    |
| <b>United Kingdom</b>     | 98                | 94   | 94   | 97   | 94   | 92   | 89   | 83   |
| <b>United States</b>      | 863               | 916  | 946  | 962  | 965  | 958  | 950  | 949  |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | -7.0         | 11.9         | -8.9         | -0.9         | -0.5         | -1.1         | -4.7         |
| <b>Belgium</b>            | -2.6         | -1.0         | 1.3          | 0.8          | -2.7         | -0.9         | -6.8         |
| <b>Bulgaria</b>           | -5.0         | -4.3         | -7.2         | 0.7          | 2.0          | -7.7         | -65.9        |
| <b>Canada</b>             | 5.6          | 0.1          | 1.5          | 2.5          | 0.7          | -6.7         | 14.8         |
| <b>Czech Republic</b>     |              | -6.8         | -10.1        | -1.5         | -2.8         | 1.5          | -36.5        |
| <b>Denmark</b>            | -3.4         | -3.8         | 0.8          | -0.6         | -2.4         | -4.8         | -23.7        |
| <b>Estonia</b>            | -7.9         | 10.8         | 4.0          | -18.2        | 18.5         | -14.8        | -67.3        |
| <b>European Community</b> | 1.2          | 0.6          | -0.6         | 0.3          | -0.7         | -3.1         | -8.2         |
| <b>Finland</b>            | -3.7         | -2.5         | -2.4         | -3.1         | 1.5          | -1.4         | -21.9        |
| <b>France</b>             | 1.5          | 1.3          | -0.2         | 0.0          | -1.9         | -2.5         | -7.5         |
| <b>Germany</b>            | -0.2         | -1.4         | 1.2          | 2.4          | 1.2          | -3.1         | -16.1        |
| <b>Greece</b>             | 2.8          | 4.1          | -2.4         | -0.6         | 6.1          | -5.3         | -7.2         |
| <b>Iceland</b>            | 3.1          | -11.0        | 3.7          | 9.5          | 5.2          | -3.4         | -4.3         |
| <b>Ireland</b>            | 1.9          | 0.3          | 1.3          | 0.8          | -0.4         | -3.4         | 7.9          |
| <b>Italy</b>              | -1.5         | 5.1          | -3.3         | 0.3          | -1.1         | 0.5          | 1.5          |
| <b>Latvia</b>             | 2.1          | 4.1          | -3.3         | -10.1        | 7.8          | 13.6         | -66.7        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | -1.7         | -1.5         | -2.8         | 0.0          | -8.1         | -0.3         | 4.6          |
| <b>New Zealand</b>        | 1.0          | 0.4          | 1.3          | 1.4          | 4.0          | 2.1          | 22.0         |
| <b>Norway</b>             | -1.7         | 0.6          | 0.5          | -1.4         | 0.6          | -1.8         | -4.3         |
| <b>Poland</b>             | -3.1         | 2.5          | 0.0          | 13.8         | -2.6         | 0.0          | -19.8        |
| <b>Portugal</b>           | 1.0          | -2.5         | 3.3          | 2.3          | -0.9         | 0.0          | -3.3         |
| <b>Romania</b>            | -13.6        | 5.4          | -7.7         | -5.8         | 59.4         | -1.9         | -19.7        |
| <b>Slovakia</b>           | -0.8         | 1.1          | -5.5         | -5.0         | 0.6          | 2.8          | -43.0        |
| <b>Spain</b>              | 16.4         | -5.3         | 3.3          | 4.1          | 6.5          | -6.2         | 7.7          |
| <b>Sweden</b>             | 0.2          | 1.0          | -1.3         | -5.1         | -0.5         | 0.5          | -7.4         |
| <b>Switzerland</b>        | -1.1         | -1.7         | -1.2         | -1.3         | 0.1          | -0.9         | -9.7         |
| <b>United Kingdom</b>     | 0.6          | 3.1          | -2.9         | -2.0         | -3.8         | -6.4         | -15.0        |
| <b>United States</b>      | 3.2          | 1.7          | 0.3          | -0.7         | -0.8         | -0.1         | 10.0         |

**Table 4.10****Agricultural soils: parameters used (2001)****Parameters (fractions) used to estimate N<sub>2</sub>O emissions in the agricultural soils category (direct and indirect emissions)**

|                    | Frac <sub>BURN</sub> | Frac <sub>FUEL</sub>    | Frac <sub>GRAZ</sub>           | Frac <sub>NCRBF</sub>     | Frac <sub>NCRO</sub>  | Frac <sub>R</sub>   | Frac <sub>GASF</sub>   | Frac <sub>GASM</sub>  | Frac <sub>LEACH</sub>                 |
|--------------------|----------------------|-------------------------|--------------------------------|---------------------------|---|---|--|---|---------------------------------------|
|                    | (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 <sub>3</sub> -N + NO <sub>x</sub> -N/ kg of synth fert. N applied) | (NH <sub>3</sub> -N + NO <sub>x</sub> -N/ kg of N excreted) | (kg N / kg of fertilizer or manure N) |
| IPCC defaults EF   | 0.25 <sup>a</sup>    | no default <sup>b</sup> | no default <sup>b</sup>        | 0.03 <sup>a</sup>         | 0.015 <sup>a</sup>  | 0.45 <sup>a</sup>   | 0.1 <sup>a</sup>   | 0.2 <sup>a</sup>  | 0.3 (0.1 - 0.8) <sup>a</sup>          |
| Austria            | 0.01                 | 0.00                    | 0.16                           | 0.00                      | 0.015   | 0.34  | 0.03   | 0.18  | 0.30                                  |
| Belgium            |                      |                         |                                |                           |   |   |  |   |                                       |
| Bulgaria           | 0.10                 | 0.00                    | 0.02                           | 0.03                      | 0.015   | 0.10  | 0.10   | 0.20  | 0.30                                  |
| Canada             |                      |                         |                                |                           |   |   |  |   |                                       |
| Czech Republic     |                      |                         |                                |                           |   |   |  |   |                                       |
| Denmark            | NO                   | NO                      | 0.12                           |                           |   |   | 0.02   | 0.28  | 0.38                                  |
| Estonia            | 0.90                 | 0.00                    | 0.20                           | 0.01                      | 0.030   | 0.55  | 0.10   | 0.20  | 0.30                                  |
| European Community |                      |                         |                                |                           |   |   |  |   |                                       |
| Finland            | NZ                   | 0.00                    | 0.22                           | 0.01                      | 0.041   | 0.43  | 0.01   | 0.31  | 0.15                                  |
| France             | NA                   | NA                      | 0.28                           | CS                        | CS  | CS  | 0.10   | 0.10  | 0.30                                  |
| Germany            |                      |                         |                                |                           |   |   |  |   |                                       |
| Greece             | 0.25                 | 0.00                    |                                | 0.03                      | 0.015   | 0.45  | 0.10   | 0.20  |                                       |
| Iceland            |                      |                         |                                |                           |   |   |  |   |                                       |
| Ireland            | 0.00                 | 0.00                    | 0.65                           | 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   | 0.38  | 0.30                                  |
| Latvia             | NO                   | NO                      | 0.28                           | 0.01                      | 0.030   | 0.55  | 0.10   | 0.20  | 0.30                                  |
| Luxembourg         |                      |                         |                                |                           |   |   |  |   |                                       |
| Netherlands        |                      |                         |                                |                           |   |   |  |   |                                       |
| New Zealand        | 0.50                 | 0.00                    |                                | 0.03                      | 0.015   | 0.45  | 0.10   | 0.20  | 0.07                                  |
| Norway             | 0.00                 | no                      | 0.23                           | ne                        | ne  | ne  | 0.04   | 0.17  | 0.18                                  |
| Poland             |                      |                         |                                |                           |   |   |  |   |                                       |
| Portugal           | 0.05                 | 0.00                    | 0.49                           | 0.01                      | 0.023   | 0.72  | 0.10   | 0.12  | 0.27                                  |
| Romania            | 0.75                 | 0.00                    | 0.02                           | 0.01                      | 0.030   | 0.55  | 0.10   | 0.20  | 0.30                                  |
| Slovakia           |                      |                         | 0.06                           |                           |   |   | 0.10   | 0.20  | 0.14                                  |
| Spain              | NA                   | 0.00                    | NA                             | NA                        | NA  | NA  | 0.08   | 0.36  | 0.15                                  |
| Sweden             | NO                   | NO                      | 0.39                           | 0.01                      | 0.020   | 0.20  | 0.01   | 0.33  | 0.20                                  |
| Switzerland        | 0.00                 | 0.00                    | see table 4.B(a)               | see table 4.F             | see table 4.F   | see table 4.F   | 0.08   | see table 4.A   | 0.20                                  |
| United Kingdom     | 0.00                 | 0.00                    | 0.54                           | 0.03                      | 0.015   | 0.45  | 0.10   | 0.20  | 0.30                                  |
| United States      | 0.13                 | NO                      | 0.22, 0.11, 0, 0.9, 0.92, 0.92 | 0.03                      | 0.0048, 0.0058, 0.0062, 0.0062, 0.007, 0.007, 0.0072, 0.0077, 0.0106, 0.0108, 0.023, 0.03 | 0.38, 0.5, 0.39, 0.43, 0.43, 0.42, 0.42, 0.45, 0.5, 0.42, 0.32, 1 | 0.10   | 0.20  | 0.30                                  |

**Abbreviations of fractions:**

|                       |   |                       |  |
|-----------------------|---|-----------------------|--|
| Frac <sub>FUEL</sub>  | Fraction of livestock N excretion in excrements burned for fuel         | Frac <sub>BURN</sub>  | Fraction of crop residue burned  |
| Frac <sub>GRAZ</sub>  | Fraction of livestock N excreted and deposited onto soil during grazing | Frac <sub>GASF</sub>  | Fraction of synthetic fertilizer N applied to soils which volatilizes as NH <sub>3</sub> and NO <sub>x</sub> |
| Frac <sub>NCRBF</sub> | Fraction of N in non-N-fixing crop                                      | Frac <sub>GASM</sub>  | Fraction livestock N excretion that volatilizes as NH <sub>3</sub> and NO <sub>x</sub>                       |
| Frac <sub>NCRO</sub>  | Fraction of N in N-fixing crop  | Frac <sub>LEACH</sub> | Fraction of N input to soils which is lost through leaching and runoff                                       |
| Frac <sub>R</sub>     | Fraction of crop residue removed from the field as crop                 |                       |  |

<sup>a</sup> 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).<sup>b</sup> Countries are recommended to obtain country-specific data.

**Table 4.11****Agricultural soils, CO<sub>2</sub> – trend information****CO<sub>2</sub> emissions/removals (Gg)**

|                            | 1990 <sup>a</sup> | 1995  | 1996  | 1997  | 1998  | 1999  | 2000  | 2001  |
|----------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|
| <b>Austria</b>             | NE                | NE    | NE    | NE    | NE    | NE    | NE    | NE    |
| <b>Belgium</b>             |                   |       |       |       |       |       |       |       |
| <b>Bulgaria</b>            | NO                | NO    | NO    | NO    | NO    | NO    | NO    | NO    |
| <b>Canada</b>              | 7,553             | 3,464 | 2,082 | 1,539 | 1,011 | 475   | 62    | -299  |
| <b>Czech Republic</b>      |                   |       |       |       |       |       |       |       |
| <b>Denmark</b>             |                   |       |       |       |       |       |       |       |
| <b>Estonia</b>             |                   |       |       |       |       |       |       |       |
| <b>European Community</b>  | 3,208             | 1,718 | 1,818 | 2,055 | 2,024 | 2,007 | 2,023 | 1,946 |
| <b>Finland</b>             | 3,208             | 1,718 | 1,818 | 2,055 | 2,024 | 2,007 | 2,023 | 1,946 |
| <b>France</b>              |                   |       |       |       |       |       |       |       |
| <b>Germany</b>             | NE                | NE    | NE    | NE    | NE    | NE    | NE    | NE    |
| <b>Greece</b>              |                   |       |       |       |       |       |       |       |
| <b>Iceland</b>             | 4                 | 4     | 5     | 5     | 5     | 5     | 5     | 5     |
| <b>Ireland</b>             | IE                | IE    |       | IE    | IE    | IE    | IE    | IE    |
| <b>Italy</b>               |                   |       |       |       |       |       |       |       |
| <b>Latvia</b>              |                   |       |       |       |       |       |       |       |
| <b>Luxembourg</b>          |                   |       |       |       |       |       |       |       |
| <b>Netherlands</b>         | NE                | NE    | NE    | NE    | NE    | NE    | NE    | NE    |
| <b>New Zealand</b>         |                   |       |       |       |       |       |       | NE    |
| <b>Norway</b>              | 217               | 171   | 152   | 149   | 134   | 129   | 108   | 113   |
| <b>Poland</b>              | IE                | IE    | IE    | IE    | IE    | IE    | IE    | IE    |
| <b>Portugal</b>            | NE                | NE    | NE    | NE    | NE    | NE    | NE    | NE    |
| <b>Romania<sup>b</sup></b> |                   |       |       |       |       |       | NA    | NE    |
| <b>Slovakia</b>            |                   |       |       |       |       |       |       |       |
| <b>Spain</b>               |                   |       |       |       |       |       |       |       |
| <b>Sweden</b>              | IE                | IE    | IE    | IE    | IE    | IE    | IE    | IE    |
| <b>Switzerland</b>         | NE                | NE    | NE    | NE    | NE    | NE    | NE    | NE    |
| <b>United Kingdom</b>      | IE                | IE    | IE    | IE    | IE    | IE    | IE    | IE    |
| <b>United States</b>       | IE                | IE    | IE    | IE    | IE    | IE    | IE    | IE    |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

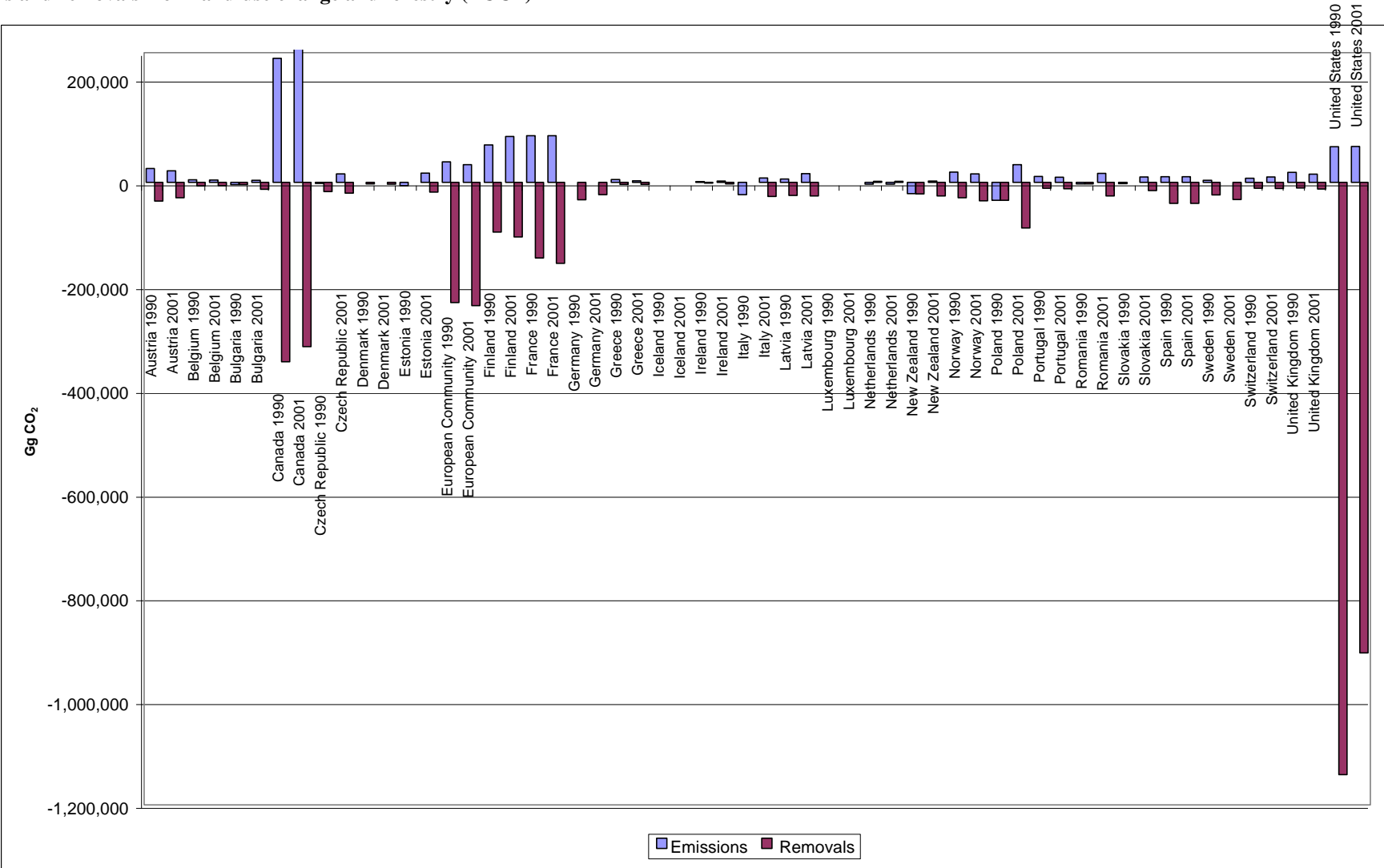
<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            |              |              |              |              |              |              |              |
| <b>Belgium</b>            |              |              |              |              |              |              |              |
| <b>Bulgaria</b>           |              |              |              |              |              |              |              |
| <b>Canada</b>             | -40          | -26          | -34          | -53          | -87          | -584         | -104         |
| <b>Czech Republic</b>     |              |              |              |              |              |              |              |
| <b>Denmark</b>            |              |              |              |              |              |              |              |
| <b>Estonia</b>            |              |              |              |              |              |              |              |
| <b>European Community</b> | 5.8          | 13.0         | -1.5         | -0.8         | 0.8          | -3.8         | -39.3        |
| <b>Finland</b>            | 6            | 13           | -1           | -1           | 1            | -4           | -39          |
| <b>France</b>             |              |              |              |              |              |              |              |
| <b>Germany</b>            |              |              |              |              |              |              |              |
| <b>Greece</b>             |              |              |              |              |              |              |              |
| <b>Iceland</b>            | 5.0          | 7.0          | 5.8          | -12.2        | 5.9          | -6.4         | 8.8          |
| <b>Ireland</b>            |              |              |              |              |              |              |              |
| <b>Italy</b>              |              |              |              |              |              |              |              |
| <b>Latvia</b>             |              |              |              |              |              |              |              |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        |              |              |              |              |              |              |              |
| <b>New Zealand</b>        |              |              |              |              |              |              |              |
| <b>Norway</b>             | -11.3        | -1.6         | -10.3        | -3.3         | -16.4        | 4.8          | -47.7        |
| <b>Poland</b>             |              |              |              |              |              |              |              |
| <b>Portugal</b>           |              |              |              |              |              |              |              |
| <b>Romania</b>            |              |              |              |              |              |              |              |
| <b>Slovakia</b>           |              |              |              |              |              |              |              |
| <b>Spain</b>              |              |              |              |              |              |              |              |
| <b>Sweden</b>             |              |              |              |              |              |              |              |
| <b>Switzerland</b>        |              |              |              |              |              |              |              |
| <b>United Kingdom</b>     |              |              |              |              |              |              |              |
| <b>United States</b>      |              |              |              |              |              |              |              |

Land use change and forestry

Figure 5.1  
Emissions and removals from land-use change and forestry (LUCF)



**Table 5.1****Methods and emission factors used (2001)**

|                      | Changes in forest and other woody biomass stocks |       |                                   | Forest/grassland conversion |        |                                   | Abandonment of lands |        |                                   | CO <sub>2</sub> emissions / removals from soils |          |                                   | Others  |    |                                   |
|----------------------|--|-------|-----------------------------------|-----------------------------|--------|-----------------------------------|----------------------|--------|-----------------------------------|---|----------|-----------------------------------|---------|----|-----------------------------------|
|                      | Methods  | EF    | Provision of activity data in CRF | Methods                     | EF     | Provision of activity data in CRF | Methods              | EF     | Provision of activity data in CRF | Methods   | EF       | Provision of activity data in CRF | Methods | EF | Provision of activity data in CRF |
| Austria              | D  | CS    | CRF                               |                             |        |                                   |                      |        |                                   |   |          |                                   |         |    |                                   |
| Belgium              |  |       | CRF                               |                             |        |                                   |                      |        |                                   |   |          |                                   |         |    |                                   |
| Bulgaria             | CS   | CS    | CRF                               | NE                          | NE     |                                   | NE                   | NE     |                                   | NE  | NE       |                                   |         |    |                                   |
| Canada               | CS/D   | CS    | CRF                               | CS/D                        | CS     | CRF                               | D                    | CS     | CRF                               | CS/D  | CS       |                                   | NA      | NA |                                   |
| Czech Republic       | CS   | CS    | CRF                               | NO                          |        |                                   | NO                   |        |                                   | NE  |          |                                   |         |    |                                   |
| Denmark              | CS/M   | CS/M  | CRF                               |                             |        |                                   |                      |        |                                   |   |          |                                   |         |    |                                   |
| Estonia              |  |       | CRF                               |                             |        |                                   |                      |        | CRF                               |   |          | CRF                               |         |    |                                   |
| European Community   | NE   | NE    |                                   | NE                          | NE     |                                   | NE                   | NE     |                                   | NE  | NE       |                                   | NE      | NE |                                   |
| Finland              | CS   | CS    |                                   | NO                          | NO     |                                   | NO                   | NO     |                                   | D   | D        | CRF                               |         |    |                                   |
| France               | CS   | CS    | CRF                               | CS                          | CS     | CRF                               | CS                   | CS     |                                   | CS  | CS       | CRF                               |         |    |                                   |
| Germany              | CS   | CS    | CRF                               | NE                          | NE     |                                   | NE                   | NE     |                                   | NE  | NE       |                                   | NO      | NO |                                   |
| Greece               |  |       | CRF                               |                             |        | CRF                               |                      |        |                                   |   |          | CRF                               |         |    |                                   |
| Iceland              | CS   | CS    | CRF                               |                             |        |                                   |                      |        |                                   | CS  | CS       |                                   |         |    |                                   |
| Ireland <sup>a</sup> | CS   | CS    | CRF                               | NA                          | NA     |                                   | NA                   | NA     |                                   | D   | D        | CRF                               | NA      | NA |                                   |
| Italy                | D, CS  | D, CS | CRF                               |                             |        |                                   | D                    | D      | CRF                               | D   | D, CS    | CRF                               |         |    |                                   |
| Latvia               | D  | D/CS  | CRF                               | D                           | D/CS   | CRF                               | D                    | D/CS   | CRF                               | D   | D        | CRF                               | NO      | NO |                                   |
| Luxembourg           |  |       |                                   |                             |        |                                   |                      |        |                                   |   |          |                                   |         |    |                                   |
| Netherlands          | T1   | CS    | CRF                               | NE                          |        |                                   | NE                   |        |                                   | NE  |          |                                   | NO      |    |                                   |
| New Zealand          | CS/M   | CS/M  |                                   | CS/D                        | CS/D   |                                   | NE                   | NE     |                                   | NE  | NE       |                                   |         |    |                                   |
| Norway               | CS   | D, CS | CRF                               |                             |        |                                   |                      |        |                                   | CS  | CS       | CRF                               |         |    |                                   |
| Poland               | T1   | D     | CRF                               | T1                          | D      | CRF                               | D                    | D      | CRF                               | T1  | D        | CRF                               | T1      | D  |                                   |
| Portugal             | D  | D     | CRF                               |                             |        |                                   |                      |        |                                   |   |          |                                   |         |    |                                   |
| Romania              | D  | D     | CRF                               | D                           | D      | CRF                               |                      |        |                                   |   |          |                                   |         |    |                                   |
| Slovakia             | D,CS   | D,CS  | CRF                               | D,CS                        | D,CS   | CRF                               | D,CS                 | D,CS   |                                   | D,CS  | D,CS     | CRF                               |         |    |                                   |
| Spain                | CS   | CS    | CRF                               | NE                          |        |                                   | NE                   |        |                                   | NE  |          |                                   | NO      |    |                                   |
| Sweden               | D  | CS    | CRF                               |                             |        |                                   |                      |        |                                   | D, CS   | CS       | CRF                               |         |    |                                   |
| Switzerland          | CS   | CS    | CRF                               |                             |        |                                   |                      |        |                                   |   |          |                                   |         |    |                                   |
| United Kingdom       | M  | M     |                                   | NO                          | NO     |                                   | NE                   | NE     |                                   | D/CS/M  | CS/CS/CS |                                   | CS      | CS |                                   |
| United States        | CS   | CS    | CRF                               | IE, NE                      | IE, NA |                                   | IE, NE               | IE, NA |                                   | CS, D   | CS, D    | CRF                               | CS      | CS |                                   |

<sup>a</sup> CRF table 5.A has been modified by the Party.

**Table 5.2**Net CO<sub>2</sub> emissions/removals from Changes in forest and other woody biomass stocks – trend informationCO<sub>2</sub> emissions/removals (Gg)

|                         | 1990 <sup>a</sup> | 1995     | 1996     | 1997     | 1998     | 1999     | 2000     | 2001     |
|-------------------------|-------------------|----------|----------|----------|----------|----------|----------|----------|
| Austria                 | -9,215            | -7,254   | -5,385   | -7,633   | -7,633   | -7,633   | -7,633   | -7,633   |
| Belgium                 | -1,600            | -1,911   | -1,889   | -1,867   | -1,845   | -1,823   | -1,822   | -1,814   |
| Bulgaria                | -4,657            | -7,519   | -7,190   | -5,852   | -6,233   | -6,608   | -8,976   | -9,467   |
| Canada                  | -108,687          | -14,234  | -42,527  | -51,383  | -36,745  | -31,632  | -55,733  | -39,271  |
| Czech Republic          | -2,128            |          | -4,486   | -4,639   | -3,757   | -3,401   | -4,016   | -4,363   |
| Denmark                 | -3,118            | -3,128   | -3,134   | -3,142   | -3,152   | -3,161   | -3,517   | -3,531   |
| Estonia                 | -7,463            | -7,901   | -8,345   | -7,217   | -6,906   | -6,493   | -6,399   | 2,095    |
| European Community      | -231,103          | -229,409 | -238,432 | -239,726 | -233,221 | -237,449 | -223,548 | -237,225 |
| Finland                 | -23,798           | -14,687  | -21,032  | -12,637  | -9,713   | -10,821  | -11,953  | -16,851  |
| France                  | -68,079           | -74,400  | -77,221  | -80,551  | -80,509  | -82,060  | -76,306  | -79,309  |
| Germany                 | -33,689           | -33,400  | -33,400  | -33,400  | -33,400  | -33,400  | -23,695  | -23,695  |
| Greece <sup>b</sup>     | 18                | -772     | -506     | -548     | -1,060   | -147     | -185     | -1,796   |
| Iceland                 | -2                | -22      | -25      | -28      | -31      | -35      | -39      | -43      |
| Ireland                 | -450              | -429     | -420     | -498     | -574     | -501     | -407     | -1,007   |
| Italy                   | -28,605           | -27,316  | -27,886  | -27,255  | -25,745  | -25,668  | -25,543  | -27,113  |
| Latvia                  | -19,714           | -15,819  | -15,993  | -12,773  | -11,114  | -10,101  | -9,413   | -10,368  |
| Luxembourg <sup>b</sup> |                   |          |          |          |          | -295     | -295     | -295     |
| Netherlands             | 1,422             | 1,232    | 1,398    | 1,180    | 1,380    | 1,236    | 1,413    | 1,413    |
| New Zealand             | -22,985           | -18,256  | -18,756  | -20,151  | -22,008  | -24,092  | -25,831  | -26,149  |
| Norway                  | -9,765            | -15,693  | -17,607  | -16,499  | -17,588  | -17,767  | -18,743  | -18,968  |
| Poland                  | -24,990           | -33,125  | -31,996  | -29,880  | -19,151  | -39,767  | 42,744   | -48,260  |
| Portugal                | -3                | -2,005   | -2,091   | -2,179   | -2,258   | -2,359   | -2,152   | -2,152   |
| Romania                 | -2,925            | -8,744   | -8,542   | -8,344   | -10,697  | -9,723   | -9,096   | -10,014  |
| Slovakia                | -1,753            | -1,786   | -1,734   | -975     | -1,474   | -1,107   | -1,410   | -4,760   |
| Spain                   | -29,252           | -29,252  | -29,252  | -29,252  | -29,252  | -29,252  | -29,252  | -29,252  |
| Sweden                  | -24,100           | -25,100  | -26,100  | -31,100  | -28,100  | -31,100  | -31,100  | -33,220  |
| Switzerland             | -3,188            | -4,310   | -4,461   | -4,637   | -4,571   | -4,226   | -1,821   | -1,529   |
| United Kingdom          | -7,304            | -8,518   | -8,426   | -8,316   | -8,184   | -8,122   | -8,309   | -8,144   |
| United States           | -803,000          | -799,333 | -799,333 | -792,000 | -784,667 | -795,667 | -788,333 | -792,000 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

Relative change (%)

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            | -25.8        | 41.7         | 0.0          | 0.0          | 0.0          | 0.0          | -17.2        |
| Belgium            | -1.2         | -1.2         | -1.2         | -1.2         | -0.1         | -0.4         | 13.4         |
| Bulgaria           | -4.4         | -18.6        | 6.5          | 6.0          | 35.8         | 5.5          | 103.3        |
| Canada             | 198.8        | 20.8         | -28.5        | -13.9        | 76.2         | -29.5        | -63.9        |
| Czech Republic     |              | 3.4          | -19.0        | -9.5         | 18.1         | 8.6          | 105.0        |
| Denmark            | 0.2          | 0.3          | 0.3          | 0.3          | 11.3         | 0.4          | 13.2         |
| Estonia            | 5.6          | -13.5        | -4.3         | -6.0         | -283.6       | -132.7       | -128.1       |
| European Community | 3.9          | 0.5          | -2.7         | 1.8          | -5.9         | 6.1          | 2.6          |
| Finland            | 43.2         | -39.9        | -23.1        | 11.4         | 10.5         | 41.0         | -29.2        |
| France             | 3.8          | 4.3          | -0.1         | 1.9          | -7.0         | 3.9          | 16.5         |
| Germany            | 0.0          | 0.0          | 0.0          | 0.0          | -29.1        | 0.0          | -29.7        |
| Greece             | -34.5        | 8.3          | 93.5         | -86.1        | 26.1         | 868.5        | -9,886.0     |
| Iceland            | 15.2         | 11.3         | 13.3         | 12.3         | 11.0         | 8.6          | 1,757.3      |
| Ireland            | -2.0         | 18.5         | 15.2         | -12.7        | -18.6        | 147.2        | 123.7        |
| Italy              | 2.1          | -2.3         | -5.5         | -0.3         | -0.5         | 6.1          | -5.2         |
| Latvia             | 1.1          | -20.1        | -13.0        | -9.1         | -6.8         | 10.1         | -47.4        |
| Luxembourg         |              |              |              |              | 0.0          | 0.0          |              |
| Netherlands        | 13.4         | -15.5        | 16.9         | -10.4        | 14.4         | 0.0          | -0.6         |
| New Zealand        | 2.7          | 7.4          | 9.2          | 9.5          | 7.2          | 1.2          | 13.8         |
| Norway             | 12.2         | -6.3         | 6.6          | 1.0          | 5.5          | 1.2          | 94.2         |
| Poland             | -3.4         | -6.6         | -35.9        | 107.6        | -207.5       | -212.9       | 93.1         |
| Portugal           | 4.3          | 4.2          | 3.6          | 4.5          | -8.8         | 0.0          | 77,864.6     |
| Romania            | -2.3         | -2.3         | 28.2         | -9.1         | -6.4         | 10.1         | 242.3        |
| Slovakia           | -2.9         | -43.8        | 51.2         | -24.9        | 27.4         | 237.5        | 171.5        |
| Spain              | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Sweden             | 4.0          | 19.2         | -9.6         | 10.7         | 0.0          | 6.8          | 37.8         |
| Switzerland        | 3.5          | 3.9          | -1.4         | -7.5         | -56.9        | -16.0        | -52.0        |
| United Kingdom     | -1.1         | -1.3         | -1.6         | -0.8         | 2.3          | -2.0         | 11.5         |
| United States      | 0.0          | -0.9         | -0.9         | 1.4          | -0.9         | 0.5          | -1.4         |

**Tables 5.3 and 5.4**

**Changes in forest and other woody biomass stocks: temperate and boreal forests (2001)**

(Average annual growth rates and implied carbon uptake factors )

|                    | Species as specified by Parties                   | Temperate forests          |                              |                            |                              |                            |                              |                            |                              | Boreal forests             |                              |
|--------------------|---|----------------------------|------------------------------|----------------------------|------------------------------|----------------------------|------------------------------|----------------------------|------------------------------|----------------------------|------------------------------|
|                    |   | Plantations                |                              | Commercial evergreen       |                              | Commercial deciduous       |                              | Other                      |                              |                            |                              |
|                    |   | Average annual growth rate | Implied carbon uptake factor | Average annual growth rate | Implied carbon uptake factor | Average annual growth rate | Implied carbon uptake factor | Average annual growth rate | Implied carbon uptake factor | Average annual growth rate | Implied carbon uptake factor |
|                    |   | (t dm/ha/yr)               | (t C/ha/yr)                  | (t dm/ha/yr)               | (t C/ha/yr)                  | (t dm/ha/yr)               | (t C/ha/yr)                  | (t dm/ha/yr)               | (t C/ha/yr)                  | (t dm/ha/yr)               | (t C/ha/yr)                  |
| Austria            |   | NE                         |                              | 4.91                       | 2.41                         | 5.15                       | 2.49                         |                            |                              |                            |                              |
| Belgium            |   |                            |                              | 9.50                       | 4.75                         | 4.97                       | 2.48                         |                            |                              |                            |                              |
| Bulgaria           |   | NE                         | NE                           | different                  | 1.19                         | different                  | 1.00                         |                            |                              |                            |                              |
| Canada             | Canadian Wood Production Forest (aggregate value) | NA                         | NA                           | NA                         | NA                           | NA                         | NA                           | 1.81                       | 0.72                         |                            |                              |
| Czech Republic     | Commercial (Evergreen + deciduous)                |                            |                              |                            |                              |                            |                              | 4.79                       | 2.16                         |                            |                              |
| Denmark            | Conifers (before 1990)                            | 9.00                       | 4.50                         |                            |                              |                            |                              |                            |                              |                            |                              |
|                    | Broadleaves (before 1990)                         | 5.20                       | 2.60                         |                            |                              |                            |                              |                            |                              |                            |                              |
| Estonia            |   |                            |                              |                            |                              |                            |                              |                            |                              | 5.01                       | 2.25                         |
| European Community |   | NE                         | NE                           | NE                         | NE                           | NE                         | NE                           | NE                         | NE                           | NE                         | NE                           |
| Finland            |   |                            |                              |                            |                              |                            |                              |                            |                              |                            |                              |
| France             | Forest as a whole                                 |                            |                              |                            |                              |                            |                              | 4.75                       | 2.38                         |                            |                              |
| Germany            |   | NO                         | NO                           |                            |                              |                            |                              | NO                         | NO                           | NO                         | NO                           |
|                    | Betulus sp.                                       |                            |                              | 4.27                       | 2.13                         |                            |                              |                            |                              |                            |                              |
| Greece             |   | NA                         | NE                           |                            |                              |                            |                              | NA                         |                              |                            |                              |
|                    | Oxia  |                            |                              |                            |                              | 1.58                       |                              |                            |                              |                            |                              |
|                    | Dris  |                            |                              |                            |                              | 0.27                       |                              |                            |                              |                            |                              |
|                    | Other   |                            |                              |                            |                              | 1.26                       |                              |                            |                              |                            |                              |
|                    | Fir   |                            |                              | 0.84                       |                              |                            |                              |                            |                              |                            |                              |
|                    | Red Fir   |                            |                              | 5.90                       |                              |                            |                              |                            |                              |                            |                              |
|                    | Pine sp   |                            |                              | 0.71                       |                              |                            |                              |                            |                              |                            |                              |
|                    | Other   |                            |                              | 1.26                       |                              |                            |                              |                            |                              |                            |                              |
| Iceland            |   |                            |                              |                            |                              |                            |                              |                            |                              | 2.4                        | 1.20                         |
| Ireland            |   |                            |                              |                            |                              |                            |                              |                            |                              |                            |                              |
| Italy              | Total   |                            |                              |                            |                              |                            |                              | 2.84                       | 0.00                         |                            |                              |
| Latvia             |   |                            |                              | 4.93                       | 2.46                         | 5.32                       | 2.66                         |                            |                              |                            |                              |
|                    | Clearing and rough afforestation                  |                            |                              |                            |                              |                            |                              | 0.81                       | 0.41                         |                            |                              |
|                    | Bushes  |                            |                              |                            |                              |                            |                              | 0.50                       | 0.25                         |                            |                              |
|                    | Newly afforested land                             |                            |                              |                            |                              |                            |                              | 0.81                       | 0.41                         |                            |                              |
| Luxembourg         |   |                            |                              |                            |                              |                            |                              |                            |                              |                            |                              |
| Netherlands        |   |                            |                              |                            |                              |                            |                              |                            |                              |                            |                              |
|                    | Forest land coniferous                            |                            |                              |                            |                              |                            |                              | 4.67                       | 2.33                         |                            |                              |
|                    | Forest land broadleaved                           |                            |                              |                            |                              |                            |                              | 5.68                       | 2.84                         |                            |                              |
| New Zealand        |   |                            |                              |                            |                              |                            |                              |                            |                              |                            |                              |
| Norway             |   |                            |                              |                            |                              |                            |                              |                            |                              | 1.13                       | 1.05                         |
| Poland             |   | IE                         | IE                           | IE                         | IE                           | IE                         | IE                           |                            |                              |                            |                              |
|                    | Other forest deciduous                            |                            |                              |                            |                              |                            |                              | 3.48                       | 1.74                         |                            |                              |
|                    | Other forest Evergreen                            |                            |                              |                            |                              |                            |                              | 3.41                       | 1.71                         |                            |                              |
|                    | State forest deciduous                            |                            |                              |                            |                              |                            |                              | 6.24                       | 3.12                         |                            |                              |
|                    | State forest evergreen                            |                            |                              |                            |                              |                            |                              | 4.95                       | 2.47                         |                            |                              |

**Tables 5.3 and 5.4**

**Changes in forest and other woody biomass stocks: temperate and boreal forests (2001) (continued)**

(Average annual growth rates and implied carbon uptake factors )

|                | Species as specified by Parties | Temperate forests          |                              |                            |                              |                            |                              |                            |                              | Boreal forests             |                              |
|----------------|---------------------------------|----------------------------|------------------------------|----------------------------|------------------------------|----------------------------|------------------------------|----------------------------|------------------------------|----------------------------|------------------------------|
|                |                                 | Plantations                |                              | Commercial evergreen       |                              | Commercial deciduous       |                              | Other                      |                              |                            |                              |
|                |                                 | Average annual growth rate | Implied carbon uptake factor | Average annual growth rate | Implied carbon uptake factor | Average annual growth rate | Implied carbon uptake factor | Average annual growth rate | Implied carbon uptake factor | Average annual growth rate | Implied carbon uptake factor |
|                |                                 | (t dm/ha/yr)               | (t C/ha/yr)                  | (t dm/ha/yr)               | (t C/ha/yr)                  | (t dm/ha/yr)               | (t C/ha/yr)                  | (t dm/ha/yr)               | (t C/ha/yr)                  | (t dm/ha/yr)               | (t C/ha/yr)                  |
|                |                                 |                            |                              |                            |                              |                            |                              |                            |                              |                            |                              |
| Portugal       | Total forest                    |                            |                              |                            |                              |                            |                              | 2.02                       | 1.01                         |                            |                              |
| Romania        |                                 |                            |                              | 3.00                       | 1.50                         | 2.00                       | 1.00                         |                            |                              |                            |                              |
| Slovakia       |                                 | NO                         | NO                           | NO                         | NO                           | NO                         | NO                           | NO                         | NO                           |                            |                              |
|                | <i>Picea abies</i>              |                            |                              |                            |                              |                            |                              | 3.40                       | 1.70                         |                            |                              |
|                | <i>Abies alba</i>               |                            |                              |                            |                              |                            |                              | 3.49                       | 1.75                         |                            |                              |
|                | <i>Pinus sp.</i>                |                            |                              |                            |                              |                            |                              | 3.42                       | 1.71                         |                            |                              |
|                | <i>Larix decidua</i>            |                            |                              |                            |                              |                            |                              | 3.60                       | 1.80                         |                            |                              |
|                | <i>Other coniferous</i>         |                            |                              |                            |                              |                            |                              | 1.37                       | 0.69                         |                            |                              |
|                | <i>Quercus robur, petr.</i>     |                            |                              |                            |                              |                            |                              | 4.16                       | 2.04                         |                            |                              |
|                | <i>Fagus sylvatica</i>          |                            |                              |                            |                              |                            |                              | 5.71                       | 2.80                         |                            |                              |
|                | <i>Carpinus betulus</i>         |                            |                              |                            |                              |                            |                              | 5.35                       | 2.62                         |                            |                              |
|                | <i>Acer sp.</i>                 |                            |                              |                            |                              |                            |                              | 4.91                       | 2.40                         |                            |                              |
|                | <i>Fraxinus excelsior</i>       |                            |                              |                            |                              |                            |                              | 4.84                       | 2.37                         |                            |                              |
|                | <i>Ulmus sp.</i>                |                            |                              |                            |                              |                            |                              | 4.68                       | 2.29                         |                            |                              |
|                | <i>Quercus cerris</i>           |                            |                              |                            |                              |                            |                              | 4.58                       | 2.24                         |                            |                              |
|                | <i>Robinia pseudoac.</i>        |                            |                              |                            |                              |                            |                              | 2.90                       | 1.42                         |                            |                              |
|                | <i>Betulus sp.</i>              |                            |                              |                            |                              |                            |                              | 1.50                       | 0.73                         |                            |                              |
|                | <i>Alnus sp.</i>                |                            |                              |                            |                              |                            |                              | 2.46                       | 1.20                         |                            |                              |
|                | <i>Tilia sp.</i>                |                            |                              |                            |                              |                            |                              | 3.89                       | 1.91                         |                            |                              |
|                | <i>Breeding poplars</i>         |                            |                              |                            |                              |                            |                              | 2.51                       | 1.23                         |                            |                              |
|                | <i>Populus sp.</i>              |                            |                              |                            |                              |                            |                              | 1.39                       | 0.68                         |                            |                              |
|                | <i>Salix sp.</i>                |                            |                              |                            |                              |                            |                              | 2.16                       | 1.06                         |                            |                              |
|                | Other broadleaves               |                            |                              |                            |                              |                            |                              | 1.28                       | 0.63                         |                            |                              |
| Spain          |                                 |                            |                              | 1.56                       | 0.70                         | 1.16                       | 0.52                         |                            |                              |                            |                              |
|                | <i>Pinus radiata</i>            | 8.51                       | 3.82                         |                            |                              |                            |                              |                            |                              |                            |                              |
|                | <i>Eucalyptus</i>               | 7.39                       | 3.32                         |                            |                              |                            |                              |                            |                              |                            |                              |
| Sweden         |                                 |                            |                              |                            |                              |                            |                              | 5.38                       | 2.64                         | 2.9                        | 1.44                         |
| Switzerland    |                                 |                            | NO                           | 5.06                       | 2.53                         | 7.33                       | 3.67                         |                            |                              |                            |                              |
| United Kingdom |                                 |                            |                              |                            |                              |                            |                              |                            |                              |                            |                              |
| United States  | Evergreen                       | 2.05                       | 1.02                         |                            |                              |                            |                              |                            |                              |                            |                              |
|                | Deciduous                       | -0.17                      | -0.09                        |                            |                              |                            |                              |                            |                              |                            |                              |
|                |                                 |                            |                              | IE                         | NE                           | IE                         | NE                           |                            |                              | NE                         | NE                           |
|                | Plantations-other               |                            |                              |                            |                              |                            |                              | 1.73                       | 0.87                         |                            |                              |
|                | Naturally regenerated-evergreen |                            |                              |                            |                              |                            |                              | -0.33                      | -0.16                        |                            |                              |
|                | Naturally regenerated-deciduous |                            |                              |                            |                              |                            |                              | 2.24                       | 1.12                         |                            |                              |
|                | Naturally regenerated-other     |                            |                              |                            |                              |                            |                              | 1.78                       | 0.89                         |                            |                              |



**Tables 5.5 and 5.6**

**Changes in forest and other woody biomass stocks: Temperate forests (plantation/commercial evergreen and deciduous) – trend information**  
**Area of forest/biomass stocks (kha) and average annual growth rate (t dm/ha/year)**

|                                    | Evergreen (Evg) /<br>Deciduous (Dec) | IPCC<br>default<br>growth rate <sup>a</sup> | 1990 <sup>b</sup> |             | 1995         |             | 1996         |             | 1997         |             | 1998         |             | 1999         |             | 2000         |             | 2001         |             |
|------------------------------------|--------------------------------------|---|-------------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|
|                                    |                                      |   | Area              | Growth rate | Area         | Growth rate | Area         | Growth rate | Area         | Growth rate | Area         | Growth rate | Area         | Growth rate | Area         | Growth rate | Area         | Growth rate |
|                                    |                                      |   | t dm/ha/yr        | (kha)       | (t dm/ha/yr) | (kha)       | (t dm/ha/yr) | (kha)       | (t dm/ha/yr) | (kha)       | (t dm/ha/yr) | (kha)       | (t dm/ha/yr) | (kha)       | (t dm/ha/yr) | (kha)       | (t dm/ha/yr) | (kha)       |
| Plantations                        |                                      |   |                   |             |              |             |              |             |              |             |              |             |              |             |              |             |              |             |
| Austria                            |                                      | 6.0-4.0                                     | 2                 | NE          | 2            | NE          | 2            | NE          | 2            | NE          | 2            | NE          | 2            | NE          | 2            | NE          | 2            | NE          |
| Denmark                            | Conifers (before 1990)               | 6.0-4.0                                     |                   |             |              |             |              |             |              |             |              |             |              |             |              |             | 274          | 9.00        |
|                                    | Broadleaves (bef. 1990)              | 6.0-4.0                                     |                   |             |              |             |              |             |              |             |              |             |              |             |              |             | 164          | 5.20        |
| Spain                              | Eucaliptus                           | 6.0-4.0                                     | 553               | 7.39        | 553          | 7.39        | 553          | 7.39        | 553          | 7.39        | 553          | 7.39        | 553          | 7.39        | 553          | 7.39        | 553          | 7.39        |
|                                    | Pinus radiata                        | 6.0-4.0                                     | 245               | 8.51        | 245          | 8.51        | 245          | 8.51        | 245          | 8.51        | 245          | 8.51        | 245          | 8.51        | 245          | 8.51        | 245          | 8.51        |
| United States                      | Evergreen / Deciduous                | 6.0-4.0                                     | 8,708             | 5.1         | 8,708        | 5.1         | 8,708        | 5.1         | 13,553       | 2           | 13,553       | 2           | 13,553       | 2           | 13,553       | 2           | 13,553       | 2.00        |
|                                    | Deciduous                            | 6.0-4.0                                     | 948               | 1.2         | 948          | 1.2         | 948          | 1.2         | 951          | -0.2        | 951          | -0.2        | 951          | -0.2        | 951          | -0.2        | 951          | -0.20       |
| Commercial evergreen and deciduous |                                      |   |                   |             |              |             |              |             |              |             |              |             |              |             |              |             |              |             |
| Austria                            | Evergreen                            | 3   | 2,561             | 5.95        | 2,534        | 4.91        | 2,534        | 4.91        | 2,534        | 4.91        | 2,534        | 4.91        | 2,534        | 4.91        | 2,534        | 4.91        | 2,534        | 4.91        |
|                                    | Deciduous                            | 2   | 777               | 6.22        | 818          | 5.15        | 818          | 5.15        | 818          | 5.15        | 818          | 5.15        | 818          | 5.15        | 818          | 5.15        | 818          | 5.15        |
| Belgium                            | Evergreen                            | 3   |                   |             |              |             |              |             |              |             |              |             |              |             | 226          | 9.50        | 225          | 9.50        |
|                                    | Deciduous                            | 2   |                   |             |              |             |              |             |              |             |              |             |              |             | 250          | 4.97        | 251          | 4.97        |
| Bulgaria                           | Evergreen                            | 3   |                   |             |              |             |              |             |              |             |              |             |              |             | 1,138        |             | 1,146        |             |
|                                    | Deciduous                            | 2   |                   |             |              |             |              |             |              |             |              |             |              |             | 2,260        |             | 2,320        |             |
| Greece                             | Evergreen                            | 3   | 543               | 0.84        | 543          | 0.84        | 543          | 0.84        | 543          | 0.84        | 543          | 0.84        | 543          | 0.84        | 543          | 0.84        | 543          | 0.84        |
|                                    | Evergreen                            | 3   | 3                 | 5.90        | 3            | 5.90        | 3            | 5.90        | 3            | 5.90        | 3            | 5.90        | 3            | 5.90        | 3            | 5.90        | 3            | 5.90        |
|                                    | Evergreen                            | 3   | 879               | 0.71        | 879          | 0.71        | 879          | 0.71        | 879          | 0.71        | 879          | 0.71        | 879          | 0.71        | 879          | 0.71        | 879          | 0.71        |
|                                    | Evergreen                            | 3   | 5                 | 1.26        | 5            | 1.26        | 5            | 1.26        | 5            | 1.26        | 5            | 1.26        | 5            | 1.26        | 5            | 1.26        | 5            | 1.26        |
|                                    | Deciduous - Oxia                     | 2   | 337               | 1.58        | 337          | 1.58        | 337          | 1.58        | 337          | 1.58        | 337          | 1.58        | 337          | 1.58        | 337          | 1.58        | 337          | 1.58        |
|                                    | Deciduous - Dris                     | 2   | 1,472             | 0.27        | 1,472        | 0.27        | 1,472        | 0.27        | 1,472        | 0.27        | 1,472        | 0.27        | 1,472        | 0.27        | 1,472        | 0.27        | 1,472        | 0.27        |
|                                    | Deciduous - other                    | 2   | 121               | 1.26        | 121          | 1.26        | 121          | 1.26        | 121          | 1.26        | 121          | 1.26        | 121          | 1.26        | 121          | 1.26        | 121          | 1.26        |
| Latvia                             | Evergreen                            | 3   | 1,500             | 4.91        | 1,465        | 5.30        | 1,472        | 5.28        | 1,474        | 5.27        | 1,607        | 4.83        | 1,421        | 5.47        | 1,549        | 5.03        | 1,580        | 4.93        |
|                                    | Deciduous                            | 2   | 1,000             | 5.55        | 977          | 5.73        | 982          | 5.70        | 982          | 5.70        | 1,072        | 5.22        | 1,028        | 5.44        | 1,032        | 5.43        | 1,053        | 5.32        |
| Romania                            | Evergreen                            | 3   |                   |             |              |             |              |             |              |             |              |             |              |             |              |             | 1,853        | 3.00        |
|                                    | Deciduous                            | 2   |                   |             |              |             |              |             |              |             |              |             |              |             |              |             | 4,372        | 2.00        |
| Spain                              | Evergreen                            | 3   | 7,719             | 1.56        | 7,719        | 1.56        | 7,719        | 1.56        | 7,719        | 1.56        | 7,719        | 1.56        | 7,719        | 1.56        | 7,719        | 1.56        | 7,719        | 1.56        |
|                                    | Deciduous                            | 2   | 5,389             | 1.16        | 5,389        | 1.16        | 5,389        | 1.16        | 5,389        | 1.16        | 5,389        | 1.16        | 5,389        | 1.16        | 5,389        | 1.16        | 5,389        | 1.16        |
| Switzerland                        | Evergreen                            | 3   | 780               | 5.06        |              |             |              |             |              |             |              |             |              |             |              |             | 786          | 5.06        |
|                                    | Deciduous                            | 2   | 295               | 7.33        |              |             |              |             |              |             |              |             |              |             |              |             | 330          | 7.33        |
| United States                      | Evergreen                            | 3   | IE                | IE          | IE           | IE          | IE           | IE          | IE           | IE          | IE           | IE          | IE           | IE          | IE           | IE          | IE           | IE          |
|                                    | Deciduous                            | 2   | IE                | IE          | IE           | IE          | IE           | IE          | IE           | IE          | IE           | IE          | IE           | IE          | IE           | IE          | IE           | IE          |

<sup>a</sup> Source of default emission factors: Plantations; IPCC Guidelines, volume 3, table 5.3, page 5.21, commercial evergreen and deciduous; IPCC Guidelines, volume 3, table 5.2, page 5.20.

<sup>b</sup> 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), Poland (1988) and Romania (1989).

**Tables 5.5 and 5.6 (continued)**

**Changes in forest and other woody biomass stocks: Temperate forests (plantation/commercial evergreen and deciduous) – trend information**  
**Area of forest/biomass stocks (kha) and average annual growth rate (t dm/ha/year)**

**Average annual growth rate: relative change (%)**

|                                    |                         | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|------------------------------------|-------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Plantations                        |                         |              |              |              |              |              |              |              |
| Austria                            |                         |              |              |              |              |              |              |              |
| Denmark                            | Conifers (before 1990)  |              |              |              |              |              |              |              |
|                                    | Broadleaves (bef. 1990) |              |              |              |              |              |              |              |
| Spain                              | Eucaliptus              | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
|                                    | Pinus radiata           | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| United States                      | Evergreen / Deciduous   | 0.00         | -60.78       | 0.00         | 0.00         | 0.00         | 0.00         | -60.78       |
|                                    | Deciduous               | 0.00         | -116.67      | 0.00         | 0.00         | 0.00         | 0.00         | -116.67      |
| Commercial evergreen and deciduous |                         |              |              |              |              |              |              |              |
| Austria                            | Evergreen               | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | -17.43       |
|                                    | Deciduous               | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | -17.22       |
| Belgium                            | Evergreen               |              |              |              |              |              |              | 0.00         |
|                                    | Deciduous               |              |              |              |              |              | 0.00         |              |
| Bulgaria                           | Evergreen               |              |              |              |              |              |              |              |
|                                    | Deciduous               |              |              |              |              |              |              |              |
| Greece                             | (all)                   | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| Latvia                             | Evergreen               | -0.49        | -0.08        | -8.32        | 13.14        | -8.07        | -1.99        | 0.38         |
|                                    | Deciduous               | -0.49        | -0.08        | -8.32        | 4.21         | -0.25        | -1.99        | -4.14        |
| Romania                            | Evergreen               |              |              |              |              |              |              |              |
|                                    | Deciduous               |              |              |              |              |              |              |              |
| Spain                              | Evergreen               | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
|                                    | Deciduous               | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| Switzerland                        | Evergreen               |              |              |              |              |              |              | 0.00         |
|                                    | Deciduous               |              |              |              |              |              |              | 0.00         |

**Area of forest/biomass stocks: relative change (%)**

|                                    |  | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|------------------------------------|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Plantations                        |  |              |              |              |              |              |              |              |
| Austria                            |  | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| Denmark                            |  |              |              |              |              |              |              |              |
|                                    |  |              |              |              |              |              |              |              |
| Spain                              |  | 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         |
| United States                      |  | 0.00         | 55.64        | 0.00         | 0.00         | 0.00         | 0.00         | 55.64        |
|                                    |  | 0.00         | 0.32         | 0.00         | 0.00         | 0.00         | 0.00         | 0.32         |
| Commercial evergreen and deciduous |  |              |              |              |              |              |              |              |
| Austria                            |  | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | -1.06        |
|                                    |  | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 5.31         |
| Belgium                            |  |              |              |              |              |              | -0.60        |              |
|                                    |  |              |              |              |              |              | 0.06         |              |
| Bulgaria                           |  |              |              |              |              |              | 0.74         |              |
|                                    |  |              |              |              |              |              | 2.63         |              |
| Greece                             |  | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| Latvia                             |  | 0.49         | 0.08         | 9.08         | -11.62       | 9.01         | 2.03         | 5.34         |
|                                    |  | 0.49         | 0.08         | 9.08         | -4.04        | 0.40         | 2.03         | 5.34         |
| Romania                            |  |              |              |              |              |              |              |              |
|                                    |  |              |              |              |              |              |              |              |
| Spain                              |  | 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         |
| Switzerland                        |  |              |              |              |              |              |              | 0.77         |
|                                    |  |              |              |              |              |              |              | 11.86        |

**Table 5.7****Changes in forest and other woody biomass stocks: temperate forests (Other) – trend information****Area of forest/biomass stocks (kha) and average annual growth rate (t dm/ha/year)**

|                | Evergreen / Deciduous                             | 1990 <sup>a</sup> |              | 1995    |              | 1996    |              | 1997    |              | 1998    |              | 1999    |              | 2000    |              | 2001    |              |
|----------------|---|-------------------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|
|                |   | Area              | Growth rate  | Area    | Growth rate  | Area    | Growth rate  | Area    | Growth rate  | Area    | Growth rate  | Area    | Growth rate  | Area    | Growth rate  | Area    | Growth rate  |
|                |   | (k ha)            | (t dm/ha/yr) | (k ha)  | (t dm/ha/yr) | (k ha)  | (t dm/ha/yr) | (k ha)  | (t dm/ha/yr) | (k ha)  | (t dm/ha/yr) | (k ha)  | (t dm/ha/yr) | (k ha)  | (t dm/ha/yr) | (k ha)  | (t dm/ha/yr) |
|                | Other   |                   |              |         |              |         |              |         |              |         |              |         |              |         |              |         |              |
| Canada         | Canadian Wood Production Forest (aggregate value) | 126,697           | 1.82         | 121,289 | 1.82         | 120,084 | 1.82         | 119,266 | 1.82         | 118,438 | 1.82         | 117,086 | 1.82         | 116,134 | 1.82         | 115,410 | 1.81         |
| Czech Republic | Commercial  |                   |              |         |              |         |              |         |              |         |              |         |              |         |              | 2,556   | 4.79         |
| France         | Forest as a whole                                 | 15,195            | 4.80         | 16,534  | 4.74         | 16,564  | 4.80         | 16,741  | 4.78         |         |              |         |              | 16,835  | 4.76         | 16,835  | 4.75         |
| Germany        | Evergreen/deciduous                               | 10,144            | 4.27         | 10,144  | 4.27         | 10,144  | 4.27         | 10,144  | 4.27         | 10,144  | 4.27         | 10,144  | 4.27         | 10,144  | 4.27         | 10,144  | 4.27         |
| Greece         | Other (specify)                                   |                   |              |         |              |         |              |         |              |         |              |         |              |         |              | 3,154   |              |
| Italy          | Total   |                   |              |         |              |         |              |         |              |         |              |         |              |         |              | 6,879   | 2.84         |
| Latvia         | Clearing and rough afforestation                  | 140               | 0.81         | 140     | 0.81         | 140     | 0.81         | 140     | 0.81         | 140     | 0.81         | 140     | 0.81         | 140     | 0.81         | 140     | 0.81         |
|                | Bushes  | 111               | 0.50         | 111     | 0.50         | 125     | 0.81         | 111     | 0.50         | 111     | 0.50         | 111     | 0.50         | 111     | 0.50         | 111     | 0.50         |
|                | Newly afforested land                             |                   |              | 125     | 0.81         | 111     | 0.50         | 125     | 0.81         | 125     | 0.81         | 125     | 0.81         | 4       | 0.81         | 4       | 0.81         |
| Netherlands    | forest land coniferous                            | 190               | 4.61         | 195     | 4.74         | 195     | 4.66         | 195     | 4.74         | 195     | 4.74         | 195     | 4.69         | 196     | 4.67         | 196     | 4.67         |
|                | forest land broadleaved                           | 151               | 5.38         | 156     | 5.57         | 157     | 5.59         | 159     | 5.69         | 161     | 5.72         | 163     | 5.70         | 164     | 5.68         | 164     | 5.68         |
| Poland         | Other forest deciduous                            |                   |              |         |              |         |              |         |              |         |              |         |              |         |              | 412     | 3.48         |
|                | Other forest Evergreen                            |                   |              |         |              |         |              |         |              |         |              |         |              |         |              | 1,134   | 3.41         |
|                | State forest deciduous                            |                   |              |         |              |         |              |         |              |         |              |         |              |         |              | 1,564   | 6.24         |
|                | State forest evergreen                            |                   |              |         |              |         |              |         |              |         |              |         |              |         |              | 5,463   | 4.95         |
| Portugal       | Other (specify)                                   |                   |              |         |              |         |              |         |              |         |              |         |              |         |              |         | 3,164.80     |
|                | Forest as a whole                                 | 3,140             | 2.09         | 3,202   | 2.11         | 3,221   | 2.11         | 3,239   | 2.10         | 3,258   | 2.09         | 3,276   | 2.08         | 3,295   | 2.02         | 3,295   | 2.02         |
| Slovakia       | Picea abies                                       |                   |              |         |              |         |              |         |              |         |              |         |              | 515     | 2.55         | 515     | 3.40         |
|                | Abies alba  |                   |              |         |              |         |              |         |              |         |              |         |              | 81      | 2.69         | 81      | 3.49         |
|                | Pinus sp.   |                   |              |         |              |         |              |         |              |         |              |         |              | 127     | 2.39         | 144     | 3.42         |
|                | Larix decidua                                     |                   |              |         |              |         |              |         |              |         |              |         |              | 44      | 2.58         | 45      | 3.60         |
|                | Other coniferous                                  |                   |              |         |              |         |              |         |              |         |              |         |              | 19      | 1.10         | 20      | 1.37         |
|                | Quercus robur, petr.                              |                   |              |         |              |         |              |         |              |         |              |         |              | 222     | 3.89         | 213     | 4.16         |
|                | Fagus sylvatica                                   |                   |              |         |              |         |              |         |              |         |              |         |              | 596     | 4.42         | 586     | 5.71         |
|                | Carpinus betulus                                  |                   |              |         |              |         |              |         |              |         |              |         |              | 110     | 2.40         | 109     | 5.35         |
|                | Acer sp.  |                   |              |         |              |         |              |         |              |         |              |         |              | 35      | 3.16         | 35      | 4.91         |
|                | Fraxinus excelsior                                |                   |              |         |              |         |              |         |              |         |              |         |              | 25      | 3.22         | 25      | 4.84         |
|                | Ulmus sp.   |                   |              |         |              |         |              |         |              |         |              |         |              | 2       | 2.99         | 1       | 4.68         |
|                | Quercus cerris                                    |                   |              |         |              |         |              |         |              |         |              |         |              | 48      | 3.74         | 47      | 4.58         |
|                | Robinia pseudoac.                                 |                   |              |         |              |         |              |         |              |         |              |         |              | 35      | 2.76         | 34      | 2.90         |
|                | Betulus sp.                                       |                   |              |         |              |         |              |         |              |         |              |         |              | 25      | 1.01         | 27      | 1.50         |
|                | Alnus sp.   |                   |              |         |              |         |              |         |              |         |              |         |              | 12      | 1.76         | 14      | 2.46         |
|                | Tilia sp.   |                   |              |         |              |         |              |         |              |         |              |         |              | 6       | 1.93         | 7       | 3.89         |
|                | Breeding poplars                                  |                   |              |         |              |         |              |         |              |         |              |         |              | 12      | 2.42         | 11      | 2.51         |
|                | Populus sp.                                       |                   |              |         |              |         |              |         |              |         |              |         |              | 8       | 2.69         | 7       | 1.39         |
|                | Salix sp.   |                   |              |         |              |         |              |         |              |         |              |         |              | 2       | 2.65         | 2       | 2.16         |
|                | Other broadleaves                                 |                   |              |         |              |         |              |         |              |         |              |         |              | 6       | 1.64         | 4       | 1.28         |
| Sweden         | Other (specify)                                   |                   |              |         |              |         |              |         |              |         |              |         |              |         |              | 824     | 5.38         |
| United States  | Plantations other                                 | 1,270             | 1.70         | 1,270   | 1.70         | 1,270   | 1.70         | 1,787   | 3.90         | 1,787   | 3.90         | 1,787   | 3.90         | 1,787   | 3.90         | 1,787   | 3.90         |
|                | Evergreen   | 103,953           | 0.10         | 103,953 | 0.10         | 103,953 | 0.10         | 99,041  | -0.30        | 99,041  | -0.30        | 99,041  | -0.30        | 99,041  | -0.30        | 99,041  | -0.30        |
|                | Deciduous   | 95,639            | 2.00         | 95,639  | 2.00         | 95,639  | 2.00         | 98,898  | 2.20         | 98,898  | 2.20         | 98,898  | 2.20         | 98,898  | 2.20         | 98,898  | 2.20         |
|                | Other   | 35,076            | 1.30         | 35,076  | 1.30         | 35,076  | 1.30         | 35,799  | 1.80         | 35,799  | 1.80         | 35,799  | 1.80         | 35,799  | 1.80         | 35,799  | 1.80         |

<sup>a</sup> In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Poland (1988).

**Table 5.7 (continued)**

**Changes in forest and other woody biomass stocks: temperate forests (Other) – trend information**

**Area of forest/biomass stocks (kha) and average annual growth rate (t dm/ha/year)**

**Average annual growth rate: relative change (%)**

|                |  | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|----------------|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Other          |  |              |              |              |              |              |              |              |
| Canada         | Canadian Wood Production Forest (aggr) | 0.02         | -0.01        | -0.04        | 0.01         | -0.02        | -0.04        | -0.10        |
| Czech Republic | Commercial                             |              |              |              |              |              |              |              |
| France         | Forest as a whole                      | 1.28         | -0.52        |              |              |              | -0.31        | -1.08        |
| Germany        | Evergreen/deciduous                    | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| Greece         | Other (specify)                        |              |              |              |              |              |              |              |
| Italy          | Total                                  |              |              |              |              |              |              |              |
| Latvia         | Clearing and rough afforestation       | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
|                | Bushes                                 | 62.00        | -38.27       | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
|                | Newly afforested land                  | -38.27       | 62.00        | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| Netherlands    | forest land coniferous                 | -1.57        | 1.68         | 0.03         | -1.04        | -0.52        | 0.00         | 1.22         |
|                | forest land broadleaved                | 0.46         | 1.77         | 0.58         | -0.46        | -0.34        | 0.00         | 5.52         |
| Poland         | Other forest deciduous                 |              |              |              |              |              |              |              |
|                | Other forest Evergreen                 |              |              |              |              |              |              |              |
|                | State forest deciduous                 | -0.41        | -0.40        | -0.46        | -0.29        | -2.74        | 0.00         | -3.03        |
|                | State forest evergreen                 |              |              |              |              |              | 33.18        |              |
| Portugal       | Other (specify)                        |              |              |              |              |              | 29.81        |              |
|                | Forest as a whole                      |              |              |              |              |              | 42.93        |              |
| Slovakia       | Picea abies                            |              |              |              |              |              | 39.53        |              |
|                | Abies alba                             |              |              |              |              |              | 24.91        |              |
|                | Pinus sp.                              |              |              |              |              |              | 6.94         |              |
|                | Larix decidua                          |              |              |              |              |              | 29.23        |              |
|                | Other coniferous                       |              |              |              |              |              | 122.75       |              |
|                | Quercus robur, petr.                   |              |              |              |              |              | 55.25        |              |
|                | Fagus sylvatica                        |              |              |              |              |              | 50.31        |              |
|                | Carpinus betulus                       |              |              |              |              |              | 56.52        |              |
|                | Acer sp.                               |              |              |              |              |              | 22.35        |              |
|                | Fraxinus excelsior                     |              |              |              |              |              | 5.22         |              |
|                | Ulmus sp.                              |              |              |              |              |              | 48.12        |              |
|                | Quercus cerris                         |              |              |              |              |              | 39.60        |              |
|                | Robinia pseudoac.                      |              |              |              |              |              | 101.45       |              |
|                | Betulus sp.                            |              |              |              |              |              | 3.88         |              |
|                | Alnus sp.                              |              |              |              |              |              | -48.48       |              |
|                | Tilia sp.                              |              |              |              |              |              | -18.49       |              |
|                | Breeding poplars                       |              |              |              |              |              | -22.20       |              |
|                | Populus sp.                            |              |              |              |              |              |              |              |
|                | Salix sp.                              | 0.00         | 129.41       | 0.00         | 0.00         | 0.00         | 0.00         | 129.41       |
|                | Other broadleaves                      | 0.00         | -400.00      | 0.00         | 0.00         | 0.00         | 0.00         | -400.00      |
| Sweden         | Other (specify)                        | 0.00         | 10.00        | 0.00         | 0.00         | 0.00         | 0.00         | 10.00        |
| United States  | Plantations other                      | 0.00         | 38.46        | 0.00         | 0.00         | 0.00         | 0.00         | 38.46        |
|                | Evergreen                              |              |              |              |              |              |              |              |
|                | Deciduous                              |              |              |              |              |              |              |              |
|                | Other                                  |              |              |              |              |              |              |              |

**Area of forest/biomass stocks: relative change (%)**

|               |  | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Other         |  |              |              |              |              |              |              |              |
| Canada        |  | -0.99        | -0.68        | -0.69        | -1.14        | -0.81        | -0.62        | -8.91        |
| Republic      |  |              |              |              |              |              |              |              |
| France        |  | 0.18         | 1.07         |              |              |              | 0.00         | 10.79        |
| Germany       |  | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| Greece        |  |              |              |              |              |              |              |              |
| Italy         |  |              |              |              |              |              |              |              |
| Latvia        |  | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
|               |  | 12.61        | -11.20       | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
|               |  | -11.20       | 12.61        | 0.00         | 0.00         | -96.80       | 0.00         |              |
| Netherlands   |  | 0.30         | -0.20        | 0.09         | 0.10         | 0.56         | 0.00         | 3.16         |
|               |  | 0.85         | 1.45         | 1.08         | 1.06         | 0.50         | 0.00         | 8.34         |
| Poland        |  |              |              |              |              |              |              |              |
|               |  | 0.58         | 0.58         | 0.57         | 0.57         | 0.57         | 0.00         | 4.94         |
|               |  |              |              |              |              |              | 0.10         |              |
| Portugal      |  |              |              |              |              |              | -0.05        |              |
|               |  |              |              |              |              |              | 12.82        |              |
| Slovakia      |  |              |              |              |              |              | 0.82         |              |
|               |  |              |              |              |              |              | 4.95         |              |
|               |  |              |              |              |              |              | -3.87        |              |
|               |  |              |              |              |              |              | -1.73        |              |
|               |  |              |              |              |              |              | -0.57        |              |
|               |  |              |              |              |              |              | 1.06         |              |
|               |  |              |              |              |              |              | 0.72         |              |
|               |  |              |              |              |              |              | -60.01       |              |
|               |  |              |              |              |              |              | -2.45        |              |
|               |  |              |              |              |              |              | -3.38        |              |
|               |  |              |              |              |              |              | 8.41         |              |
|               |  |              |              |              |              |              | 21.61        |              |
|               |  |              |              |              |              |              | 19.95        |              |
|               |  |              |              |              |              |              | -8.38        |              |
|               |  |              |              |              |              |              | -5.04        |              |
|               |  |              |              |              |              |              | 19.97        |              |
|               |  |              |              |              |              |              | -23.37       |              |
|               |  | 0.00         | 40.73        | 0.00         | 0.00         | 0.00         | 0.00         | 40.73        |
|               |  | 0.00         | -4.73        | 0.00         | 0.00         | 0.00         | 0.00         | -4.73        |
| Sweden        |  | 0.00         | 3.41         | 0.00         | 0.00         | 0.00         | 0.00         | 3.41         |
| United States |  | 0.00         | 2.06         | 0.00         | 0.00         | 0.00         | 0.00         | 2.06         |
|               |  |              |              |              |              |              |              |              |
|               |  |              |              |              |              |              |              |              |
|               |  |              |              |              |              |              |              |              |

**Table 5.8****Changes in forest and other woody biomass stocks – trend information****CO<sub>2</sub> emissions (Gg)**

|                           | 1990 <sup>a</sup> | 1995    | 1996    | 1997    | 1998    | 1999    | 2000    | 2001    |
|---------------------------|-------------------|---------|---------|---------|---------|---------|---------|---------|
| <b>Austria</b>            | 26,679            | 22,554  | 24,423  | 22,175  | 22,175  | 22,175  | 22,175  | 22,175  |
| <b>Belgium</b>            | 5,067             | 4,668   | 4,668   | 4,668   | 4,668   | 4,668   | 4,398   | 4,384   |
| <b>Bulgaria</b>           |                   |         |         |         |         |         | 4,582   | 4,091   |
| <b>Canada</b>             | 230,498           | 310,409 | 279,058 | 268,126 | 280,546 | 282,223 | 255,663 | 270,199 |
| <b>Czech Republic</b>     | 15,503            |         |         |         | 15,287  | 16,048  | 16,442  | 16,304  |
| <b>Denmark</b>            | 0                 | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| <b>Estonia</b>            |                   |         |         |         |         |         |         | 17,867  |
| <b>European Community</b> | 0                 | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| <b>Finland</b>            | 72,141            | 83,129  | 76,969  | 85,934  | 90,424  | 90,447  | 91,139  | 88,231  |
| <b>France</b>             | 74,183            | 74,783  | 74,068  | 71,535  | 73,732  | 73,159  | 76,200  | 72,742  |
| <b>Germany</b>            | NE                | NE      | NE      | NE      | NE      | NE      | NE      | NE      |
| <b>Greece<sup>b</sup></b> | 4,023             | 3,233   | 3,499   | 3,457   | 2,945   | 3,858   | 3,819   | 2,209   |
| <b>Iceland</b>            |                   |         |         |         |         |         |         | 0       |
| <b>Ireland</b>            | 1,181             | 1,681   | 1,739   | 1,638   | 1,861   | 1,959   | 2,122   | 2,038   |
| <b>Italy</b>              |                   |         |         |         |         |         |         | 0       |
| <b>Latvia</b>             | 5,622             | 10,370  | 10,196  | 13,417  | 15,075  | 16,089  | 16,641  | 15,686  |
| <b>Luxembourg</b>         |                   |         |         |         |         |         |         |         |
| <b>Netherlands</b>        | 3,302             | 3,402   | 3,574   | 3,522   | 3,600   | 3,410   | 3,593   | 3,593   |
| <b>New Zealand</b>        |                   |         |         |         |         |         |         | 0       |
| <b>Norway</b>             | 19,727            |         |         |         | 15,899  | 16,306  | 15,953  | 16,359  |
| <b>Poland</b>             |                   |         |         |         |         |         | 33,308  | 32,085  |
| <b>Portugal</b>           | 11,273            | 10,407  | 10,341  | 10,275  | 10,209  | 10,143  | 10,077  | 10,077  |
| <b>Romania</b>            |                   | 17,644  | 17,803  | 17,973  | 15,560  | 16,517  | 17,124  | 16,209  |
| <b>Slovakia</b>           |                   |         |         |         |         |         | 10,021  | 10,230  |
| <b>Spain</b>              | 11,022            | 11,022  | 11,022  | 11,022  | 11,022  | 11,022  | 11,022  | 11,022  |
| <b>Sweden</b>             | 0                 | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| <b>Switzerland</b>        | 8,014             |         |         |         |         |         |         | 10,201  |
| <b>United Kingdom</b>     | 0                 | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| <b>United States</b>      | 25,098            | 25,098  | 25,098  | 25,098  | 25,098  | 25,098  | 25,098  | 25,098  |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 8.3          | -9.2         | 0.0          | 0.0          | 0.0          | 0.0          | -16.9        |
| <b>Belgium</b>            | 0.0          | 0.0          | 0.0          | 0.0          | -5.8         | -0.3         | -13.5        |
| <b>Bulgaria</b>           |              |              |              |              |              |              | -10.7        |
| <b>Canada</b>             | -10.1        | -3.9         | 4.6          | 0.6          | -9.4         | 5.7          | 17.2         |
| <b>Czech Republic</b>     |              |              |              | 5.0          | 2.5          | -0.8         | 5.2          |
| <b>Denmark</b>            |              |              |              |              |              |              |              |
| <b>Estonia</b>            |              |              |              |              |              |              |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | -7.4         | 11.6         | 5.2          | 0.0          | 0.8          | -3.2         | 22.3         |
| <b>France</b>             | -1.0         | -3.4         | 3.1          | -0.8         | 4.2          | -4.5         | -1.9         |
| <b>Germany</b>            |              |              |              |              |              |              |              |
| <b>Greece</b>             | 8.2          | -1.2         | -14.8        | 31.0         | -1.0         | -42.2        | -45.1        |
| <b>Iceland</b>            |              |              |              |              |              |              |              |
| <b>Ireland</b>            | 3.5          | -5.8         | 13.6         | 5.3          | 8.3          | -4.0         | 72.6         |
| <b>Italy</b>              |              |              |              |              |              |              |              |
| <b>Latvia</b>             | -1.7         | 31.6         | 12.4         | 6.7          | 3.4          | -5.7         | 179.0        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | 5.0          | -1.4         | 2.2          | -5.3         | 5.4          | 0.0          | 8.8          |
| <b>New Zealand</b>        |              |              |              |              |              |              |              |
| <b>Norway</b>             |              |              |              | 2.6          | -2.2         | 2.5          | -17.1        |
| <b>Poland</b>             |              |              |              |              |              | -3.7         |              |
| <b>Portugal</b>           | -0.6         | -0.6         | -0.6         | -0.6         | -0.6         | 0.0          | -10.6        |
| <b>Romania</b>            | 0.9          | 1.0          | -13.4        | 6.1          | 3.7          | -5.3         |              |
| <b>Slovakia</b>           |              |              |              |              |              | 2.1          |              |
| <b>Spain</b>              | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| <b>Sweden</b>             |              |              |              |              |              |              |              |
| <b>Switzerland</b>        |              |              |              |              |              |              | 27.3         |
| <b>United Kingdom</b>     |              |              |              |              |              |              |              |
| <b>United States</b>      | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |

**Table 5.8****Changes in forest and other woody biomass stocks – trend information (continued)****CO<sub>2</sub> removals (Gg)**

|                                | 1990 <sup>a</sup> | 1995     | 1996     | 1997     | 1998     | 1999     | 2000     | 2001     |
|--------------------------------|-------------------|----------|----------|----------|----------|----------|----------|----------|
| <b>Austria</b>                 | -35,894           | -29,808  | -29,808  | -29,808  | -29,808  | -29,808  | -29,808  | -29,808  |
| <b>Belgium</b>                 | -6,667            | -6,579   | -6,557   | -6,535   | -6,513   | -6,491   | -6,219   | -6,198   |
| <b>Bulgaria<sup>b</sup></b>    |                   |          |          |          |          |          | -13,558  | -13,558  |
| <b>Canada</b>                  | -339,185          | -324,643 | -321,585 | -319,510 | -317,291 | -313,856 | -311,395 | -309,470 |
| <b>Czech Republic</b>          | -17,631           |          |          |          | -19,044  | -19,449  | -20,458  | -20,667  |
| <b>Denmark</b>                 | -3,118            | -3,128   | -3,134   | -3,142   | -3,152   | -3,161   | -3,517   | -3,531   |
| <b>Estonia</b>                 |                   |          |          |          |          | -12,245  | -11,924  | -15,772  |
| <b>European Community</b>      | -231,103          | -229,409 | -238,432 | -239,726 | -233,221 | -237,449 | -223,548 | -237,225 |
| <b>Finland</b>                 | -95,939           | -97,817  | -98,001  | -98,571  | -100,137 | -101,268 | -103,093 | -105,082 |
| <b>France</b>                  | -142,262          | -149,183 | -151,289 | -152,086 | -154,241 | -155,219 | -152,506 | -152,051 |
| <b>Germany</b>                 | -33,689           | -33,400  | -33,400  | -33,400  | -33,400  | -33,400  | -23,695  | -23,695  |
| <b>Greece</b>                  | -4,005            | -4,005   | -4,005   | -4,005   | -4,005   | -4,005   | -4,005   | -4,005   |
| <b>Iceland</b>                 |                   |          |          |          |          |          | -39      | -43      |
| <b>Ireland</b>                 | -1,631            | -2,109   | -2,159   | -2,136   | -2,435   | -2,460   | -2,530   | -3,045   |
| <b>Italy</b>                   |                   |          |          |          | -24,969  | -25,315  | -25,699  | -27,113  |
| <b>Latvia</b>                  | -25,336           | -26,189  | -26,189  | -26,189  | -26,189  | -26,189  | -26,054  | -26,054  |
| <b>Luxembourg</b>              |                   |          |          |          |          |          |          |          |
| <b>Netherlands</b>             | 1,881             | 2,170    | 2,176    | 2,342    | 2,220    | 2,175    | 2,180    | 2,180    |
| <b>New Zealand</b>             |                   |          |          |          |          |          |          | -26,149  |
| <b>Norway</b>                  | -29,492           |          |          |          | -33,486  | -34,074  | -34,696  | -35,326  |
| <b>Poland</b>                  |                   |          |          |          |          |          | -76,051  | -80,345  |
| <b>Portugal</b>                | -11,276           | -12,412  | -12,432  | -12,454  | -12,467  | -12,502  | -12,229  | -12,229  |
| <b>Romania<sup>b</sup></b>     |                   | -26,387  | -26,345  | -26,318  | -26,257  | -26,241  | -26,220  | -26,222  |
| <b>Slovakia</b>                |                   |          |          |          |          |          | -11,431  | -14,990  |
| <b>Spain</b>                   | -40,275           | -40,275  | -40,275  | -40,275  | -40,275  | -40,275  | -40,275  | -40,275  |
| <b>Sweden</b>                  | -24,100           | -25,100  | -26,100  | -31,100  | -28,100  | -31,100  | -31,100  | -33,220  |
| <b>Switzerland<sup>b</sup></b> | -11,202           |          |          |          | -6,109   | -4,226   | -11,673  | -11,730  |
| <b>United Kingdom</b>          | -7,304            | -8,518   | -8,426   | -8,316   | -8,184   | -8,122   | -8,309   | -8,144   |
| <b>United States</b>           | -828,098          | -824,432 | -824,432 | -817,098 | -809,765 | -820,765 | -813,432 | -817,098 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | -17.0        |
| <b>Belgium</b>            | -0.3         | -0.3         | -0.3         | -0.3         | -4.2         | -0.3         | -7.0         |
| <b>Bulgaria</b>           |              |              |              |              |              | 0.0          |              |
| <b>Canada</b>             | -0.9         | -0.6         | -0.7         | -1.1         | -0.8         | -0.6         | -8.8         |
| <b>Czech Republic</b>     |              |              |              | 2.1          | 5.2          | 1.0          | 17.2         |
| <b>Denmark</b>            | 0.2          | 0.3          | 0.3          | 0.3          | 11.3         | 0.4          | 13.2         |
| <b>Estonia</b>            |              |              |              |              | -2.6         | 32.3         |              |
| <b>European Community</b> | 3.9          | 0.5          | -2.7         | 1.8          | -5.9         | 6.1          | 2.6          |
| <b>Finland</b>            | 0.2          | 0.6          | 1.6          | 1.1          | 1.8          | 1.9          | 9.5          |
| <b>France</b>             | 1.4          | 0.5          | 1.4          | 0.6          | -1.7         | -0.3         | 6.9          |
| <b>Germany</b>            | 0.0          | 0.0          | 0.0          | 0.0          | -29.1        | 0.0          | -29.7        |
| <b>Greece</b>             | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| <b>Iceland</b>            |              |              |              |              |              | 8.6          |              |
| <b>Ireland</b>            | 2.4          | -1.1         | 14.0         | 1.0          | 2.8          | 20.4         | 86.7         |
| <b>Italy</b>              |              |              |              | 1.4          | 1.5          | 5.5          |              |
| <b>Latvia</b>             | 0.0          | 0.0          | 0.0          | 0.0          | -0.5         | 0.0          | 2.8          |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        | 0.3          | 7.6          | -5.2         | -2.0         | 0.2          | 0.0          | 15.9         |
| <b>New Zealand</b>        |              |              |              |              |              |              |              |
| <b>Norway</b>             |              |              |              | 1.8          | 1.8          | 1.8          | 19.8         |
| <b>Poland</b>             |              |              |              |              |              | 5.6          |              |
| <b>Portugal</b>           | 0.2          | 0.2          | 0.1          | 0.3          | -2.2         | 0.0          | 8.5          |
| <b>Romania</b>            | -0.2         | -0.1         | -0.2         | -0.1         | -0.1         | 0.0          |              |
| <b>Slovakia</b>           |              |              |              |              |              | 31.1         |              |
| <b>Spain</b>              | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| <b>Sweden</b>             | 4.0          | 19.2         | -9.6         | 10.7         | 0.0          | 6.8          | 37.8         |
| <b>Switzerland</b>        |              |              |              | -30.8        | 176.2        | 0.5          | 4.7          |
| <b>United Kingdom</b>     | -1.1         | -1.3         | -1.6         | -0.8         | 2.3          | -2.0         | 11.5         |
| <b>United States</b>      | 0.0          | -0.9         | -0.9         | 1.4          | -0.9         | 0.5          | -1.3         |

**Table 5.9****Forest/grassland conversion – trend information****CO<sub>2</sub> emissions (Gg)**

|                     | 1990 <sup>a</sup> | 1995  | 1996  | 1997   | 1998   | 1999   | 2000   | 2001   |
|---------------------|-------------------|-------|-------|--------|--------|--------|--------|--------|
| Austria             | IE                | IE    | IE    | IE     | IE     | IE     | IE     | IE     |
| Belgium             | 0                 | 0     | 0     | 0      | 0      | 0      | 0      | 0      |
| Bulgaria            | NE                | NE    | NE    | NE     | NE     | NE     | NE     | NE     |
| Canada              | 1,419             | 2,381 | 2,840 | 2,912  | 3,022  | 3,140  | 3,399  | 3,762  |
| Czech Republic      |                   |       |       |        |        |        |        | 0      |
| Denmark             | 0                 | 0     | 0     | 0      | 0      | 0      | 0      | 0      |
| Estonia             | 75                | 47    | 39    | 37     | 38     | 35     | 27     | 0      |
| European Community  | 10,176            | 9,876 | 9,900 | 10,016 | 13,491 | 10,361 | 14,108 | 10,518 |
| Finland             | IE                | IE    | IE    | IE     | IE     | IE     | IE     | IE     |
| France              | 8,753             | 9,216 | 9,216 | 9,360  | 9,809  | 9,809  | 9,881  | 9,881  |
| Germany             | NE                | NE    | NE    | NE     | NE     | NE     | NE     | NE     |
| Greece <sup>b</sup> | 1,423             | 660   | 684   | 656    | 3,682  | 552    | 4,227  | 637    |
| Iceland             |                   |       |       |        |        |        |        | 0      |
| Ireland             | NO                | 0     | 0     | 0      | NO     | NO     | 0      | 0      |
| Italy               |                   |       |       |        | 0      | 0      | 0      | 0      |
| Latvia              | 631               | 1,174 | 1,153 | 1,521  | 1,710  | 1,824  | 1,125  | 1,059  |
| Luxembourg          |                   |       |       |        |        |        |        |        |
| Netherlands         | NE                | NE    | NE    | NE     | NE     | NE     | NE     | NE     |
| New Zealand         | 870               | 2,279 | 2,509 | 2,252  | 1,133  | 1,421  | 1,435  | 1,549  |
| Norway              | 0                 |       |       |        | 0      | 0      | 0      | 0      |
| Poland              | 959               | 157   | 81    | 101    | 87     | 42     | 62     | 58     |
| Portugal            | 0                 | 0     | 0     | 0      | 0      | 0      | 0      | 0      |
| Romania             |                   | 709   | 737   | 631    | 627    | 777    | 922    | 982    |
| Slovakia            | 141               | 119   | 111   | 111    | 131    | 125    | 113    | 115    |
| Spain               | 0                 | 0     | 0     | 0      | 0      | 0      | 0      | 0      |
| Sweden              | 0                 | 0     | 0     | 0      | 0      | 0      | 0      | 0      |
| Switzerland         | NO                | NO    | NO    | NO     | NO     | NO     | NO     | NO     |
| United Kingdom      | 0                 | 0     | 0     | 0      | 0      | 0      | 0      | 0      |
| United States       | 0                 | 0     | 0     | 0      | 0      | 0      | 0      | 0      |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            |              |              |              |              |              |              |              |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              |              |              |              |              |
| Canada             | 19.3         | 2.5          | 3.8          | 3.9          | 8.2          | 10.7         | 165.1        |
| Czech Republic     |              |              |              |              |              |              |              |
| Denmark            |              |              |              |              |              |              |              |
| Estonia            | -17.3        | -6.1         | 2.3          | -6.9         | -23.1        | -100.0       | -100.0       |
| European Community | 0.2          | 1.2          | 34.7         | -23.2        | 36.2         | -25.4        | 3.4          |
| Finland            |              |              |              |              |              |              |              |
| France             | 0.0          | 1.6          | 4.8          | 0.0          | 0.7          | 0.0          | 12.9         |
| Germany            |              |              |              |              |              |              |              |
| Greece(a)          | 3.6          | -4.1         | 461.4        | -85.0        | 665.2        | -84.9        | -55.2        |
| Iceland            |              |              |              |              |              |              |              |
| Ireland            |              |              |              |              |              |              |              |
| Italy              |              |              |              | -16.5        |              |              |              |
| Latvia             | -1.8         | 31.9         | 12.4         | 6.7          | -38.3        | -5.9         | 67.9         |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        |              |              |              |              |              |              |              |
| New Zealand        | 10.1         | -10.3        | -49.7        | 25.4         | 1.0          | 7.9          | 78.1         |
| Norway             |              |              |              |              |              |              |              |
| Poland             | -48.4        | 24.7         | -13.9        | -51.7        | 46.9         | -6.4         | -94.0        |
| Portugal           |              |              |              |              |              |              |              |
| Romania            | 3.9          | -14.4        | -0.5         | 23.8         | 18.7         | 6.5          |              |
| Slovakia           | -6.1         | -0.6         | 18.4         | -4.6         | -9.4         | 1.1          | -18.6        |
| Spain              |              |              |              |              |              |              |              |
| Sweden             |              |              |              |              |              |              |              |
| Switzerland        |              |              |              |              |              |              |              |
| United Kingdom     |              |              |              |              |              |              |              |
| United States      |              |              |              |              |              |              |              |

**Table 5.10****Forest/grassland conversion: average annual net loss of biomass (t dm/ha) (2001)**

|                      | On- and off-site burning   |  |  | Decay                              |  |  | Difference in annual net loss of biomass<br>(t dm/ha/yr) |
|----------------------|--|--|--|------------------------------------|--|--|--|
|                      | Area converted annually<br>(kha/yr)                                  | Average annual net loss of biomass<br>(t dm/ha/yr) | Annual net loss of biomass<br>(kt dm/yr) | Average area converted<br>(kha/yr) | Average annual net loss of biomass<br>(t dm/ha/yr) | Annual net loss of biomass<br>(kt dm/yr) |  |
|                      | Original natural ecosystem: Tropical, wet / very moist               |  |  |                                    |  |  |  |
| Default <sup>a</sup> |  | (225-300)  |  |                                    | (225-300)  |  |  |
| France               | 0.80   | 142.50   | 114.00                                   |                                    |  |  |  |
|                      | Original natural ecosystem: temperate / coniferous                   |  |  |                                    |  |  |  |
| Default <sup>b</sup> |  | (220-295)  |  |                                    | (220-295)  |  |  |
| Greece               | 4.55   | 33.86  | 154.21                                   |                                    |  |  |  |
| Poland               | 0.72   | 139.07   | 99.85                                    | 0.51                               | 139.07   | 71.46                                    |  |
| Romania              | 0.82   | 248.00   | 202.86                                   | 0.82                               | 202.86   | 165.94                                   |  |
| Slovakia             |  |  | 816.96                                   | 0.88                               | 62.48  | 54.98                                    |  |
|                      | Original natural ecosystem: temperate / broadleaf                    |  |  |                                    |  |  |  |
| Default <sup>b</sup> |  | (175-250)  |  |                                    | (175-250)  |  |  |
| Greece               | 2.33   | 19.72  | 46.02                                    |                                    |  |  |  |
| Romania              | 1.91   | 202.00   | 385.82                                   | 1.91                               | 385.82   | 736.92                                   |  |
| Slovakia             |  |  | 1367.08                                  |                                    |  |  |  |
|                      | Original natural ecosystem: temperate - mixed broadleaf / coniferous |  |  |                                    |  |  |  |
| Default <sup>b</sup> |  | (175-295)  |  |                                    | (175-295)  |  |  |
| Canada               | 16.00  | 102.31   | 1637.00                                  |                                    |  |  |  |
| France               | 58.63  | 86.27  | 5057.71                                  |                                    |  |  |  |
| Greece               | 9.43   | 19.72  | 185.97                                   |                                    |  |  |  |
|                      | Original natural ecosystem: grasslands                               |  |  |                                    |  |  |  |
| Default <sup>c</sup> |  |  |  |                                    |  |  |  |
| Canada               | 36.20  | 1.93   | 70.00                                    |                                    |  |  |  |
| Greece               | 5.53   | 0.00   |  |                                    |  |  |  |
| Poland               |  |  |  | 0.72                               | 10.00  | 7.23                                     |  |
|                      | Original natural ecosystem: boreal, mixed coniferous / broadleaf     |  |  |                                    |  |  |  |
| Default <sup>b</sup> |  | (40-87)  |  |                                    | (40-87)  |  |  |
| Canada               | 4.90   | 39.80  | 195.00                                   |                                    |  |  |  |

<sup>a</sup> Source of default emission factors: IPCC Guidelines, volume 3, table 5.4, page 5.26.<sup>b</sup> Source of default emission factors: IPCC Guidelines, volume 3, table 5.6, page 5.30.<sup>c</sup> No IPCC default values available.



**Table 5.11****Forest/grassland conversion: area converted annually (kha/yr) – trend information****Temperate coniferous, on- and off-site burning (kha/yr)**

|                       | 1990 <sup>a</sup> | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|-----------------------|-------------------|------|------|------|------|------|------|------|
| Austria               | NO                | NO   | NO   | NO   | NO   | NO   | NO   | NO   |
| Belgium               |                   |      |      |      |      |      |      |      |
| Bulgaria              |                   |      |      |      |      |      |      |      |
| Canada                | NA                | NA   | NA   | NA   | NA   | NA   | NA   | NA   |
| Czech Republic        |                   |      |      |      |      |      |      |      |
| Denmark               |                   |      |      |      |      |      |      |      |
| Estonia               |                   |      |      |      |      |      |      |      |
| European Community    |                   |      |      |      |      |      | NE   | NE   |
| Finland               |                   |      |      |      |      |      |      |      |
| France                |                   |      |      |      |      |      |      |      |
| Germany               | NE                | NE   | NE   | NE   | NE   | NE   | NE   | NE   |
| Greece <sup>b</sup>   | 13.6              | 4.9  | 4.1  | 4.9  | 33.5 | 3.2  | 29.9 | 4.6  |
| Iceland               |                   |      |      |      |      | NE   |      |      |
| Ireland               | NE                | NE   | NE   | NE   | NE   | NE   | 0.0  | 0.0  |
| Italy                 |                   |      |      |      |      |      |      |      |
| Latvia                | NO                | NO   | NO   | NO   | NO   | NO   | NO   | NO   |
| Luxembourg            |                   |      |      |      |      |      |      |      |
| Netherlands           |                   |      |      |      |      |      |      |      |
| New Zealand           |                   |      |      |      |      |      |      |      |
| Norway                |                   |      |      |      |      |      |      |      |
| Poland <sup>b</sup>   |                   |      |      |      |      |      | 0.7  | 0.7  |
| Portugal              |                   |      |      |      |      |      |      |      |
| Romania <sup>b</sup>  |                   | 0.6  | 0.5  | 0.4  | 0.5  | 0.6  | 0.8  | 0.8  |
| Slovakia <sup>b</sup> |                   |      |      |      | NA   | NA   | NA   | NA   |
| Spain                 | NE                | NE   | NE   | NE   | NE   | NE   | NE   | NE   |
| Sweden                | NO                |      |      |      |      |      |      |      |
| Switzerland           |                   |      |      |      |      |      |      |      |
| United Kingdom        |                   |      |      |      |      |      |      |      |
| United States         | NE                | NE   | NE   | NE   | NE   | NE   | NE   | NE   |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            |              |              |              |              |              |              |              |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              |              |              |              |              |
| Canada             |              |              |              |              |              |              |              |
| Czech Republic     |              |              |              |              |              |              |              |
| Denmark            |              |              |              |              |              |              |              |
| Estonia            |              |              |              |              |              |              |              |
| European Community |              |              |              |              |              |              |              |
| Finland            |              |              |              |              |              |              |              |
| France             |              |              |              |              |              |              |              |
| Germany            |              |              |              |              |              |              |              |
| Greece             | -16.4        | 19.8         | 583.7        | -90.4        | 835.3        | -84.8        | -66.5        |
| Iceland            |              |              |              |              |              |              |              |
| Ireland            |              |              |              |              |              |              |              |
| Italy              |              |              |              |              |              |              |              |
| Latvia             |              |              |              |              |              |              |              |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        |              |              |              |              |              |              |              |
| New Zealand        |              |              |              |              |              |              |              |
| Norway             |              |              |              |              |              |              |              |
| Poland             |              |              |              |              |              | -0.3         |              |
| Portugal           |              |              |              |              |              |              |              |
| Romania            | -13.0        | -16.9        | 21.2         | 25.0         | 19.0         | 6.2          |              |
| Slovakia           |              |              |              |              |              |              |              |
| Spain              |              |              |              |              |              |              |              |
| Sweden             |              |              |              |              |              |              |              |
| Switzerland        |              |              |              |              |              |              |              |
| United Kingdom     |              |              |              |              |              |              |              |
| United States      |              |              |              |              |              |              |              |

**Table 5.11**

**Forest/grassland conversion: area converted annually (kha/yr) – trend information (continued)**  
**Temperate broadleaf, on and off-site burning (kha/yr)**

|                      | 1990 <sup>a</sup> | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|----------------------|-------------------|------|------|------|------|------|------|------|
| Austria              | NO                | NO   | NO   | NO   | NO   | NO   | NO   | NO   |
| Belgium              |                   |      |      |      |      |      |      |      |
| Bulgaria             |                   |      |      |      |      |      |      |      |
| Canada               | NA                | NA   | NA   | NA   | NA   | NA   | NA   | NA   |
| Czech Republic       |                   |      |      |      |      |      |      |      |
| Denmark              |                   |      |      |      |      |      |      |      |
| Estonia              |                   |      |      |      |      |      |      |      |
| European Community   |                   |      |      |      |      |      | NE   | NE   |
| Finland              |                   |      |      |      |      |      |      |      |
| France               |                   |      |      |      |      |      |      |      |
| Germany              | NE                | NE   | NE   | NE   | NE   | NE   | NE   | NE   |
| Greece <sup>b</sup>  | 5.0               | 1.2  | 1.9  | 1.1  | 12.5 | 1.2  | 21.4 | 2.3  |
| Iceland              |                   |      |      |      |      | NE   |      |      |
| Ireland              | NE                | NE   | NE   | NE   | NE   | NE   | 0.0  | 0.0  |
| Italy                |                   |      |      |      |      |      |      |      |
| Latvia               | NO                | NO   | NO   | NO   | NO   | NO   | NO   | NO   |
| Luxembourg           |                   |      |      |      |      |      |      |      |
| Netherlands          |                   |      |      |      |      |      |      |      |
| New Zealand          |                   |      |      |      |      |      |      |      |
| Norway               |                   |      |      |      |      |      |      |      |
| Poland               |                   |      |      |      |      |      | 0.0  | 0.0  |
| Portugal             |                   |      |      |      |      |      |      |      |
| Romania <sup>b</sup> |                   | 1.4  | 1.5  | 1.3  | 1.2  | 1.5  | 1.8  | 1.9  |
| Slovakia             |                   |      |      |      |      | NA   | NA   | NA   |
| Spain                | NE                | NE   | NE   | NE   | NE   | NE   | NE   | NE   |
| Sweden               | NO                |      |      |      |      |      |      |      |
| Switzerland          |                   |      |      |      |      |      |      |      |
| United Kingdom       |                   |      |      |      |      |      |      |      |
| United States        | NE                | NE   | NE   | NE   | NE   | NE   | NE   | NE   |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            |              |              |              |              |              |              |              |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              |              |              |              |              |
| Canada             |              |              |              |              |              |              |              |
| Czech Republic     |              |              |              |              |              |              |              |
| Denmark            |              |              |              |              |              |              |              |
| Estonia            |              |              |              |              |              |              |              |
| European Community |              |              |              |              |              |              |              |
| Finland            |              |              |              |              |              |              |              |
| France             |              |              |              |              |              |              |              |
| Germany            |              |              |              |              |              |              |              |
| Greece             | 59.0         | -40.9        | 1036.4       | -90.4        | 1685.8       | -89.1        | -53.1        |
| Iceland            |              |              |              |              |              |              |              |
| Ireland            |              |              |              |              |              |              |              |
| Italy              |              |              |              |              |              |              |              |
| Latvia             |              |              |              |              |              |              |              |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        |              |              |              |              |              |              |              |
| New Zealand        |              |              |              |              |              |              |              |
| Norway             |              |              |              |              |              |              |              |
| Poland             |              |              |              |              |              |              |              |
| Portugal           |              |              |              |              |              |              |              |
| Romania            | 11.8         | -15.8        | -5.5         | 23.2         | 19.1         | 6.1          |              |
| Slovakia           |              |              |              |              |              |              |              |
| Spain              |              |              |              |              |              |              |              |
| Sweden             |              |              |              |              |              |              |              |
| Switzerland        |              |              |              |              |              |              |              |
| United Kingdom     |              |              |              |              |              |              |              |
| United States      |              |              |              |              |              |              |              |

**Table 5.11****Forest/grassland conversion: area converted annually (kha/yr) – trend information (continued)****Temperate mixed: broadleaf/coniferous, on- and off-site burning (kha/yr)**

|                       | 1990 <sup>a</sup> | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|-----------------------|-------------------|------|------|------|------|------|------|------|
| Austria               | NO                | NO   | NO   | NO   | NO   | NO   | NO   | NO   |
| Belgium               |                   |      |      |      |      |      |      |      |
| Bulgaria              |                   |      |      |      |      |      |      |      |
| Canada                | 3.1               | 8.3  | 10.5 | 11.2 | 12.0 | 12.6 | 14.1 | 16.0 |
| Czech Republic        |                   |      |      |      |      |      |      |      |
| Denmark               |                   |      |      |      |      |      |      |      |
| Estonia               |                   |      |      |      |      |      |      |      |
| European Community    |                   |      |      |      |      |      | NE   | NE   |
| Finland               |                   |      |      |      |      |      |      |      |
| France                | 58.6              | 58.6 | 58.6 | 58.6 |      |      | 58.6 | 58.6 |
| Germany               | NE                | NE   | NE   | NE   | NE   | NE   | NE   | NE   |
| Greece                |                   |      |      |      |      |      |      | 9.4  |
| Iceland               |                   |      |      |      |      | NE   |      |      |
| Ireland               | NE                | NE   | NE   | NE   | NE   | NE   | NE   | NE   |
| Italy                 |                   |      |      |      |      |      |      |      |
| Latvia                | NO                | NO   | NO   | NO   | NO   | NO   | NO   | NO   |
| Luxembourg            |                   |      |      |      |      |      |      |      |
| Netherlands           |                   |      |      |      |      |      |      |      |
| New Zealand           |                   |      |      |      |      |      |      |      |
| Norway                |                   |      |      |      |      |      |      |      |
| Poland                |                   |      |      |      |      |      | 0.0  | 0.0  |
| Portugal              |                   |      |      |      |      |      |      |      |
| Romania <sup>b</sup>  |                   |      |      |      |      |      | NA   | NO   |
| Slovakia <sup>b</sup> |                   |      |      |      |      | NO   | NO   | NO   |
| Spain                 | NE                | NE   | NE   | NE   | NE   | NE   | NE   | NE   |
| Sweden                | NO                |      |      |      |      |      |      |      |
| Switzerland           |                   |      |      |      |      |      |      |      |
| United Kingdom        |                   |      |      |      |      |      |      |      |
| United States         | NE                | NE   | NE   | NE   | NE   | NE   | NE   | NE   |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            |              |              |              |              |              |              |              |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              |              |              |              |              |
| Canada             | 26.5         | 6.7          | 7.1          | 5.0          | 11.9         | 13.5         | 416.1        |
| Czech Republic     |              |              |              |              |              |              |              |
| Denmark            |              |              |              |              |              |              |              |
| Estonia            |              |              |              |              |              |              |              |
| European Community |              |              |              |              |              |              |              |
| Finland            |              |              |              |              |              |              |              |
| France             | 0.0          | 0.0          |              |              |              | 0.0          | 0.0          |
| Germany            |              |              |              |              |              |              |              |
| Greece             |              |              |              |              |              |              |              |
| Iceland            |              |              |              |              |              |              |              |
| Ireland            |              |              |              |              |              |              |              |
| Italy              |              |              |              |              |              |              |              |
| Latvia             |              |              |              |              |              |              |              |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        |              |              |              |              |              |              |              |
| New Zealand        |              |              |              |              |              |              |              |
| Norway             |              |              |              |              |              |              |              |
| Poland             |              |              |              |              |              |              |              |
| Portugal           |              |              |              |              |              |              |              |
| Romania            |              |              |              |              |              |              |              |
| Slovakia           |              |              |              |              |              |              |              |
| Spain              |              |              |              |              |              |              |              |
| Sweden             |              |              |              |              |              |              |              |
| Switzerland        |              |              |              |              |              |              |              |
| United Kingdom     |              |              |              |              |              |              |              |
| United States      |              |              |              |              |              |              |              |

**Table 5.11**

**Forest/grassland conversion: area converted annually (kha/yr) – trend information (continued)**  
**Boreal mixed, on- and off-site burning (kha/yr)**

|                       | 1990 <sup>a</sup> | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|-----------------------|-------------------|------|------|------|------|------|------|------|
| Austria               | NO                | NO   | NO   | NO   | NO   | NO   | NO   | NO   |
| Belgium               |                   |      |      |      |      |      |      |      |
| Bulgaria              |                   |      |      |      |      |      |      |      |
| Canada                | 8.8               | 6.8  | 6.9  | 6.4  | 5.8  | 5.4  | 5.1  | 4.9  |
| Czech Republic        |                   |      |      |      |      |      |      |      |
| Denmark               |                   |      |      |      |      |      |      |      |
| Estonia <sup>b</sup>  |                   |      |      |      |      | 0.1  | 0.1  | 0.0  |
| European Community    |                   |      |      |      |      |      | NE   | NE   |
| Finland               |                   |      |      |      |      |      |      |      |
| France                |                   |      |      |      |      |      |      |      |
| Germany               | NO                | NO   | NO   | NO   | NO   | NO   | NO   | NO   |
| Greece <sup>b</sup>   | NA                | NA   | NA   | NA   | NA   | NA   | NA   | NA   |
| Iceland               |                   |      |      |      |      | NE   |      |      |
| Ireland               | NA                | NO   | NO   | NO   | NA   | NA   |      |      |
| Italy                 |                   |      |      |      |      |      |      |      |
| Latvia                | NO                | NO   | NO   | NO   | NO   | NO   | NO   | NO   |
| Luxembourg            |                   |      |      |      |      |      |      |      |
| Netherlands           |                   |      |      |      |      |      |      |      |
| New Zealand           |                   |      |      |      |      |      |      |      |
| Norway                |                   |      |      |      |      |      |      |      |
| Poland <sup>b</sup>   |                   |      |      |      |      |      | NO   | NO   |
| Portugal              |                   |      |      |      |      |      |      |      |
| Romania <sup>b</sup>  |                   |      |      |      |      |      | NO   | NO   |
| Slovakia <sup>b</sup> |                   |      |      |      |      | NO   | NO   | NO   |
| Spain                 | NO                | NO   | NO   | NO   | NO   | NO   | NO   | NO   |
| Sweden                |                   |      |      |      |      |      |      |      |
| Switzerland           |                   |      |      |      |      |      |      |      |
| United Kingdom        |                   |      |      |      |      |      |      |      |
| United States         | NE                | NE   | NE   | NE   | NE   | NE   | NE   | NE   |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            |              |              |              |              |              |              |              |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              |              |              |              |              |
| Canada             | 1.5          | -7.2         | -9.4         | -6.9         | -5.6         | -3.9         | -44.3        |
| Czech Republic     |              |              |              |              |              |              |              |
| Denmark            |              |              |              |              |              |              |              |
| Estonia            |              |              |              |              | 0.0          |              |              |
| European Community |              |              |              |              |              |              |              |
| Finland            |              |              |              |              |              |              |              |
| France             |              |              |              |              |              |              |              |
| Germany            |              |              |              |              |              |              |              |
| Greece             |              |              |              |              |              |              |              |
| Iceland            |              |              |              |              |              |              |              |
| Ireland            |              |              |              |              |              |              |              |
| Italy              |              |              |              |              |              |              |              |
| Latvia             |              |              |              |              |              |              |              |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        |              |              |              |              |              |              |              |
| New Zealand        |              |              |              |              |              |              |              |
| Norway             |              |              |              |              |              |              |              |
| Poland             |              |              |              |              |              |              |              |
| Portugal           |              |              |              |              |              |              |              |
| Romania            |              |              |              |              |              |              |              |
| Slovakia           |              |              |              |              |              |              |              |
| Spain              |              |              |              |              |              |              |              |
| Sweden             |              |              |              |              |              |              |              |
| Switzerland        |              |              |              |              |              |              |              |
| United Kingdom     |              |              |              |              |              |              |              |
| United States      |              |              |              |              |              |              |              |

**Table 5.11****Forest/grassland conversion: area converted annually (kha/yr) – trend information (continued)****Boreal grassland, on- and off-site burning (kha/yr)**

|                       | 1990 <sup>a</sup> | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|-----------------------|-------------------|------|------|------|------|------|------|------|
| Austria               | NO                | NO   | NO   | NO   | NO   | NO   | NO   | NO   |
| Belgium               |                   |      |      |      |      |      |      |      |
| Bulgaria              |                   |      |      |      |      |      |      |      |
| Canada                | 58.7              | 42.5 | 40.5 | 39.3 | 37.9 | 37.8 | 36.8 | 36.2 |
| Czech Republic        |                   |      |      |      |      |      |      |      |
| Denmark               |                   |      |      |      |      |      |      |      |
| Estonia               |                   |      |      |      |      |      |      |      |
| European Community    |                   |      |      |      |      |      | NE   | NE   |
| Finland               |                   |      |      |      |      |      |      |      |
| France                |                   |      |      |      |      |      |      |      |
| Germany               | NE                | NE   | NE   | NE   | NE   | NE   | NE   | NE   |
| Greece <sup>b</sup>   | 4.8               | 2.9  | 9.3  | 8.3  | 19.8 | 2.4  | 19.2 | 5.5  |
| Iceland               |                   |      |      |      |      | NE   |      |      |
| Ireland               | NE                |      |      |      | NE   | NE   |      |      |
| Italy                 |                   |      |      |      |      |      |      |      |
| Latvia                | NO                | NO   | NO   | NO   | NO   | NO   | NO   | NO   |
| Luxembourg            |                   |      |      |      |      |      |      |      |
| Netherlands           |                   |      |      |      |      |      |      |      |
| New Zealand           |                   |      |      |      |      |      |      |      |
| Norway                |                   |      |      |      |      |      |      |      |
| Poland <sup>b</sup>   |                   |      |      |      |      |      | 0.6  | 0.0  |
| Portugal              |                   |      |      |      |      |      |      |      |
| Romania <sup>b</sup>  |                   |      |      |      |      |      | NA   | NE   |
| Slovakia <sup>b</sup> |                   |      |      |      |      | NO   | NO   | NO   |
| Spain                 | NE                | NE   | NE   | NE   | NE   | NE   | NE   | NE   |
| Sweden                | NO                |      |      |      |      |      |      |      |
| Switzerland           |                   |      |      |      |      |      |      |      |
| United Kingdom        |                   |      |      |      |      |      |      |      |
| United States         | NE                | NE   | NE   | NE   | NE   | NE   | NE   | NE   |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            |              |              |              |              |              |              |              |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              |              |              |              |              |
| Canada             | -4.7         | -3.0         | -3.6         | -0.3         | -2.6         | -1.6         | -38.3        |
| Czech Republic     |              |              |              |              |              |              |              |
| Denmark            |              |              |              |              |              |              |              |
| Estonia            |              |              |              |              |              |              |              |
| European Community |              |              |              |              |              |              |              |
| Finland            |              |              |              |              |              |              |              |
| France             |              |              |              |              |              |              |              |
| Germany            |              |              |              |              |              |              |              |
| Greece             | 221.0        | -11.0        | 139.3        | -87.9        | 700.0        | -71.2        | 14.0         |
| Iceland            |              |              |              |              |              |              |              |
| Ireland            |              |              |              |              |              |              |              |
| Italy              |              |              |              |              |              |              |              |
| Latvia             |              |              |              |              |              |              |              |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        |              |              |              |              |              |              |              |
| New Zealand        |              |              |              |              |              |              |              |
| Norway             |              |              |              |              |              |              |              |
| Poland             |              |              |              |              |              |              |              |
| Portugal           |              |              |              |              |              |              |              |
| Romania            |              |              |              |              |              |              |              |
| Slovakia           |              |              |              |              |              |              |              |
| Spain              |              |              |              |              |              |              |              |
| Sweden             |              |              |              |              |              |              |              |
| Switzerland        |              |              |              |              |              |              |              |
| United Kingdom     |              |              |              |              |              |              |              |
| United States      |              |              |              |              |              |              |              |

**Table 5.12****Abandonment of managed land – trend information****CO<sub>2</sub> removals (Gg)**

|                       | 1990 <sup>a</sup> | 1995   | 1996   | 1997   | 1998   | 1999   | 2000   | 2001   |
|-----------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|
| Austria               | IE                | IE     | IE     | IE     | IE     | IE     | IE     | IE     |
| Belgium               | NO                | NO     | NO     | NO     | NO     | NO     | NO     | NO     |
| Bulgaria              | NE                |        |        |        | 0      | 0      | 0      | 0      |
| Canada                | -3,245            | -3,183 | -3,157 | -3,183 | -3,212 | -3,241 | -3,271 | -3,300 |
| Czech Republic        |                   |        |        |        |        |        |        | 0      |
| Denmark               | 0                 | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Estonia <sup>b</sup>  | -1,985            | -1,339 | -1,721 | -1,580 | -1,612 | -2,296 | -2,456 | -2,835 |
| European Community    | -150              | -196   | -199   | -201   | -202   | -201   | -204   | -202   |
| Finland               | 0                 | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| France                | -48               | -48    | -48    | -48    | -48    | -48    | -48    | -48    |
| Germany               | NE                | NE     | NE     | NE     | NE     | NE     | NE     | NE     |
| Greece <sup>b</sup>   | 0                 | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Iceland               |                   |        |        |        |        |        |        | 0      |
| Ireland               | NO                | 0      | 0      | 0      | NE     | NE     | 0      | 0      |
| Italy                 | -102              | -148   | -151   | -153   | -154   | -153   | -156   | -154   |
| Latvia                | NO                | -12    | -18    | -14    | -20    | -24    | -29    | -38    |
| Luxembourg            |                   |        |        |        |        |        |        |        |
| Netherlands           | NE                | NE     | NE     | NE     | NE     | NE     | NE     | NE     |
| New Zealand           |                   |        |        |        |        |        |        | 0      |
| Norway                | 0                 |        |        |        | 0      | 0      | 0      | 0      |
| Poland                | -10,715           | -7,125 | -7,919 | -7,905 | -7,881 | IE     | IE     | IE     |
| Portugal              | 0                 | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Romania <sup>b</sup>  |                   |        |        |        |        |        | NA     | 0      |
| Slovakia <sup>b</sup> |                   |        |        |        | -1,407 | -1,415 | 0      | 0      |
| Spain                 | 0                 | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Sweden                | 0                 | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Switzerland           | IE                | IE     | IE     | IE     | IE     | IE     | IE     | IE     |
| United Kingdom        | 0                 | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| United States         | 0                 | 0      | 0      | 0      | 0      | 0      | 0      | 0      |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            |              |              |              |              |              |              |              |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              |              |              |              |              |
| Canada             | -0.8         | 0.8          | 0.9          | 0.9          | 0.9          | 0.9          | 1.7          |
| Czech Republic     |              |              |              |              |              |              |              |
| Denmark            |              |              |              |              |              |              |              |
| Estonia            | 28.5         | -8.2         | 2.0          | 42.5         | 7.0          | 15.4         | 42.8         |
| European Community | 1.5          | 1.1          | 0.1          | 0.0          | 1.1          | -1.0         | 34.4         |
| Finland            |              |              |              |              |              |              |              |
| France             | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Germany            |              |              |              |              |              |              |              |
| Greece             |              |              |              |              |              |              |              |
| Iceland            |              |              |              |              |              |              |              |
| Ireland            |              |              |              |              |              |              |              |
| Italy              | 2.0          | 1.5          | 0.1          | 0.0          | 1.4          | -1.3         | 50.6         |
| Latvia             | 58.7         | -24.5        | 42.4         | 23.3         | 19.6         | 31.5         |              |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        |              |              |              |              |              |              |              |
| New Zealand        |              |              |              |              |              |              |              |
| Norway             |              |              |              |              |              |              |              |
| Poland             | 11.1         | -0.2         | -0.3         |              |              |              |              |
| Portugal           |              |              |              |              |              |              |              |
| Romania            |              |              |              |              |              |              |              |
| Slovakia           |              |              |              | 0.6          |              |              |              |
| Spain              |              |              |              |              |              |              |              |
| Sweden             |              |              |              |              |              |              |              |
| Switzerland        |              |              |              |              |              |              |              |
| United Kingdom     |              |              |              |              |              |              |              |
| United States      |              |              |              |              |              |              |              |

**Table 5.13****Abandonment of managed land (2001)****Annual above ground biomass growth rate (t dm/ha/yr) and rate of biomass C uptake (t C/ha/yr)**

|  | Annual rate of biomass growth |                        | C fraction of biomass |          | Rate of biomass C uptake |                       |
|--|-------------------------------|------------------------|-----------------------|----------|--------------------------|-----------------------|
|  | <20 yrs<br>t dm/ha/yr         | > 20 yrs<br>t dm/ha/yr | <20 yrs               | > 20 yrs | <20 yrs<br>t C/ha/yr     | > 20 yrs<br>t C/ha/yr |
| <b>Temperate: Mixed coniferous / broadleaf</b> |                               |                        |                       |          |                          |                       |
| <b>Default<sup>a</sup></b>                     | (2.0-3.0)                     | (2.0-3.0)              |                       |          |                          |                       |
| <b>Canada</b>                                  | 0.95                          | 0.95                   | 0.50                  | 0.50     | 0.48                     | 0.47                  |
| <b>Italy</b>                                   | 2.00                          |                        | 0.50                  |          | 1.00                     |                       |
| <b>Latvia</b>                                  | 0.50                          |                        | 0.50                  |          | 0.25                     |                       |
| <b>Poland</b>                                  |                               |                        | 0.50                  | 0.50     |                          |                       |
| <b>Temperate: Broadleaf</b>                    |                               |                        |                       |          |                          |                       |
| <b>Default<sup>a</sup></b>                     | (2.0)                         | (2.0)                  |                       |          |                          |                       |
| <b>Latvia</b>                                  | 0.50                          |                        | 0.50                  |          |                          |                       |
| <b>Poland</b>                                  |                               |                        | 0.50                  | 0.50     |                          |                       |
| <b>Temperate: Coniferous</b>                   |                               |                        |                       |          |                          |                       |
| <b>Default<sup>a</sup></b>                     | (3.0)                         | (3.0)                  |                       |          |                          |                       |
| <b>Latvia</b>                                  | 0.50                          |                        | 0.50                  |          |                          |                       |
| <b>Poland</b>                                  |                               |                        | 0.50                  | 0.50     |                          |                       |
| <b>Boreal: Mixed Broadleaf / Coniferous</b>    |                               |                        |                       |          |                          |                       |
| <b>Default<sup>b</sup></b>                     | (0.7-2.0)                     | (0.7-6.4)              |                       |          |                          |                       |
| <b>Canada</b>                                  | 0.21                          | 0.21                   | 0.50                  | 0.50     | 0.11                     | 0.11                  |
| <b>Estonia</b>                                 | 5.01                          |                        | 0.45                  | 0.45     | 2.25                     |                       |
| <b>Grassland</b>                               |                               |                        |                       |          |                          |                       |
| <b>Default<sup>c</sup></b>                     |                               |                        |                       |          |                          |                       |
| <b>Canada</b>                                  |                               |                        | 0.50                  | 0.50     |                          |                       |
| <b>Poland</b>                                  |                               |                        | 0.50                  | 0.50     |                          |                       |

<sup>a</sup> Source of default emission factors: IPCC Guidelines, volume 3, table 5.2, page 5.20.<sup>b</sup> Source of default emission factors: IPCC Guidelines, volume 2, table 5.8, page 5.22.<sup>c</sup> No IPCC default values available.

**Table 5.13****Abandonment of managed land (2001) (continued)****Abandonment area (kha) – first 20 years<sup>a</sup>**

|                |   | 1990 <sup>b</sup> | 1995 | 1996 | 1997 | 1998 | 1999 | 2000  | 2001 |
|----------------|---|-------------------|------|------|------|------|------|-------|------|
| <b>Canada</b>  | Temperate Forests: Mixed Broadleaf/Coniferous | 884               | 531  | 469  | 448  | 427  | 406  | 385   | 364  |
|                | Grasslands/Tundra: Grasslands                 | 301               | 178  | 156  | 155  | 191  | 228  | 265   | 301  |
|                | Boreal Forests: Mixed Broadleaf/ Coniferous   | 131               | 73   | 63   | 62   | 67   | 71   | 77    | 81   |
| <b>Estonia</b> | Boreal Forests: Mixed Broadleaf/ Coniferous   |                   |      |      |      |      | 325  | 361   | 343  |
| <b>Italy</b>   | Temperate Forests: Mixed Broadleaf/Coniferous |                   |      |      |      |      |      | 1,748 | 42   |
| <b>Latvia</b>  | Temperate Forests: Mixed Broadleaf/Coniferous | NO                | 13   | 20   | 15   | 22   | 27   | 32    | 42   |
| <b>Poland</b>  | Temperate Forests: Mixed Broadleaf/Coniferous |                   |      |      |      |      |      |       | 0    |
|                | Temperate Forests: Coniferous                 |                   |      |      |      |      |      |       | 0    |
|                | Temperate Forests: Broadleaf                  |                   |      |      |      |      |      |       | 0    |
|                | Grasslands/Tundra: Grasslands                 |                   |      |      |      |      |      |       | 0    |

<sup>a</sup> Only Parties reporting data under this category were included in the table.

<sup>b</sup> 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), Poland (1988) and Romania

**Relative change (%)**

|                | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Canada</b>  | -11.7        | -4.6         | -4.6         | -5.0         | -5.1         | -5.6         | -58.9        |
|                | -12.4        | -1.0         | 23.6         | 19.4         | 16.0         | 13.8         | 0.2          |
|                | -13.7        | -2.4         | 8.1          | 6.8          | 7.7          | 5.9          | -37.9        |
| <b>Estonia</b> |              |              |              |              | 11.1         | -5.1         |              |
| <b>Italy</b>   |              |              |              |              |              | -97.6        |              |
| <b>Latvia</b>  | 58.7         | -24.5        | 42.4         | 23.3         | 19.6         | 31.5         |              |
| <b>Poland</b>  |              |              |              |              |              |              |              |
|                |              |              |              |              |              |              |              |
|                |              |              |              |              |              |              |              |
|                |              |              |              |              |              |              |              |



**Table 5.14****CO<sub>2</sub> emissions and removals from soils – trend information****Net CO<sub>2</sub> emissions/removals (Gg)**

|                           | 1990 <sup>a</sup> | 1995     | 1996     | 1997    | 1998    | 1999    | 2000    | 2001    |
|---------------------------|-------------------|----------|----------|---------|---------|---------|---------|---------|
| <b>Austria</b>            | NE                | NE       | NE       | NE      | NE      | NE      | NE      | NE      |
| <b>Belgium</b>            | NE                | NE       | NE       | NE      | NE      | NE      | NE      | NE      |
| <b>Bulgaria</b>           | NE                | NE       | NE       | NE      | NE      | NE      | 0       | 0       |
| <b>Canada</b>             | 3,525             | 2,391    | 2,636    | 2,512   | 2,351   | 2,237   | 2,261   | 2,431   |
| <b>Czech Republic</b>     |                   |          |          |         |         |         |         | 0       |
| <b>Denmark</b>            | 0                 | 0        | 0        | 0       | 0       | 0       | 0       | 0       |
| <b>Estonia</b>            | 3,053             | 1,411    | 420      | -347    | -42     | 646     | 463     | 1.0     |
| <b>European Community</b> | 29,442            | 28,326   | 28,688   | 29,872  | 29,245  | 28,154  | 29,367  | 23,673  |
| <b>Finland</b>            | 3,208             | 1,718    | 1,818    | 2,055   | 2,024   | 2,007   | 2,023   | 1,946   |
| <b>France</b>             | 3,672             | 3,176    | 3,253    | 3,081   | 3,068   | 2,954   | 3,377   | 3,106   |
| <b>Germany</b>            | NE                | NE       | NE       | NE      | NE      | NE      | NE      | NE      |
| <b>Greece<sup>b</sup></b> | 0                 | -253     | -253     | -508    | -84     | -339    | -202    | -169    |
| <b>Iceland</b>            |                   |          |          |         |         |         |         | 0       |
| <b>Ireland</b>            | 384               | 374      | 416      | 467     | 413     | 379     | 360     | 378     |
| <b>Italy</b>              | 5,175             | 7,866    | 7,815    | 9,645   | 8,472   | 8,110   | 10,066  | 8,612   |
| <b>Latvia</b>             | 134               | 116      | 102      | 113     | 92      | 93      | 95      | 91      |
| <b>Luxembourg</b>         |                   |          |          |         |         |         |         |         |
| <b>Netherlands</b>        | NE                | NE       | NE       | NE      | NE      | NE      | NE      | NE      |
| <b>New Zealand</b>        | 346               | 507      | 520      | 536     | 587     | 638     | 690     | 741     |
| <b>Norway</b>             | 217               |          |          |         | 134     | 129     | 108     | 113     |
| <b>Poland</b>             | IE                | -2,787   | -2,782   | -2,837  | -2,876  | -3,739  | -412    | -5,437  |
| <b>Portugal</b>           | 0                 | 0        | 0        | 0       | 0       | 0       | 0       | 0       |
| <b>Romania</b>            |                   |          |          |         |         |         | NA      | NE      |
| <b>Slovakia</b>           | -815              | -1,016   | -805     | -547    | -593    | -669    | -1,146  | -619    |
| <b>Spain</b>              | 0                 | 0        | 0        | 0       | 0       | 0       | 0       | 0       |
| <b>Sweden</b>             | 3,808             | 3,807    | 3,831    | 3,812   | 3,769   | 3,795   | 3,794   | 137     |
| <b>Switzerland</b>        | NE                | NE       | NE       | NE      | NE      | NE      | NE      | NE      |
| <b>United Kingdom</b>     | 16,404            | 13,355   | 13,626   | 13,374  | 13,607  | 13,256  | 11,972  | 11,609  |
| <b>United States</b>      | -251,594          | -253,231 | -251,980 | -39,600 | -37,133 | -37,559 | -39,429 | -40,831 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            |              |              |              |              |              |              |              |
| <b>Belgium</b>            |              |              |              |              |              |              |              |
| <b>Bulgaria</b>           |              |              |              |              |              |              |              |
| <b>Canada</b>             | 10.3         | -4.7         | -6.4         | -4.8         | 1.1          | 7.5          | -31.0        |
| <b>Czech Republic</b>     |              |              |              |              |              |              |              |
| <b>Denmark</b>            |              |              |              |              |              |              |              |
| <b>Estonia</b>            | -70.2        | -182.6       | -87.8        | -1,623.1     | -28.4        | -99.8        | -100.0       |
| <b>European Community</b> | 1.3          | 4.1          | -2.1         | -3.7         | 4.3          | -19.4        | -19.6        |
| <b>Finland</b>            | 5.8          | 13.0         | -1.5         | -0.8         | 0.8          | -3.8         | -39.3        |
| <b>France</b>             | 2.4          | -5.3         | -0.4         | -3.7         | 14.3         | -8.0         | -15.4        |
| <b>Germany</b>            |              |              |              |              |              |              |              |
| <b>Greece</b>             | 0.0          | 100.7        | -83.4        | 302.2        | -40.5        | -16.0        |              |
| <b>Iceland</b>            |              |              |              |              |              |              |              |
| <b>Ireland</b>            | 11.3         | 12.3         | -11.7        | -8.1         | -5.0         | 5.1          | -1.6         |
| <b>Italy</b>              | -0.6         | 23.4         | -12.2        | -4.3         | 24.1         | -14.4        | 66.4         |
| <b>Latvia</b>             | -12.0        | 10.1         | -18.2        | 0.9          | 1.7          | -3.6         | -32.1        |
| <b>Luxembourg</b>         |              |              |              |              |              |              |              |
| <b>Netherlands</b>        |              |              |              |              |              |              |              |
| <b>New Zealand</b>        | 2.6          | 3.1          | 9.5          | 8.7          | 8.2          | 7.4          | 114.2        |
| <b>Norway</b>             |              |              |              | -3.3         | -16.4        | 4.8          | -47.7        |
| <b>Poland</b>             | -0.2         | 2.0          | 1.4          | 30.0         | -89.0        | 1,219.8      |              |
| <b>Portugal</b>           |              |              |              |              |              |              |              |
| <b>Romania</b>            |              |              |              |              |              |              |              |
| <b>Slovakia</b>           | -20.8        | -32.1        | 8.5          | 12.8         | 71.3         | -46.0        | -24.0        |
| <b>Spain</b>              |              |              |              |              |              |              |              |
| <b>Sweden</b>             | 0.6          | -0.5         | -1.1         | 0.7          | 0.0          | -96.4        | -96.4        |
| <b>Switzerland</b>        |              |              |              |              |              |              |              |
| <b>United Kingdom</b>     | 2.0          | -1.8         | 1.7          | -2.6         | -9.7         | -3.0         | -29.2        |
| <b>United States</b>      | -0.5         | -84.3        | -6.2         | 1.1          | 5.0          | 3.6          | -83.8        |

**Table 5.15**

Cultivation of mineral soils: average annual rate of soils C uptake/removal (tC/ha/year) (2001)

|                      | Average annual rate of soil C uptake/removal (t C/ha/yr) |              |       |          |         |       |
|----------------------|--|--------------|-------|----------|---------|-------|
|                      | High activity  | Low activity | Sandy | Volcanic | Wetland | Other |
| Default <sup>a</sup> |  |              |       |          |         |       |
| Austria              |  |              |       |          |         |       |
| Belgium              |  |              |       |          |         |       |
| Bulgaria             |  |              |       |          |         |       |
| Canada               | IE   | IE           | IE    | IE       | IE      |       |
| Czech Republic       |  |              |       |          |         |       |
| Denmark              |  |              |       |          |         |       |
| Estonia              | 0.00   | 0.00         | 0.00  | 0.00     | 0.00    |       |
| European Community   | NE   | NE           | NE    | NE       | NE      |       |
| Finland              | -0.06  | -0.06        | -0.02 |          |         |       |
| France               |  |              |       |          |         |       |
| Germany              | NE   | NE           | NE    | NE       | NE      |       |
| Greece               | 2.31   | 0.00         | 0.00  | 0.00     | 0.00    |       |
| Iceland              |  |              |       |          |         |       |
| Ireland              |  |              |       |          |         |       |
| Italy                |  |              |       |          |         | 0.10  |
| Latvia               |  |              |       |          |         |       |
| Luxembourg           |  |              |       |          |         |       |
| Netherlands          |  |              |       |          |         |       |
| New Zealand          |  |              |       |          |         |       |
| Norway               |  |              |       |          |         |       |
| Poland               | 0.02   | -0.01        | -0.01 |          | 0.11    |       |
| Portugal             |  |              |       |          |         |       |
| Romania              |  |              |       |          |         |       |
| Slovakia             | NO   | NO           | NO    | NO       | NO      |       |
| Spain                |  |              |       |          |         |       |
| Sweden               |  |              |       |          |         |       |
| Switzerland          |  |              |       |          |         |       |
| United Kingdom       |  |              |       |          |         |       |
| United States        | 0.03   | 0.03         | 0.02  | -0.05    | 0.02    |       |

<sup>a</sup> No IPCC default values available.

<sup>b</sup> Source of default emission factors: IPCC Guidelines, volume 2, table 5.11, page 5.29.

**Table 5.16**

Cultivation of organic soils: annual loss rate (Mg/ha/year) (2001)

|                      | Annual loss rate (Mg C/ha/yr) |                |                |                |              |                | Histosol cultivation |            |
|----------------------|-------------------------------|----------------|----------------|----------------|--------------|----------------|----------------------|------------|
|                      | Cool temperate                |                | Warm temperate |                | Tropical     |                | Table 4.D.           | Table 5.D. |
|                      | Upland crops                  | Pasture/forest | Upland crops   | Pasture/forest | Upland crops | Pasture/forest | (ha)                 |            |
| Default <sup>b</sup> | 1                             | 0.25           | 10             | 2.5            | 20           | 5              |                      |            |
| Austria              |                               |                |                |                |              |                | NO                   |            |
| Belgium              |                               |                |                |                |              |                |                      |            |
| Bulgaria             |                               |                |                |                |              |                | 205                  |            |
| Canada               | IE                            | IE             | NO             | NO             | NO           | NO             | 29,802               | NE         |
| Czech Republic       |                               |                |                |                |              |                | 1,695                |            |
| Denmark              |                               |                |                |                |              |                | 18,400               |            |
| Estonia              |                               | 4.3            |                |                |              |                |                      |            |
| European Community   | NE                            | NE             | NE             | NE             | NE           | NE             | NE                   | NE         |
| Finland              | 1.19                          | 1.09           |                |                |              |                | 300,500              | 300,500    |
| France               |                               |                |                |                |              |                |                      |            |
| Germany              | NE                            | NE             | NE             | NE             | NO           | NO             | 1,348,007            | NE         |
| Greece               | 0                             | 0              | 0              | 0              | 0            | 0              |                      |            |
| Iceland              |                               |                |                |                |              |                | NO                   |            |
| Ireland              |                               |                |                |                |              |                | 0                    |            |
| Italy                |                               |                |                |                |              |                | 9,000                |            |
| Latvia               | 1                             |                |                |                |              |                | 27,672               |            |
| Luxembourg           |                               |                |                |                |              |                |                      |            |
| Netherlands          |                               |                |                |                |              |                | NE                   |            |
| New Zealand          |                               |                |                |                |              |                |                      |            |
| Norway               |                               |                |                |                |              |                | 175,000              |            |
| Poland               | NO                            | NO             | NO             | NO             | NO           | NO             | 1,269,000            | NO         |
| Portugal             |                               |                |                |                |              |                | NE                   |            |
| Romania              |                               |                |                |                |              |                | 35,400               |            |
| Slovakia             | NO                            | NO             | NO             | NO             | NO           | NO             | IE                   | NO         |
| Spain                |                               |                |                |                |              |                | NO                   | NO         |
| Sweden               | 5                             | 3              |                |                |              |                | 244,000              |            |
| Switzerland          |                               |                |                |                |              |                |                      |            |
| United Kingdom       |                               |                |                |                |              |                | 39,200               |            |
| United States        | 11                            | 2.7            | 14             | 3.5            | 14           | 3.5            | 642,399              | 1,153,882  |

**Table 5.17**

Liming of agricultural soils: C conversion factor

|                      | C conversion factor |          |
|----------------------|---------------------|----------|
|                      | Limestone           | Dolomite |
| Default <sup>a</sup> |                     |          |
| Austria              |                     |          |
| Belgium              |                     |          |
| Bulgaria             |                     |          |
| Canada               |                     |          |
| Czech Republic       |                     |          |
| Denmark              |                     |          |
| Estonia              |                     |          |
| European Community   |                     |          |
| Finland              | 0.12                | 0.13     |
| France               | 0.12                | 0.12     |
| Germany              |                     |          |
| Greece               |                     |          |
| Iceland              |                     |          |
| Ireland              | 0.12                |          |
| Italy                |                     |          |
| Latvia               | 0.12                |          |
| Luxembourg           |                     |          |
| Netherlands          |                     |          |
| New Zealand          |                     |          |
| Norway               | 0.12                |          |
| Poland               |                     |          |
| Portugal             |                     |          |
| Romania              |                     |          |
| Slovakia             | 0.12                | 0.12     |
| Spain                |                     |          |
| Sweden               |                     |          |
| Switzerland          |                     |          |
| United Kingdom       |                     |          |
| United States        | 0.12                | 0.13     |

**Table 5.18****Cultivation of mineral soils – trend information****Net CO<sub>2</sub> emission/removals (Gg)**

|                       | 1990 <sup>a</sup> | 1995    | 1996    | 1997    | 1998    | 1999    | 2000    | 2001    |
|-----------------------|-------------------|---------|---------|---------|---------|---------|---------|---------|
| Austria               |                   |         |         |         |         |         |         |         |
| Belgium               |                   |         |         |         |         |         |         |         |
| Bulgaria              |                   |         |         |         |         |         |         |         |
| Canada                |                   |         |         |         |         |         |         |         |
| Czech Republic        |                   |         |         |         |         |         |         |         |
| Denmark               |                   |         |         |         |         |         |         |         |
| Estonia <sup>b</sup>  |                   |         |         |         |         | 616     | 433     | -29     |
| European Community    | NE                | NE      | NE      | NE      | NE      | NE      | NE      | NE      |
| Finland               |                   |         |         |         |         |         |         |         |
| France                |                   |         |         |         |         |         |         |         |
| Germany               | NE                | NE      | NE      | NE      | NE      | NE      | NE      | NE      |
| Greece <sup>b</sup>   |                   | -253    | -253    | -508    | -84     | -339    | -202    | -169    |
| Iceland               |                   |         |         |         |         |         |         |         |
| Ireland               | NE                |         |         |         | NE      | NE      |         |         |
| Italy <sup>b</sup>    |                   |         |         |         | 8,634   | 8,374   | 9,415   | 8,612   |
| Latvia                |                   |         |         |         |         |         |         |         |
| Luxembourg            |                   |         |         |         |         |         |         |         |
| Netherlands           |                   |         |         |         |         |         |         |         |
| New Zealand           |                   |         |         |         |         |         | NE      |         |
| Norway                |                   |         |         |         |         |         |         |         |
| Poland                |                   |         |         |         |         |         | 681     | 728     |
| Portugal              |                   |         |         |         |         |         |         |         |
| Romania               |                   |         |         |         |         |         |         |         |
| Slovakia <sup>b</sup> |                   |         |         |         | -593    | -669    | -1,147  | -620    |
| Spain                 |                   |         |         |         |         |         |         |         |
| Sweden                |                   |         |         |         |         |         |         |         |
| Switzerland           | NE                |         |         |         |         | NE      |         | NE      |
| United Kingdom        | 14,187            | 12,810  | 12,843  | 12,316  | 12,106  | 12,198  | 11,743  | 11,649  |
| United States         | -57,095           | -58,581 | -57,281 | -57,388 | -55,812 | -55,709 | -57,312 | -59,053 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            |              |              |              |              |              |              |              |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              |              |              |              |              |
| Canada             |              |              |              |              |              |              |              |
| Czech Republic     |              |              |              |              |              |              |              |
| Denmark            |              |              |              |              |              |              |              |
| Estonia            |              |              |              |              | -29.8        | -106.8       |              |
| European Community |              |              |              |              |              |              |              |
| Finland            |              |              |              |              |              |              |              |
| France             |              |              |              |              |              |              |              |
| Germany            |              |              |              |              |              |              |              |
| Greece             | 0.0          | 100.7        | -83.4        | 302.2        | -40.5        | -16.0        |              |
| Iceland            |              |              |              |              |              |              |              |
| Ireland            |              |              |              |              |              |              |              |
| Italy              |              |              |              | -3.0         | 12.4         | -8.5         |              |
| Latvia             |              |              |              |              |              |              |              |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        |              |              |              |              |              |              |              |
| New Zealand        |              |              |              |              |              |              |              |
| Norway             |              |              |              |              |              |              |              |
| Poland             |              |              |              |              |              | 6.9          |              |
| Portugal           |              |              |              |              |              |              |              |
| Romania            |              |              |              |              |              |              |              |
| Slovakia           |              |              |              | 13.0         | 71.3         | -46.0        |              |
| Spain              |              |              |              |              |              |              |              |
| Sweden             |              |              |              |              |              |              |              |
| Switzerland        |              |              |              |              |              |              |              |
| United Kingdom     | 0.3          | -4.1         | -1.7         | 0.8          | -3.7         | -0.8         | -17.9        |
| United States      | -2.2         | 0.2          | -2.7         | -0.2         | 2.9          | 3.0          | 3.4          |

**Table 5.19****Cultivation of organic soils – trend information****Net CO<sub>2</sub> emission/removals (Gg)**

|                      | 1990 <sup>a</sup> | 1995   | 1996   | 1997   | 1998   | 1999   | 2000   | 2001   |
|----------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|
| Austria              |                   |        |        |        |        |        |        |        |
| Belgium              |                   |        |        |        |        |        |        |        |
| Bulgaria             |                   |        |        |        |        |        |        |        |
| Canada               |                   |        |        |        |        |        |        |        |
| Czech Republic       |                   |        |        |        |        |        |        |        |
| Denmark              |                   |        |        |        |        |        |        |        |
| Estonia <sup>b</sup> |                   |        |        |        |        | 30     | 30     | 30     |
| European Community   | NE                | NE     | NE     | NE     | NE     | NE     | NE     | NE     |
| Finland              |                   |        |        |        |        |        |        |        |
| France               |                   |        |        |        |        |        |        |        |
| Germany              | NE                | NE     | NE     | NE     | NE     | NE     | NE     | NE     |
| Greece               |                   |        |        |        |        |        |        |        |
| Iceland              |                   |        |        |        |        |        |        |        |
| Ireland              | NE                | NE     | NE     | NE     | NE     | NE     | NE     | NE     |
| Italy                |                   |        |        |        |        |        |        |        |
| Latvia               | 130               | 112    | 99     | 111    | 90     | 91     | 90     | 91     |
| Luxembourg           |                   |        |        |        |        |        |        |        |
| Netherlands          |                   |        |        |        |        |        |        |        |
| New Zealand          |                   |        |        |        |        |        | NE     | NE     |
| Norway               |                   |        |        |        |        |        |        |        |
| Poland               |                   |        |        |        |        |        |        |        |
| Portugal             |                   |        |        |        |        |        |        |        |
| Romania              |                   |        |        |        |        |        |        |        |
| Slovakia             |                   |        |        |        |        |        |        |        |
| Spain                |                   |        |        |        |        |        |        |        |
| Sweden               | 3,638             | 3,638  | 3,638  | 3,638  | 3,638  | 3,638  | 3,638  |        |
| Switzerland          | NE                |        |        |        |        | NE     | NE     | NE     |
| United Kingdom       |                   |        |        |        |        |        |        |        |
| United States        | 34,344            | 34,753 | 34,753 | 34,753 | 34,753 | 34,753 | 34,753 | 34,753 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            |              |              |              |              |              |              |              |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              |              |              |              |              |
| Canada             |              |              |              |              |              |              |              |
| Czech Republic     |              |              |              |              |              |              |              |
| Denmark            |              |              |              |              |              |              |              |
| Estonia            |              |              |              |              | 0.0          | 0.0          |              |
| European Community |              |              |              |              |              |              |              |
| Finland            |              |              |              |              |              |              |              |
| France             |              |              |              |              |              |              |              |
| Germany            |              |              |              |              |              |              |              |
| Greece             |              |              |              |              |              |              |              |
| Iceland            |              |              |              |              |              |              |              |
| Ireland            |              |              |              |              |              |              |              |
| Italy              |              |              |              |              |              |              |              |
| Latvia             | -11.5        | 12.6         | -19.1        | 0.8          | -0.8         | 0.8          | -29.9        |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        |              |              |              |              |              |              |              |
| New Zealand        |              |              |              |              |              |              |              |
| Norway             |              |              |              |              |              |              |              |
| Poland             |              |              |              |              |              |              |              |
| Portugal           |              |              |              |              |              |              |              |
| Romania            |              |              |              |              |              |              |              |
| Slovakia           |              |              |              |              |              |              |              |
| Spain              |              |              |              |              |              |              |              |
| Sweden             | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |              |              |
| Switzerland        |              |              |              |              |              |              |              |
| United Kingdom     |              |              |              |              |              |              |              |
| United States      | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 1.2          |

**Table 5.20****Liming of agricultural soils – trend information****Net CO<sub>2</sub> emission/removals (Gg)**

|                    | 1990 <sup>a</sup> | 1995  | 1996  | 1997  | 1998  | 1999  | 2000  | 2001  |
|--------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|
| Austria            |                   |       |       |       |       |       |       |       |
| Belgium            |                   |       |       |       |       |       |       |       |
| Bulgaria           |                   |       |       |       |       |       |       |       |
| Canada             |                   |       |       |       |       |       |       |       |
| Czech Republic     |                   |       |       |       |       |       |       |       |
| Denmark            |                   |       |       |       |       |       |       |       |
| Estonia            |                   |       |       |       |       |       |       |       |
| European Community | NE                | NE    | NE    | NE    | NE    | NE    | NE    | NE    |
| Finland            |                   |       |       |       |       |       |       |       |
| France             | 552               | 657   | 601   | 709   | 647   | 623   | 518   | 518   |
| Germany            | NE                | NE    | NE    | NE    | NE    | NE    | NE    | NE    |
| Greece             |                   |       |       |       |       |       |       |       |
| Iceland            |                   |       |       |       |       |       |       |       |
| Ireland            | 384               | 374   | 416   | 467   | 413   | 379   | 360   | 378   |
| Italy              |                   |       |       |       |       |       |       |       |
| Latvia             | 5                 | 5     | 3     | 1     | 2     | 2     | 4     | 0     |
| Luxembourg         |                   |       |       |       |       |       |       |       |
| Netherlands        |                   |       |       |       |       |       |       |       |
| New Zealand        |                   |       |       |       |       |       |       | 741   |
| Norway             |                   |       |       |       |       |       |       |       |
| Poland             |                   |       |       |       |       |       |       |       |
| Portugal           |                   |       |       |       |       |       |       |       |
| Romania            |                   |       |       |       |       |       |       |       |
| Slovakia           |                   |       |       |       |       | 0     | 1     | 1     |
| Spain              |                   |       |       |       |       |       |       |       |
| Sweden             | 170               | 169   | 193   | 174   | 131   | 156   | 156   | 137   |
| Switzerland        | NO                |       |       |       |       |       | NO    | NO    |
| United Kingdom     | 1,430             | 1,529 | 1,515 | 1,346 | 1,058 | 887   | 794   | 729   |
| United States      | 9,490             | 8,931 | 8,882 | 8,702 | 9,593 | 9,064 | 8,797 | 9,135 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            |              |              |              |              |              |              |              |
| Belgium            |              |              |              |              |              |              |              |
| Bulgaria           |              |              |              |              |              |              |              |
| Canada             |              |              |              |              |              |              |              |
| Czech Republic     |              |              |              |              |              |              |              |
| Denmark            |              |              |              |              |              |              |              |
| Estonia            |              |              |              |              |              |              |              |
| European Community |              |              |              |              |              |              |              |
| Finland            |              |              |              |              |              |              |              |
| France             | -8.5         | 17.9         | -8.7         | -3.7         | -17.0        | 0.0          | -6.2         |
| Germany            |              |              |              |              |              |              |              |
| Greece             |              |              |              |              |              |              |              |
| Iceland            |              |              |              |              |              |              |              |
| Ireland            | 11.3         | 12.3         | -11.7        | -8.1         | -5.0         | 5.1          | -1.6         |
| Italy              |              |              |              |              |              |              |              |
| Latvia             | -25.5        | -61.5        | 56.2         | 4.3          | 108.2        | -93.1        | -93.3        |
| Luxembourg         |              |              |              |              |              |              |              |
| Netherlands        |              |              |              |              |              |              |              |
| New Zealand        |              |              |              |              |              | 51.0         |              |
| Norway             |              |              |              |              |              |              |              |
| Poland             |              |              |              |              |              |              |              |
| Portugal           |              |              |              |              |              |              |              |
| Romania            |              |              |              |              |              |              |              |
| Slovakia           |              |              |              |              | 145.5        | 0.0          |              |
| Spain              |              |              |              |              |              |              |              |
| Sweden             | 14.0         | -9.6         | -24.9        | 19.6         | -0.1         | -12.3        | -19.3        |
| Switzerland        |              |              |              |              |              |              |              |
| United Kingdom     | -0.9         | -11.1        | -21.4        | -16.2        | -10.5        | -8.2         | -49.0        |
| United States      | -0.5         | -2.0         | 10.2         | -5.5         | -2.9         | 3.8          | -3.7         |

**Table 5.21****Other sources/sinks in LUCF – trend information****CO<sub>2</sub> net emission/removal and non-CO<sub>2</sub> GHG (Gg)<sup>a</sup>**

|                       | Specification   | Gas              | 1990   | 1995    | 1996   | 1997   | 1998   | 1999   | 2000   | 2001   |
|-----------------------|---|------------------|--------|---------|--------|--------|--------|--------|--------|--------|
| <b>Czech Republic</b> | On-site burning of Cleared Forest                             | CH <sub>4</sub>  | 3      |         | 2      | 2      | 2      | 3      | 2      | 3      |
|                       |   | N <sub>2</sub> O | 0      |         | 0      | 0      | 0      | 0      | 0      | 0      |
|                       |   | NO <sub>x</sub>  | 0      |         |        |        |        |        | 0      | 0      |
|                       |   | CO               | 23     |         |        |        |        |        | 21     | 23     |
| <b>France</b>         | Managed forests for CH <sub>4</sub> , N <sub>2</sub> O, NMVOC | CO <sub>2</sub>  | 0      |         |        |        |        | 0      | 0      | 0      |
|                       |   | CH <sub>4</sub>  | 87     | 87      | 87     | 87     | 87     | 87     | 87     | 87     |
|                       |   | N <sub>2</sub> O | 17     | 17      | 17     | 17     | 17     | 17     | 17     | 17     |
| <b>Iceland</b>        | Revegetation  | CO <sub>2</sub>  | -3     | -34     | -41    | -53    | -62    | -77    | -92    | -102   |
| <b>Spain</b>          | Managed forests   | CO <sub>2</sub>  | 0      | 0       | 0      | 0      | 0      | 0      | 0      | 0      |
|                       |   | NO <sub>x</sub>  | 2      | 2       | 2      | 2      | 2      | 2      | 2      | 2      |
| <b>United Kingdom</b> | Changes in Crop Biomass                                       | CO <sub>2</sub>  | -1,100 | -1,100  | -1,100 | -1,100 | -1,100 | -1,100 | -1,100 | -1,100 |
|                       | Peat Extraction   | CO <sub>2</sub>  | 792    | 950     | 869    | 815    | 704    | 822    | 816    | 855    |
| <b>United States</b>  | Landfilled Yard Trimmings                                     | CO <sub>2</sub>  | -6,875 | -11,609 | -9,703 | -9,021 | -8,678 | -7,828 | -6,875 | -5,306 |

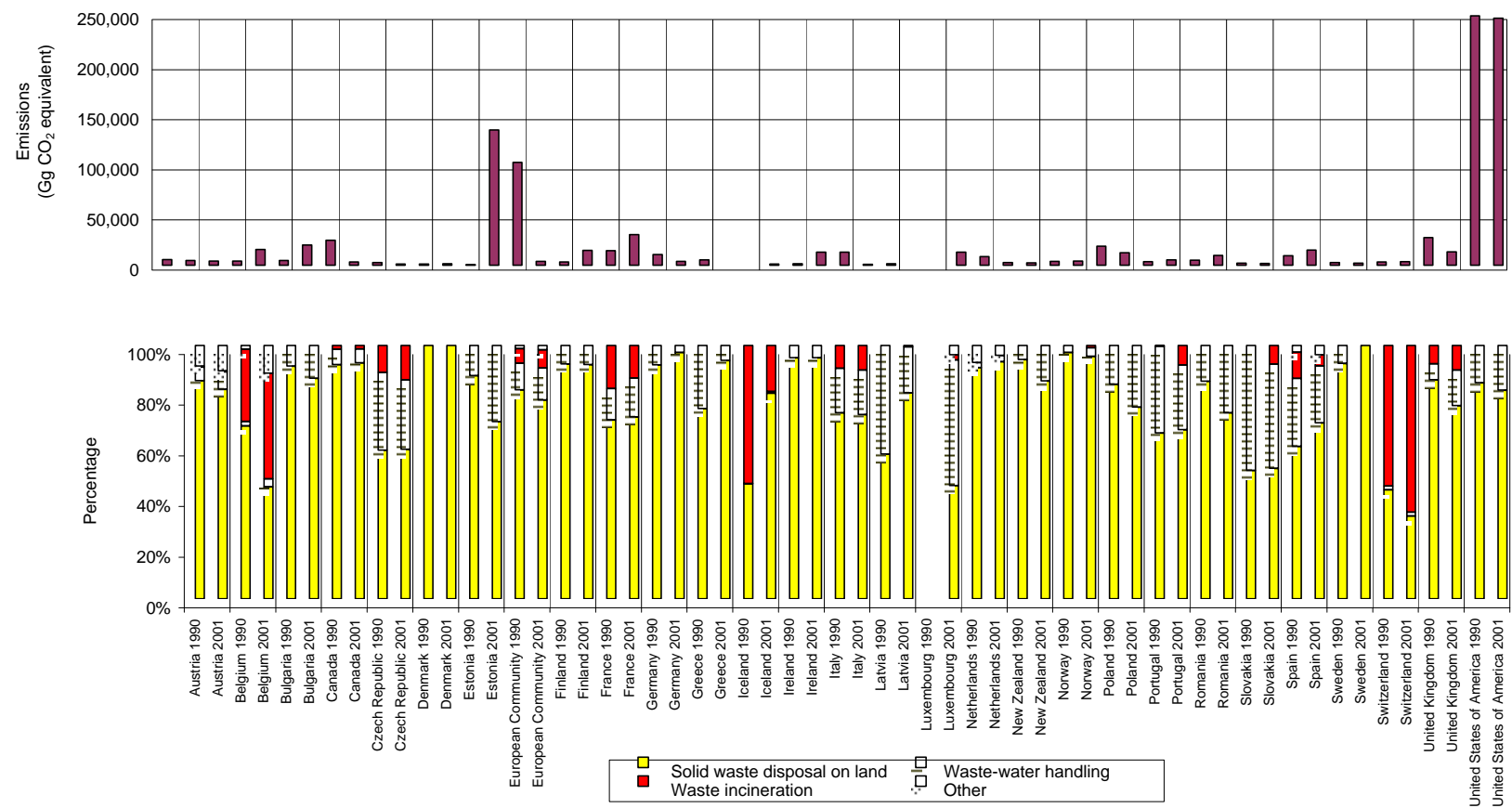
<sup>a</sup> Only Parties reporting data under this category were included in the table.**Relative change (%)**

|                       | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|-----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Czech Republic</b> |              | -2.7         | 0.0          | 14.8         | -8.3         | 9.4          | 0.3          |
|                       |              | -2.7         | 0.0          | 14.8         | -100.0       |              | 0.3          |
|                       |              |              |              |              |              | 9.4          | 0.3          |
|                       |              |              |              |              |              | 9.4          | 0.3          |
| <b>France</b>         |              |              |              |              |              |              |              |
|                       | 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          |
| <b>Iceland</b>        | 18.4         | 29.6         | 18.3         | 23.0         | 19.6         | 11.6         | 3,200.5      |
| <b>Spain</b>          |              |              |              |              |              |              |              |
|                       | 0.0          | -6.9         | -0.8         | 0.9          | 0.0          | 0.0          | -6.1         |
| <b>United Kingdom</b> | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
|                       | -8.5         | -6.2         | -13.7        | 16.8         | -0.7         | 4.7          | 8.0          |
| <b>United States</b>  | -16.4        | -7.0         | -3.8         | -9.8         | -12.2        | -22.8        | -22.8        |

## Waste

**Figure 6.1**

Emissions and contribution of subsectors in waste<sup>a</sup>



<sup>a</sup> 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), Poland (1988) and Romania (1989).

Table 6.1

Solid waste disposal on land, waste-water handling and waste incineration (2001)

| Activity data                |                         |         | 6.A Solid waste disposal on land |        |            |                         |                      |                     |         |                                  | 6.B Wastewater handling |            |                         |                      |                         |        |                 |        |                                    |                      | 6.C Waste incineration                  |        |            |                             |            |  |
|------------------------------|-------------------------|---------|----------------------------------|--------|------------|-------------------------|----------------------|---------------------|---------|----------------------------------|-------------------------|------------|-------------------------|----------------------|-------------------------|--------|-----------------|--------|------------------------------------|----------------------|---|--------|------------|-----------------------------|------------|--|
|                              |                         |         | CH <sub>4</sub>                  |        |            |                         |                      |                     |         |                                  | CH <sub>4</sub>         |            |                         |                      |                         |        |                 |        | N <sub>2</sub> O from human sewage |                      | CO <sub>2</sub> from non-biogenic waste |        |            |                             |            |  |
|                              |                         |         | Methods and EF used <sup>a</sup> |        | Key source | Share of national total | Emissions per capita | CH <sub>4</sub> IEF |         | Methods and EF used <sup>b</sup> |                         | Key source | Share of national total | Emissions per capita | CH <sub>4</sub> IEF     |        |                 |        | Emissions per capita (kg)          | N <sub>2</sub> O IEF | Methods and EF used <sup>c</sup>        |        | Key source | Share of national total (%) | IEF (kg/t) |  |
|                              |                         |         |                                  |        |            |                         |                      |                     |         |                                  |                         |            |                         |                      | Domestic/<br>commercial |        | Industrial      |        |                                    |                      |   |        |            |                             |            |  |
|                              |                         |         |                                  |        |            |                         |                      |                     |         |                                  |                         |            |                         |                      | Waste-<br>water         | Sludge | Waste-<br>water | Sludge |                                    |                      |   |        |            |                             |            |  |
| CRF                          | World Bank <sup>d</sup> | Methods | EF                               |        | (%)        | (kg)                    | (t/t)                | (t/t)               | Methods | EF                               |                         | (kg)       | (kg)                    | kg / kg DC           |                         |        |                 |        | kg N <sub>2</sub> O -N/kg sewage N | Methods              | EF                                      |        | (%)        |                             |            |  |
| IPCC default EF <sup>e</sup> |                         |         |                                  |        |            |                         |                      |                     |         |                                  |                         |            |                         |                      |                         |        |                 | 0.01   |                                    |                      |   |        |            |                             |            |  |
| Austria                      | 8                       | 8       | CS                               | CS     | L, T       | 4.5                     | 22                   | 0.05                |         | C                                | CS                      |            | 0.4                     | 1.76                 |                         |        |                 |        | 0.01                               | 0.00                 | C                                       | CS     |            | 0.0                         |            |  |
| Belgium                      |                         | 10      |                                  |        | L          | 1.2                     | 8                    |                     |         |                                  |                         |            | 0.0                     | 0.13                 |                         |        |                 |        | 0.03                               |                      |   |        | L          | 1.1                         |            |  |
| Bulgaria                     | 8                       | 8       | D                                | D,CS   | L          | 6.4                     | 25                   | 0.07                | NE      | D                                | D,CS                    |            | 0.7                     | 2.86                 | 0.06                    | 0.06   | 0.04            | 0.04   | 0.06                               | 0.01                 | NO                                      | NO     |            |                             |            |  |
| Canada                       | 31                      | 31      | CS                               | CS     | L, T       | 3.2                     | 35                   | NA                  | NA      | CS                               | CS                      |            | 0.1                     | 0.61                 | NA                      | NE     | NE              | NE     | 0.10                               | NA                   | CS                                      | CS     |            | 0.0                         | NA         |  |
| Czech Republic               | 10                      | 10      | T1, T3                           | CS     | L          | 1.0                     | 7                    | 0.03                |         | T2                               | D, CS                   |            | 0.4                     | 2.43                 | 0.10                    | 0.01   | 0.01            | 0.01   | 0.06                               | 0.16                 |   |        |            | 0.2                         | 3,500.0    |  |
| Denmark                      |                         | 5       | CS/M                             | CS/M   | L          | 1.7                     | 10                   | 0.04                |         | NE                               |                         |            | 0.0                     | 0.00                 |                         |        |                 |        | 0.00                               |                      | IE                                      |        |            |                             | NE         |  |
| Estonia                      |                         | 1       |                                  |        | L          | 2.6                     | 18                   |                     |         |                                  |                         |            | 1.1                     | 7.61                 | 0.12                    |        | 0.12            |        |                                    |                      |   |        |            |                             |            |  |
| European Community           |                         |         | C, CS, M,                        | C, CS, |            | 2.0                     |                      | NE                  | NE      | NE                               | NE                      |            | 0.2                     |                      | NE                      | NE     | NE              | NE     |                                    | NE                   | NE                                      | NE     |            | 0.1                         | NE         |  |
| Finland                      | 5                       | 5       | T2                               | D/CS   | L, T       | 3.6                     | 27                   | 0.05                |         | D                                | D/CS                    |            | 0.2                     | 1.19                 | 0.04                    |        | 0.00            |        | 0.07                               | 0.01                 | NO                                      | NO     |            |                             |            |  |
| France                       |                         | 59      | CS/ T2                           | CS/ T2 | L          | 1.8                     | 8                    | 0.01                | 0.47    | CS/T2                            | CS/T2                   |            | 0.2                     | 0.93                 | 0.04                    |        |                 |        | 0.06                               |                      | C                                       | CS/ PS |            | 0.3                         |            |  |
| Germany                      |                         | 82      | T1                               | CS     | L, T       | 1.0                     | 6                    | 0.03                | NO      | CS                               | CS                      |            | 0.0                     | 0.12                 | IE                      | IE     | NE              | NE     | 0.00                               |                      | NO                                      | NO     |            |                             | NO         |  |
| Greece                       | 11                      | 11      | T1                               | D      | L, T       | 3.8                     | 23                   | 0.07                |         | T1                               | D                       | T          | 0.2                     | 1.43                 | 0.07                    | NE     | NE              | NE     |                                    | NE                   |   |        |            |                             | NE         |  |
| Iceland                      |                         | 0       | CS                               | CS     | L          | 1.8                     | 8                    | 0.01                |         | D                                | CS                      |            | 0.0                     | 0.06                 | 0.00                    |        |                 |        | 0.00                               |                      |   |        |            | 0.4                         |            |  |
| Ireland                      |                         | 4       | T2                               | CS, D  | L, T       | 1.8                     | 16                   | 0.06                |         | NA                               | NA                      |            | 0.0                     |                      |                         |        |                 |        | 0.06                               | 10.00                | NA                                      | NA     |            |                             |            |  |
| Italy                        | 58                      | 58      | D, T2                            | D, CS  | L          | 1.8                     | 8                    | 0.02                |         | D                                | D, CS                   |            | 0.2                     | 1.09                 | NO                      | IE     | 0.3             | IE     | 0.05                               | IE                   | D                                       | CS     |            | 0.2                         | 1,159.2    |  |
| Latvia                       |                         | 2       | T1                               | D      | L, T       | 10                      | 23                   | 0.08                |         | T2                               | D                       | L, T       | 1.8                     | 4.07                 | 0.16                    | NA     | 0.07            | NA     | 0.07                               | 0.01                 | C                                       | D      |            | 0.1                         |            |  |
| Luxembourg                   |                         | 0       | C                                | C      |            |                         | 5                    |                     |         | C                                | C                       |            |                         | 0.50                 |                         |        |                 |        | 0.04                               |                      | C                                       | C      |            |                             |            |  |
| Netherlands                  | 16                      | 16      | M, CS/T2                         | CS     | L, T       | 3.7                     | 24                   | 0.08                |         | CS/T2                            | CS                      |            | 0.0                     | 0.05                 | IE                      | IE     | NE              | NE     | 0.04                               | NE                   | NO (IE)                                 |        |            | 0.0                         | IE         |  |
| New Zealand                  | 4                       | 4       | T2                               | CS     | L          | 2.8                     | 25                   | 0.03                | NE      | D/CS                             | D/CS                    |            | 0.2                     | 2.03                 |                         |        |                 |        | 0.14                               | 0.01                 |   |        |            |                             |            |  |
| Norway                       | 5                       | 5       | M3                               | CS     | L, T       | 6.9                     | 41                   | 0.12                |         | D                                | D                       |            | 0.0                     | 0.22                 | 0.01                    |        |                 |        | 0.09                               |                      | D                                       | CS     |            | 0.1                         |            |  |
| Poland                       |                         | 39      | T1                               | D/CS   | L          | 2.5                     | 12                   | 0.05                |         | T1                               | D/CS                    |            | 0.6                     | 2.73                 | 0.01                    | 0.11   | 0.03            |        | 0.07                               | 0.01                 | T1                                      | D      |            | 0.0                         | 1,000.0    |  |
| Portugal                     | 10                      | 10      | T2                               | T2+CS  | L, T       | 4.2                     | 17                   | 0.00                | 0.07    | D                                | D+CS                    | L, T       | 0.9                     | 3.73                 | 0.13                    | 0.15   | 0.00            |        | 0.18                               |                      | D                                       | D+C    | T          | 0.4                         | 1,007.2    |  |
| Romania                      | 12                      | 22      | D                                | D      | L          | 4.8                     | 15                   | 0.09                | 0.06    | D                                | D                       | L          | 1.5                     | 4.77                 | 0.14                    | 0.26   | 0.14            |        | 0.05                               |                      | 0.00                                    | NE     | NE         |                             |            |  |
| Slovakia                     | 5                       | 5       | D                                | D      | L          | 1.9                     |                      |                     | IE      | IE                               | D,CS                    | D, CS      | 1.5                     |                      | 0.23                    | 0.30   | 0.01            | 0.18   |                                    | NA                   | D                                       | D      |            | 0.3                         |            |  |
| Spain                        | 40                      | 41      | T2                               | CS,T2  | L, T       | 2.7                     | 12                   | 0.04                | 0.04    | D                                | CS,D                    | L, T       | 0.6                     | 2.70                 | 0.00                    | 0.04   | 0.03            | 0.02   | 0.09                               | 0.01                 | C                                       | CS,C   | T          | 0.1                         |            |  |
| Sweden                       | 9                       | 9       | T2                               | D,CS   | L, T       | 2.8                     | 11                   | 0.07                |         |                                  |                         |            | 0.0                     |                      | NO                      | NO     | NO              | NO     | 0.05                               | 3.65                 |   |        |            |                             |            |  |
| Switzerland                  | 7                       | 7       | CS                               | CS     | L, T       | 2.0                     | 7                    | 0.23                |         | CS                               | CS                      |            | 0.1                     | 0.21                 | 0.01                    |        |                 |        | 0.01                               |                      | CS                                      | CS     | L, T       | 4.1                         |            |  |
| United Kingdom               | 60                      | 59      | M                                | CS     | L, T       | 1.6                     | 8                    | 0.01                |         | M                                | CS                      |            | 0.1                     | 0.63                 |                         | 0.02   |                 |        | 0.06                               | 0.07                 | T2                                      | CS     |            | 0.2                         |            |  |
| United States                | 285                     | 285     | M                                | M      | L, T       | 2.9                     | 34                   | 0.05                | NA      | D                                | D                       |            | 0.4                     | 4.73                 | 0.10                    | NE     | 0.06            | NE     | 0.17                               | 0.02                 | CS                                      | CS     |            | 0.0                         | IE         |  |

<sup>a</sup> 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.<sup>b</sup> 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.<sup>c</sup> 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.<sup>d</sup> Population data are from HNP Stats (Health, Nutrition and Population), the World Bank.<sup>e</sup> Source of default emission factors: IPCC Guidelines, volume 3, page 6.28.



**Table 6.2****Solid waste disposal on land – trend information****CH<sub>4</sub> emissions (Gg)**

|                           | 1990 <sup>a</sup> | 1995   | 1996   | 1997  | 1998  | 1999  | 2000  | 2001  |
|---------------------------|-------------------|--------|--------|-------|-------|-------|-------|-------|
| <b>Austria</b>            | 235               | 211    | 207    | 200   | 192   | 189   | 185   | 183   |
| <b>Belgium</b>            | 135               | 129    | 122    | 121   | 115   | 100   | 95    | 84    |
| <b>Bulgaria</b>           | 613               | 400    | 356    | 294   | 254   | 196   | 201   | 200   |
| <b>Canada</b>             | 882               | 970    | 973    | 996   | 1,018 | 1,053 | 1,075 | 1,098 |
| <b>Czech Republic</b>     | 93                |        | 95     | 81    | 82    | 76    | 76    | 73    |
| <b>Denmark</b>            | 62                | 63     | 62     | 59    | 55    | 53    | 57    | 56    |
| <b>Estonia</b>            | 67                | 44     | 48     | 51    | 48    | 49    | 47    | 24    |
| <b>European Community</b> | 5,285             | 4,598  | 4,494  | 4,304 | 4,158 | 3,995 | 3,901 | 3,824 |
| <b>Finland</b>            | 175               | 173    | 168    | 164   | 156   | 152   | 143   | 138   |
| <b>France</b>             | 498               | 616    | 634    | 550   | 540   | 517   | 501   | 479   |
| <b>Germany</b>            | 1,347             | 673    | 573    | 547   | 516   | 500   | 488   | 488   |
| <b>Greece</b>             | 134               | 171    | 179    | 187   | 200   | 214   | 227   | 240   |
| <b>Iceland</b>            | 2                 | 2      | 2      | 2     | 2     | 2     | 2     | 2     |
| <b>Ireland</b>            | 55                | 65     | 68     | 66    | 55    | 52    | 58    | 61    |
| <b>Italy</b>              | 454               | 455    | 460    | 461   | 453   | 445   | 449   | 455   |
| <b>Latvia</b>             | 26                | 32     | 32     | 30    | 30    | 30    | 30    | 54    |
| <b>Luxembourg</b>         |                   |        |        |       |       | 3     | 3     | 2     |
| <b>Netherlands</b>        | 562               | 480    | 476    | 463   | 445   | 428   | 404   | 390   |
| <b>New Zealand</b>        | 124               | 116    | 116    | 101   | 101   | 100   | 99    | 95    |
| <b>Norway</b>             | 182               | 189    | 191    | 190   | 187   | 187   | 189   | 185   |
| <b>Poland</b>             | 835               | 759    | 562    | 588   | 784   | 825   | 810   | 447   |
| <b>Portugal</b>           | 115               | 135    | 140    | 144   | 148   | 156   | 162   | 167   |
| <b>Romania</b>            | 222               | 603    | 595    | 596   | 576   | 575   | 594   | 338   |
| <b>Slovakia</b>           | 50                | 51     | 60     | 51    | 46    | 47    | 48    | 45    |
| <b>Spain</b>              | 257               | 373    | 397    | 423   | 442   | 458   | 481   | 499   |
| <b>Sweden</b>             | 122               | 114    | 113    | 111   | 109   | 102   | 97    | 94    |
| <b>Switzerland</b>        | 59                | 56     | 55     | 55    | 54    | 53    | 52    | 50    |
| <b>United Kingdom</b>     | 1,131             | 938    | 892    | 806   | 729   | 626   | 552   | 487   |
| <b>United States</b>      | 10,099            | 10,290 | 10,100 | 9,880 | 9,639 | 9,701 | 9,798 | 9,663 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | -2.0         | -3.4         | -3.9         | -1.6         | -2.2         | -1.1         | -22.0        |
| <b>Belgium</b>            | -5.6         | -0.4         | -4.8         | -12.9        | -5.4         | -11.4        | -37.5        |
| <b>Bulgaria</b>           | -10.9        | -17.5        | -13.5        | -23.0        | 2.8          | -0.6         | -67.4        |
| <b>Canada</b>             | 0.3          | 2.4          | 2.2          | 3.4          | 2.1          | 2.1          | 24.4         |
| <b>Czech Republic</b>     |              | -14.9        | 1.3          | -7.3         | 0.0          | -3.3         | -21.2        |
| <b>Denmark</b>            | -1.0         | -4.8         | -6.3         | -4.6         | 7.9          | -2.4         | -10.9        |
| <b>Estonia</b>            | 9.4          | 5.2          | -6.4         | 2.5          | -4.6         | -48.5        | -64.4        |
| <b>European Community</b> | -2.3         | -4.2         | -3.4         | -3.9         | -2.4         | -2.0         | -27.7        |
| <b>Finland</b>            | -2.5         | -2.7         | -4.6         | -2.4         | -6.0         | -3.6         | -21.2        |
| <b>France</b>             | 2.9          | -13.3        | -1.8         | -4.2         | -3.2         | -4.2         | -3.8         |
| <b>Germany</b>            | -14.8        | -4.5         | -5.7         | -3.3         | -2.3         | 0.0          | -63.8        |
| <b>Greece</b>             | 4.8          | 4.2          | 6.8          | 7.3          | 6.0          | 5.7          | 79.3         |
| <b>Iceland</b>            | 7.9          | -0.8         | -16.0        | 4.4          | 4.2          | 0.9          | 30.7         |
| <b>Ireland</b>            | 4.0          | -2.9         | -15.9        | -6.6         | 12.8         | 4.6          | 10.2         |
| <b>Italy</b>              | 1.1          | 0.1          | -1.7         | -1.8         | 1.1          | 1.3          | 0.3          |
| <b>Latvia</b>             | -3.0         | -5.8         | 1.3          | -1.8         | 2.2          | 77.5         | 109.5        |
| <b>Luxembourg</b>         |              |              |              |              | -0.2         | -14.2        |              |
| <b>Netherlands</b>        | -0.9         | -2.7         | -4.0         | -3.7         | -5.7         | -3.5         | -30.7        |
| <b>New Zealand</b>        | 0.0          | -12.9        | 0.5          | -1.3         | -1.2         | -3.7         | -23.4        |
| <b>Norway</b>             | 1.1          | -0.6         | -1.8         | 0.2          | 0.9          | -2.1         | 1.7          |
| <b>Poland</b>             | -25.9        | 4.6          | 33.3         | 5.2          | -1.8         | -44.8        | -46.5        |
| <b>Portugal</b>           | 3.2          | 3.2          | 2.8          | 5.1          | 3.9          | 3.3          | 45.0         |
| <b>Romania</b>            | -1.4         | 0.2          | -3.4         | -0.2         | 3.4          | -43.1        | 52.1         |
| <b>Slovakia</b>           | 17.1         | -14.4        | -10.2        | 1.6          | 3.7          | -5.9         | -9.7         |
| <b>Spain</b>              | 6.4          | 6.6          | 4.7          | 3.6          | 5.0          | 3.8          | 94.5         |
| <b>Sweden</b>             | -1.3         | -1.4         | -2.2         | -6.0         | -5.3         | -3.1         | -22.8        |
| <b>Switzerland</b>        | -0.6         | -1.0         | -1.5         | -2.1         | -2.4         | -3.3         | -16.0        |
| <b>United Kingdom</b>     | -4.9         | -9.7         | -9.6         | -14.0        | -11.8        | -11.8        | -56.9        |
| <b>United States</b>      | -1.8         | -2.2         | -2.4         | 0.6          | 1.0          | -1.4         | -4.3         |

**Table 6.2****Solid waste disposal on land – trend information (continued)****Ratio: kg CH<sub>4</sub>/capita**

|                           | 1990 <sup>a</sup> | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|---------------------------|-------------------|------|------|------|------|------|------|------|
| <b>Austria</b>            | 30.4              | 26.2 | 25.7 | 24.8 | 23.8 | 23.4 | 22.8 | 22.5 |
| <b>Belgium</b>            | 13.5              | 12.7 | 12.0 | 11.9 | 11.3 | 9.8  | 9.3  | 8.2  |
| <b>Bulgaria</b>           | 70.3              | 47.6 | 42.6 | 35.3 | 30.8 | 23.8 | 24.6 | 24.9 |
| <b>Canada</b>             | 31.8              | 33.0 | 32.8 | 33.2 | 33.7 | 34.5 | 34.9 | 35.3 |
| <b>Czech Republic</b>     | 9.0               |      | 9.2  | 7.8  | 8.0  | 7.4  | 7.4  | 7.2  |
| <b>Denmark</b>            | 12.1              | 12.0 | 11.8 | 11.2 | 10.5 | 9.9  | 10.7 | 10.4 |
| <b>Estonia</b>            | 43.0              | 30.7 | 34.1 | 36.3 | 34.3 | 35.4 | 34.0 | 17.6 |
| <b>European Community</b> |                   |      |      |      |      |      |      |      |
| <b>Finland</b>            | 35.1              | 33.8 | 32.8 | 31.9 | 30.3 | 29.5 | 27.7 | 26.6 |
| <b>France</b>             | 8.8               | 10.7 | 10.9 | 9.4  | 9.2  | 8.8  | 8.5  | 8.1  |
| <b>Germany</b>            | 17.0              | 8.2  | 7.0  | 6.7  | 6.3  | 6.1  | 5.9  | 5.9  |
| <b>Greece</b>             | 13.2              | 16.4 | 17.1 | 17.8 | 19.0 | 20.3 | 21.5 | 22.7 |
| <b>Iceland</b>            | 6.7               | 8.5  | 9.1  | 8.9  | 7.5  | 7.7  | 7.9  | 8.0  |
| <b>Ireland</b>            | 15.7              | 18.0 | 18.6 | 17.9 | 14.9 | 13.7 | 15.3 | 15.8 |
| <b>Italy</b>              | 8.0               | 8.0  | 8.0  | 8.0  | 7.9  | 7.7  | 7.8  | 7.9  |
| <b>Latvia</b>             | 9.6               | 12.9 | 12.7 | 12.1 | 12.5 | 12.4 | 12.7 | 22.7 |
| <b>Luxembourg</b>         |                   |      |      |      |      | 6.2  | 6.1  | 5.2  |
| <b>Netherlands</b>        | 37.6              | 31.0 | 30.7 | 29.7 | 28.3 | 27.1 | 25.4 | 24.3 |
| <b>New Zealand</b>        | 36.1              | 31.6 | 31.1 | 26.7 | 26.7 | 26.2 | 25.7 | 24.7 |
| <b>Norway</b>             | 42.8              | 43.4 | 43.7 | 43.2 | 42.1 | 41.9 | 42.0 | 41.0 |
| <b>Poland</b>             | 21.9              | 19.7 | 14.6 | 15.2 | 20.3 | 21.3 | 21.0 | 11.6 |
| <b>Portugal</b>           | 11.7              | 13.6 | 14.1 | 14.5 | 14.9 | 15.6 | 16.2 | 16.7 |
| <b>Romania</b>            | 9.6               | 26.6 | 26.3 | 26.4 | 25.6 | 25.6 | 26.5 | 15.1 |
| <b>Slovakia</b>           | 9.5               | 9.5  | 11.1 | 9.5  | 8.5  | 8.6  | 8.9  | 8.4  |
| <b>Spain</b>              | 6.6               | 9.5  | 10.1 | 10.6 | 11.1 | 11.4 | 11.9 | 12.1 |
| <b>Sweden</b>             | 14.2              | 12.9 | 12.8 | 12.6 | 12.3 | 11.5 | 10.9 | 10.6 |
| <b>Switzerland</b>        | 8.9               | 7.9  | 7.8  | 7.7  | 7.6  | 7.4  | 7.2  | 6.9  |
| <b>United Kingdom</b>     | 19.7              | 16.1 | 15.3 | 13.8 | 12.4 | 10.7 | 9.4  | 8.3  |
| <b>United States</b>      | 40.5              | 38.9 | 37.7 | 36.4 | 35.0 | 34.8 | 34.7 | 33.9 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | -2.2         | -3.5         | -4.0         | -1.8         | -2.5         | -1.3         | -25.9        |
| <b>Belgium</b>            | -5.8         | -0.6         | -5.0         | -13.1        | -5.7         | -11.7        | -39.5        |
| <b>Bulgaria</b>           | -10.4        | -17.1        | -12.9        | -22.5        | 3.3          | 1.2          | -64.5        |
| <b>Canada</b>             | -0.8         | 1.3          | 1.3          | 2.6          | 1.2          | 1.1          | 11.3         |
| <b>Czech Republic</b>     |              | -14.8        | 1.4          | -7.1         | 0.1          | -2.8         | -20.1        |
| <b>Denmark</b>            | -1.6         | -5.2         | -6.6         | -4.9         | 7.4          | -2.8         | -14.5        |
| <b>Estonia</b>            | 11.0         | 6.4          | -5.4         | 3.2          | -4.2         | -48.3        | -59.1        |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | -2.8         | -3.0         | -4.9         | -2.6         | -6.2         | -3.9         | -24.2        |
| <b>France</b>             | 2.6          | -13.6        | -2.1         | -4.5         | -3.7         | -4.7         | -7.8         |
| <b>Germany</b>            | -15.1        | -4.7         | -5.6         | -3.3         | -2.4         | -0.1         | -65.0        |
| <b>Greece</b>             | 4.7          | 4.0          | 6.6          | 7.0          | 5.8          | 5.4          | 72.0         |
| <b>Iceland</b>            | 7.1          | -1.6         | -16.7        | 3.1          | 3.3          | 0.2          | 18.1         |
| <b>Ireland</b>            | 3.2          | -3.9         | -16.9        | -7.6         | 11.5         | 3.4          | 0.6          |
| <b>Italy</b>              | 0.8          | -0.1         | -1.8         | -1.9         | 1.0          | 0.8          | -1.8         |
| <b>Latvia</b>             | -2.1         | -4.3         | 3.0          | -1.0         | 3.0          | 78.5         | 137.2        |
| <b>Luxembourg</b>         |              |              |              |              | -1.5         | -14.8        |              |
| <b>Netherlands</b>        | -1.2         | -3.3         | -4.5         | -4.3         | -6.4         | -4.2         | -35.4        |
| <b>New Zealand</b>        | -1.6         | -14.0        | -0.3         | -1.8         | -1.7         | -4.2         | -31.6        |
| <b>Norway</b>             | 0.6          | -1.1         | -2.4         | -0.5         | 0.2          | -2.6         | -4.4         |
| <b>Poland</b>             | -26.0        | 4.5          | 33.3         | 5.2          | -1.8         | -44.8        | -47.2        |
| <b>Portugal</b>           | 3.2          | 3.1          | 2.5          | 4.9          | 3.7          | 3.1          | 43.1         |
| <b>Romania</b>            | -1.1         | 0.4          | -3.1         | 0.0          | 3.5          | -43.1        | 57.5         |
| <b>Slovakia</b>           | 16.9         | -14.6        | -10.3        | 1.5          | 3.6          | -5.9         | -11.7        |
| <b>Spain</b>              | 6.0          | 5.5          | 4.4          | 2.7          | 4.2          | 2.3          | 83.7         |
| <b>Sweden</b>             | -1.4         | -1.5         | -2.2         | -6.0         | -5.4         | -3.4         | -25.7        |
| <b>Switzerland</b>        | -1.0         | -1.2         | -1.8         | -2.5         | -2.9         | -4.0         | -22.0        |
| <b>United Kingdom</b>     | -5.0         | -9.9         | -9.7         | -14.2        | -12.0        | -11.9        | -57.8        |
| <b>United States</b>      | -3.1         | -3.4         | -3.7         | -0.6         | -0.3         | -2.4         | -16.3        |

**Table 6.3****Waste-water handling – trend information****CH<sub>4</sub> emissions (Gg)**

|                           | 1990 <sup>a</sup> | 1995     | 1996     | 1997     | 1998     | 1999     | 2000     | 2001     |
|---------------------------|-------------------|----------|----------|----------|----------|----------|----------|----------|
| <b>Austria</b>            | 13.73             | 14.29    | 14.31    | 14.34    | 14.35    | 14.37    | 14.40    | 14.32    |
| <b>Belgium</b>            | 0.27              | 0.25     | 0.25     | 0.00     | 0.27     | 0.27     | 1.33     | 1.31     |
| <b>Bulgaria</b>           | 44.55             | 49.34    | 46.86    | 39.79    | 34.31    | 34.87    | 28.27    | 22.93    |
| <b>Canada</b>             | 16.93             | 18.06    | 18.30    | 18.51    | 18.68    | 18.82    | 18.96    | 19.11    |
| <b>Czech Republic</b>     | 39.31             |          | 29.02    | 29.64    | 30.77    | 27.43    | 27.52    | 24.84    |
| <b>Denmark</b>            | 0.00              | 0.00     | 0.00     | 0.00     | 0.00     | 0.00     | 0.00     | 0.00     |
| <b>Estonia</b>            | 9.14              | 6.14     | 12.68    | 20.32    | 19.82    | 13.34    | 10.41    | 10.37    |
| <b>European Community</b> | 366.47            | 342.26   | 346.90   | 352.84   | 361.71   | 362.96   | 358.68   | 351.62   |
| <b>Finland</b>            | 7.29              | 6.96     | 6.76     | 6.77     | 6.62     | 6.40     | 6.26     | 6.19     |
| <b>France</b>             | 33.96             | 45.41    | 47.61    | 49.90    | 52.20    | 54.48    | 54.84    | 55.13    |
| <b>Germany</b>            | 51.91             | 9.70     | 9.70     | 9.70     | 10.00    | 10.00    | 10.00    | 10.00    |
| <b>Greece</b>             | 44.68             | 39.41    | 38.48    | 37.18    | 35.59    | 33.69    | 26.28    | 15.15    |
| <b>Iceland</b>            | 0.01              | 0.01     | 0.01     | 0.01     | 0.02     | 0.02     | 0.02     | 0.02     |
| <b>Ireland</b>            | 0.00              | 0.00     | 0.00     | 0.00     | 0.00     | 0.00     | 0.00     | 0.00     |
| <b>Italy</b>              | 63.05             | 62.89    | 63.64    | 63.53    | 63.66    | 64.11    | 63.72    | 63.23    |
| <b>Latvia</b>             | 16.52             | 9.63     | 9.51     | 9.46     | 9.47     | 9.33     | 9.42     | 9.60     |
| <b>Luxembourg</b>         |                   |          |          |          |          | 0.22     | 0.22     | 0.22     |
| <b>Netherlands</b>        | 6.55              | 1.46     | 1.27     | 0.79     | 3.65     | 2.06     | 0.78     | 0.78     |
| <b>New Zealand</b>        | 7.46              | 7.63     | 7.66     | 7.69     | 7.72     | 7.76     | 7.79     | 7.81     |
| <b>Norway</b>             | 0.93              | 0.95     | 0.96     | 0.96     | 0.97     | 0.98     | 0.98     | 0.99     |
| <b>Poland</b>             | 130.60            | 88.59    | 89.53    | 88.96    | 86.25    | 80.27    | 76.11    | 105.57   |
| <b>Portugal</b>           | 39.17             | 40.49    | 39.85    | 39.21    | 38.56    | 37.91    | 37.25    | 37.41    |
| <b>Romania</b>            | 18.40             | 119.55   | 103.96   | 116.52   | 101.56   | 107.24   | 108.95   | 106.89   |
| <b>Slovakia</b>           | 48.19             | 40.38    | 40.04    | 40.31    | 39.11    | 39.63    | 35.10    | 35.42    |
| <b>Spain</b>              | 72.30             | 86.86    | 89.55    | 95.01    | 99.45    | 103.42   | 106.71   | 110.81   |
| <b>Sweden</b>             | NO                | NO       | NO       | NO       | NO       | NO       | NO       | NO       |
| <b>Switzerland</b>        | 1.35              | 1.48     | 1.51     | 1.52     | 1.53     | 1.53     | 1.54     | 1.55     |
| <b>United Kingdom</b>     | 33.38             | 34.33    | 35.27    | 36.21    | 37.15    | 36.02    | 36.89    | 37.06    |
| <b>United States</b>      | 1,146.64          | 1,266.86 | 1,278.06 | 1,301.37 | 1,317.59 | 1,340.82 | 1,348.13 | 1,349.92 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 0.1          | 0.2          | 0.1          | 0.2          | 0.2          | -0.6         | 4.3          |
| <b>Belgium</b>            | 0.0          |              |              | -0.4         | 392.1        | -1.9         | 383.3        |
| <b>Bulgaria</b>           | -5.0         | -15.1        | -13.8        | 1.6          | -18.9        | -18.9        | -48.5        |
| <b>Canada</b>             | 1.3          | 1.2          | 0.9          | 0.8          | 0.7          | 0.8          | 12.9         |
| <b>Czech Republic</b>     |              | 2.1          | 3.8          | -10.8        | 0.3          | -9.7         | -36.8        |
| <b>Denmark</b>            |              |              |              |              |              |              |              |
| <b>Estonia</b>            | 106.3        | 60.3         | -2.5         | -32.7        | -21.9        | -0.4         | 13.6         |
| <b>European Community</b> | 1.4          | 1.7          | 2.5          | 0.3          | -1.2         | -2.0         | -4.1         |
| <b>Finland</b>            | -2.8         | 0.1          | -2.2         | -3.3         | -2.3         | -1.1         | -15.1        |
| <b>France</b>             | 4.8          | 4.8          | 4.6          | 4.4          | 0.7          | 0.5          | 62.3         |
| <b>Germany</b>            | 0.0          | 0.0          | 3.1          | 0.0          | 0.0          | 0.0          | -80.7        |
| <b>Greece</b>             | -2.4         | -3.4         | -4.3         | -5.3         | -22.0        | -42.3        | -66.1        |
| <b>Iceland</b>            | 0.0          | 0.0          | 200.0        | 0.0          | 0.0          | 0.0          | 200.0        |
| <b>Ireland</b>            |              |              |              |              |              |              |              |
| <b>Italy</b>              | 1.2          | -0.2         | 0.2          | 0.7          | -0.6         | -0.8         | 0.3          |
| <b>Latvia</b>             | -1.2         | -0.5         | 0.2          | -1.5         | 1.0          | 1.8          | -41.9        |
| <b>Luxembourg</b>         |              |              |              |              | 0.3          | 0.6          |              |
| <b>Netherlands</b>        | -13.3        | -37.5        | 361.0        | -43.4        | -62.4        | 0.0          | -88.2        |
| <b>New Zealand</b>        | 0.4          | 0.4          | 0.4          | 0.5          | 0.4          | 0.2          | 4.6          |
| <b>Norway</b>             | 0.5          | 0.5          | 0.6          | 0.7          | 0.4          | 0.6          | 6.2          |
| <b>Poland</b>             | 1.1          | -0.6         | -3.0         | -6.9         | -5.2         | 38.7         | -19.2        |
| <b>Portugal</b>           | -1.6         | -1.6         | -1.7         | -1.7         | -1.7         | 0.4          | -4.5         |
| <b>Romania</b>            | -13.0        | 12.1         | -12.8        | 5.6          | 1.6          | -1.9         | 480.9        |
| <b>Slovakia</b>           | -0.8         | 0.7          | -3.0         | 1.3          | -11.4        | 0.9          | -26.5        |
| <b>Spain</b>              | 3.1          | 6.1          | 4.7          | 4.0          | 3.2          | 3.8          | 53.3         |
| <b>Sweden</b>             |              |              |              |              |              |              |              |
| <b>Switzerland</b>        | 2.0          | 1.1          | 0.2          | 0.3          | 0.4          | 0.8          | 15.1         |
| <b>United Kingdom</b>     | 2.7          | 2.7          | 2.6          | -3.1         | 2.4          | 0.5          | 11.0         |
| <b>United States</b>      | 0.9          | 1.8          | 1.2          | 1.8          | 0.5          | 0.1          | 17.7         |

**Table 6.3****Waste-water handling – trend information (continued)****Ratio: kg CH<sub>4</sub>/capita**

|                           | 1990 <sup>a</sup> | 1995 | 1996 | 1997  | 1998  | 1999 | 2000 | 2001 |
|---------------------------|-------------------|------|------|-------|-------|------|------|------|
| <b>Austria</b>            | 1.78              | 1.78 | 1.78 | 1.78  | 1.78  | 1.78 | 1.78 | 1.76 |
| <b>Belgium</b>            | 0.03              | 0.03 | 0.02 | 0.00  | 0.03  | 0.03 | 0.13 | 0.13 |
| <b>Bulgaria</b>           | 5.11              | 5.87 | 5.61 | 4.79  | 4.16  | 4.25 | 3.46 | 2.86 |
| <b>Canada</b>             | 0.61              | 0.62 | 0.62 | 0.62  | 0.62  | 0.62 | 0.62 | 0.61 |
| <b>Czech Republic</b>     | 3.79              |      | 2.81 | 2.88  | 2.99  | 2.67 | 2.68 | 2.43 |
| <b>Denmark</b>            | 0.00              | 0.00 | 0.00 | 0.00  | 0.00  | 0.00 | 0.00 | 0.00 |
| <b>Estonia</b>            | 5.82              | 4.28 | 8.95 | 14.51 | 14.30 | 9.70 | 7.60 | 7.61 |
| <b>European Community</b> |                   |      |      |       |       |      |      |      |
| <b>Finland</b>            | 1.46              | 1.36 | 1.32 | 1.32  | 1.28  | 1.24 | 1.21 | 1.19 |
| <b>France</b>             | 0.60              | 0.79 | 0.82 | 0.86  | 0.89  | 0.93 | 0.93 | 0.93 |
| <b>Germany</b>            | 0.65              | 0.12 | 0.12 | 0.12  | 0.12  | 0.12 | 0.12 | 0.12 |
| <b>Greece</b>             | 4.40              | 3.77 | 3.67 | 3.54  | 3.38  | 3.20 | 2.49 | 1.43 |
| <b>Iceland</b>            | 0.02              | 0.02 | 0.02 | 0.02  | 0.07  | 0.07 | 0.06 | 0.06 |
| <b>Ireland</b>            | 0.00              | 0.00 | 0.00 | 0.00  | 0.00  | 0.00 | 0.00 | 0.00 |
| <b>Italy</b>              | 1.11              | 1.10 | 1.11 | 1.10  | 1.11  | 1.11 | 1.10 | 1.09 |
| <b>Latvia</b>             | 6.19              | 3.83 | 3.82 | 3.86  | 3.93  | 3.90 | 3.97 | 4.07 |
| <b>Luxembourg</b>         |                   |      |      |       |       | 0.51 | 0.50 | 0.50 |
| <b>Netherlands</b>        | 0.44              | 0.09 | 0.08 | 0.05  | 0.23  | 0.13 | 0.05 | 0.05 |
| <b>New Zealand</b>        | 2.17              | 2.09 | 2.06 | 2.04  | 2.04  | 2.04 | 2.03 | 2.03 |
| <b>Norway</b>             | 0.22              | 0.22 | 0.22 | 0.22  | 0.22  | 0.22 | 0.22 | 0.22 |
| <b>Poland</b>             | 3.43              | 2.30 | 2.32 | 2.30  | 2.23  | 2.08 | 1.97 | 2.73 |
| <b>Portugal</b>           | 3.96              | 4.08 | 4.01 | 3.94  | 3.87  | 3.79 | 3.72 | 3.73 |
| <b>Romania</b>            | 0.79              | 5.27 | 4.60 | 5.17  | 4.51  | 4.78 | 4.86 | 4.77 |
| <b>Slovakia</b>           | 9.12              | 7.53 | 7.45 | 7.49  | 7.26  | 7.35 | 6.50 | 6.56 |
| <b>Spain</b>              | 1.86              | 2.22 | 2.28 | 2.39  | 2.50  | 2.57 | 2.63 | 2.70 |
| <b>Sweden</b>             |                   |      |      |       |       |      |      |      |
| <b>Switzerland</b>        | 0.20              | 0.21 | 0.21 | 0.21  | 0.21  | 0.21 | 0.21 | 0.21 |
| <b>United Kingdom</b>     | 0.58              | 0.59 | 0.60 | 0.62  | 0.63  | 0.61 | 0.63 | 0.63 |
| <b>United States</b>      | 4.60              | 4.78 | 4.76 | 4.79  | 4.79  | 4.81 | 4.78 | 4.73 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | -0.8         | -0.9         |
| <b>Belgium</b>            | -0.2         |              |              | -0.7         | 390.9        | -2.2         | 368.4        |
| <b>Bulgaria</b>           | -4.5         | -14.6        | -13.2        | 2.2          | -18.5        | -17.4        | -44.0        |
| <b>Canada</b>             | 0.2          | 0.1          | 0.0          | -0.1         | -0.1         | -0.2         | 0.9          |
| <b>Czech Republic</b>     |              | 2.2          | 3.9          | -10.7        | 0.4          | -9.3         | -35.9        |
| <b>Denmark</b>            |              |              |              |              |              |              |              |
| <b>Estonia</b>            | 109.4        | 62.1         | -1.5         | -32.2        | -21.6        | 0.0          | 30.6         |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | -3.1         | -0.2         | -2.4         | -3.5         | -2.4         | -1.4         | -18.4        |
| <b>France</b>             | 4.5          | 4.5          | 4.3          | 4.0          | 0.2          | 0.0          | 55.6         |
| <b>Germany</b>            | -0.3         | -0.2         | 3.1          | 0.0          | -0.1         | -0.1         | -81.4        |
| <b>Greece</b>             | -2.5         | -3.6         | -4.4         | -5.5         | -22.2        | -42.5        | -67.5        |
| <b>Iceland</b>            | -0.7         | -0.7         | 197.8        | -1.3         | -0.9         | -0.7         | 171.1        |
| <b>Ireland</b>            |              |              |              |              |              |              |              |
| <b>Italy</b>              | 0.9          | -0.4         | 0.1          | 0.6          | -0.7         | -1.2         | -1.8         |
| <b>Latvia</b>             | -0.3         | 1.2          | 1.8          | -0.7         | 1.8          | 2.4          | -34.3        |
| <b>Luxembourg</b>         |              |              |              |              | -1.1         | -0.1         |              |
| <b>Netherlands</b>        | -13.6        | -37.8        | 358.4        | -43.8        | -62.7        | -0.7         | -89.0        |
| <b>New Zealand</b>        | -1.2         | -0.9         | -0.4         | 0.0          | -0.1         | -0.3         | -6.6         |
| <b>Norway</b>             | 0.0          | 0.0          | 0.0          | 0.1          | -0.3         | 0.1          | -0.2         |
| <b>Poland</b>             | 1.0          | -0.7         | -3.1         | -6.9         | -5.2         | 38.7         | -20.3        |
| <b>Portugal</b>           | -1.6         | -1.8         | -1.9         | -1.9         | -1.9         | 0.3          | -5.7         |
| <b>Romania</b>            | -12.8        | 12.3         | -12.6        | 5.8          | 1.7          | -1.8         | 501.6        |
| <b>Slovakia</b>           | -1.0         | 0.5          | -3.1         | 1.2          | -11.5        | 0.9          | -28.1        |
| <b>Spain</b>              | 2.8          | 5.0          | 4.4          | 3.1          | 2.4          | 2.3          | 44.8         |
| <b>Sweden</b>             |              |              |              |              |              |              |              |
| <b>Switzerland</b>        | 1.5          | 0.9          | -0.1         | -0.1         | -0.2         | 0.1          | 6.9          |
| <b>United Kingdom</b>     | 2.6          | 2.5          | 2.4          | -3.2         | 2.3          | 0.3          | 8.7          |
| <b>United States</b>      | -0.4         | 0.5          | 0.0          | 0.5          | -0.7         | -1.0         | 2.9          |

**Table 6.3****Waste-water handling – trend information (continued)****N<sub>2</sub>O emissions (Gg)**

|                    | 1990 <sup>a</sup> | 1995  | 1996  | 1997  | 1998  | 1999  | 2000  | 2001  |
|--------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|
| Austria            | 0.07              | 0.08  | 0.08  | 0.08  | 0.08  | 0.08  | 0.08  | 0.08  |
| Belgium            | 0.23              | 0.00  | 0.00  | 0.00  | 0.33  | 0.33  | 0.33  | 0.33  |
| Bulgaria           | 0.76              | 0.57  | 0.54  | 0.47  | 0.53  | 0.54  | 0.51  | 0.47  |
| Canada             | 2.80              | 2.96  | 3.00  | 3.03  | 3.05  | 3.08  | 3.10  | 3.14  |
| Czech Republic     | 0.65              |       | 0.65  | 0.65  | 0.65  | 0.65  | 0.65  | 0.64  |
| Denmark            | 0.00              | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Estonia            |                   |       |       |       |       |       |       |       |
| European Community | 20.94             | 17.34 | 17.47 | 17.48 | 17.64 | 17.69 | 17.98 | 18.00 |
| Finland            | 0.46              | 0.41  | 0.39  | 0.39  | 0.37  | 0.36  | 0.36  | 0.35  |
| France             | 3.65              | 3.70  | 3.68  | 3.57  | 3.46  | 3.47  | 3.51  | 3.53  |
| Germany            | 4.16              | 0.25  | 0.26  | 0.30  | 0.30  | 0.30  | 0.30  | 0.30  |
| Greece             | NE                | NE    | NE    | NE    | NE    | NE    | NE    |       |
| Iceland            | 0.00              | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
| Ireland            | 0.19              | 0.20  | 0.20  | 0.20  | 0.20  | 0.20  | 0.21  | 0.21  |
| Italy              | 3.12              | 3.16  | 3.17  | 3.18  | 3.17  | 3.17  | 3.18  | 3.18  |
| Latvia             | 0.18              | 0.17  | 0.17  | 0.17  | 0.17  | 0.17  | 0.16  | 0.16  |
| Luxembourg         |                   |       |       |       |       | 0.02  | 0.02  | 0.02  |
| Netherlands        | 0.40              | 0.49  | 0.48  | 0.58  | 0.53  | 0.57  | 0.63  | 0.62  |
| New Zealand        | NE                | NE    | NE    | NE    | NE    | NE    | NE    | 0.52  |
| Norway             | 0.29              | 0.33  | 0.36  | 0.38  | 0.38  | 0.39  | 0.35  | 0.39  |
| Poland             | NE                | NE    | NE    | NE    | NE    | NE    | 2.60  | 2.59  |
| Portugal           | 1.44              | 1.66  | 1.69  | 1.68  | 1.74  | 1.78  | 1.79  | 1.82  |
| Romania            |                   | 1.07  | 1.07  | 1.06  | 1.06  | 1.06  | 1.06  | 1.06  |
| Slovakia           | 0.07              | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.03  | 0.06  |
| Spain              | 3.23              | 3.39  | 3.40  | 3.40  | 3.43  | 3.44  | 3.48  | 3.50  |
| Sweden             | 0.63              | 0.60  | 0.60  | 0.59  | 0.52  | 0.51  | 0.47  | 0.47  |
| Switzerland        | 0.06              | 0.07  | 0.07  | 0.07  | 0.07  | 0.07  | 0.07  | 0.07  |
| United Kingdom     | 3.33              | 3.39  | 3.51  | 3.50  | 3.50  | 3.45  | 3.64  | 3.58  |
| United States      | 41.01             | 44.98 | 45.58 | 46.46 | 47.21 | 48.73 | 48.85 | 49.34 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                    | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Austria            | 1.8          | -0.6         | 3.0          | -2.4         | 0.2          | 0.0          | 9.0          |
| Belgium            |              |              |              | 0.2          | -1.0         | 0.0          | 43.5         |
| Bulgaria           | -5.7         | -13.0        | 13.0         | 3.0          | -6.4         | -7.5         | -37.9        |
| Canada             | 1.1          | 1.1          | 0.9          | 0.8          | 0.8          | 1.1          | 12.2         |
| Czech Republic     |              | 0.0          | 0.0          | 0.0          | 0.1          | -0.7         | -0.7         |
| Denmark            |              |              |              |              |              |              |              |
| Estonia            |              |              |              |              |              |              |              |
| European Community | 0.8          | 0.0          | 1.0          | 0.3          | 1.6          | 0.1          | -14.1        |
| Finland            | -3.3         | -1.1         | -4.6         | -4.1         | -0.2         | -0.4         | -22.1        |
| France             | -0.7         | -3.0         | -3.1         | 0.5          | 1.1          | 0.5          | -3.2         |
| Germany            | 4.2          | 14.3         | 0.0          | 0.0          | 0.0          | 0.0          | -92.8        |
| Greece             |              |              |              |              |              |              |              |
| Iceland            |              |              |              |              |              |              |              |
| Ireland            | 1.0          | 1.0          | 0.5          | 1.0          | 1.0          | 2.4          | 9.3          |
| Italy              | 0.4          | 0.2          | -0.1         | 0.0          | 0.1          | 0.0          | 1.9          |
| Latvia             | -0.6         | -0.8         | -0.9         | -0.8         | -2.6         | -0.5         | -11.5        |
| Luxembourg         |              |              |              |              | -11.7        | 0.6          |              |
| Netherlands        | -2.7         | 20.4         | -7.3         | 5.9          | 10.7         | -0.3         | 54.2         |
| New Zealand        |              |              |              |              |              |              |              |
| Norway             | 6.4          | 7.8          | 0.2          | 1.1          | -10.3        | 13.4         | 34.4         |
| Poland             |              |              |              |              |              | -0.5         |              |
| Portugal           | 1.7          | -0.5         | 3.5          | 2.5          | 0.4          | 1.9          | 26.2         |
| Romania            | 0.0          | -0.9         | 0.0          | 0.0          | 0.0          | 0.0          |              |
| Slovakia           | 10.3         | -7.0         | 2.5          | -12.2        | -15.5        | 108.8        | -2.3         |
| Spain              | 0.4          | -0.2         | 0.9          | 0.5          | 1.0          | 0.6          | 8.2          |
| Sweden             | 0.0          | -1.1         | -13.1        | -0.8         | -7.8         | 0.0          | -25.2        |
| Switzerland        | 2.0          | 1.1          | 0.2          | 0.3          | 0.4          | 0.8          | 15.1         |
| United Kingdom     | 3.5          | -0.1         | -0.2         | -1.3         | 5.4          | -1.5         | 7.4          |
| United States      | 1.3          | 1.9          | 1.6          | 3.2          | 0.2          | 1.0          | 20.3         |

**Table 6.3****Waste-water handling – trend information (continued)****Ratio: kg N<sub>2</sub>O/capita**

|                           | 1990 <sup>a</sup> | 1995  | 1996  | 1997  | 1998  | 1999  | 2000  | 2001  |
|---------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|
| <b>Austria</b>            | 0.009             | 0.009 | 0.010 | 0.009 | 0.010 | 0.009 | 0.009 | 0.009 |
| <b>Belgium</b>            | 0.023             | 0.000 | 0.000 | 0.000 | 0.033 | 0.033 | 0.032 | 0.032 |
| <b>Bulgaria</b>           | 0.087             | 0.068 | 0.064 | 0.056 | 0.064 | 0.066 | 0.062 | 0.059 |
| <b>Canada</b>             | 0.101             | 0.101 | 0.101 | 0.101 | 0.101 | 0.101 | 0.101 | 0.101 |
| <b>Czech Republic</b>     | 0.062             | 0.000 | 0.063 | 0.063 | 0.063 | 0.063 | 0.063 | 0.063 |
| <b>Denmark</b>            | 0.000             | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| <b>Estonia</b>            |                   |       |       |       |       |       |       |       |
| <b>European Community</b> |                   |       |       |       |       |       |       |       |
| <b>Finland</b>            | 0.091             | 0.080 | 0.077 | 0.076 | 0.072 | 0.069 | 0.069 | 0.068 |
| <b>France</b>             | 0.064             | 0.064 | 0.063 | 0.061 | 0.059 | 0.059 | 0.060 | 0.060 |
| <b>Germany</b>            | 0.052             | 0.003 | 0.003 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 |
| <b>Greece</b>             |                   |       |       |       |       |       |       |       |
| <b>Iceland</b>            | 0.000             | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| <b>Ireland</b>            | 0.055             | 0.055 | 0.055 | 0.055 | 0.055 | 0.055 | 0.055 | 0.055 |
| <b>Italy</b>              | 0.055             | 0.055 | 0.055 | 0.055 | 0.055 | 0.055 | 0.055 | 0.055 |
| <b>Latvia</b>             | 0.069             | 0.069 | 0.069 | 0.070 | 0.070 | 0.070 | 0.069 | 0.069 |
| <b>Luxembourg</b>         |                   |       |       |       |       | 0.046 | 0.040 | 0.040 |
| <b>Netherlands</b>        | 0.027             | 0.032 | 0.031 | 0.037 | 0.034 | 0.036 | 0.039 | 0.039 |
| <b>New Zealand</b>        |                   |       |       |       |       |       |       | 0.136 |
| <b>Norway</b>             | 0.069             | 0.077 | 0.081 | 0.087 | 0.087 | 0.087 | 0.077 | 0.087 |
| <b>Poland</b>             |                   |       |       |       |       |       | 0.067 | 0.067 |
| <b>Portugal</b>           | 0.146             | 0.167 | 0.170 | 0.169 | 0.174 | 0.178 | 0.179 | 0.182 |
| <b>Romania</b>            | 0.000             | 0.047 | 0.047 | 0.047 | 0.047 | 0.047 | 0.047 | 0.047 |
| <b>Slovakia</b>           | 0.012             | 0.007 | 0.008 | 0.007 | 0.008 | 0.007 | 0.006 | 0.012 |
| <b>Spain</b>              | 0.083             | 0.086 | 0.086 | 0.085 | 0.086 | 0.086 | 0.086 | 0.085 |
| <b>Sweden</b>             | 0.074             | 0.068 | 0.068 | 0.067 | 0.058 | 0.058 | 0.053 | 0.053 |
| <b>Switzerland</b>        | 0.009             | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 |
| <b>United Kingdom</b>     | 0.058             | 0.058 | 0.060 | 0.060 | 0.060 | 0.059 | 0.062 | 0.061 |
| <b>United States</b>      | 0.164             | 0.170 | 0.170 | 0.171 | 0.172 | 0.175 | 0.173 | 0.173 |

<sup>a</sup> 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), Poland (1988) and Romania (1989).

<sup>b</sup> Data for the years prior to 2001 presented in this table are taken from the 2002, 2001 and/or 2000 submissions, as available, as the Party did not provide CRF tables for the entire time series in its 2003 inventory submission. Following information provided by the Party in table 8 of the CRF, no recalculations of this source category seem to have been undertaken for the inventory years prior to 2001 since the last inventory submission.

**Relative change (%)**

|                           | 1995 to 1996 | 1996 to 1997 | 1997 to 1998 | 1998 to 1999 | 1999 to 2000 | 2000 to 2001 | 1990 to 2001 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Austria</b>            | 1.6          | -0.7         | 2.9          | -2.6         | 0.0          | -0.3         | 3.6          |
| <b>Belgium</b>            |              |              |              | -0.1         | -1.3         | -0.3         | 39.0         |
| <b>Bulgaria</b>           | -5.2         | -12.6        | 13.8         | 3.6          | -5.9         | -5.8         | -32.5        |
| <b>Canada</b>             | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.1          | 0.3          |
| <b>Czech Republic</b>     |              | 0.1          | 0.1          | 0.1          | 0.2          | -0.3         | 0.6          |
| <b>Denmark</b>            |              |              |              |              |              |              |              |
| <b>Estonia</b>            |              |              |              |              |              |              |              |
| <b>European Community</b> |              |              |              |              |              |              |              |
| <b>Finland</b>            | -3.6         | -1.4         | -4.8         | -4.4         | -0.3         | -0.7         | -25.1        |
| <b>France</b>             | -1.0         | -3.3         | -3.4         | 0.1          | 0.6          | 0.0          | -7.2         |
| <b>Germany</b>            | 3.8          | 14.1         | 0.0          | 0.0          | -0.1         | -0.1         | -93.0        |
| <b>Greece</b>             |              |              |              |              |              |              |              |
| <b>Iceland</b>            |              |              |              |              |              |              |              |
| <b>Ireland</b>            | 0.2          | 0.0          | -0.6         | -0.1         | -0.1         | 1.2          | -0.2         |
| <b>Italy</b>              | 0.1          | 0.0          | -0.2         | -0.1         | 0.1          | -0.4         | -0.3         |
| <b>Latvia</b>             | 0.3          | 0.8          | 0.8          | 0.1          | -1.9         | 0.1          | 0.2          |
| <b>Luxembourg</b>         |              |              |              |              | -12.9        | -0.1         |              |
| <b>Netherlands</b>        | -3.1         | 19.7         | -7.9         | 5.1          | 9.9          | -1.0         | 43.7         |
| <b>New Zealand</b>        |              |              |              |              |              |              |              |
| <b>Norway</b>             | 5.9          | 7.2          | -0.4         | 0.5          | -11.0        | 12.9         | 26.3         |
| <b>Poland</b>             |              |              |              |              |              | -0.4         |              |
| <b>Portugal</b>           | 1.7          | -0.7         | 3.3          | 2.2          | 0.2          | 1.7          | 24.6         |
| <b>Romania</b>            | 0.3          | -0.7         | 0.2          | 0.2          | 0.1          | 0.1          |              |
| <b>Slovakia</b>           | 10.0         | -7.1         | 2.4          | -12.3        | -15.6        | 108.6        | -4.5         |
| <b>Spain</b>              | 0.0          | -1.2         | 0.6          | -0.3         | 0.3          | -0.9         | 2.2          |
| <b>Sweden</b>             | -0.1         | -1.1         | -13.1        | -0.9         | -8.0         | -0.3         | -28.0        |
| <b>Switzerland</b>        | 1.5          | 0.9          | -0.1         | -0.1         | -0.2         | 0.1          | 6.9          |
| <b>United Kingdom</b>     | 3.4          | -0.3         | -0.4         | -1.5         | 5.2          | -1.7         | 5.1          |
| <b>United States</b>      | 0.0          | 0.6          | 0.3          | 1.9          | -1.0         | -0.1         | 5.2          |