



**Methodological issues**  
**Issues relating to greenhouse gas inventories**

**INFORMATION ON NATIONAL GREENHOUSE GAS INVENTORY  
DATA FROM PARTIES INCLUDED IN ANNEX I  
TO THE CONVENTION FOR THE PERIOD 1990-2002,  
INCLUDING THE STRUCTURE OF REPORTING.**

**National greenhouse gas inventory data from Annex I Parties for 1990 to 2002**

**Note by the secretariat**

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## INTRODUCTION

1. The Conference of the Parties (COP), by its decisions 9/CP.2 and 3/CP.5, requested Parties included in Annex I to the Convention (Annex I Parties) to submit national inventory data on emissions from sources and removals by sinks by 15 April of each year. Decision 19/CP.8 requested the secretariat to prepare an annual report on the greenhouse gas (GHG) inventory data submitted by Annex I Parties for consideration by the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the COP.<sup>1</sup>

2. This note presents the latest available data on GHG emissions and removals from Annex I Parties for the period 1990–2002, as reported by 30 June 2004.<sup>2</sup> Summary information, including on the status of reporting, has been published separately.<sup>3</sup> Tables A.1–B.17 that follow are based on the latest GHG inventory information from Annex I Parties for those Parties that have already submitted inventories this year or on earlier submissions or national communications for those Parties that have not yet submitted their inventories in 2004. The table "Sources of GHG emissions data", below provides an indication of which inventory submissions or national communications were the source of data for the relevant years.

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<sup>1</sup> For the full text of the technical review guidelines adopted by decision 19/CP.8, see document FCCC/CP/2002/8.

<sup>2</sup> The latest inventory data from the European Community, Japan (version 2), Norway (version 3), Poland (version 1) and Slovakia (version 3) are not included in the tables and figures of chapters IV and V because they were received after 30 June 2004.

<sup>3</sup> See FCCC/CP/2004/5 for information on the status of reporting of annual GHG inventories by Annex I Parties.

Sources of GHG emissions data (by Party and type of submission)

Party	Base year other than 1990	1990	1995	1996	1997	1998	1999	2000	2001	2002
Australia		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Austria		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Belarus		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Belgium		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Bulgaria	INV04 (1988)	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Canada		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Croatia		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Czech Republic		INV04	INV99	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Denmark		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Estonia		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
European Community		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Finland		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
France		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Germany		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Greece		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Hungary	INV04 (1985-1987)	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Iceland		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Ireland		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Italy		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Japan		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Latvia		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Liechtenstein		NC3	no data	no data	no data	no data	NC3	no data	no data	no data
Lithuania		INV04	NC2	NC2	NC2	INV04	no data	no data	INV04	INV04
Luxembourg		NC1	NC1	no data	no data	INV04	INV01	INV04	INV03	INV04
Monaco		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Netherlands		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
New Zealand		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Norway		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Poland	INV03 (1988)	INV03	INV03	INV03	INV03	INV03	INV03	INV03	INV03	no data
Portugal		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Romania	INV04 (1989)	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Russian Federation <sup>a</sup>		NC3	NC3	NC3	INV02	INV02	INV02	no data	no data	NC3 <sup>b</sup>
Slovakia		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Slovenia	INV04 (1986)	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Spain		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Sweden		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Switzerland		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
Ukraine		INV99	INV99	INV99	INV99	INV99	no data	no data	INV04	INV04
United Kingdom of Great Britain and Northern Ireland		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04
United States of America		INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04	INV04

**Note:** This table indicates the source of GHG emissions data and whether data were available for specific years. It does not indicate whether the submission for a year covers all gases, categories or Common Reporting Format tables (i.e. some Parties did not report all the sectoral or background data tables of the CRF in their most recent submissions, but did report the CRF trend tables covering all years; in these instances the most recent submission is indicated in this table as the data source for the period).

<sup>a</sup> Minor revisions to emissions as reflected in the indepth review (FCCC/IDR.3/RUS) are used in this document.

**Explanatory notes**

The tables below contain numerical data on GHG inventories for 40 Annex I Parties for the period 1990–2002, as submitted in annual GHG emission inventories or national communications. As some Annex I Parties have not provided recent submissions, and some did not include data for all years in their most recent submissions, data have been compiled from various sources, and hence trends in emissions presented may not be consistent in all instances. As well, data were not always available for all gases or source and sink categories required in the guidelines.<sup>4</sup> Where data were not available, the tables contain blank spaces.

The tables provide inventory data on carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF<sub>6</sub>), ozone precursors and sulphur dioxide (SO<sub>2</sub>), and include information on international bunkers. Information on land-use change and forestry is included in aggregate estimates, and separately from other CO<sub>2</sub> estimates, recognizing the ongoing methodological work by the Intergovernmental Panel on Climate Change (IPCC) in this sector. To present information on HFCs, PFCs, SF<sub>6</sub> and aggregate greenhouse gases in a comparable manner, the secretariat has used IPCC 1995 global warming potentials (GWPs) to present information in terms of CO<sub>2</sub> equivalents. The footnotes to the tables should be treated as an integral part of the tables.

Tables A.1 and A.2 contain information on aggregate emissions of all greenhouse gases combined (expressed as CO<sub>2</sub> equivalent) for the major source categories. Inventory data on the individual greenhouse gases are presented in tables A.3–A.19. As not all Annex I Parties provided data for 2002 (the most recent year included in this document), no totals or percentage contribution by sector are given for that year in tables A.2–A.12. The trends in total greenhouse gases and in emissions of the various gases, and for the most important source categories for the period 1990–2002, are given in tables B.1–B.17. Emission estimates of the European Community are presented at the bottom of the tables as these estimates are reported by the European Community separately from those reported individually by the Annex I Parties that are member States of the European Community.

Values may differ slightly from those submitted to the secretariat as a result of rounding or corrections of typographical and calculation errors or omissions, and the presentation (for consistency and comparability) of subtotals and totals not provided in the annual inventory submissions, communications or other submissions.

The *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* are referred to in this document as the IPCC Guidelines, and the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories" (FCCC/CP/1999/7) as the UNFCCC guidelines. Categories of sources of GHG emissions or their sinks corresponding to the IPCC Guidelines or UNFCCC guidelines nomenclature are given in *italics*.

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<sup>4</sup> For the full text of the UNFCCC guidelines on reporting GHG inventories adopted by decision 3/CP.5 and 18/CP.8, see documents FCCC/CP/1999/7 and FCCC/CP/2002/.

The following chemical symbols and abbreviations have been used:

<b>CF<sub>4</sub></b>	perfluoromethane
<b>C<sub>2</sub>F<sub>6</sub></b>	perfluoroethane
<b>C<sub>3</sub>F<sub>8</sub></b>	perfluoropropane
<b>C<sub>4</sub>F<sub>10</sub></b>	perfluorobutane
<b>C<sub>6</sub>F<sub>14</sub></b>	perfluorohexane
<b>CH<sub>4</sub></b>	methane
<b>CO</b>	carbon monoxide
<b>CO<sub>2</sub></b>	carbon dioxide
<b>HFCs</b>	hydrofluorocarbons
<b>N<sub>2</sub>O</b>	nitrous oxide
<b>NO<sub>x</sub></b>	nitrogen oxides
<b>NMVOCs</b>	non-methane volatile organic compounds
<b>PFCs</b>	perfluorocarbons
<b>SF<sub>6</sub></b>	sulphur hexafluoride
<b>SO<sub>2</sub></b>	sulphur dioxide

The following units of mass have been used:

<b>Gg gigagram</b>	(10 <sup>9</sup> grams)
<b>Mg megagram</b>	(10 <sup>6</sup> grams)

The following other abbreviations have been used:

<b>CRF</b>	common reporting format
<b>GHG</b>	greenhouse gas
<b>GWP</b>	global warming potential
<b>NC1</b>	first national communication
<b>NC2</b>	second national communication
<b>NC3</b>	third national communication
<b>INV99</b>	inventory submission 1999
<b>INV00</b>	inventory submission 2000
<b>INV01</b>	inventory submission 2001
<b>INV02</b>	inventory submission 2002
<b>INV03</b>	inventory submission 2003
<b>INV04</b>	inventory submission 2004
<b>no data</b>	data have not been provided

**Table A.1. Aggregate emissions and removals of all greenhouse gases<sup>a</sup> (CO<sub>2</sub> equivalent) by source/sink category, including and excluding land-use change and forestry, 1990 (Gigagrams and percentage of total by Party)**

	Energy										Total (excluding land-use change and forestry) <sup>c</sup>	Land-use change and forestry (CO <sub>2</sub> ) <sup>d</sup>	Total (including land-use change and forestry) <sup>e</sup>	Percentage increase or decrease in emissions with the inclusion of land-use change and forestry
	Fuel combustion		Fugitive fuel		Industrial processes		Agriculture		Other <sup>b</sup>					
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%				
Australia	257,479	59.8	28,764	6.7	26,136	6.1	95,109	22.1	23,025	5.3	430,513	85,370	515,883	19.8
Austria	54,530	70.1	380	0.5	9,780	12.6	8,444	10.9	4,612	5.9	77,746	-9,215	68,531	-11.9
Belarus <sup>f</sup>	100,615	79.5			2,228	1.8	20,631	16.3	3,101	2.4	126,574	-12,720	113,854	-10.0
Belgium	111,111	76.1	608	0.4	16,215	11.1	13,708	9.4	4,426	3.0	146,067	-1,893	144,174	-1.3
Bulgaria <sup>g</sup>	99,530	70.2	4,730	3.3	10,311	7.3	13,201	9.3	14,048	9.9	141,821	-4,657	137,164	-3.3
Canada	434,787	71.4	37,928	6.2	53,444	8.8	59,183	9.7	23,362	3.8	608,704	-154,179	454,524	-25.3
Croatia	20,812	65.8	1,651	5.2	3,892	12.3	4,321	13.7	933	3.0	31,609	-6,505	25,104	-20.6
Czech Republic	162,742	84.8	8,275	4.3	4,708	2.5	12,521	6.5	3,772	2.0	192,019	-2,128	189,891	-1.1
Denmark	52,018	75.7	334	0.5	2,139	3.1	12,826	18.7	1,433	2.1	68,750	-2,832	65,918	-4.1
Estonia	37,628	86.5	1,201	2.8	614	1.4	2,440	5.6	1,611	3.7	43,494	-6,320	37,174	-14.5
Finland	55,555	72.4	3,566	4.6	2,874	3.7	10,099	13.2	4,676	6.1	76,770	-23,798	52,972	-31.0
France	373,603	66.2	11,109	2.0	56,920	10.1	105,266	18.7	17,335	3.1	564,233	-31,645	532,588	-5.6
Germany	1,004,525	80.6	36,063	2.9	60,296	4.8	109,917	8.8	37,840	3.0	1,246,816	7,515	1,256,156	0.7
Greece	79,852	74.5	1,135	1.1	8,083	7.5	13,594	12.7	4,485	4.2	107,149	1,474	108,623	1.4
Hungary <sup>g</sup>	83,824	74.1	2,706	2.4	5,627	5.0	15,160	13.4	5,757	5.1	113,074	-1,348	111,726	-1.2
Iceland	1,703	51.3			865	26.0	568	17.1	185	5.6	3,322	-6	3,316	-0.2
Ireland	30,737	57.5	290	0.5	3,145	5.9	17,938	33.6	1,310	2.5	53,420	-66	53,354	-0.1
Italy	409,762	80.5	9,831	1.9	34,578	6.8	40,369	7.9	14,538	2.9	509,078	-23,532	485,546	-4.6
Japan	1,055,086	88.9	3,177	0.3	64,763	5.5	38,979	3.3	25,264	2.1	1,187,269	-83,903	1,103,366	-7.1
Latvia	21,994	76.1	274	0.9	499	1.7	5,161	17.8	992	3.4	28,921	-18,701	10,219	-64.7
Liechtenstein	197	90.3					21	9.4	1	0.3	218			
Lithuania	37,085	74.0	548	1.1	2,676	5.3	7,144	14.2	2,680	5.3	50,134	-5,482	44,652	-10.9
Luxembourg	12,181	90.6	34	0.3	585	4.4	518	3.9	130	1.0	13,448	-295	13,153	-2.2
Monaco	73	99.1							1	0.9	73			
Netherlands	159,048	75.2	4,062	1.9	16,269	7.7	17,401	8.2	14,604	6.9	211,384	-1,422	209,962	-0.7
New Zealand	22,607	36.7	1,140	1.8	2,934	4.8	31,911	51.8	3,048	4.9	61,640	-21,764	39,876	-35.3



<b>Norway</b>	26,378	50.6	2,922	5.6	13,646	26.2	5,047	9.7	4,144	7.9	52,136	-9,538	42,598	-18.3
<b>Poland<sup>g</sup></b>	466,207	82.6	26,265	4.7	20,141	3.6	31,516	5.6	20,289	3.6	564,419	-34,746	529,673	-6.2
<b>Portugal</b>	40,865	70.0	227	0.4	4,479	7.7	8,711	14.9	4,079	7.0	58,362	5,573	63,935	9.5
<b>Romania<sup>g</sup></b>	151,843	57.8	28,990	11.0	49,628	18.9	26,008	9.9	6,363	2.4	262,833	-12,440	250,393	-4.7
<b>Russian Federation</b>	2,308,494	75.9	424,000	13.9	88,525	2.9	168,260	5.5	50,783	1.7	3,040,062	-392,000	2,648,062	-12.9
<b>Slovakia</b>	56,347	77.8	1,248	1.7	4,675	6.5	8,060	11.1	2,105	2.9	72,436	-2,427	70,010	-3.4
<b>Slovenia<sup>g</sup></b>	15,218	73.9	384	1.9	1,309	6.4	2,564	12.4	1,125	5.5	20,601	-2,950	17,651	-14.3
<b>Spain</b>	209,462	73.6	4,134	1.5	22,772	8.0	37,373	13.1	10,815	3.8	284,556	-9,456	275,100	-3.3
<b>Sweden</b>	53,012	73.5	972	1.3	5,415	7.5	9,581	13.3	3,160	4.4	72,140	-20,292	51,848	-28.1
<b>Switzerland</b>	40,188	75.6	382	0.7	3,228	6.1	6,091	11.5	3,248	6.1	53,137	-1,293	51,844	-2.4
<b>Ukraine</b>	674,904	73.4	130,616	14.2	38,816	4.2	56,018	6.1	18,836	2.0	919,189	-52,107	867,082	-5.7
<b>United Kingdom</b>	564,606	76.0	40,216	5.4	57,461	7.7	53,662	7.2	26,695	3.6	742,639	9,050	751,689	1.2
<b>United States of America</b>	4,902,458	80.0	242,007	3.9	297,430	4.9	436,044	7.1	251,179	4.1	6,129,118	-957,866	5,171,252	-15.6
<b>Total</b>	14,189,069	77.3	1,060,170	5.8	997,106	5.4	1,505,366	8.2	615,989	3.4	18,365,876	-1,798,547	16,568,863	-9.8
<b>European Community</b>	3,209,279	75.8	112,750	2.7	303,421	7.2	456,261	10.8	149,728	3.5	4,231,442	-101,059	4,130,383	-2.4

<sup>a</sup> Aggregate emissions of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs and SF<sub>6</sub>, using 1995 IPCC global warming potentials.

<sup>b</sup> Includes *solvent use, waste, other* and CH<sub>4</sub> and N<sub>2</sub>O from *land-use change and forestry*.

<sup>c</sup> Aggregate emissions of all greenhouse gases excluding CO<sub>2</sub> emissions and removals from *land-use change and forestry*.

<sup>d</sup> CO<sub>2</sub> estimates for *land-use change and forestry* as reported in accordance with the present *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* (see table B.8).

<sup>e</sup> Aggregate emissions of all greenhouse gases including CO<sub>2</sub> emissions from *land-use change and forestry*.

<sup>f</sup> Total emissions for energy (fuel combustion and fugitive fuel) are given under fuel combustion because emissions were not further disaggregated by the Party.

<sup>g</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989); and Slovenia (1986).

**Table A.2. Aggregate emissions and removals of all greenhouse gases<sup>a</sup> (CO<sub>2</sub> equivalent) by source/sink category, including and excluding land-use change and forestry, 2002 (Gigagrams and percentage of total by Party)**

	Energy										Total (excluding land- use change and forestry) <sup>e</sup>	Land-use change and forestry <sup>d</sup>	Total (including land- use change and forestry) <sup>e</sup>	Percentage increase or decrease in emissions with the inclusion of land-use change and forestry
	Fuel combustion		Fugitive fuel		Industrial processes		Agriculture		Other <sup>b</sup>					
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%				
Australia	341,155	64.9	30,196	5.7	26,382	5.0	105,644	20.1	22,666	4.3	526,042	13,113	539,155	2.5
Austria	63,372	74.9	470	0.6	10,035	11.9	7,402	8.7	3,341	3.9	84,621	-7,633	76,987	-9.0
Belarus	50,715	72.1	2,564	3.6	1,807	2.6	11,698	16.6	3,573	5.1	70,356	-11,453	58,902	-16.3
Belgium	117,988	78.5	573	0.4	15,785	10.5	12,317	8.2	3,648	2.4	150,311	-1,814	148,497	-1.2
Bulgaria	45,508	72.9	2,624	4.2	4,861	7.8	4,640	7.4	4,794	7.7	62,429	-8,318	54,110	-13.3
Canada	537,930	73.6	54,550	7.5	49,772	6.8	58,738	8.0	30,218	4.1	731,209	-20,645	710,565	-2.8
Croatia	19,131	68.4	1,958	7.0	2,717	9.7	2,921	10.4	1,234	4.4	27,962	-9,000	18,961	-32.2
Czech Republic	119,278	83.5	6,024	4.2	6,774	4.7	7,431	5.2	3,387	2.4	142,895	-4,492	138,403	-3.1
Denmark	53,359	77.9	670	1.0	3,085	4.5	10,134	14.8	1,243	1.8	68,491	-3,813	64,678	-5.6
Estonia	17,125	87.8	609	3.1	319	1.6	702	3.6	748	3.8	19,502	-8,564	10,938	-43.9
Finland	64,415	78.6	3,551	4.3	2,842	3.5	7,475	9.1	3,679	4.5	81,963	-18,010	63,953	-22.0
France	391,668	70.8	7,264	1.3	40,551	7.3	98,070	17.7	15,857	2.9	553,410	-54,865	498,546	-9.9
Germany	852,453	84.0	16,412	1.6	42,597	4.2	88,297	8.7	16,277	1.6	1,014,627	13,906	1,029,942	1.5
Greece	102,202	75.7	1,679	1.2	12,190	9.0	12,719	9.4	6,202	4.6	134,992	-1,892	133,100	-1.4
Hungary	58,004	74.4	2,120	2.7	3,900	5.0	8,918	11.4	5,062	6.5	78,002	-2,359	75,643	-3.0
Iceland	1,915	60.2			493	15.5	503	15.8	269	8.5	3,181	-163	3,019	-5.1
Ireland	44,291	64.3	148	0.2	3,837	5.6	18,724	27.2	1,876	2.7	68,875	-978	67,898	-1.4
Italy	453,153	81.8	7,090	1.3	40,267	7.3	39,694	7.2	13,577	2.5	553,781	-20,385	533,395	-3.7
Japan	1,184,458	89.0	599	0.0	78,615	5.9	33,618	2.5	33,503	2.5	1,330,793			
Latvia	7,430	69.1	169	1.6	177	1.6	1,617	15.0	1,364	12.7	10,756	-8,329	2,427	-77.4
Liechtenstein														
Lithuania	11,134	64.7	422	2.5	1,977	11.5	2,170	12.6	1,513	8.8	17,215	-6,721	10,494	-39.0
Luxembourg	9,503	87.7	58	0.5	837	7.7	339	3.1	96	0.9	10,833	-295	10,538	-2.7
Monaco	95	98.7			0	0.2			1	1.1	96			
Netherlands	174,407	81.6	4,162	1.9	11,410	5.3	14,972	7.0	8,813	4.1	213,765	-1,413	212,352	-0.7
New Zealand	30,680	40.9	1,367	1.8	3,535	4.7	36,857	49.2	2,537	3.4	74,976	-24,171	50,805	-32.2

<b>Norway</b>	33,211	60.0	3,335	6.0	9,711	17.5	4,860	8.8	4,225	7.6	55,343	-19,920	35,422	-36.0
<b>Poland</b>														
<b>Portugal</b>	62,542	76.3	1,007	1.2	5,651	6.9	8,068	9.8	4,714	5.7	81,982	-1,606	80,376	-2.0
<b>Romania</b>	93,779	68.7	10,957	8.0	14,795	10.8	11,023	8.1	6,005	4.4	136,559	-15,972	120,587	-11.7
<b>Russian Federation</b>														
<b>Slovakia</b>	40,114	77.3	1,295	2.5	4,219	8.1	4,129	8.0	2,139	4.1	51,896	-5,278	46,618	-10.2
<b>Slovenia</b>	15,745	77.2	335	1.6	1,051	5.2	2,070	10.2	1,183	5.8	20,383	-5,561	14,821	-27.3
<b>Spain</b>	307,954	77.0	4,350	1.1	27,418	6.9	42,650	10.7	17,360	4.3	399,732	-35,301	364,430	-8.8
<b>Sweden</b>	52,133	74.9	1,047	1.5	5,358	7.7	8,788	12.6	2,275	3.3	69,601	-26,541	43,060	-38.1
<b>Switzerland</b>	40,200	76.9	345	0.7	2,644	5.1	5,425	10.4	3,638	7.0	52,254	285	52,537	0.5
<b>Ukraine</b>	246,646	51.0	134,911	27.9	40,993	8.5	31,217	6.5	29,758	6.2	483,525			
<b>United Kingdom</b>	530,114	83.5	20,873	3.3	25,740	4.1	46,763	7.4	11,368	1.8	634,858	1,903	636,762	0.3
<b>United States of America</b>	5,708,150	82.3	206,648	3.0	310,704	4.5	467,052	6.7	242,008	3.5	6,934,562	-690,723	6,243,839	-10.0
<b>European Community</b>	3,279,554	79.5	69,353	1.7	247,604	6.0	416,413	10.1	110,695	2.7	4,123,618	-158,741	3,964,877	-3.8

<sup>a</sup> Aggregate emissions of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub>, using 1995 IPCC global warming potentials.

<sup>b</sup> Includes *solvent use, waste, other* and CH<sub>4</sub> and N<sub>2</sub>O from *land-use change and forestry*.

<sup>c</sup> Aggregate emissions of all greenhouse gases excluding CO<sub>2</sub> emissions and removals from *land-use change and forestry*.

<sup>d</sup> CO<sub>2</sub> estimates for *land-use change and forestry* as reported in accordance with the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* - (see table B.8).

<sup>e</sup> Aggregate emissions of all greenhouse gases including CO<sub>2</sub> emissions from *land-use change and forestry*.

**Table A.3. Anthropogenic CO<sub>2</sub> emissions by source category, excluding land-use change and forestry, 1990 (Gigagrams and percentage of total by Party)**

	Energy										Total (Gg)
	Fuel combustion <sup>a</sup>		Fugitive fuel		Industrial processes		Waste		Other <sup>b</sup>		
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	
<b>Australia</b>	252,660	90.9	5,963	2.1	19,235	6.9	12	0.0			277,869
<b>Austria</b>	53,117	87.2	102	0.2	7,377	12.1	21	0.0	283	0.5	60,899
<b>Belarus<sup>c</sup></b>	100,615	98.2			1,856	1.8					102,471
<b>Belgium</b>	108,746	91.9	84	0.1	8,577	7.2	919	0.8			118,326
<b>Bulgaria<sup>d</sup></b>	94,673	92.3			7,846	7.7					102,519
<b>Canada</b>	421,905	89.5	9,833	2.1	31,692	6.7	254	0.1	7,553	1.6	471,237
<b>Croatia</b>	20,543	89.4	416	1.8	2,010	8.8					22,970
<b>Czech Republic</b>	160,080	97.6			3,380	2.1			530	0.3	163,990
<b>Denmark</b>	51,246	97.3	240	0.5	1,051	2.0			124	0.2	52,661
<b>Estonia</b>	37,494	98.4			614	1.6					38,107
<b>Finland</b>	53,893	86.3	3,542	5.7	1,175	1.9			3,848	6.2	62,459
<b>France</b>	364,083	91.9	4,306	1.1	23,443	5.9	2,433	0.6	1,861	0.5	396,126
<b>Germany</b>	988,859	97.4			26,713	2.6					1,015,572
<b>Greece</b>	76,471	92.3			6,177	7.5			170	0.2	82,818
<b>Hungary<sup>d</sup></b>	79,571	94.7			4,265	5.1	98	0.1	130	0.2	84,063
<b>Iceland</b>	1,672	80.2			392	18.8	21	1.0			2,085
<b>Ireland</b>	29,636	93.2	139	0.4	1,931	6.1			92	0.3	31,797
<b>Italy</b>	399,676	92.7	3,048	0.7	26,154	6.1	545	0.1	1,733	0.4	431,156
<b>Japan</b>	1,048,332	93.4	1	0.0	57,009	5.1	16,935	1.5			1,122,277
<b>Latvia</b>	21,577	97.3			499	2.2			106	0.5	22,181
<b>Liechtenstein</b>	194	100.0					0.1	0.0			195
<b>Lithuania</b>	36,717	94.3			2,203	5.7					38,920
<b>Luxembourg</b>	12,133	95.2			585	4.6	20	0.2	12	0.1	12,750
<b>Monaco</b>	71	100.0									71
<b>Netherlands</b>	157,808	98.3	308	0.2	1,581	1.0	881	0.5	0.2	0.0	160,578
<b>New Zealand</b>	22,235	88.0	615	2.4	2,404	9.5					25,254

<b>Norway</b>	25,816	74.4	2,626	7.6	6,066	17.5	37	0.1	144	0.4	34,690
<b>Poland<sup>d</sup></b>	462,998	97.1	53	0.0	13,574	2.8					476,625
<b>Portugal</b>	39,868	90.3	126	0.3	3,904	8.8	10	0.0	222	0.5	44,130
<b>Romania<sup>d</sup></b>	151,040	82.8			31,407	17.2					182,447
<b>Russian Federation</b>	2,298,900	96.9	27,100	1.1	46,300	2.0					2,372,300
<b>Slovakia</b>	55,724	93.5			3,895	6.5					59,619
<b>Slovenia<sup>d</sup></b>	14,930	93.3			1,022	6.4			46	0.3	15,998
<b>Spain</b>	204,614	91.0	1,761	0.8	16,540	7.4	872	0.4	964	0.4	224,751
<b>Sweden</b>	50,545	90.5	969	1.7	4,012	7.2			321	0.6	55,847
<b>Switzerland</b>	39,601	89.4	75	0.2	2,842	6.4	1,787	4.0			44,305
<b>Ukraine</b>	672,075	95.5	0.1	0.0	31,717	4.5					703,792
<b>United Kingdom</b>	556,611	95.3	12,138	2.1	14,148	2.4	1,132	0.2			584,029
<b>United States of America</b>	4,825,580	96.5	5,810	0.1	170,934	3.4					5,002,324
<b>Total</b>	13,992,310	95.2	79,254	0.5	584,530	4.0	25,978	0.2	18,140	0.1	14,700,212
<b>European Community</b>	3,145,714	94.3	26,763	0.8	145,732	4.4	6,832	0.2	9,636	0.3	3,334,677

<sup>a</sup> For further details on *fuel combustion* see table A5.

<sup>b</sup> Includes *solvent use* and *agriculture*.

<sup>c</sup> Total emissions for energy are given under *fuel combustion* since emissions for energy were not further disaggregated by the Party.

<sup>d</sup> In accordance with decision 9/ CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989); and Slovenia (1986).

**Table A.4. Anthropogenic CO<sub>2</sub> emissions by source category, excluding land-use change and forestry, 2002 (Gigagrams and percentage of total by Party)**

	Energy										Total (Gg)
	Fuel combustion <sup>a</sup>		Fugitive fuel		Industrial processes		Waste		Other <sup>b</sup>		
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	
<b>Australia</b>	333,680	93.1	6,462	1.8	18,297	5.1	16	0.0			358,455
<b>Austria</b>	61,815	88.7	167	0.2	7,484	10.7	11	0.0	194	0.3	69,671
<b>Belarus</b>	50,295	97.3			1,398	2.7					51,694
<b>Belgium</b>	115,187	91.0	145	0.1	9,843	7.8	1,410	1.1			126,585
<b>Bulgaria</b>	43,052	92.1			3,704	7.9					46,755
<b>Canada</b>	521,287	90.5	15,574	2.7	39,248	6.8	287	0.0	-531	-0.1	575,865
<b>Croatia</b>	18,854	87.8	665	3.1	1,965	9.1					21,484
<b>Czech Republic</b>	117,426	95.4	551	0.4	4,407	3.6	357	0.3	307	0.2	123,048
<b>Denmark</b>	51,922	95.9	535	1.0	1,595	2.9			112	0.2	54,164
<b>Estonia</b>	16,971	98.2			319	1.8				0.0	17,290
<b>Finland</b>	62,211	89.5	3,523	5.1	990	1.4			2,777	4.0	69,500
<b>France</b>	380,541	93.7	3,912	1.0	18,352	4.5	1,757	0.4	1,481	0.4	406,044
<b>Germany</b>	841,417	97.4			22,699	2.6					864,117
<b>Greece</b>	97,812	92.7			7,537	7.1			155	0.1	105,504
<b>Hungary</b>	54,583	95.4			2,439	4.3	107	0.2	82	0.1	57,211
<b>Iceland</b>	1,854	82.9			380	17.0	4	0.2			2,238
<b>Ireland</b>	42,621	93.0	65	0.1	3,013	6.6			109	0.2	45,808
<b>Italy</b>	441,110	94.1	1,924	0.4	24,405	5.2	280	0.1	1,241	0.3	468,961
<b>Japan</b>	1,174,320	94.1	1	0.0	49,048	3.9	24,244	1.9			1,247,613
<b>Latvia</b>	7,017	95.7			177	2.4	38	0.5	102	1.4	7,333
<b>Liechtenstein</b>											
<b>Lithuania</b>	10,782	91.1	1	0.0	1,049	8.9					11,833
<b>Luxembourg</b>	9,419	92.2			790	7.7			9	0.1	10,218
<b>Monaco</b>	92	100.0									92
<b>Netherlands</b>	173,025	97.9	1,640	0.9	1,989	1.1			0	0.0	176,654
<b>New Zealand</b>	30,206	89.4	610	1.8	2,954	8.7					33,770

<b>Norway</b>	32,013	78.2	2,676	6.5	6,060	14.8	69	0.2	127	0.3	40,945
<b>Poland</b>											
<b>Portugal</b>	61,070	90.5	708	1.0	4,993	7.4	380	0.6	313	0.5	67,464
<b>Romania</b>	92,775	87.8			12,866	12.2					105,641
<b>Russian Federation</b>											
<b>Slovakia</b>	39,689	91.7			3,471	8.0	143	0.3			43,303
<b>Slovenia</b>	15,416	94.3	58	0.4	839	5.1			37	0.2	16,349
<b>Spain</b>	300,765	92.4	2,163	0.7	21,015	6.5	252	0.1	1,253	0.4	325,448
<b>Sweden</b>	49,491	90.4	1,044	1.9	4,032	7.4			186	0.3	54,753
<b>Switzerland</b>	39,450	90.2	92	0.2	1,846	4.2	2,354	5.4			43,741
<b>Ukraine</b>	245,127	86.7			37,440	13.2	147	0.1			282,714
<b>United Kingdom</b>	519,159	96.6	7,522	1.4	10,213	1.9	486	0.1			537,380
<b>United States of America</b>	5,629,757	97.4	5,299	0.1	147,308	2.5					5,782,363
<b>European Community</b>	3,207,564	94.8	23,349	0.7	138,952	4.1	4,576	0.1	7,830	0.2	3,382,270

<sup>a</sup> For further details on *fuel combustion* see table A.6.

<sup>b</sup> Includes *solvent use* and *agriculture*.

Table A.5. Anthropogenic CO<sub>2</sub> emissions from fuel combustion, 1990 (Gigagrams and percentage of total by Party)

	Energy industries		Industry		Commercial, institutional, residential, agriculture, forestry, fishing		Transport		Other <sup>a</sup>		Total (Gg)
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	
Australia	141,806	56.1	37,385	14.8	12,486	4.9	59,727	23.6	1,257	0.5	252,660
Austria	13,475	25.4	13,033	24.5	13,815	26.0	12,759	24.0	35	0.1	53,117
Belarus											
Belgium	28,215	25.9	33,194	30.5	27,230	25.0	19,941	18.3	166	0.2	108,746
Bulgaria <sup>b</sup>	37,002	39.1	35,755	37.8	7,612	8.0	12,639	13.3	1,666	1.8	94,673
Canada	144,277	34.2	62,090	14.7	69,415	16.5	146,123	34.6			421,905
Croatia	5,897	28.7	6,546	31.9	3,616	17.6	4,046	19.7	439	2.1	20,543
Czech Republic	59,171	37.0	59,457	37.1	34,177	21.4	7,275	4.5			160,080
Denmark	26,177	51.1	5,383	10.5	9,152	17.9	10,415	20.3	119	0.2	51,246
Estonia	29,753	79.4	2,655	7.1	2,392	6.4	2,693	7.2			37,494
Finland	18,517	34.4	14,358	26.6	7,571	14.0	12,475	23.1	972	1.8	53,893
France	67,686	18.6	82,893	22.8	94,381	25.9	119,123	32.7			364,083
Germany	413,945	41.9	196,315	19.9	204,414	20.7	162,360	16.4	11,826	1.2	988,859
Greece	43,302	56.6	9,792	12.8	8,021	10.5	15,355	20.1			76,471
Hungary <sup>b</sup>	24,807	31.2	22,867	28.7	23,782	29.9	7,564	9.5	551	0.7	79,571
Iceland	21	1.2	361	21.6	691	41.3	600	35.9	0	0.0	1,672
Ireland	11,057	37.3	3,833	12.9	9,726	32.8	5,020	16.9			29,636
Italy	132,812	33.2	87,846	22.0	76,121	19.0	101,857	25.5	1,041	0.3	399,676
Japan	338,572	32.3	335,047	32.0	164,050	15.6	210,663	20.1			1,048,332
Latvia	10,186	47.2	1,663	7.7	5,181	24.0	4,546	21.1			21,577
Liechtenstein					143	73.3	52	26.7			194
Lithuania	16,352	44.5	5,379	14.6	6,313	17.2	5,791	15.8	2,882	7.8	36,717
Luxembourg	1,883	15.5	6,353	52.4	1,272	10.5	2,625	21.6			12,133
Monaco	1	1.6			29	41.5	40	56.9			71
Netherlands	51,305	32.5	42,192	26.7	34,912	22.1	29,399	18.6	1	0.0	157,808
New Zealand	6,036	27.1	4,727	21.3	2,855	12.8	8,617	38.8			22,235



<b>Norway</b>	6,634	25.7	3,497	13.5	4,131	16.0	11,099	43.0	456	1.8	25,816
<b>Poland<sup>b</sup></b>	260,537	56.3	62,994	13.6	111,229	24.0	28,238	6.1			462,998
<b>Portugal</b>	16,187	40.6	9,158	23.0	4,055	10.2	10,460	26.2	8	0.0	39,868
<b>Romania<sup>b</sup></b>	103,345	68.4	30,234	20.0	10,185	6.7	7,276	4.8			151,040
<b>Russian Federation</b>											2,298,900
<b>Slovakia</b>	50,653	90.9					5,071	9.1			55,724
<b>Slovenia<sup>b</sup></b>	6,701	44.9	4,119	27.6	2,139	14.3	1,971	13.2			14,930
<b>Spain</b>	77,326	37.8	43,839	21.4	25,953	12.7	57,497	28.1			204,614
<b>Sweden</b>	10,210	20.2	10,677	21.1	10,512	20.8	18,302	36.2	844	1.7	50,545
<b>Switzerland</b>	976	2.5	5,112	12.9	18,616	47.0	14,187	35.8	709	1.8	39,601
<b>Ukraine</b>											672,075
<b>United Kingdom</b>	228,090	41.0	94,138	16.9	112,538	20.2	116,581	20.9	5,265	0.9	556,611
<b>United States of America<sup>c</sup></b>	1,792,382	37.1	966,608	20.0	563,740	11.7	1,458,209	30.2	44,641	0.9	4,825,580
<b>Total<sup>d</sup></b>	4,175,293	30.1	2,299,497	16.6	1,682,455	12.1	2,690,596	19.4	72,878	0.5	13,891,695
<b>European Community</b>	1,139,581	36.2	651,908	20.7	636,997	20.2	696,951	22.2	20,278	0.6	3,145,714

<sup>a</sup> All remaining emissions from non-specific fuel combustion including emissions from military fuel use.

<sup>b</sup> In accordance with decision 9/ CP. 2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989); and Slovenia (1986).

<sup>c</sup> *Fuel combustion* emissions from territories of the United States of America are included under *other*.

<sup>d</sup> The percentage of the total accounted for by each category has been calculated on the basis of the overall total excluding the Russian Federation and Ukraine (10,920,720 Gg) because data for the individual categories were not provided. However, the total for all the Parties given in the last column (13,891,695 Gg) does include the Russian Federation and Ukraine.

**Table A.6. Anthropogenic CO<sub>2</sub> emissions from fuel combustion, 2002 (Gigagrams and percentage of total by Party)**

	Energy industries		Industry		Commercial, institutional, residential, agriculture, forestry, fishing		Transport		Other <sup>a</sup>		Total
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)
Australia	198,871	59.6	43,249	13.0	16,043	4.8	74,087	22.2	1,431	0.4	333,680
Austria	15,013	24.3	12,504	20.2	13,651	22.1	20,606	33.3	41	0.1	61,815
Belarus	33,030	65.7	3,468	6.9	6,657	13.2	6,529	13.0	611	1.2	50,295
Belgium	26,513	23.0	33,976	29.5	29,624	25.7	24,977	21.7	98	0.1	115,187
Bulgaria	26,496	61.5	8,165	19.0	2,074	4.8	6,317	14.7			43,052
Canada	198,632	38.1	62,418	12.0	79,460	15.2	180,777	34.7			521,287
Croatia	6,498	34.5	3,836	20.3	3,655	19.4	4,766	25.3	98	0.5	18,854
Czech Republic	57,729	49.2	30,968	26.4	15,108	12.9	12,428	10.6	1,193	1.0	117,426
Denmark	26,548	51.1	5,557	10.7	7,428	14.3	12,300	23.7	89	0.2	51,922
Estonia	13,911	82.0	422	2.5	464	2.7	2,175	12.8			16,971
Finland	28,947	46.5	13,228	21.3	6,078	9.8	12,784	20.5	1,174	1.9	62,211
France	59,416	15.6	81,366	21.4	97,806	25.7	141,953	37.3			380,541
Germany	356,788	42.4	132,033	15.7	174,262	20.7	176,388	21.0	1,947	0.2	841,417
Greece	55,109	56.3	10,143	10.4	12,261	12.5	20,299	20.8			97,812
Hungary	19,680	36.1	10,128	18.6	15,506	28.4	9,270	17.0			54,583
Iceland	15	0.8	453	24.4	720	38.8	644	34.7	22	1.2	1,854
Ireland	16,201	38.0	4,892	11.5	10,296	24.2	11,231	26.4			42,621
Italy	153,151	34.7	84,943	19.3	77,759	17.6	124,944	28.3	314	0.1	441,110
Japan	379,240	32.3	346,153	29.5	194,266	16.5	254,661	21.7			1,174,320
Latvia	2,467	35.2	914	13.0	1,004	14.3	2,632	37.5			7,017
Liechtenstein											
Lithuania	5,086	47.2	1,086	10.1	1,108	10.3	3,502	32.5			10,782
Luxembourg	266	2.8	2,341	24.9	1,390	14.8	5,422	57.6			9,419
Monaco	0	0.1	0	0.0	40	43.6	52	56.3			92
Netherlands	63,780	36.9	35,791	20.7	37,203	21.5	36,251	21.0			173,025
New Zealand	6,725	22.3	6,375	21.1	3,206	10.6	13,899	46.0			30,206

<b>Norway</b>	10,882	34.0	3,735	11.7	3,617	11.3	13,326	41.6	453	1.4	32,013
<b>Poland</b>											
<b>Portugal</b>	24,788	40.6	9,971	16.3	6,481	10.6	19,831	32.5			61,070
<b>Romania</b>	49,972	53.9	22,638	24.4	8,275	8.9	11,891	12.8			92,775
<b>Russian Federation</b>											
<b>Slovakia</b>	12,797	32.2	14,233	35.9	5,830	14.7	5,590	14.1	1,239	3.1	39,689
<b>Slovenia</b>	6,402	41.5	2,384	15.5	2,830	18.4	3,800	24.7			15,416
<b>Spain</b>	113,135	37.6	61,903	20.6	34,300	11.4	91,427	30.4			300,765
<b>Sweden</b>	12,326	24.9	10,380	21.0	6,444	13.0	20,025	40.5	316	0.6	49,491
<b>Switzerland</b>	1,077	2.7	5,099	12.9	17,425	44.2	15,195	38.5	653	1.7	39,450
<b>Ukraine</b>	104,089	42.5	71,695	29.2	56,678	23.1	12,665	5.2			245,127
<b>United Kingdom</b>	194,202	37.4	84,044	16.2	115,076	22.2	122,792	23.7	3,045	0.6	519,159
<b>United States of America<sup>b</sup></b>	2,240,057	39.8	955,773	17.0	604,289	10.7	1,764,372	31.3	65,267	1.2	5,629,757
<b>European Community</b>	1,146,183	35.7	583,070	18.2	630,058	19.6	841,230	26.2	7,023	0.2	3,207,564

<sup>a</sup> All remaining emissions from non-specific fuel combustion, including emissions from military fuel use.

<sup>b</sup> *Fuel combustion* emissions from territories of the United States of America are included under *Other*.

**Table A.7. Anthropogenic CO<sub>2</sub> emissions and removals from land-use change and forestry,<sup>a</sup> 1990 (Gigagrams)**

	Changes in forest and other woody biomass stocks	Forest and grassland conversion	Abandonment of managed lands	CO <sub>2</sub> emissions and removals from soil	Other	Total
Australia	-24,598	114,192		-4,224		85,370
Austria	-9,215					-9,215
Belarus	-35,095	8,412	1,348	2,517	10,098	-12,720
Belgium	-1,893					-1,893
Bulgaria <sup>b</sup>	-4,657					-4,657
Canada	-180,302	13,691	-746	13,177		-154,179
Croatia	-6,505					-6,505
Czech Republic	-2,128					-2,128
Denmark	-2,832					-2,832
Estonia	-7,463	75	-1,985	3,053		-6,320
Finland	-23,798					-23,798
France	-43,917	8,753	-48	3,567		-31,645
Germany	-33,689			41,204		7,515
Greece	18	1,455				1,474
Hungary <sup>b</sup>	-3,906	1,764		794		-1,348
Iceland <sup>c</sup>	-3				-3	-6
Ireland	-450			384		-66
Italy	-28,605		-102	5,175		-23,532
Japan	-84,482	579				-83,903
Latvia	-18,836			134		-18,701
Liechtenstein	-295					-295
Lithuania	-7,265		-930	2,713		-5,482
Luxembourg						
Monaco						
Netherlands	-1,422					-1,422
New Zealand	-22,994	870		360		-21,764

<b>Norway</b>	-9,765			217	10	-9,538
<b>Poland<sup>b</sup></b>	-24,990	959	-10,715			-34,746
<b>Portugal</b>	5,573					5,573
<b>Romania<sup>b</sup></b>	-13,038	598				-12,440
<b>Russian Federation</b>	-392,000					-392,000
<b>Slovakia</b>	-1,753	141		-815		-2,427
<b>Slovenia<sup>b</sup></b>	-1,631		-224	-1,095		-2,950
<b>Spain</b>	-9,456					-9,456
<b>Sweden</b>	-24,100			3,808		-20,292
<b>Switzerland</b>	-1,887			593		-1,293
<b>Ukraine<sup>d</sup></b>						-52,107
<b>United Kingdom<sup>e</sup></b>	-7,304	259		16,404	-308	9,050
<b>United States of America<sup>f</sup></b>	-692,648			-239,187	-26,031	-957,866
<b>Total</b>	-1,717,330	151,749	-13,402	-151,221	-16,235	-1,798,547
<b>European Community</b>	-181,576	10,435	-150	70,541	-308	-101,059

<sup>a</sup> Negative values indicate net removal of CO<sub>2</sub> from the respective category.

<sup>b</sup> In accordance with decision 9/CP. 2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989); and Slovenia (1986).

<sup>c</sup> *Other* includes removals from revegetation.

<sup>d</sup> Party only reported a total for the *land- use change and forestry* sector.

<sup>e</sup> *Other* includes emissions from changes in crop biomass and peat extraction.

<sup>f</sup> *Other* includes landfilled yard trimmings.

**Table A.8. Anthropogenic CO<sub>2</sub> emissions and removals from land-use change and forestry<sup>a</sup>, 2002 (Gigagrams)**

	Changes in forest and other woody biomass stocks	Forest and grassland conversion	Abandonment of managed lands	CO <sub>2</sub> emissions and removals from soil	Other	Total
Australia	-21,827	39,164		-4,224		13,113
Austria	-7,633					-7,633
Belarus	-31,346	5,326	886	1,701	11,979	-11,453
Belgium	-1,814					-1,814
Bulgaria	-8,318					-8,318
Canada	-46,767	13,691	-746	13,177		-20,645
Croatia	-9,000					-9,000
Czech Republic	-4,492					-4,492
Denmark	-3,813					-3,813
Estonia	-5,285		-2,312	-967		-8,564
Finland	-18,010					-18,010
France	-67,505	9,954	-48	2,734		-54,865
Germany	-25,402			39,309		13,906
Greece	-1,735	98		-254		-1,892
Hungary	-6,385	1,446		2,580		-2,359
Iceland <sup>b</sup>	-47				-115	-163
Ireland	-1,320			342		-978
Italy	-27,583		-136	7,333		-20,385
Japan						
Latvia	-8,328		-95	94		-8,329
Liechtenstein						
Lithuania	-5,302		-1,609	190		-6,721
Luxembourg	-295					-295
Monaco						
Netherlands	-1,413					-1,413
New Zealand	-26,057	1,105		780		-24,171

<b>Norway</b>	-20,055			116	19	-19,920
<b>Poland</b>						
<b>Portugal</b>	-1,606					-1,606
<b>Romania</b>	-16,570	598				-15,972
<b>Russian Federation</b>						
<b>Slovakia</b>	-4,779	117		-616		-5,278
<b>Slovenia</b>	-4,285		-216	-1,061		-5,561
<b>Spain</b>	-35,301			0		-35,301
<b>Sweden</b>	-30,306			3,765		-26,541
<b>Switzerland</b>	-308			593		285
<b>Ukraine</b>						
<b>United Kingdom<sup>c</sup></b>	-8,444	259		10,506	-417	1,903
<b>United States of America<sup>d</sup></b>	-604,432			-76,177	-10,114	-690,723
<b>European Community</b>	-232,181	10,307	-184	63,734	-417	-158,741

<sup>a</sup> Negative values indicate net removal of CO<sub>2</sub> from the respective category.

<sup>b</sup> *Other* includes removals from revegetation.

<sup>c</sup> *Other* includes emissions from changes in crop biomass and peat extraction.

<sup>d</sup> *Other* includes landfilled yard trimmings.

Table A.9. Anthropogenic CH<sub>4</sub> emissions by source category, 1990 (Gigagrams and percentage of total by Party)

	Energy				Agriculture				Waste		Other <sup>c</sup>		Total (Gg)
	Fuel combustion		Fugitive fuel		Livestock <sup>a</sup>		Other <sup>b</sup>		(Gg)	%	(Gg)	%	
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%					
Australia	114	2.0	1,084	18.7	3,286	56.6	294	5.1	705	12.1	323	5.6	5,807
Austria	22	5.0	13	3.0	218	48.9	0.4	0.1	192	43.0	0.3	0.1	446
Belarus					529	79.4	0.3	0.0	112	16.8	25	3.8	666
Belgium	14	2.6	25	4.8	336	64.8	6	1.1	132	25.4	7	1.3	519
Bulgaria <sup>d</sup>	6	0.5	225	19.4	265	22.8	8	0.6	658	56.5	2	0.2	1,164
Canada	213	6.1	1,338	38.2	980	28.0			900	25.7	68	2.0	3,500
Croatia	9	5.0	59	32.4	75	41.4	0.2	0.1	38	20.8	1	0.4	182
Czech Republic	59	7.4	394	49.4	204	25.6			133	16.6	8	1.0	798
Denmark	9	3.4	4	1.7	183	70.8			62	24.1			259
Estonia	4	2.0	57	27.5	70	33.6			77	36.9	0.2	0.1	208
Finland	19	6.4	1	0.4	98	32.6			182	60.5	0.4	0.1	302
France	239	7.2	324	9.8	2,176	65.8	9	0.3	578	17.5	-21	-0.6	3,306
Germany	214	3.2	1,717	25.5	3,238	48.0	-32	-0.5	1,605	23.8	0.2	0.0	6,743
Greece	15	3.5	54	12.6	165	38.6	5	1.1	184	42.9	6	1.3	428
Hungary <sup>d</sup>	47	7.5	129	20.6	193	30.9	4	0.7	251	40.2	1	0.1	624
Iceland	0.2	1.0			14	63.4			8	35.6			22
Ireland	7	1.3	7	1.3	497	87.7			55	9.7			567
Italy	74	4.2	323	18.2	765	43.2	74	4.2	521	29.4	14	0.8	1,771
Japan	25	2.1	151	12.8	396	33.6	345	29.2	244	20.7	19	1.6	1,181
Latvia	10	5.8	13	7.5	111	64.1			36	21.0	3	1.6	174
Liechtenstein <sup>e</sup>	0.1	6.4			1	93.4			0.001	0.1			1
Lithuania	5	1.5	26	7.7	181	53.2			128	37.5	0.2	0.1	340
Luxembourg	1	3.2	2	6.8	18	73.9			4	16.1			24
Monaco	0.03	100.0											0.03
Netherlands	34	2.6	179	13.7	505	38.8			578	44.4	5	0.4	1,302
New Zealand	11	0.9	25	2.1	1,045	85.8	1	0.1	132	10.8	4	0.4	1,218



<b>Norway</b>	12	3.9	14	4.5	96	31.2	1	0.4	183	59.5	2	0.6	307
<b>Poland<sup>d</sup></b>	47	1.5	1,248	39.7	862	27.4	1	0.0	966	30.7	17	0.5	3,141
<b>Portugal</b>	23	5.7	5	1.2	201	50.1	13	3.2	139	34.5	21.4	5.3	402
<b>Romania<sup>d</sup></b>	19	0.8	1,380	56.0	754	30.6	21	0.9	286	11.6	2	0.1	2,464
<b>Russian Federation</b>	200	0.8	18,900	71.3	4,930	18.6	130	0.5	1,940	7.3	400	1.5	26,500
<b>Slovakia</b>	17	5.6	59	19.2	134	43.2			98	31.8	1	0.2	310
<b>Slovenia<sup>d</sup></b>	6	5.1	18	15.2	51	42.0			45	37.6	0	0.1	121
<b>Spain</b>	56	3.9	113	7.8	899	62.4	14	1.0	356	24.7	3	0.2	1,440
<b>Sweden</b>	34	10.7	0.004	0.0	161	50.9			122	38.4	0.2	0.1	317
<b>Switzerland</b>	8	3.3	15	6.2	153	64.5	0	0.1	61	25.7	0.4	0.2	238
<b>Ukraine<sup>e</sup></b>	36	0.4	6,220	66.2	2,254	24.0			892	9.5	0.2	0.0	9,402
<b>United Kingdom</b>	120	3.3	1,332	36.4	1,021	27.9	13	0.3	1,165	31.8	10	0.3	3,662
<b>United States of America</b>	627	2.0	11,247	36.8	7,090	23.2	372	1.2	11,147	36.4	120	0.4	30,603
<b>Total</b>	2,358	2.1	46,704	42.3	34,158	30.9	1,280	1.2	24,914	22.6	1,042	0.9	110,456
<b>European Community</b>	882	4.1	4,090	19.0	10,484	48.8	103	0.5	5,870	27.3	46	0.2	21,476

<sup>a</sup> Includes *enteric fermentation* and *manure management*.

<sup>b</sup> Includes *rice cultivation*, *agricultural soils*, *prescribed burning of savannas* and *field burning of agricultural residues*.

<sup>c</sup> Includes *industrial processes*, *solvent use* and *land-use change and forestry*.

<sup>d</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989); and Slovenia (1986).

<sup>e</sup> Total emissions from agriculture are reported under livestock because emissions were not further disaggregated by the Party.

**Table A.10. Anthropogenic CH<sub>4</sub> emissions by source category, 2002 (Gigagrams and percentage of total by Party)**

	Energy				Agriculture				Waste		Other <sup>c</sup>		Total (Gg)
	Fuel combustion		Fugitive fuel		Livestock <sup>a</sup>		Other <sup>b</sup>		(Gg)	%	(Gg)	%	
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%					
Australia	99	1.7	1,129	19.1	3,154	53.3	518	8.8	810	13.7	208	3.5	5,918
Austria	15	4.3	14	4.1	190	53.4	0.5	0.1	135	38.0	0.4	0.1	355
Belarus	15	2.4	122	20.1	312	51.2	0.3	0.0	136	22.4	24	3.9	609
Belgium	11	2.6	20	4.7	319	73.4	6	1.3	72	16.4	7	1.5	435
Bulgaria	3	0.6	125	28.0	91	20.5	3	0.8	222	49.6	2	0.5	446
Canada	252	5.6	1,856	41.5	1,165	26.0			1,066	23.8	136	3.0	4,475
Croatia	5	3.0	62	37.7	42	25.8			54	33.3	0.3	0.2	163
Czech Republic	15	3.0	261	52.8	105	21.3			107	21.7	6	1.2	494
Denmark	29	10.8	6	2.3	179	66.8			54	20.1			268
Estonia	5	5.8	29	32.1	21	22.7			36	39.4			90
Finland	24	9.7	1	0.6	84	34.5			134	55.0	1	0.3	244
France	183	6.2	160	5.4	2,048	69.7	8	0.3	562	19.1	-20	-0.7	2,941
Germany	55	1.4	782	19.7	2,585	65.2	-30	-0.8	574	14.5	0.1	0.0	3,965
Greece	22	4.1	80	14.7	166	30.5	6	1.1	270	49.5	0.4	0.1	545
Hungary	33	7.0	101	21.7	103	22.1	2	0.4	226	48.5	1	0.2	466
Iceland	0.2	0.7			12	48.9			13	50.4			25
Ireland	5	0.8	4	0.6	519	85.2			81	13.3			609
Italy	79	4.8	246	15.0	713	43.6	75	4.6	516	31.6	7	0.4	1,635
Japan	25	2.7	28	3.1	363	39.0	283	30.4	225	24.2	6	0.6	930
Latvia	13	11.7	8	7.4	32	29.9			50	46.4	5	4.6	108
Liechtenstein													
Lithuania	11	6.3	20	11.8	67	39.3			72	42.5			169
Luxembourg	1	3.5	3	12.3	16	72.0			3	12.2			22
Monaco	0.04	93.9							0.002	6.1			0.04
Netherlands	32	3.6	120	13.5	389	43.7			346	38.8	4	0.5	891
New Zealand	11	0.8	36	2.7	1,149	87.6	1	0.1	106	8.1	9	0.7	1,313

<b>Norway</b>	14	4.3	31	9.5	95	29.0	0.4	0.1	185	56.6	2	0.5	327
<b>Poland</b>													
<b>Portugal</b>	24	6.1	14	3.6	189	47.5	9	2.1	144	36.2	18	4.5	398
<b>Romania</b>	31	2.6	522	45.0	327	28.2	8	0.7	270	23.3	1	0.1	1,158
<b>Russian Federation</b>													
<b>Slovakia</b>	6	2.8	62	28.0	59	26.9			92	42.0	1	0.3	220
<b>Slovenia</b>	4	3.7	13	12.2	41	37.3			51	46.6	0.2	0.2	109
<b>Spain</b>	47	2.4	104	5.3	1,112	56.8	17	0.9	676	34.5	3	0.2	1,959
<b>Sweden</b>	27	9.8	0.004	0.0	157	58.1			86	32.0	0.3	0.1	271
<b>Switzerland</b>	5	2.5	12	6.0	136	66.9	0.3	0.1	49	24.3	0.4	0.2	203
<b>Ukraine<sup>d</sup></b>	42	0.5	6,424	72.9	896	10.2	0.002	0.0	1,359	15.4	94	1.1	8,815
<b>United Kingdom</b>	98	4.7	634	30.2	905	43.1			457	21.8	4	0.2	2,098
<b>United States of America</b>	529	1.9	9,588	33.7	7,329	25.7	359	1.3	10,557	37.1	120	0.4	28,482
<b>European Community</b>	652	3.9	2,188	13.2	9,572	57.5	91	0.5	4,110	24.7	24	0.1	16,638

<sup>a</sup> Includes *enteric fermentation* and *manure management* .

<sup>b</sup> Includes *rice cultivation*, *agricultural soils*, *prescribed burning of savannas* and *field burning of agricultural residues* .

<sup>c</sup> Includes *industrial processes*, *solvent use* and *land-use change and forestry* .

<sup>d</sup> Total emissions from agriculture are reported under livestock because emissions were not further disaggregated by the Party.

Table A.11. Anthropogenic N<sub>2</sub>O emissions by source category, 1990 (Gigagrams and percentage of total by Party)

	Energy				Industrial processes (Gg)	%	Agriculture		Waste		Other <sup>b</sup>		Total (Gg)
	Transport		Other <sup>a</sup>				(Gg)	%	(Gg)	%	(Gg)	%	
	(Gg)	%	(Gg)	%									
Australia	5.5	7.1	2.5	3.2	0.1	0.1	64.3	83.4	1.6	2.0	3.2		77.1
Austria	1.6	8.1	1.5	7.7	2.9	15.2	12.4	64.3	0.1	0.8	0.8	3.9	19.3
Belarus <sup>c</sup>					1.1	3.4	30.7	94.1	0.8	2.4	0.04	0.1	32.6
Belgium	1.2	2.7	5.5	13.0	12.7	29.9	21.1	49.6	0.5	1.1	1.6	3.7	42.5
Bulgaria <sup>d</sup>	0.2	0.5	15.0	31.4	7.8	16.3	24.1	50.3	0.8	1.6			47.9
Canada	20.7	12.0	6.4	3.7	37.1	21.4	100.1	57.8	3.0	1.7	6.0	3.5	173.3
Croatia	0.04	0.3	0.2	1.7	3.0	23.9	8.8	70.5	0.5	3.6			12.5
Czech Republic	0.3	0.7	4.3	11.9	3.9	10.7	26.6	73.1	0.6	1.8	0.7	1.8	36.3
Denmark	0.5	1.4	1.4	4.2	3.4	9.8	29.0	84.6					34.2
Estonia	0.02	0.7	0.1	3.9			3.1	95.4					3.3
Finland	1.2	4.7	2.9	11.3	5.1	20.3	15.6	61.2	0.5	1.8	0.2	0.8	25.4
France	5.2	1.8	9.3	3.2	77.9	27.0	191.6	66.4	4.2	1.4	0.3	0.1	288.4
Germany	9.9	3.8	26.1	10.0	75.7	28.9	137.4	52.3	7.1	2.7	6.2	2.4	262.5
Greece	0.6	1.4	9.3	20.3	2.3	5.0	32.3	70.9	1.1	2.3	0.04	0.1	45.6
Hungary <sup>c, d</sup>	1.3	2.5	9.3	18.5	3.2	6.5	35.6	70.9	0.002	0.0	0.8	1.6	50.2
Iceland	0.02	1.5	0.07	6.0	0.2	13.8	0.9	78.8					1.1
Ireland	0.3	0.9	2.8	9.1	3.3	10.8	24.2	78.6	0.2	0.6			30.8
Italy	5.5	4.5	22.0	17.8	18.7	15.2	73.4	59.5	3.7	3.0	0.1	0.0	123.3
Japan	16.2	12.5	3.9	3.0	23.9	18.4	75.5	58.2	9.2	7.1	0.9	0.7	129.7
Latvia	0.5	4.9	0.2	1.8			9.1	91.3	0.2	1.8	0.02	0.2	10.0
Liechtenstein	0.004	17.9	0.005	23.1			0.01	69.3	0.0004	1.9			0.02
Lithuania	0.2	1.4	0.8	5.8	1.4	10.6	10.8	82.1					13.2
Luxembourg	0.04	6.9	0.1	9.3			0.5	74.9	0.02	3.5	0.03	5.4	0.6
Monaco	0.001	22.3	0.002	39.2					0.002	38.5			0.01
Netherlands	1.0	1.9	0.7	1.3	24.4	46.1	21.9	41.4	0.4	0.8	4.5	8.6	52.9
New Zealand	0.2	0.7	0.2	0.7			32.1	96.7	0.5	1.4	0.16	0.5	33.2

<b>Norway</b>	0.5	3.0	0.5	2.8	6.7	37.4	9.7	54.6	0.3	1.7	0.1	0.6	17.8
<b>Poland<sup>d</sup></b>	1.3	1.8	5.9	8.3	20.1	28.5	43.2	61.3					70.5
<b>Portugal</b>	0.5	2.6	1.2	6.3	1.8	9.8	13.6	72.8	1.4	7.8	0.1	0.8	18.7
<b>Romania<sup>d</sup></b>	0.1	0.1	1.2	1.4	56.1	62.4	31.4	34.9	1.1	1.2	0.003	0.0	89.9
<b>Russian Federation<sup>c</sup></b>			17.4	7.7	3.0	1.3	200.0	88.6	0.3	0.1	5.0	2.2	225.7
<b>Slovakia</b>	0.2	1.3	0.6	3.0	1.6	8.4	16.9	86.9	0.1	0.3	0.01	0.1	19.5
<b>Slovenia<sup>d</sup></b>	0.1	1.4	0.4	7.5			4.8	83.9	0.1	2.6	0.3	4.6	5.8
<b>Spain</b>	2.5	3.0	9.3	11.0	9.3	11.0	58.8	69.3	3.7	4.3	1.2	1.4	84.8
<b>Sweden</b>	1.1	3.9	4.5	15.4	2.8	9.6	20.0	68.0	0.6	2.1	0.3	1.0	29.4
<b>Switzerland</b>	1.1	9.8	0.2	2.1	0.3	2.8	9.2	80.4	0.2	1.9	0.3	3.0	11.5
<b>Ukraine<sup>c</sup></b>			6.7	11.6	22.9	39.5	28.0	48.3	0.1	0.2	0.2	0.3	58.0
<b>United Kingdom</b>	4.3	2.0	13.6	6.2	94.5	43.1	103.0	47.1	3.5	1.6	0.0	0.0	218.9
<b>United States of America</b>	163.4	12.9	42.1	3.3	106.6	8.4	901.1	71.0	41.2	3.3	13.9	1.1	1,268.3
<b>Total</b>	247.4	6.8	228.1	6.2	633.9	17.3	2,420.7	66.1	87.4	2.4	47.0	1.3	3,664.6
<b>European Community</b>	36.6	2.9	109.1	8.6	334.9	26.5	744.2	58.8	25.8	2.0	15.4	1.2	1,266.0

<sup>a</sup> Includes *fugitive fuel* emissions and *fuel combustion* emissions other than *transport*.

<sup>b</sup> Includes *solvent use* and *land-use change and forestry*.

<sup>c</sup> Total emissions from *fuel combustion* are reported under other energy because emissions were not further disaggregated by the Party.

<sup>d</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989); and Slovenia (1986).

Table A.12. Anthropogenic N<sub>2</sub>O emissions by source category, 2002 (Gigagrams and percentage of total by Party)

	Energy				Industrial processes (Gg)	Agriculture		Waste		Other <sup>b</sup>		Total (Gg)	
	Transport	Other <sup>a</sup>		%		%	%	%	%	%			
	(Gg)	(Gg)	(Gg)	(Gg)		(Gg)	(Gg)	(Gg)	(Gg)	(Gg)			
Australia	14.4	12.7	3.1	2.7	0.1	0.1	92.0	80.8	1.8	1.6	2.5	2.2	113.9
Austria	2.2	12.1	1.8	9.4	2.6	14.0	11.0	59.2	0.2	1.2	0.8	4.0	18.5
Belarus	0.1	0.4	0.3	1.6	1.2	6.4	16.6	87.5	0.8	4.0	0.0	0.2	19.0
Belgium	2.9	6.9	5.4	13.0	13.5	32.6	17.7	42.6	0.5	1.2	1.6	3.7	41.6
Bulgaria	0.1	0.6	7.6	37.6	3.5	17.4	8.5	42.2	0.5	2.2	0.0	0.0	20.2
Canada	28.8	16.9	7.8	4.6	6.7	3.9	112.3	65.8	3.4	2.0	11.8	6.9	170.7
Croatia	0.4	4.3	0.2	1.6	2.2	23.3	6.6	67.9	0.3	3.0	0.0	0.0	9.7
Czech Republic	1.9	7.3	3.1	11.7	3.1	12.0	16.8	64.0	0.6	2.4	0.7	2.6	26.3
Denmark	1.3	5.1	1.4	5.3	2.5	9.7	20.5	79.9					25.7
Estonia	0.02	1.9	0.1	11.6			0.9	86.5					1.0
Finland	1.9	8.6	3.6	16.4	4.2	19.2	11.8	53.6	0.3	1.5	0.1	0.6	22.0
France	13.4	5.7	10.1	4.3	29.1	12.5	177.0	75.7	3.8	1.6	0.3	0.1	233.8
Germany	14.8	8.2	17.0	9.5	22.8	12.7	111.8	62.1	7.4	4.1	6.2	3.4	180.1
Greece	1.5	3.4	11.1	24.7	1.8	4.1	29.4	65.2	1.2	2.7	0.003	0.0	45.0
Hungary	1.7	5.2	7.1	21.1	2.7	8.1	21.7	64.5	0.002	0.0	0.4	1.2	33.6
Iceland	0.1	9.5	0.09	9.5			0.8	81.0					1.0
Ireland	1.3	4.1	3.8	12.0	0.9	3.0	25.2	80.3	0.2	0.7			31.4
Italy	11.8	8.7	21.7	16.0	24.1	17.7	74.7	54.9	3.8	2.8	0.01	0.0	136.1
Japan	21.6	18.9	9.4	8.3	3.8	3.3	64.7	56.7	13.6	11.9	1.1	0.9	114.2
Latvia	0.2	6.5	0.2	6.4			3.0	81.4	0.2	4.3	0.1	1.4	3.7
Liechtenstein													
Lithuania	0.1	2.5	0.3	4.6	2.9	49.8	2.5	43.1					5.8
Luxembourg	0.2	57.1	0.04	12.8					0.02	7.8	0.1	22.4	0.3
Monaco	0.005	44.2	0.003	27.6					0.003	28.2			0.0
Netherlands	1.6	3.3	0.7	1.4	20.2	41.0	21.9	44.5	0.7	1.5	4.1	8.3	49.3
New Zealand	0.5	1.1	0.3	0.7			41.0	96.5	0.5	1.2	0.18	0.4	42.5

<b>Norway</b>	2.4	12.8	0.5	2.8	6.2	32.9	9.2	49.1	0.3	1.8	0.1	0.6	18.8
<b>Poland</b>													
<b>Portugal</b>	1.8	9.3	1.3	6.5	1.9	9.7	12.6	64.2	1.9	9.7	0.1	0.6	19.7
<b>Romania</b>	0.1	0.5	1.1	5.4	4.5	22.8	12.9	65.9	1.0	5.3	0.003	0.0	19.6
<b>Russian Federation</b>													
<b>Slovakia</b>	0.7	5.4	0.3	2.3	2.0	16.1	9.3	75.1	0.1	1.0	0.01	0.1	12.4
<b>Slovenia</b>	0.5	9.8	0.3	6.0	0.0001	0.0	3.9	78.8	0.1	3.0	0.1	2.4	5.0
<b>Spain</b>	7.5	8.1	12.5	13.5	6.3	6.8	61.1	65.9	3.9	4.2	1.4	1.5	92.8
<b>Sweden</b>	2.4	8.8	4.4	16.1	1.7	6.4	17.7	65.4	0.5	1.7	0.4	1.5	27.1
<b>Switzerland</b>	1.8	16.1	0.2	2.0	0.3	2.7	8.3	72.2	0.4	3.6	0.4	3.4	11.5
<b>Ukraine</b>	0.1	0.1	2.0	4.0	5.1	10.1	40.0	79.0	3.5	6.9			50.6
<b>United Kingdom</b>	15.4	11.6	13.4	10.2	9.9	7.5	89.5	67.7	4.0	3.0	0.01	0.0	132.3
<b>United States of America</b>	170.7	12.7	46.4	3.5	73.0	5.4	985.9	73.5	50.2	3.7	15.4	1.1	1,341.4
<b>European Community</b>	80.0	7.6	108.2	10.2	141.7	13.4	682.1	64.5	29.8	2.8	15.1	1.4	1,056.9

<sup>a</sup> Includes *fugitive fuel* emissions and *fuel combustion* emissions other than *transport*.

<sup>b</sup> Includes *solvent use* and *land-use change and forestry*.

**Table A.13. Emissions of hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride,<sup>a</sup> (CO<sub>2</sub> equivalent), 1990, 1995 and 2002 (Gigagrams of CO<sub>2</sub> equivalent using IPCC 1995 GWP values with a time horizon of 100 years)**

	HFC			PFC			SF <sub>6</sub>			Total		
	1990	1995	2002	1990	1995	2002	1990	1995	2002	1990	1995	2002
<b>Australia</b>	1,126.3	977.4	2,744.5	3,938	1,309	1,507				5,065	2,286	4,252
<b>Austria</b>	4	546	1,033	963	16	25	518	1,175	677	1,485	1,736	1,735
<b>Belarus</b>												
<b>Belgium</b>	254.9	255	1,505	1,753	2,335	108	1,663	2,205	94	3,671	4,795	1,707
<b>Bulgaria</b>		3			47	21			1		50	23
<b>Canada</b>		479	917	7,386	7,454	4,866	2,870	1,879	2,678	10,257	9,813	8,461
<b>Croatia</b>		8	49	939						939	8	49
<b>Czech Republic</b>			1,092			18			212			1,322
<b>Denmark</b>		218	672		0.5	22	44	107	22	44	326	716
<b>Estonia</b>												
<b>Finland</b>	0.02	29	463	0.1	0.1	13	94	69	51	94	98	528
<b>France</b>	3,628	1,995	9,944	3,458	1,275	1,614	2,195	2,329	1,567	9,280	5,600	13,125
<b>Germany</b>	3,510	6,360	8,247	2,696	1,759	786	3,896	6,633	3,781	10,102	14,752	12,815
<b>Greece</b>	935	3,369	3,999	258	83	88				1,193	3,452	4,087
<b>Hungary</b>			274	268		203	77.1		121	346		598
<b>Iceland</b>		25	35	420	59	73	5.4	5	5	425	89	113
<b>Ireland</b>	21	21	253	75	75	207	83.1	83	71	179	179	531
<b>Italy</b>	351	671	7,106	1,808	337	414	332.9	601	760	2,492	1,609	8,280
<b>Japan</b>		20,229	13,329		12,590	9,642		16,918	5,290		49,737	28,260
<b>Latvia</b>								0.01	0.03		0.01	0.03
<b>Liechtenstein</b>												
<b>Lithuania</b>	34.5		34.5							34.5		34.5
<b>Luxembourg</b>			43.1						84,128			84,171
<b>Monaco</b>			0.1			0						0.2
<b>Netherlands</b>	4,432	6,018	1,572	2,416	1,836	1,200	217	301	344	7,066	8,156	3,116
<b>New Zealand</b>		84	388	516	148	84	12	15	13	528	246	484



<b>Norway</b>	0.02	26	365	3,294	1,562	1,120	2,186	578	222	5,480	2,166	1,707
<b>Poland</b>			1,283			881			18			2,181
<b>Portugal</b>			49					5	7		5	56
<b>Romania</b>				785	395	525				785	395	525
<b>Russian Federation</b>	9,659	7,553		31,906	26,638					41,565	34,191	
<b>Slovakia</b>		25	104	272	114	11	0.03	10	14	272	148	130
<b>Slovenia</b>		30.6	69.2	276	286	116	7	25	21	283	342	207
<b>Spain</b>	2,403	4,645	3,896	828	790	257	56	94	239	3,287	5,529	4,392
<b>Sweden</b>	4	127	386	440	391	301	83	121	94	527	640	780
<b>Switzerland</b>	0.02	115.4	471	100	15	36	178	103	185	279	233	692
<b>Ukraine</b>						2						2
<b>United Kingdom</b>	11,375	15,491	10,418	1,394	457	384	1,082	1,291	1,594	13,851	17,240	12,396
<b>United States of America</b>	35,487	51,603	111,666	20,346	15,565	8,719	35,109	28,144	17,846	90,942	95,312	138,231
<b>European Community</b>	26,960	39,789	49,587	16,090	9,355	5,420	10,268	15,018	9,304	53,318	64,162	64,310

<sup>a</sup> Estimates given refer to actual emissions.

Table A.14a. Emissions of hydrofluorocarbons, 1990, 1995 and 2002 (Megagrams)<sup>a</sup>

	HFC-23			HFC-32			HFC-125			HFC-134a		
	1990	1995	2002	1990	1995	2002	1990	1995	2002	1990	1995	2002
Australia	96.3	61.4						27.5	104.4		52.5	1,611.0
Austria	0.2	0.2	0.6		0.1	1.7		1.4	21.9	1.4	414.3	653.1
Belarus												
Belgium			0.3			7.6	0.9	0.9	106.2	188.8	188.8	544.6
Bulgaria								0.001				
Canada		0.1	0.1		0.005	0.2		18.1	42.1		284.7	522.7
Croatia						0.1			4.7			
Czech Republic						6.2			67.6			
Denmark					0.1	8.4		2.6	48.5		150.1	280.6
Estonia												
Finland					0.1			1.6	33.0		14.6	128.0
France	142.0	21.4	37.0			25.2	8.8	61.0	481.1	8.8	872.4	3,840.1
Germany		361.8	108.7		0.3	15.8		27.8	344.6		1,456.0	3,404.5
Greece	79.9	278.0	273.0		22.1	129.7		22.8	132.6		29.1	268.0
Hungary			0.01			2.6			22.1			95.4
Iceland						0.05		3.9	5.6			
Ireland		0.2	0.2		0.1	2.5		0.6	23.2		7.3	68.5
Italy	30.0	30.1	1.1			225.7		10.7	369.7		202.6	1,394.6
Japan		1,450.0	521.0			75.0			75.0		2,013.7	4,658.8
Latvia												
Liechtenstein												
Lithuania												
Luxembourg												
Monaco						0.002			0.002			
Netherlands	378.8	492.2	58.5		2.4	0.2		3.8	66.2		181.5	327.8
New Zealand					0.4	0.9		0.5	19.4		39.9	192.2

<b>Norway</b>			0.1	0.01	2.2	2.4	41.2			85.8
<b>Poland</b>			0.2		2.0		46.9	17.3		739.6
<b>Portugal</b>							0.5			34.4
<b>Romania</b>										
<b>Russian Federation</b>	820.0	640.0						50.0	50.0	
<b>Slovakia</b>			0.04		1.2	0.01	5.8			47.4
<b>Slovenia<sup>b</sup></b>								23.6		53.2
<b>Spain</b>	205.4	396.7	161.5		0.5		67.0		1.6	1,065.8
<b>Sweden</b>		0.1	0.1	0.4	0.5	1.4	3.5	3.0	90.5	265.4
<b>Switzerland</b>			0.2	0.1	4.6	3.2	29.0	0.02	69.7	220.7
<b>Ukraine</b>										
<b>United Kingdom<sup>c</sup></b>										
<b>United States of America</b>	3,004.6	2,337.1	1,715.1		491.9	1,296.8	4,777.3		13,880.0	43,797.9
<b>European Community</b>										

<sup>a</sup> Estimates given refer to actual emissions.

<sup>b</sup> Party reported aggregated HFC emissions but did not disaggregate the data by species.

<sup>c</sup> Party reported total HFC emissions in CO<sub>2</sub> equivalent but did not disaggregate the data by species.

Table A.14b. Emissions of hydrofluorocarbons, 1990, 1995 and 2002 (Megagrams)<sup>a</sup>

	HFC-152a			HFC-143a			HFC-227ea			Other HFCs		
	1990	1995	2002	1990	1995	2002	1990	1995	2002	1990	1995	2002
Australia					29.8	94.2						
Austria		0.1	452.2		0.4	13.6			0.2			
Belarus												
Belgium <sup>b</sup>	11.4	11.4	375.6	1.1	1.1	109.3	0.4	0.4	7.1			0.4
Bulgaria					0.001							
Canada		4.0	31.4		10.6	29.9		5.8				
Croatia						5.7						
Czech Republic			3.9			59.9			1.2			
Denmark		43.4	13.0		2.4	43.2						
Estonia												
Finland	0.1	17.0	2.6		0.9	36.0						
France <sup>c</sup>		3.3	432.3	508.0	106.7	742.0		1.2	26.1		23.2	156.1
Germany <sup>b</sup>		730.5	1,878.8		14.2	312.9		0.1	39.9			0.6
Greece												
Hungary			0.8			22.7						
Iceland		0.9	0.3		2.6	4.1						
Ireland					0.7	22.2		1.7	3.6			
Italy <sup>d</sup>					6.7	147.4			1,219.8			0.1
Japan		14.0	158.7						12.9			
Latvia												
Liechtenstein												
Lithuania												
Luxembourg												
Monaco												
Netherlands		17.9	2.0		1.7	51.4						
New Zealand		1.2			7.9	21.6		0.05	0.3			

<b>Norway</b>	0.1	1.0	12.4	1.5	34.7	0.8	
<b>Poland</b>			7.5		45.9	3.8	
<b>Portugal</b>			4.0		0.6		
<b>Romania</b>							
<b>Russian Federation</b>							
<b>Slovakia<sup>b</sup></b>			1.2		5.5	3.5	0.4
<b>Slovenia</b>							
<b>Spain<sup>b</sup></b>					90.5	0.8	28.8
<b>Sweden</b>		1.3	139.3	1.1	2.8	0.001	0.9
<b>Switzerland</b>		18.6	23.3	3.4	23.0	2.3	
<b>Ukraine</b>							
<b>United Kingdom<sup>c</sup></b>							
<b>United States of America<sup>b</sup></b>				202.2	3,202.8		341.0
<b>European Community</b>							

<sup>a</sup> Estimates refer to actual emissions.

<sup>b</sup> Emissions of HFC 236fa are given under *Other*.

<sup>c</sup> Emissions of HFC 43-10mee (1995) and HFC43-10mee, HFC134, HFC236fa and HFC245ca (2002) are given under *Other*.

<sup>d</sup> Emissions of HFC-134 are given under *Other*.

<sup>e</sup> Party reported total HFC emissions in CO<sub>2</sub> equivalent but did not disaggregate the data by species.

**Table A.15. Emissions of perfluorocarbons and sulphur hexafluoride, 1990, 1995 and 2002 (Megagrams)<sup>a</sup>**

	CF <sub>4</sub>			C <sub>2</sub> F <sub>6</sub>			SF <sub>6</sub>		
	1990	1995	2002	1990	1995	2002	1990	1995	2002
Australia	511.8	170.1	195.9	66.5	22.1	25.4			
Austria	132.8	0.8	1.5	10.9	1.1	1.7	21.7	49.2	28.3
Belarus									
Belgium	49.8	69.2		55.1	71.8		69.6	92.3	3.9
Bulgaria			2.9			0.29			0.05
Canada	988.0	1,006.1	681.3	104.8	98.5	47.1	120.1	78.6	112.0
Croatia	126.0			13.0					
Czech Republic									
Denmark							1.9	4.5	0.9
Estonia									
Finland							3.9	2.9	2.1
France	316.8	102.2	152.1	124.2	28.8	42.2	91.8	97.5	65.6
Germany		223.6	75.6		32.3	19.8	163.0	277.5	158.2
Greece	34.7	11.2	12.0	3.5	1.1	1.1			
Hungary			27.2			2.7			5.1
Iceland	54.6	7.7	9.4	7.0	1.0	1.2			
Ireland		1.9	6.0		6.8	18.2		3.5	3.0
Italy	213.3	36.5	42.2	45.8	10.8	15.1	13.9	25.2	31.8
Japan		9.4	2.0		0.9	0.2		707.8	221.3
Latvia								0.0003	0.001
Liechtenstein									
Lithuania									
Luxembourg									3.5
Monaco									
Netherlands	301.0	223.0	140.2	48.0	38.0	14.1	9.1	12.6	14.4
New Zealand	68.0	19.0	11.0	8.0	2.0	1.0	0.5	0.6	0.5

<b>Norway</b>	479.1	230.0	163.0	19.6	7.9	6.6	91.5	24.2	9.3
<b>Poland</b>		110.6	109.2		11.1	10.9		0.1	0.7
<b>Portugal</b>								0.2	0.3
<b>Romania</b>	105.2	53.7	70.9	11.0	5.0	7.0			
<b>Russian Federation</b>	4,300.0	3,590.0		430.0	359.0				
<b>Slovakia</b>			1.5			0.2			0.6
<b>Slovenia</b>	37.2	38.5	15.5	3.7	3.9	1.7	0.3	1.1	0.9
<b>Spain</b>	114.3	108.0	26.5	9.3	9.5	2.1	2.3	3.9	10.0
<b>Sweden</b>	58.5	50.9	38.1	6.5	6.3	5.1	3.5	5.1	3.9
<b>Switzerland</b>	13.3	1.7	2.4	1.5	0.2	1.9	7.5	4.3	7.7
<b>Ukraine</b>			0.2			0.02			
<b>United Kingdom<sup>b</sup></b>							45.3	54.0	66.7
<b>United States of America</b>	2,551.9	1,806.5	873.3	408.2	415.5	318.4	1,469.0	1,177.6	746.7
<b>European Community</b>							429.6	628.4	389.3

<sup>a</sup> Estimates given refer to actual emissions.

<sup>b</sup> Party reported aggregated PFC emissions but did not disaggregate the data by species.

**Table A.16. Anthropogenic emissions of CO, NO<sub>x</sub>, NMVOCs and SO<sub>2</sub>, 1990 and 2002 (Gigagrams)**

	CO		NO <sub>x</sub>		NMVOC		SO <sub>2</sub>	
	1990	2002	1990	2002	1990	2002	1990	2002
Australia	22,272	28,028	2,289	3,192	2,418	2,400	1,636	2,803
Austria	1,249	812	212	204	298	193	80	36
Belarus		773		175		124		189
Belgium	1,470	1,024	365	290	357	216	355	151
Bulgaria <sup>a</sup>		426		124		47		982
Canada	894	2,195	15	43				
Croatia	487	373	92	93	561	349	186	75
Czech Republic		569		318		203		237
Denmark	745	577	283	200	164	124	177	25
Estonia		211		47		38		98
Finland	549	592	311	211	236	151	237	85
France	11,092	6,027	1,958	1,434	3,830	2,908	1,368	596
Germany	11,212	4,318	2,815	1,479	3,534	1,477	5,322	608
Greece	1,271	1,170	288	318	257	268	491	509
Hungary		597		181		156		365
Iceland	45	22	27	26	13	8	8	10
Ireland	397	251	116	121	106	78	183	96
Italy	7,117	4,486	1,929	1,267	2,038	1,340	1,774	665
Japan	4,086	3,453	2,053	2,018	1,963	1,761	1,001	857
Latvia	752	378	83	41	152	89	96	12
Liechtenstein	2		0.4		0.4		0.02	
Lithuania	519	225	158	52	108	72	222	43
Luxembourg	175	48	23	17	20	11		2
Monaco		2		1		0		0.1
Netherlands	1,130	656	599	430	490	244	204	85
New Zealand	565	733	139	205	134	173	61	68



<b>Norway</b>	867	530	224	213	294	345	52	22
<b>Poland</b>		3,528		805		873		1,564
<b>Portugal</b>	1,018	879	260	293	292	332	322	295
<b>Romania</b>	773	1,314	545	369	344	271	1,018	651
<b>Russian Federation</b>	8,140		3,040		5,990		9,440	
<b>Slovakia</b>		297		102		87		102
<b>Slovenia<sup>a</sup></b>	79	103	58	60	56	54	253	72
<b>Spain</b>	3,798	2,748	1,257	1,929	2,534	2,404	2,177	1,968
<b>Sweden</b>	1,202	767	324	243	503	295	106	59
<b>Switzerland</b>	770	383	172	94	297	143	45	19
<b>Ukraine</b>	7,481	1,897	1,243	845	656	318		
<b>United Kingdom</b>	7,421	3,244	2,775	1,587	2,420	1,187	3,722	1,003
<b>United States of America</b>	130,580	92,541	22,860	19,849	20,937	14,996	20,936	13,669
<b>European Community</b>	49,871	27,598	13,516	10,023	17,077	11,227	16,535	6,183

<sup>a</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988) and Slovenia (1986).

Table A.17. Anthropogenic emissions of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O from international bunkers, 1990 and 2002 (Gigagrams)

	CO <sub>2</sub> 1990			CO <sub>2</sub> 2002			CH <sub>4</sub> 1990			CH <sub>4</sub> 2002			N <sub>2</sub> O 1990			N <sub>2</sub> O 2002		
	Aviation	Marine	Total	Aviation	Marine	Total	Aviation	Marine	Total	Aviation	Marine	Total	Aviation	Marine	Total	Aviation	Marine	Total
Australia	4,345	2,056	6,401	8,567	2,533	11,101	0.02	0.1	0.1	0.01	0.12	0.13	0.1	0.1	0.2	0.26	0.07	0.33
Austria	886		886	1,512		1,512	0.01		0.01	0.03		0.03	0.03		0.03	0.1		0.1
Belarus				245		245				0.03		0.03			0.1			0.1
Belgium	3,096	13,303	16,399	4,219	22,341	26,560	0.05		0.05	0.07		0.07	0.01		0.01	0.02		0.02
Bulgaria <sup>a</sup>	1,037	1,016	2,053	399	336	735	0.04	0.02	0.1	0.01	0.02	0.04		0.02	0.02		0.01	0.01
Canada	2,729	2,995	5,724	2,722	2,815	5,537	0.1	0.3	0.3	0.1	0.3	0.3	0.3	0.3	0.6	0.3	0.3	0.5
Croatia	202	109	311	98	73	172	0.001	0.01	0.01	0.001	0.005	0.01	0.01	0.001	0.01	0.003	0.001	0.003
Czech Republic	617		617	497		497	0.2		0.2	0.1		0.1	0.02		0.02	0.02		0.02
Denmark	1,762	3,087	4,850	2,053	2,966	5,019	0.03	0.1	0.1	0.04	0.1	0.1	0.1	0.2	0.3	0.1	0.2	0.3
Estonia					368	368												
Finland	974	1,800	2,774	1,042	2,043	3,085	1.2	0.05	1.3	0.03	0.1	0.2	0.4	0.7	1.2	0.04	0.2	0.2
France	8,618	8,137	16,755	14,667	7,951	22,619								0.3	0.3		0.3	0.3
Germany	11,589	7,980	19,569	16,990	7,593	24,583	0.2	0.3	0.5	0.2	0.3	0.5	0.2	0.4	0.6	0.3	0.3	0.7
Greece	2,448	8,028	10,475	2,322	9,893	12,215	0.02	0.8	0.8	0.04	1.0	1.0	0.1	0.2	0.3	0.1	0.3	0.3
Hungary	431		431	577		577	0.03		0.03	0.04		0.04	0.06		0.06	0.1		0.1
Iceland	220	99	319	310	207	517	0.002	0.01	0.01	0.002	0.02	0.02	0.01	0.003	0.01	0.01	0.006	0.01
Ireland	1,059	56	1,115	2,246	327	2,573	0.03		0.03	0.03		0.03	0.04		0.04	0.1		0.1
Italy	4,049	4,404	8,452	6,902	4,993	11,895	0.1	0.4	0.5	0.3	0.5	0.7	0.1	0.1	0.2	0.1	0.1	0.2
Japan	13,183	17,518	30,701	21,150	15,551	36,701	0.4	1.6	2.0	0.6	1.4	2.0	0.4	0.5	0.9	0.7	0.4	1.1
Latvia	151	89	240	75	607	682	0.001	0.01	0.01	0.0005	0.05	0.05	0.004	0.002	0.01	0.002	0.101	0.10
Liechtenstein																		
Lithuania				92	351	443				0.06	0.02	0.08				0.001	0.003	0.001
Luxembourg			111	1,138		1,138												
Monaco																		
Netherlands	4,497	35,267	39,765	10,280	47,124	57,404		0.14	0.14		0.19	0.19	0.01	0.04	0.04	0.01	0.05	0.06
New Zealand	1,341	1,033	2,374	1,862	1,051	2,913	0.03	0.1	0.1	0.04	0.1	0.1	0.02	0.03	0.1	0.03	0.03	0.06

<b>Norway</b>	619	1,478	2,098	740	2,194	2,933	0.003	0.1	0.1	0.01	0.2	0.2	0.02	0.04	0.1	0.02	0.1	0.1
<b>Poland</b>				336	826	1,162				0.01	0.1	0.1				0.02	0.1	0.1
<b>Portugal</b>	1,644	1,194	2,838	2,049	1,216	3,266	0.1	0.1	0.2	0.1	0.1	0.2	0.02	0.03	0.06	0.03	0.03	0.1
<b>Romania</b>																		
<b>Russian Federation</b>	9,500	2,900	12,400				0.6	0.02	0.7				0.1	0.1	0.2			
<b>Slovakia</b>				37	23	60				0.75	0.001	0.75				0.1	0.01	0.1
<b>Slovenia<sup>a</sup></b>	97		97	83		83	1.36		1.36	1.16		1.16	2.727		2.727	2.3		2.3
<b>Spain</b>	3,432	11,780	15,211	8,092	22,345	30,438	0.05	0.6	0.6	0.1	1.2	1.2	0.1	0.3	0.4	0.3	0.6	0.8
<b>Sweden</b>	1,335	2,159	3,494	1,611	3,968	5,579	0.01	0.2	0.2	0.01	0.4	0.4	0.1	0.1	0.1	0.1	0.1	0.2
<b>Switzerland</b>	3,226		3,226	4,132		4,132	0.4		0.4	0.2		0.2	0.1		0.1	0.1		0.1
<b>Ukraine</b>																		
<b>United Kingdom</b>	14,791	6,559	21,349	26,927	6,959	33,885	2.9	0.6	3.5	4.5	0.6	5.1	0.5	0.4	0.9	0.8	0.4	1.3
<b>United States of America</b>	46,594	67,272	113,866	59,143	27,701	86,845	1.3	6.5	7.8	1.6	2.7	4.3	1.5	1.7	3.1	1.9	0.7	2.6
<b>European Community</b>	60,971	103,753	164,724	102,051	139,719	241,770	4.6	3.2	7.8	5.4	4.4	9.8	1.6	2.7	4.3	2.0	2.6	4.6

<sup>a</sup> In accordance with decision 9/CP. 2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988) and Slovenia (1986).

**Table A.18. Anthropogenic emissions of CO and NO<sub>x</sub> from international bunkers, 1990 and 2002 (Gigagrams)**

	CO 1990			CO 2002			NO <sub>x</sub> 1990			NO <sub>x</sub> 2002		
	Aviation	Marine	Total	Aviation	Marine	Total	Aviation	Marine	Total	Aviation	Marine	Total
<b>Australia</b>	7.2	1.9	9.1	13.6	2.0	15.6	23.3	54.7	78.0	45.6	68.4	114.0
<b>Austria</b>	0.8		0.8	1.5		1.5	2.8		2.8	4.8		4.8
<b>Belarus</b>				0.3		0.3				1.0		1.0
<b>Belgium</b>	1.6		1.6	2.1		2.1	1.2		1.2	2.5		2.5
<b>Bulgaria<sup>a</sup></b>				0.7	2.2	2.9				1.6	7.1	8.7
<b>Canada</b>												
<b>Croatia</b>	0.2	0.8	0.9	0.1	1.0	1.1	0.5	1.1	1.6	0.4	1.5	1.9
<b>Czech Republic</b>												0.0
<b>Denmark</b>	1.4	7.2	8.6	1.6	6.9	8.5	7.1	84.4	91.6	8.7	81.3	90.0
<b>Estonia</b>				4.9		4.9				7.3		7.3
<b>Finland</b>	5.5	4.0	9.5	1.8	3.4	5.2	2.8	32.8	35.6	3.1	47.5	50.6
<b>France</b>	7.9	2.1	10.0	8.1	2.1	10.1	21.1	154.8	175.9	35.7	151.3	187.1
<b>Germany</b>	56.6	37.3	93.9	89.5	35.4	125.0	50.6	155.3	205.9	89.5	147.6	237.1
<b>Greece</b>	3.0	19.0	22.0	4.1	23.5	27.5	13.6	185.3	198.8	14.7	228.5	243.1
<b>Hungary</b>				0.1	0.1	0.3				0.3		0.3
<b>Iceland</b>	0.3	0.2	0.6	0.4	0.5	0.9	0.9	2.4	3.4	1.3	5.1	6.4
<b>Ireland</b>	3.2	0.1	3.3	3.8	0.8	4.5	3.3	1.0	4.4	4.9	5.9	10.7
<b>Italy</b>	3.2	10.3	13.5	6.7	11.7	18.4	20.4	79.7	100.1	42.8	90.4	133.1
<b>Japan</b>	22.4	41.9	64.3	35.9	37.1	73.1	54.1	419.0	473.1	86.8	371.4	458.2
<b>Latvia</b>	0.2	0.2	0.4	0.1	1.7	1.8	0.6	2.1	2.7	0.3	12.0	12.3
<b>Liechtenstein</b>												
<b>Lithuania</b>					0.8	0.8					8.1	8.1
<b>Luxembourg</b>			0.3	0.4		0.4			0.1	0.3		0.3
<b>Monaco</b>												
<b>Netherlands</b>												
<b>New Zealand</b>	2.2	2.5	4.7	3.0	2.5	5.5	5.6	24.9	30.4	7.7	25.0	32.8

<b>Norway</b>	0.8	1.4	2.2	0.8	2.0	2.7	2.1	30.3	32.3	2.7	46.8	49.5
<b>Poland</b>												
<b>Portugal</b>	4.5	0.7	5.2	5.5	0.7	6.2	6.8	33.0	39.8	8.0	33.7	41.7
<b>Romania</b>												
<b>Russian Federation</b>												
<b>Slovakia</b>				0.03	0.002	0.03				0.02	0.5	0.5
<b>Slovenia<sup>a</sup></b>	0.1		0.1				0.4		0.4			
<b>Spain</b>	6.3	7.2	13.5	14.8	13.9	28.7	18.0	249.3	267.3	43.1	494.8	537.9
<b>Sweden</b>	6.5	4.9	11.4	2.7	9.1	11.8	5.4	47.4	52.8	7.2	85.6	92.8
<b>Switzerland</b>	3.8		3.8	4.5		4.5	21.2		21.2	20.3		20.3
<b>Ukraine</b>												
<b>United Kingdom</b>	60.1	15.5	75.6	100.5	16.4	117.0	72.8	119.6	192.4	134.2	126.7	260.9
<b>United States of America</b>	76.5	39.4	115.9	97.5	16.2	113.7	183.9	1,802.9	1,986.8	234.3	743.5	977.8
<b>European Community</b>	160.2	108.5	268.7	243.0	124.0	366.9	227.2	1,142.6	1,369.9	399.6	1,493.1	1,892.7

<sup>a</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988) and Slovenia (1986).

**Table A.19. Anthropogenic emissions of NMVOCs and SO<sub>2</sub> from international bunkers, 1990 and 2002 (Gigagrams)**

	NMVOC 1990			NMVOC 2002			SO <sub>2</sub> 1990			SO <sub>2</sub> 2002		
	Aviation	Marine	Total	Aviation	Marine	Total	Aviation	Marine	Total	Aviation	Marine	Total
Australia	3.6	1.7	5.3	7.2	2.1	9.3	0.8	38.0	38.8	1.6	51.0	52.7
Austria	0.3		0.3	0.6		0.6	0.3		0.3	0.5		0.5
Belarus				0.2		0.2						
Belgium	0.5		0.5	0.5		0.5	0.1		0.1	0.2		0.2
Bulgaria				0.1	0.5	0.6				0.1	0.6	0.7
Canada												
Croatia	0.1	0.2	0.2	0.1	0.2	0.3	0.1	0.4	0.5	0.7	0.1	0.8
Czech Republic												
Denmark	0.3	2.3	2.6	0.4	2.2	2.6	0.1	54.3	54.4	0.1	39.6	39.7
Estonia				1.0		1.0					2,382.3	2,382.3
Finland	0.3	5.2	5.5	0.3	1.2	1.5	0.5	18.5	19.1	0.3	21.4	21.7
France	2.9	70.8	73.7	2.5	69.2	71.8	2.7	150.4	153.1	4.7	124.4	129.1
Germany	9.3	15.2	24.6	13.5	14.5	28.0	3.9	126.3	130.2	2.1	121.3	123.4
Greece	0.4	6.2	6.5	0.4	7.6	8.0	0.9	147.5	148.4	0.9	185.9	186.8
Hungary				0.1		0.1				0.02		0.02
Iceland	0.2	0.1	0.2	0.2	0.1	0.4	0.03	0.1	0.1	0.04	0.3	0.3
Ireland	0.2	0.04	0.3	0.3	0.2	0.5	0.3	0.6	0.9	0.6	0.6	1.2
Italy	1.2	3.4	4.5	2.4	3.8	6.2	1.4	83.2	84.6	2.9	92.3	95.2
Japan	3.4	12.1	15.5	5.4	10.7	16.1						
Latvia	0.1	0.1	0.2	0.1	0.6	0.6	0.05	1.6	1.6	0.02	7.0	7.1
Liechtenstein												
Lithuania					0.3	0.3					4.1	4.1
Luxembourg			0.1	0.2		0.2				0.02		0.02
Monaco												
Netherlands												
New Zealand	0.3	0.7	1.1	0.5	0.7	1.2	0.1	9.4	9.4	0.1	12.1	12.2

<b>Norway</b>	0.2	1.1	1.3	0.2	1.7	1.8	0.1	9.9	10.0	0.1	8.0	8.1
<b>Poland</b>												
<b>Portugal</b>	0.7	1.9	2.6	0.8	1.9	2.6	0.4	17.7	18.1	0.5	16.9	17.4
<b>Romania</b>												
<b>Russian Federation</b>												
<b>Slovakia</b>				0.01	0.03	0.04				0.001	0.2	0.2
<b>Slovenia<sup>a</sup></b>	0.1		0.1									
<b>Spain</b>	3.0	11.2	14.3	7.1	23.7	30.8	1.1	182.9	184.0	2.6	427.7	430.3
<b>Sweden</b>	1.0	1.6	2.6	0.5	3.0	3.5	0.4	5.6	6.0	0.5	11.3	11.8
<b>Switzerland</b>	0.3		0.3	0.2		0.2	1.0		1.0	1.1		1.1
<b>Ukraine</b>												
<b>United Kingdom</b>	36.9	4.4	41.3	61.3	4.7	66.0	2.8	92.5	95.3	5.6	79.8	85.4
<b>United States of America</b>	11.5	47.9	59.4	14.6	19.8	34.4						
<b>European Community</b>	56.8	122.2	179.1	90.8	132.0	222.8	15.0	879.5	894.5	21.5	1,121.2	1,142.8

<sup>a</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Slovenia (1986).

**Table B.1. Aggregate emissions<sup>a</sup> of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs and SF<sub>6</sub> (CO<sub>2</sub> equivalent), 1990-2002, excluding CO<sub>2</sub> emissions/removals from land-use change and forestry (Gigagrams of CO<sub>2</sub> equivalent and percentage change)**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Change from 1990 to latest reported estimate (%)
Australia	430,513	431,831	433,217	436,186	439,859	451,671	460,343	471,768	492,069	502,791	512,946	520,117	526,042	22.2
Austria	77,746	82,154	75,135	75,413	76,480	79,356	82,776	82,340	82,000	80,083	80,640	84,398	84,621	8.8
Belarus	126,574	124,756	119,389	101,369	84,131	77,212	77,240	78,446	76,264	73,186	68,644	76,233	70,356	-44.4
Belgium	146,067	149,775	148,505	147,286	152,470	154,851	159,477	150,282	155,185	148,512	149,892	149,502	150,311	2.9
Bulgaria <sup>b</sup>	141,821	101,587	91,570	90,392	81,417	85,942	83,008	78,491	70,032	64,246	63,611	64,926	62,429	-56.0
Canada	608,704	602,694	617,601	623,865	659,499	675,141	675,374	682,467	700,498	704,542	725,045	716,202	731,209	20.1
Croatia	31,609	24,804	23,082	22,783	21,858	22,259	23,348	24,915	25,142	26,152	26,097	26,892	27,962	-11.5
Czech Republic	192,019	175,323	163,406	154,710	151,910	148,272	154,907	158,879	148,602	140,421	147,681	148,056	142,895	-25.6
Denmark	68,750	79,471	73,259	75,625	79,673	76,955	90,278	80,673	75,657	72,552	67,808	69,313	68,491	-0.4
Estonia	43,494	40,585	29,934	23,490	24,482	22,287	23,345	23,514	21,412	19,580	19,666	19,436	19,502	-55.2
Finland	76,770	74,849	71,751	72,409	78,776	76,269	81,723	80,669	78,136	77,461	75,040	80,575	81,963	6.8
France	564,233	588,712	578,585	555,754	551,267	559,600	575,839	567,956	582,089	563,850	557,620	561,209	553,410	-1.9
Germany	1,246,816	1,194,263	1,144,594	1,128,917	1,106,577	1,099,130	1,117,442	1,080,278	1,054,175	1,018,184	1,014,072	1,025,555	1,014,627	-18.6
Greece	107,149	107,032	108,489	108,958	111,751	112,756	116,531	122,066	127,259	126,375	133,768	134,642	134,992	26.0
Hungary <sup>b</sup>	113,074	87,905	79,078	78,974	77,161	77,916	79,184	76,853	83,687	86,546	78,011	79,279	78,002	-31.0
Iceland	3,322	3,163	3,070	3,112	3,059	3,113	3,204	3,388	3,406	3,579	3,352	3,212	3,181	-4.2
Ireland	53,418	54,282	55,105	54,803	56,527	57,583	59,249	62,031	64,128	66,257	68,252	70,018	68,875	28.9
Italy	509,078	510,781	506,364	500,415	492,705	524,609	517,000	523,480	535,360	540,504	544,010	554,284	553,781	8.8
Japan	1,187,269	1,195,777	1,213,411	1,202,902	1,262,832	1,327,028	1,351,952	1,357,752	1,306,736	1,328,381	1,336,723	1,302,323	1,330,793	12.1
Latvia	28,921	24,266	19,044	16,107	15,378	13,971	12,601	12,171	11,556	10,753	10,219	10,866	10,756	-62.8
Liechtenstein	218									218				0.1
Lithuania	50,134		28,576	23,940	23,652	20,285	20,718	19,850	21,524			19,282	17,215	-65.7
Luxembourg	13,448				12,674	10,223			8,311	6,004	9,542	6,052	10,833	-19.5
Monaco	73	89	93	92	92	88	92	87	85	93	94	97	96	31.7
Netherlands	211,384	218,213	217,705	220,567	221,864	224,500	234,213	218,016	223,823	212,671	213,399	216,149	213,765	1.1
New Zealand	61,640	62,210	63,710	63,711	64,077	64,783	66,206	67,978	67,127	69,111	70,419	73,681	74,976	21.6



<b>Norway</b>	52,136	50,052	47,946	50,071	51,859	51,684	54,849	54,779	55,333	56,032	55,436	56,722	55,343	6.1
<b>Poland<sup>b</sup></b>	564,419	437,450	439,110	429,624	438,973	417,353	437,388	427,243	403,516	401,584	386,186	382,791		-32.2
<b>Portugal</b>	58,362	60,576	63,870	61,863	63,504	67,895	64,830	67,702	72,483	79,692	78,327	78,646	81,982	40.5
<b>Romania<sup>b</sup></b>	262,833	180,261	175,417	173,785	168,053	175,134	179,931	160,886	142,187	124,606	127,367	131,383	136,559	-48.0
<b>Russian Federation</b>	3,050,000	2,812,000	2,609,000	2,392,000	2,154,000	2,063,000	1,960,000	1,914,000	1,890,000	1,876,000	0	0		-38.5
<b>Slovakia</b>	72,436	63,939	58,906	54,976	52,119	53,726	54,334	54,370	52,714	51,589	48,994	52,315	51,896	-28.4
<b>Slovenia<sup>b</sup></b>	20,601	17,793	17,653	18,125	18,051	18,997	19,761	20,211	19,884	19,244	19,240	20,263	20,383	-1.1
<b>Spain</b>	284,556	290,896	299,894	288,687	304,303	316,471	309,751	330,512	340,824	370,377	385,203	383,460	399,732	40.5
<b>Sweden</b>	72,140	72,425	72,294	72,084	74,879	73,766	77,171	72,724	73,446	70,042	67,502	68,263	69,601	-3.5
<b>Switzerland</b>	53,137	54,905	54,629	52,079	51,201	51,963	52,620	51,715	53,058	53,207	52,345	53,358	52,254	-1.7
<b>Ukraine</b>	919,189	784,111	765,090	678,301	572,045	538,833	499,634	466,471	454,934			478,043	483,525	-47.4
<b>United Kingdom</b>	742,639	743,623	720,657	700,775	696,375	686,119	707,785	684,404	679,401	647,951	647,709	656,209	634,858	-14.5
<b>United States of America</b>	6,129,118	6,086,278	6,202,240	6,311,466	6,430,631	6,484,708	6,687,285	6,764,431	6,790,456	6,852,506	7,038,326	6,883,890	6,934,562	13.1
<b>European Community</b>	4,231,442	4,239,763	4,147,936	4,076,529	4,079,532	4,119,209	4,203,816	4,131,881	4,151,583	4,082,763	4,090,896	4,144,229	4,123,618	-2.5

<sup>a</sup> See tables B.3, B.4, B.9, and B.13 for gases separately.

<sup>b</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989) and Slovenia (1986).

**Table B.2. Aggregate emissions<sup>a</sup> of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs and SF<sub>6</sub> (CO<sub>2</sub> equivalent), 1990-2002, including CO<sub>2</sub> emissions/removals from land-use change and forestry<sup>b</sup> (Gigagrams of CO<sub>2</sub> equivalent and percentage change)**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Change from 1990 to latest reported estimate (%)
<b>Australia</b>	515,883	493,516	479,109	483,371	489,100	489,029	493,797	502,091	530,347	528,237	529,618	527,664	539,155	4.5
<b>Austria</b>	68,531	68,650	66,479	66,430	68,619	72,102	77,391	74,707	74,367	72,449	73,007	76,765	76,987	12.3
<b>Belarus</b>	113,854	110,191	103,739	84,489	66,446	59,054	59,085	60,136	57,744	53,887	49,663	59,351	58,902	-48.3
<b>Belgium</b>	144,174	147,889	146,626	145,414	150,606	152,994	157,627	148,439	153,350	146,684	148,071	147,688	148,497	3.0
<b>Bulgaria<sup>c</sup></b>	137,164	93,706	83,934	83,370	74,442	78,423	75,818	72,639	63,799	57,639	54,635	55,459	54,110	-60.6
<b>Canada</b>	454,524	471,730	482,138	539,074	758,591	790,384	590,352	576,211	732,290	655,569	651,434	637,627	710,565	56.3
<b>Croatia</b>	25,104	18,299	16,577	16,278	15,353	15,754	15,278	16,846	17,073	18,083	18,028	18,823	18,961	-24.5
<b>Czech Republic</b>	189,891	170,296	156,869	149,067	147,229	142,987	150,421	154,240	144,844	137,020	143,665	143,692	138,403	-27.1
<b>Denmark</b>	65,918	76,458	70,259	72,410	76,573	73,963	87,214	77,520	72,344	69,241	67,155	65,774	64,678	-1.9
<b>Estonia</b>	37,174	33,422	22,118	13,794	16,877	14,505	13,738	14,407	12,889	11,473	11,301	10,018	10,938	-70.6
<b>Finland</b>	52,972	36,642	39,858	43,293	61,516	61,582	60,690	68,032	68,423	66,640	63,087	63,725	63,953	20.7
<b>France</b>	532,588	562,340	546,767	517,375	509,765	521,674	534,598	523,146	538,242	517,784	519,706	511,351	498,546	-6.4
<b>Germany</b>	1,256,156	1,202,997	1,152,015	1,137,184	1,114,106	1,106,355	1,124,954	1,087,858	1,061,926	1,025,906	1,029,995	1,041,188	1,029,942	-18.0
<b>Greece</b>	108,623	107,616	110,791	110,622	113,251	112,354	116,459	121,663	130,089	126,394	137,937	133,347	133,100	22.5
<b>Hungary<sup>c</sup></b>	111,726	84,667	75,255	74,277	72,341	73,119	75,253	72,649	79,277	82,046	73,634	74,737	75,643	-32.3
<b>Iceland</b>	3,316	3,148	3,045	3,075	3,012	3,057	3,138	3,307	3,312	3,467	3,221	3,067	3,019	-9.0
<b>Ireland</b>	53,354	54,220	55,095	54,733	56,414	57,528	59,245	62,000	63,963	66,134	68,204	69,389	67,898	27.3
<b>Italy</b>	485,546	487,604	484,547	479,723	473,259	505,011	496,778	505,716	517,934	522,792	527,065	535,982	533,395	9.9
<b>Japan<sup>d</sup></b>	1,103,366	1,111,911	1,127,841	1,112,820	1,169,288	1,230,323								11.5
<b>Latvia</b>	10,219	6,591	756	-1,066	-328	-759	-2,337	447	1,454	1,658	1,634	1,306	2,427	-76.2
<b>Liechtenstein<sup>c</sup></b>														
<b>Lithuania</b>	44,652								13,967			11,947	10,494	-76.5
<b>Luxembourg</b>	13,153				12,379	9,928			8,016	5,709	9,247	5,757	10,538	-19.9
<b>Monaco<sup>c</sup></b>														
<b>Netherlands</b>	209,962	216,686	216,218	218,761	219,934	223,268	232,815	216,835	222,443	211,438	211,986	214,735	212,352	1.1
<b>New Zealand</b>	39,876	41,781	45,725	48,032	49,345	49,588	50,722	50,810	46,926	47,121	46,776	49,707	50,805	27.4

<b>Norway</b>	42,598	38,301	34,721	36,601	36,260	36,181	37,418	38,457	37,902	38,421	36,827	37,891	35,422	-16.8
<b>Poland<sup>c</sup></b>	529,673	394,693	398,295	389,445	397,020	374,473	394,772	386,722	373,695	358,120	343,092	329,152		-37.9
<b>Portugal</b>	63,935	64,899	66,916	64,631	65,338	68,769	64,810	67,595	71,377	79,257	77,076	77,765	80,376	25.7
<b>Romania<sup>c</sup></b>	250,393	163,700	157,951	155,371	149,014	156,876	162,582	143,228	122,668	106,194	109,682	112,842	120,587	-51.8
<b>Russian Federation</b>	3,205,000	2,796,000	2,601,000	2,428,000	1,916,000	1,728,000	1,786,000	1,783,000	1,887,000	1,664,000				-48.1
<b>Slovakia</b>	70,010	60,463	54,778	50,710	48,832	51,044	51,906	52,959	50,778	49,938	46,551	47,050	46,618	-33.4
<b>Slovenia<sup>c</sup></b>	17,651	13,042	12,565	12,950	12,719	13,322	14,200	14,650	14,323	13,683	13,679	14,701	14,821	-16.0
<b>Spain</b>	275,100	279,699	286,739	273,236	288,421	300,119	290,966	308,906	316,953	343,620	353,457	351,983	364,430	32.5
<b>Sweden</b>	51,848	43,098	48,941	42,752	48,573	52,474	54,902	45,436	49,115	42,737	40,196	43,453	43,060	-16.9
<b>Switzerland</b>	51,844	53,546	53,185	49,671	48,790	49,588	50,093	49,021	50,436	50,931	52,474	53,787	52,537	1.3
<b>Ukraine</b>	867,082	731,147	712,432	625,383	519,324	485,893	433,483	397,664	386,225					-55.5
<b>United Kingdom</b>	751,689	752,751	729,243	707,644	702,018	691,065	713,013	689,436	684,686	652,970	651,348	659,683	636,762	-15.3
<b>United States of America</b>	5,171,252	5,202,613	5,273,417	5,460,840	5,511,139	5,536,716	5,632,063	5,943,477	6,084,671	6,176,753	6,348,176	6,194,143	6,243,839	20.7
<b>European Community</b>	4,130,383	4,191,361	4,030,611	3,944,834	3,958,597	4,007,066	4,079,094	4,004,045	4,030,300	3,950,355	3,973,530	4,002,683	3,964,877	-4.0

<sup>a</sup> See tables B.3, B.4, B.8, B.9, and B.13 for gases separately.

<sup>b</sup> Estimates for *land-use change and forestry* are as reported in accordance with the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* (see table B.8).

<sup>c</sup> In accordance with decision 9/ CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989) and Slovenia (1986).

<sup>d</sup> The Party did not provide estimates from the *land-use change and forestry* sector for 1996-2002.

<sup>e</sup> The Party did not provide estimates from the *land-use change and forestry* sector.

**Table B.3. Aggregate emissions<sup>a</sup> of hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride (CO<sub>2</sub> equivalent), 1990-2002 (Gigagrams)**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Change from 1990 to latest reported estimate (%)
<b>Australia<sup>b</sup></b>	5,065	5,068	4,989	4,280	2,784	2,286	1,817	1,964	2,712	2,680	3,190	3,901	4,252	-16.1
<b>Austria</b>	1,485	1,663	1,310	883	1,103	1,736	1,886	1,884	1,791	1,626	1,735	1,735	1,735	16.9
<b>Belarus</b>														
<b>Belgium</b>	3,671	3,509	3,828	3,690	4,403	4,795	4,725	2,292	1,642	1,264	1,449	1,541	1,707	-53.5
<b>Bulgaria</b>						50	46	37	69	44	34	17	23	
<b>Canada<sup>c</sup></b>	10,257	11,123	9,967	11,137	10,669	9,813	9,526	8,819	8,326	7,588	7,579	7,681	8,461	-17.5
<b>Croatia</b>	939	648				8	60	91	18	9	23	49	49	-94.7
<b>Czech Republic</b>						169	322	626	523	525	890	1,283	1,322	
<b>Denmark</b>	44	64	93	195	257	326	392	401	480	581	682	700	716	1510.4
<b>Estonia</b>														
<b>Finland</b>	94	67	37	34	42	98	150	244	299	399	576	732	528	459.0
<b>France</b>	9,280	9,220	8,384	6,855	5,884	5,600	6,980	7,953	8,412	9,576	10,178	11,184	13,125	41.4
<b>Germany</b>	10,102	10,253	10,690	12,364	12,613	14,752	13,850	14,006	14,499	12,941	11,438	12,178	12,815	26.9
<b>Greece<sup>d</sup></b>	1,193	1,364	1,161	1,791	2,303	3,452	3,988	4,359	4,257	4,288	4,429	3,936	4,087	242.7
<b>Hungary</b>	346								952	829	456	540	598	73.2
<b>Iceland</b>	425	354	161	82	53	89	59	125	249	238	165	151	113	-73.4
<b>Ireland</b>	179					179	262	342	257	411	547	594	531	196.7
<b>Italy</b>	2,492	2,135	1,516	1,357	1,252	1,609	1,531	2,199	3,227	3,712	4,937	6,807	8,280	232.3
<b>Japan<sup>e</sup></b>						49,737	52,593	51,512	49,218	43,807	39,292	33,251	28,260	
<b>Latvia<sup>f</sup></b>						0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.03	
<b>Liechtenstein</b>														
<b>Lithuania</b>	35							14				14	35	
<b>Luxembourg<sup>g</sup></b>								47			47	0.03	47	
<b>Monaco</b>												1	0.2	
<b>Netherlands</b>	7,066	6,005	6,669	7,243	8,542	8,156	10,002	10,816	11,427	6,710	5,792	3,345	3,116	-55.9
<b>New Zealand</b>	528	665	654	544	224	246	419	296	372	282	244	325	484	-8.3

<b>Norway</b>	5,480	4,590	2,704	2,702	2,574	2,166	2,036	2,013	2,094	2,143	2,022	2,100	1,707	-68.8
<b>Poland</b>						845	843	1,024	1,040	1,349	1,627	2,181		
<b>Portugal<sup>h</sup></b>						5	5	6	11	18	30	43	56	
<b>Romania<sup>i</sup></b>	785	460	328	318	342	395	398	453	489	477	503	508	525	-33.1
<b>Russian Federation</b>	40,000	40,000	40,000	40,000	35,000	38,000	36,000	40,000	41,000	42,000				5.0
<b>Slovakia</b>	272	267	249	156	144	148	91	114	80	93	103	108	130	-52.4
<b>Slovenia<sup>j</sup></b>	283	310	250	258	289	342	291	253	204	161	171	182	207	-27.1
<b>Spain</b>	3,287	3,027	3,608	3,120	4,319	5,529	6,057	7,032	6,699	8,045	8,787	5,729	4,392	33.6
<b>Sweden</b>	527	520	509	525	563	640	639	750	701	772	721	740	780	48.0
<b>Switzerland</b>	279	265	254	239	224	233	281	398	459	507	629	677	692	148.6
<b>Ukraine</b>												2	2	
<b>United Kingdom</b>	13,851	14,149	14,070	14,704	15,726	17,240	18,535	20,907	19,021	12,748	11,475	11,623	12,396	-10.5
<b>United States of America</b>	90,942	82,846	84,668	88,747	89,432	95,312	114,861	121,660	135,699	134,807	139,082	129,720	138,231	52.0
<b>European Community</b>	53,318	52,202	52,101	52,985	57,232	64,162	69,047	73,236	72,768	63,138	62,823	60,934	64,310	20.6

<sup>a</sup> Estimates given refer to actual emissions.

<sup>b</sup> 1990 to 1994 emissions of HFCs and PFCs, 1996 to 2000 HFCs, PFCs and SF<sub>6</sub>.

<sup>c</sup> 1990 to 1991 emissions of PFCs only, 1995 to 2002 HFCs only.

<sup>d</sup> Emissions of HFCs and PFCs only.

<sup>e</sup> Party did not report actual emissions for years 1990-1994.

<sup>f</sup> Emissions of SF<sub>6</sub> only.

<sup>g</sup> Emissions of HFCs and SF<sub>6</sub>, except 2001 (HFCs only).

<sup>h</sup> Emissions of HFCs and SF<sub>6</sub>, except 1995 (SF<sub>6</sub> only).

<sup>i</sup> Emissions of PFCs only.

<sup>j</sup> 1990 to 1994 emissions of HFCs and SF<sub>6</sub>, 1996 to 2000 HFCs, PFCs and SF<sub>6</sub>.

**Table B.4. Total anthropogenic CO<sub>2</sub> emissions, excluding land-use change and forestry, 1990-2002 (Gigagrams and percentage change)**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Change from 1990 to latest reported estimate (%)
<b>Australia</b>	277,869	279,608	282,055	285,525	291,325	301,036	310,855	318,167	334,475	344,147	348,981	353,663	358,455	29.0
<b>Austria</b>	60,899	64,535	59,080	59,310	59,704	62,474	66,147	65,713	65,808	64,336	65,064	69,037	69,671	14.4
<b>Belarus</b>	102,471	101,482	98,025	81,379	66,783	61,455	60,885	61,448	58,738	56,591	52,019	52,155	51,694	-49.6
<b>Belgium</b>	118,326	122,171	121,075	119,776	123,658	125,143	129,605	123,266	128,663	123,804	125,599	125,543	126,585	7.0
<b>Bulgaria<sup>a</sup></b>	102,519	65,273	58,747	61,108	58,279	61,341	59,743	57,910	51,603	47,888	46,690	48,914	46,755	-54.4
<b>Canada</b>	471,237	461,919	475,444	473,882	488,086	500,715	513,189	524,480	535,100	549,943	572,664	564,450	575,865	22.2
<b>Croatia</b>	22,970	16,702	15,765	16,399	15,674	16,251	16,976	18,057	18,956	19,679	19,379	20,390	21,484	-6.5
<b>Czech Republic</b>	163,990	153,142	139,789	134,851	130,626	128,817	132,780	137,357	128,268	121,093	127,902	127,996	123,048	-25.0
<b>Denmark</b>	52,661	63,376	57,548	59,910	63,889	61,129	74,529	65,189	60,228	57,437	52,850	54,499	54,164	2.9
<b>Estonia</b>	38,107	35,915	26,142	20,553	21,378	19,315	20,264	20,225	18,318	16,771	16,849	17,103	17,290	-54.6
<b>Finland</b>	62,459	61,062	58,662	59,164	65,459	62,676	68,123	66,832	64,594	64,065	62,283	67,692	69,500	11.3
<b>France</b>	396,126	420,362	412,689	392,731	388,238	394,770	408,676	402,667	423,859	411,166	406,823	411,543	406,044	2.5
<b>Germany</b>	1,015,572	977,468	929,898	920,187	906,063	901,478	923,792	892,423	884,501	857,281	860,273	874,264	864,117	-14.9
<b>Greece</b>	82,818	82,844	84,443	84,540	86,428	86,705	89,041	93,637	98,289	97,594	103,429	105,506	105,504	27.4
<b>Hungary<sup>a</sup></b>	84,063	67,391	60,557	60,826	59,196	59,758	60,475	58,893	57,601	60,117	59,009	59,022	57,211	-31.9
<b>Iceland</b>	2,085	2,003	2,126	2,232	2,196	2,213	2,302	2,405	2,287	2,455	2,306	2,186	2,238	7.3
<b>Ireland</b>	31,797	32,535	33,113	32,680	34,114	34,759	35,954	38,312	40,250	42,133	44,160	46,460	45,808	44.1
<b>Italy</b>	431,156	431,272	429,752	424,018	416,577	446,582	439,644	444,180	455,797	460,075	462,076	469,515	468,961	8.8
<b>Japan</b>	1,122,277	1,131,370	1,148,915	1,138,719	1,198,164	1,213,082	1,234,759	1,242,028	1,195,175	1,228,371	1,238,958	1,213,754	1,247,613	11.2
<b>Latvia</b>	22,181	17,786	13,729	12,235	11,905	10,498	9,137	8,704	8,125	7,482	6,980	7,409	7,333	-66.9
<b>Liechtenstein</b>	195									196				0.8
<b>Lithuania</b>	38,920		21,193	16,777	16,609	14,679	15,365	14,146	15,576			11,787	11,833	-69.6
<b>Luxembourg</b>	12,750				11,998	9,545			7,696	5,432	8,923	5,482	10,218	-19.9
<b>Monaco</b>	71	86	90	89	88	85	88	83	81	89	90	92	92	29.6
<b>Netherlands</b>	160,578	167,704	166,446	168,454	169,453	173,248	181,572	166,228	172,421	167,261	170,718	177,063	176,654	10.0
<b>New Zealand</b>	25,254	25,757	27,565	26,962	27,009	27,070	28,020	29,980	28,685	30,421	30,912	33,041	33,770	33.7

<b>Norway</b>	34,690	33,559	33,931	35,565	37,296	37,390	40,607	40,569	40,838	41,317	40,857	42,065	40,945	18.0
<b>Poland<sup>a</sup></b>	476,625	366,959	371,591	363,133	371,588	348,172	372,530	361,626	337,448	329,697	314,812	317,844		-33.3
<b>Portugal</b>	44,130	46,009	50,139	48,546	49,792	53,518	50,564	53,531	57,900	64,433	63,843	64,365	67,464	52.9
<b>Romania<sup>a</sup></b>	182,447	129,696	130,424	130,177	126,804	133,045	138,655	123,864	109,007	91,800	94,577	98,759	105,641	-42.1
<b>Russian Federation</b>	2,362,000	2,180,000	2,010,000	1,840,000	1,660,000	1,589,000	1,495,000	1,529,000	1,505,000	1,509,000				-36.1
<b>Slovakia</b>	59,619	52,477	48,714	45,788	42,900	44,187	44,712	45,007	43,998	43,036	40,623	43,021	43,303	-27.4
<b>Slovenia<sup>a</sup></b>	15,998	13,521	13,549	13,992	13,929	14,772	15,588	16,033	15,754	15,108	15,198	16,289	16,349	2.2
<b>Spain</b>	224,751	231,316	239,388	230,166	241,296	251,902	240,649	260,074	268,776	295,260	306,830	308,278	325,448	44.8
<b>Sweden</b>	55,847	56,313	56,121	55,739	58,431	57,539	60,811	56,409	57,304	54,531	52,391	53,236	54,753	-2.0
<b>Switzerland</b>	44,305	46,031	45,849	43,360	42,643	43,401	44,019	43,211	44,508	44,617	43,678	44,752	43,741	-1.3
<b>Ukraine</b>	703,792	586,478	577,916	504,222	406,838	380,928	346,768	322,907	314,445			277,272	282,714	-59.8
<b>United Kingdom</b>	584,029	587,621	573,182	559,365	556,038	547,553	567,441	543,110	545,882	537,601	542,648	556,000	537,380	-8.0
<b>United States of America</b>	5,002,324	4,961,684	5,062,351	5,175,351	5,260,866	5,312,189	5,498,549	5,577,635	5,602,500	5,676,290	5,858,982	5,731,773	5,782,363	15.6
<b>European Community</b>	3,334,677	3,358,137	3,284,820	3,228,195	3,232,188	3,269,734	3,347,082	3,281,236	3,333,097	3,306,447	3,328,207	3,392,202	3,382,270	1.4

<sup>a</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989) and Slovenia (1986).

Table B.5. CO<sub>2</sub> emissions from fuel combustion, 1990-2002 (Gigagrams and percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Change from 1990 to latest reported estimate (%)
Australia	252,660	254,972	259,561	262,957	267,128	276,710	286,923	294,443	310,229	318,847	323,734	328,458	333,680	32.1
Austria	53,117	56,889	52,024	52,310	52,371	54,866	58,953	57,863	58,272	56,928	57,142	61,006	61,815	16.4
Belarus <sup>a</sup>	100,615	99,700	96,300	79,800	65,700	60,552	59,900	60,200	57,300	55,185	50,742	50,862	50,295	-50.0
Belgium	108,746	110,428	109,180	108,299	112,165	113,885	118,291	111,939	117,870	112,383	114,104	114,281	115,187	5.9
Bulgaria <sup>b</sup>	94,673	60,674	54,839	57,173	53,659	55,986	54,541	53,067	48,113	44,104	42,649	44,917	43,052	-54.5
Canada	421,905	411,758	425,723	422,945	436,117	447,878	459,857	471,074	480,525	495,043	518,101	510,600	521,287	23.6
Croatia	20,543	14,745	13,709	14,470	13,630	14,385	15,083	16,007	17,005	17,441	16,814	17,691	18,854	-8.2
Czech Republic	160,080	148,807	135,766	130,661	127,116	124,647	129,516	133,925	124,486	117,501	124,420	122,246	117,426	-26.6
Denmark	51,246	61,535	55,573	57,981	61,941	59,280	72,574	62,903	58,077	54,887	50,575	52,153	51,922	1.3
Estonia	37,494	35,300	25,828	20,360	21,163	19,094	20,057	19,999	17,950	16,424	16,495	16,747	16,971	-54.7
Finland	53,893	53,070	51,259	52,035	58,331	55,882	61,220	59,815	57,404	56,781	54,932	60,492	62,211	15.4
France	364,083	390,107	384,416	365,311	359,708	366,357	381,541	375,387	396,238	384,795	380,489	385,679	380,541	4.5
Germany	988,859	953,634	905,593	896,074	880,359	876,060	900,109	868,125	859,727	832,136	835,011	850,615	841,417	-14.9
Greece	76,471	76,447	78,082	78,188	80,049	79,796	82,056	86,516	91,285	90,590	95,803	97,862	97,812	27.9
Hungary <sup>b</sup>	79,571	65,255	58,636	58,754	57,046	57,567	58,174	56,552	54,621	56,490	56,068	56,110	54,583	-31.4
Iceland	1,672	1,626	1,751	1,810	1,774	1,775	1,867	1,913	1,876	1,905	1,808	1,782	1,854	10.9
Ireland	29,636	30,346	30,914	30,548	31,714	32,453	33,691	35,805	37,786	39,687	41,335	43,348	42,621	43.8
Italy	399,676	400,195	398,247	395,425	389,137	417,434	412,813	416,806	428,703	433,027	433,869	440,977	441,110	10.4
Japan	1,048,332	1,055,413	1,071,397	1,062,292	1,118,143	1,132,241	1,153,372	1,161,013	1,118,899	1,152,557	1,161,366	1,139,023	1,174,320	12.0
Latvia	21,577	17,345	13,515	12,139	11,676	10,320	8,921	8,458	7,875	7,184	6,729	7,136	7,017	-67.5
Liechtenstein	195									196				0.8
Lithuania	36,717		21,193	16,777	16,609	14,289	14,977	13,765	14,378			10,807	10,782	-70.6
Luxembourg	12,133				11,520	9,109			7,048	4,740	8,232	4,847	9,419	-22.4
Monaco	71	86	90	89	88	85	88	83	81	89	90	92	92	29.6
Netherlands	157,808	165,695	164,567	166,634	167,303	170,087	178,127	162,536	169,443	163,758	167,890	174,014	173,025	9.6
New Zealand	22,235	22,527	24,233	23,539	23,640	23,675	24,622	26,678	25,272	26,923	27,478	29,489	30,206	35.8



<b>Norway</b>	25,816	25,303	25,786	26,746	28,137	28,012	30,652	30,853	30,988	30,968	30,007	31,855	32,013	24.0
<b>Poland<sup>b</sup></b>	462,998	357,661	360,927	353,814	362,083	337,942	363,498	350,876	326,857	318,963	302,282	307,110		-33.7
<b>Portugal</b>	39,868	41,750	46,052	44,433	44,774	47,746	45,113	47,310	51,311	58,397	57,494	57,599	61,070	53.2
<b>Romania<sup>b</sup></b>	151,040	114,676	113,942	114,825	110,719	114,108	120,352	106,613	93,122	80,327	82,453	87,143	92,775	-38.6
<b>Russian Federation<sup>a</sup></b>	2,320,000	2,140,100	1,977,900	1,813,800	1,640,000	1,570,000	1,480,000	1,495,183	1,469,736	1,470,383				-36.6
<b>Slovakia</b>	55,724	49,487	45,731	42,907	39,802	41,062	41,628	41,803	40,089	39,010	36,947	40,000	39,689	-28.8
<b>Slovenia<sup>b</sup></b>	14,930	12,680	12,683	13,307	13,094	13,930	14,735	15,168	14,927	14,263	14,325	15,349	15,416	3.3
<b>Spain</b>	204,614	211,794	221,249	212,531	221,325	231,757	220,779	239,234	246,597	272,428	283,331	284,332	300,765	47.0
<b>Sweden</b>	50,545	51,139	51,204	50,716	52,767	51,983	55,384	51,360	52,069	49,516	47,183	47,776	49,491	-2.1
<b>Switzerland</b>	39,601	41,733	41,716	39,474	38,620	39,447	40,197	39,535	40,729	40,768	39,591	40,492	39,450	-0.4
<b>Ukraine</b>	672,075	557,747	549,439	484,956	390,118	365,333	331,976	307,091	298,489			241,729	245,127	-63.5
<b>United Kingdom</b>	556,611	564,990	551,333	537,936	531,445	525,024	543,916	521,312	524,687	515,644	521,722	535,803	519,159	-6.7
<b>United States of America</b>	4,825,580	4,796,027	4,896,923	5,011,865	5,090,569	5,135,933	5,327,260	5,401,766	5,429,488	5,506,460	5,691,553	5,577,564	5,629,757	16.7
<b>European Community</b>	3,145,714	3,178,845	3,110,313	3,059,369	3,054,912	3,091,624	3,173,720	3,104,889	3,156,521	3,128,709	3,148,991	3,214,503	3,207,564	2.0

<sup>a</sup> Total emissions for energy are given here because emissions were not further disaggregated by the Party.

<sup>b</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989) and Slovenia (1986).

**Table B.6. CO<sub>2</sub> emissions from transport, 1990-2002 (Gigagrams and percentage change)**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Change from 1990 to latest reported estimate (%)
<b>Australia</b>	59,727	59,077	60,194	61,358	62,765	65,367	67,711	69,060	69,123	69,970	72,095	72,260	74,087	24.0
<b>Austria</b>	12,759	14,172	14,098	14,225	14,328	14,418	16,064	15,013	17,094	16,552	17,437	18,706	20,606	61.5
<b>Belarus</b>												5,472	6,529	
<b>Belgium</b>	19,941	20,401	21,894	22,012	21,764	21,850	22,272	22,499	23,221	23,524	23,990	24,651	24,977	25.3
<b>Bulgaria<sup>a</sup></b>	12,639	6,525	6,435	7,444	6,547	6,845	6,306	5,315	6,475	6,212	5,881	6,014	6,317	-50.0
<b>Canada</b>	146,123	140,902	144,676	147,836	155,251	159,470	163,962	170,373	174,291	179,053	180,627	177,886	180,777	23.7
<b>Croatia</b>	4,046	2,917	2,781	2,949	3,124	3,337	3,668	4,013	4,163	4,394	4,396	4,459	4,766	17.8
<b>Czech Republic</b>	7,275	6,869	7,453	8,314	7,605	8,912	9,896	11,392	10,779	12,016	11,110	12,061	12,428	70.8
<b>Denmark</b>	10,415	10,914	11,045	11,236	11,684	11,823	12,029	12,160	12,191	12,253	12,120	12,149	12,300	18.1
<b>Estonia</b>	2,693	3,078	1,498	1,713	1,522	1,103	1,047	1,212	1,352	1,203	1,030	1,921	2,175	-19.2
<b>Finland</b>	12,475	11,610	11,583	10,963	11,366	11,125	10,994	11,531	12,299	12,734	12,379	12,569	12,784	2.5
<b>France</b>	119,123	121,637	126,201	126,163	127,353	129,290	130,737	132,960	135,128	138,215	137,727	140,963	141,953	19.2
<b>Germany</b>	162,360	165,953	171,661	176,533	172,899	176,563	176,661	177,159	180,427	186,067	182,349	178,224	176,388	8.6
<b>Greece</b>	15,355	16,151	16,561	16,774	16,799	16,967	17,424	18,025	19,651	20,408	19,303	19,967	20,299	32.2
<b>Hungary<sup>a</sup></b>	7,564	7,383	7,189	7,141	7,212	7,001	6,612	7,741	8,381	9,568	8,517	8,844	9,270	22.6
<b>Iceland</b>	600	611	622	622	625	600	591	602	605	627	629	640	644	7.3
<b>Ireland</b>	5,020	5,265	5,682	5,667	5,883	6,369	7,128	7,753	8,848	9,819	10,211	11,063	11,231	123.7
<b>Italy</b>	101,857	104,348	108,669	110,394	110,310	112,066	113,230	114,909	118,726	119,879	120,409	122,821	124,944	22.7
<b>Japan</b>	210,663	222,082	229,925	232,269	241,150	250,655	258,603	262,061	258,464	262,053	258,060	260,345	254,661	20.9
<b>Latvia</b>	4,546	3,069	2,633	2,410	2,256	2,602	2,111	2,116	2,082	2,016	2,235	2,628	2,632	-42.1
<b>Liechtenstein</b>	52									51				-1.3
<b>Lithuania</b>	5,791		3,472	3,462	4,273	3,586	3,893	3,770	3,846			3,377	3,502	-39.5
<b>Luxembourg</b>	2,625				3,685	3,426			3,985	1,337	4,975	1,504	5,422	106.6
<b>Monaco</b>	40	46	52	48	50	48	48	48	46	49	51	54	52	28.2
<b>Netherlands</b>	29,399	29,391	30,597	31,209	31,347	32,103	32,626	33,062	34,154	34,996	35,212	35,506	36,251	23.3
<b>New Zealand</b>	8,617	8,623	9,007	9,397	10,126	10,844	11,002	11,255	11,449	11,726	12,351	12,756	13,899	61.3

<b>Norway</b>	11,099	11,016	11,232	11,846	11,675	12,075	12,717	12,963	13,305	13,902	13,028	13,336	13,326	20.1
<b>Poland<sup>a</sup></b>	28,238	27,815	30,475	27,675	29,533	25,285	28,098	26,662	28,126	31,382	28,207	30,121		6.7
<b>Portugal</b>	10,460	11,089	11,967	12,396	12,915	13,529	14,174	14,749	16,170	17,010	18,555	19,381	19,831	89.6
<b>Romania<sup>a</sup></b>	7,276	7,594	9,355	8,253	8,783	8,054	11,350	11,493	10,784	8,510	9,287	10,799	11,891	63.4
<b>Russian Federation</b>														
<b>Slovakia</b>	5,071	4,230	3,946	3,891	4,120	4,378	4,442	4,607	4,953	4,819	4,319	4,893	5,590	10.2
<b>Slovenia<sup>a</sup></b>	1,971	2,514	2,590	2,990	3,298	3,624	4,199	4,268	3,687	3,507	3,653	3,786	3,800	92.8
<b>Spain</b>	57,497	59,309	62,573	61,840	64,672	65,634	70,181	70,803	77,831	82,668	85,108	89,341	91,427	59.0
<b>Sweden</b>	18,302	18,060	18,908	18,071	18,641	18,751	18,544	18,750	19,014	19,392	19,258	19,506	20,025	9.4
<b>Switzerland</b>	14,187	14,690	14,986	13,935	14,126	13,813	13,865	14,452	14,680	15,292	15,587	15,298	15,195	7.1
<b>Ukraine</b>												11,935	12,665	
<b>United Kingdom</b>	116,581	116,062	117,502	118,690	118,962	117,860	122,491	123,555	122,688	123,397	123,148	123,146	122,792	5.3
<b>United States of America</b>	1,458,209	1,431,644	1,462,991	1,493,260	1,535,571	1,562,266	1,604,763	1,614,773	1,644,920	1,702,900	1,749,645	1,730,649	1,764,372	21.0
<b>European Community</b>	696,951	710,538	734,837	742,093	745,254	754,241	770,609	779,213	803,925	823,756	824,558	833,216	841,230	20.7

<sup>a</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989); and Slovenia (1986).

**Table B.7. CO<sub>2</sub> emissions from industrial processes, 1990-2002 (Gigagrams and percentage change)**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Change from 1990 to latest reported estimate (%)
<b>Australia</b>	19,235	18,879	16,642	16,709	18,613	18,594	18,669	18,658	18,940	19,549	18,742	18,265	18,297	-4.9
<b>Austria</b>	7,377	7,280	6,741	6,691	7,023	7,281	6,940	7,529	7,211	7,068	7,565	7,644	7,484	1.5
<b>Belarus</b>	1,856	1,782	1,725	1,579	1,083	903	985	1,248	1,438	1,406	1,278	1,240	1,398	-24.7
<b>Belgium</b>	8,577	10,735	10,852	10,440	10,481	10,119	9,730	9,976	9,656	9,939	10,053	9,709	9,843	14.8
<b>Bulgaria<sup>a</sup></b>	7,846	4,599	3,908	3,936	4,620	5,355	5,202	4,843	3,490	3,784	4,041	3,997	3,704	-52.8
<b>Canada</b>	31,692	32,839	32,736	34,381	35,321	36,129	37,491	37,959	39,499	39,750	39,416	38,558	39,248	23.8
<b>Croatia</b>	2,010	1,501	1,578	1,253	1,439	1,169	1,249	1,450	1,362	1,713	1,932	2,011	1,965	-2.3
<b>Czech Republic</b>	3,380	4,335	3,210	4,190	2,772	4,170	2,479	2,498	2,661	2,362	2,251	4,524	4,407	30.4
<b>Denmark</b>	1,051	1,224	1,343	1,359	1,362	1,366	1,439	1,606	1,614	1,535	1,570	1,601	1,595	51.7
<b>Estonia</b>	614	615	313	193	215	221	207	226	368	347	354	356	319	-48.0
<b>Finland</b>	1,175	1,037	937	793	836	836	863	878	921	1,002	1,072	1,042	990	-15.8
<b>France</b>	23,443	21,459	19,668	18,761	19,822	20,318	19,056	19,216	19,716	18,841	18,688	18,260	18,352	-21.7
<b>Germany</b>	26,713	23,834	24,305	24,113	25,704	25,418	23,683	24,293	24,774	25,142	25,262	23,646	22,699	-15.0
<b>Greece</b>	6,177	6,221	6,188	6,183	6,217	6,757	6,834	6,970	6,852	6,845	7,481	7,489	7,537	22.0
<b>Hungary<sup>a</sup></b>	4,265	1,382	1,168	1,318	1,397	1,438	1,547	1,587	2,152	2,709	2,690	2,679	2,439	-42.8
<b>Iceland</b>	392	359	362	409	410	426	425	484	404	543	492	398	380	-3.1
<b>Ireland</b>	1,931	1,954	1,965	1,878	2,141	2,041	2,003	2,264	2,250	2,222	2,645	2,870	3,013	56.1
<b>Italy</b>	26,154	25,820	26,361	23,332	22,404	24,247	22,169	22,543	22,635	23,165	24,300	24,795	24,405	-6.7
<b>Japan</b>	57,009	58,601	59,127	58,156	59,171	59,213	59,020	57,574	52,273	51,885	52,797	50,495	49,048	-14.0
<b>Latvia</b>	499	350	161	52	168	119	152	166	164	203	163	167	177	-64.6
<b>Liechtenstein</b>														
<b>Lithuania</b>	2,203					390	388	381	1,198			980	1,049	-52.4
<b>Luxembourg</b>	585				447	406			638	671	682	625	790	35.1
<b>Monaco</b>														
<b>Netherlands</b>	1,581	1,500	1,270	1,210	1,440	1,442	1,386	1,428	1,319	1,315	1,238	1,355	1,989	25.9
<b>New Zealand</b>	2,404	2,529	2,665	2,795	2,693	2,770	2,765	2,632	2,761	2,883	2,854	2,934	2,954	22.9

<b>Norway</b>	6,066	5,520	5,600	6,165	6,364	6,651	6,851	6,771	6,937	6,765	7,026	6,811	6,060	-0.1
<b>Poland<sup>a</sup></b>	13,574	9,248	10,603	9,249	9,422	10,144	8,938	10,664	10,486	10,609	12,347	10,513		-22.6
<b>Portugal</b>	3,904	3,885	3,684	3,700	4,339	4,941	4,655	5,294	5,686	5,040	5,143	5,434	4,993	27.9
<b>Romania<sup>a</sup></b>	31,407	15,020	16,482	15,351	16,085	18,937	18,303	17,251	15,884	11,473	12,124	11,616	12,866	-59.0
<b>Russian Federation<sup>b</sup></b>	42,000	39,900	32,100	26,200	20,000	19,000	15,000	34,282	34,864	38,538				-8.2
<b>Slovakia</b>	3,895	2,990	2,982	2,881	3,098	3,125	3,084	3,204	3,909	4,026	3,578	3,617	3,471	-10.9
<b>Slovenia<sup>a</sup></b>	1,022	807	814	639	786	782	789	797	763	775	800	843	839	-17.9
<b>Spain</b>	16,540	15,917	14,421	13,753	16,012	17,069	16,673	17,517	18,698	19,398	19,813	20,359	21,015	27.1
<b>Sweden</b>	4,012	3,915	3,851	3,817	4,107	4,129	4,095	3,869	3,926	3,717	3,955	4,192	4,032	0.5
<b>Switzerland</b>	2,842	2,499	2,342	2,077	2,235	2,102	1,918	1,739	1,749	1,751	1,870	1,904	1,846	-35.1
<b>Ukraine</b>	31,717	28,731	28,477	19,266	16,720	15,595	14,792	15,816	15,956			35,244	37,440	18.0
<b>United Kingdom</b>	14,148	11,772	11,156	11,286	12,461	12,504	13,314	12,585	12,360	13,159	12,858	11,825	10,213	-27.8
<b>United States of America</b>	170,934	159,784	160,122	156,700	163,434	167,269	162,760	167,996	166,446	162,887	161,660	148,797	147,308	-13.8
<b>European Community</b>	145,732	139,239	135,375	129,943	135,839	139,692	134,188	137,624	139,378	140,081	142,721	140,846	138,952	-4.7

<sup>a</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989); and Slovenia (1986).

<sup>b</sup> From 1997 onward values include emissions related to the production of lime, soda, ammonia, carbides and ferroalloys.

Table B.8. Anthropogenic CO<sub>2</sub> emissions and removals from land-use change and forestry, <sup>a</sup> 1990-2002 (Gigagrams and percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Change from 1990 to latest reported estimate (%)
<b>Australia</b>	85,370	61,685	45,892	47,185	49,241	37,358	33,454	30,322	38,278	25,446	16,672	7,547	13,113	-84.6
<b>Austria</b>	-9,215	-13,504	-8,656	-8,982	-7,862	-7,254	-5,385	-7,633	-7,633	-7,633	-7,633	-7,633	-7,633	-17.2
<b>Belarus</b>	-12,720	-14,565	-15,650	-16,880	-17,685	-18,158	-18,155	-18,310	-18,520	-19,298	-18,981	-16,882	-11,453	-10.0
<b>Belgium</b>	-1,893	-1,886	-1,879	-1,872	-1,865	-1,857	-1,850	-1,843	-1,836	-1,829	-1,822	-1,814	-1,814	-4.2
<b>Bulgaria<sup>b</sup></b>	-4,657	-7,880	-7,636	-7,022	-6,975	-7,519	-7,190	-5,852	-6,233	-6,608	-8,976	-9,467	-8,318	78.6
<b>Canada</b>	-154,179	-130,965	-135,463	-84,791	99,093	115,244	-85,022	-106,256	31,792	-48,986	-73,610	-78,575	-20,645	-86.6
<b>Croatia</b>	-6,505	-6,505	-6,505	-6,505	-6,505	-6,505	-8,069	-8,069	-8,069	-8,069	-8,069	-8,069	-9,000	38.4
<b>Czech Republic</b>	-2,128	-5,027	-6,537	-5,643	-4,681	-5,454	-4,486	-4,639	-3,757	-3,401	-4,016	-4,363	-4,492	111.1
<b>Denmark</b>	-2,832	-3,013	-3,000	-3,215	-3,100	-2,992	-3,064	-3,153	-3,313	-3,311	-653	-3,539	-3,813	34.6
<b>Estonia</b>	-6,320	-7,163	-7,817	-9,696	-7,605	-7,782	-9,607	-9,107	-8,522	-8,107	-8,365	-9,417	-8,564	35.5
<b>Finland</b>	-23,798	-38,207	-31,894	-29,116	-17,259	-14,687	-21,032	-12,637	-9,713	-10,821	-11,953	-16,851	-18,010	-24.3
<b>France</b>	-31,645	-26,372	-31,819	-38,379	-41,502	-37,926	-41,241	-44,810	-43,847	-46,067	-37,913	-49,858	-54,865	73.4
<b>Germany</b>	7,515	6,904	6,477	6,442	5,699	5,653	5,687	5,751	5,925	5,901	14,097	13,809	13,906	85.0
<b>Greece</b>	1,474	584	2,302	1,664	1,500	-402	-72	-404	2,830	19	4,170	-1,295	-1,892	-228.4
<b>Hungary<sup>b</sup></b>	-1,348	-3,239	-3,823	-4,697	-4,820	-4,797	-3,931	-4,205	-4,411	-4,500	-4,377	-4,542	-2,359	75.0
<b>Iceland</b>	-6	-15	-25	-37	-47	-56	-66	-81	-94	-112	-131	-145	-163	2638.0
<b>Ireland</b>	-66	-62	-9	-72	-113	-55	-4	-31	-161	-122	-47	-629	-978	1389.2
<b>Italy</b>	-23,532	-23,176	-21,817	-20,692	-19,446	-19,598	-20,222	-17,764	-17,426	-17,712	-16,945	-18,301	-20,385	-13.4
<b>Japan</b>	-83,903	-83,866	-85,570	-90,082	-93,544	-96,705								15.3
<b>Latvia</b>	-18,701	-17,675	-18,288	-17,172	-15,706	-14,730	-14,939	-11,724	-10,102	-9,095	-8,585	-9,560	-8,329	-55.5
<b>Liechtenstein</b>														
<b>Lithuania</b>	-5,482								-7,558			-7,335	-6,721	22.6
<b>Luxembourg</b>	-295				-295	-295			-295	-295	-295	-295	-295	0.0
<b>Monaco</b>														
<b>Netherlands</b>	-1,422	-1,528	-1,487	-1,806	-1,929	-1,232	-1,398	-1,180	-1,380	-1,236	-1,413	-1,413	-1,413	-0.6
<b>New Zealand</b>	-21,764	-20,430	-17,985	-15,679	-14,732	-15,195	-15,484	-17,168	-20,201	-21,990	-23,643	-23,974	-24,171	11.1

<b>Norway</b>	-9,538	-11,751	-13,225	-13,470	-15,599	-15,503	-17,431	-16,322	-17,431	-17,612	-18,609	-18,831	-19,920	108.8
<b>Poland<sup>b</sup></b>	-34,746	-42,757	-40,815	-40,179	-41,953	-42,880	-42,616	-40,521	-29,821	-43,464	-43,094	-53,639		54.4
<b>Portugal</b>	5,573	4,323	3,046	2,768	1,834	874	-19	-107	-1,106	-435	-1,251	-881	-1,606	-128.8
<b>Romania<sup>b</sup></b>	-12,440	-16,561	-17,466	-18,415	-19,039	-18,258	-17,349	-17,658	-19,519	-18,412	-17,685	-18,541	-15,972	28.4
<b>Russian Federation</b>	154,947	-16,013	-8,305	35,584	-238,066	-334,947	-173,929	-131,557	-2,927	-211,742				-236.7
<b>Slovakia</b>	-2,427	-3,476	-4,128	-4,266	-3,287	-2,683	-2,428	-1,411	-1,936	-1,651	-2,443	-5,265	-5,278	117.5
<b>Slovenia<sup>b</sup></b>	-2,950	-4,751	-5,088	-5,175	-5,332	-5,675	-5,561	-5,561	-5,561	-5,561	-5,561	-5,561	-5,561	88.5
<b>Spain</b>	-9,456	-11,197	-13,155	-15,450	-15,882	-16,353	-18,785	-21,606	-23,871	-26,758	-31,746	-31,477	-35,301	273.3
<b>Sweden</b>	-20,292	-29,328	-23,353	-29,332	-26,305	-21,293	-22,269	-27,288	-24,331	-27,305	-27,306	-24,811	-26,541	30.8
<b>Switzerland</b>	-1,293	-1,359	-1,443	-2,408	-2,411	-2,375	-2,527	-2,694	-2,622	-2,276	130	430	285	-122.1
<b>Ukraine</b>	-52,107	-52,964	-52,658	-52,917	-52,721	-52,940	-66,151	-68,806	-68,708					31.9
<b>United Kingdom</b>	9,050	9,128	8,586	6,869	5,643	4,946	5,228	5,032	5,286	5,019	3,639	3,474	1,903	-79.0
<b>United States of America</b>	-957,866	-883,665	-928,823	-850,626	-919,492	-947,992	-1,055,222	-820,955	-705,786	-675,753	-690,150	-689,747	-690,723	-27.9
<b>European Community</b>	-101,059	-48,402	-117,325	-131,695	-120,934	-112,144	-124,722	-127,836	-121,283	-132,408	-117,367	-141,546	-158,741	57.1

<sup>a</sup> Negative values in Gg indicate net removals of CO<sub>2</sub> from the *land-use change and forestry* sector. In the change column negative values indicate a decrease in removals or an increase in emissions relative to 1990 and positive values indicate an increase in removals or a decrease in emissions.

<sup>b</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989); and Slovenia (1986).

**Table B.9. Total anthropogenic CH<sub>4</sub> emissions, 1990-2002 (Gigagrams and percentage change)**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Change from 1990 to latest reported estimate (%)
<b>Australia</b>	5,807	5,775	5,723	5,664	5,596	5,698	5,645	5,752	5,833	5,805	5,929	5,931	5,918	1.9
<b>Austria</b>	446	445	431	429	422	418	410	397	391	382	371	365	355	-20.4
<b>Belarus</b>	666	644	617	584	551	518	508	507	510	503	488	612	609	-8.7
<b>Belgium</b>	519	520	516	511	517	520	510	507	501	486	468	447	435	-16.2
<b>Bulgaria<sup>a</sup></b>	1,164	1,190	1,125	1,011	733	769	716	610	560	481	484	446	446	-61.6
<b>Canada</b>	3,500	3,632	3,745	3,923	4,383	4,522	4,272	4,230	4,499	4,352	4,348	4,409	4,475	27.9
<b>Croatia</b>	182	172	163	157	147	148	150	154	148	151	153	160	163	-10.0
<b>Czech Republic</b>	798	711	685	633	619	600	600	575	544	509	510	499	494	-38.1
<b>Denmark</b>	259	264	265	271	278	282	288	281	280	274	273	276	268	3.8
<b>Estonia</b>	208	175	142	115	125	122	128	136	127	117	114	94	90	-56.5
<b>Finland</b>	302	299	295	294	292	291	288	284	274	269	258	256	244	-19.3
<b>France</b>	3,306	3,326	3,309	3,318	3,306	3,328	3,305	3,145	3,124	3,078	3,067	3,013	2,941	-11.0
<b>Germany</b>	6,743	6,214	5,992	5,824	5,597	5,286	5,073	4,907	4,647	4,479	4,208	4,039	3,965	-41.2
<b>Greece</b>	428	425	441	446	458	464	479	485	515	516	544	534	545	27.2
<b>Hungary<sup>a</sup></b>	624	914	808	792	776	792	815	790	680	683	471	485	466	-25.4
<b>Iceland</b>	22	22	22	22	23	23	23	24	25	25	26	26	25	14.3
<b>Ireland</b>	567	580	588	592	596	600	608	617	618	614	609	598	609	7.5
<b>Italy</b>	1,771	1,797	1,719	1,703	1,727	1,747	1,737	1,741	1,715	1,691	1,691	1,684	1,635	-7.7
<b>Japan</b>	1,181	1,176	1,169	1,166	1,146	1,116	1,090	1,050	1,024	1,005	986	961	930	-21.2
<b>Latvia</b>	174	170	149	112	104	112	112	110	111	108	104	109	108	-37.7
<b>Liechtenstein</b>	1									1				-13.1
<b>Lithuania</b>	340					260	247	264	178			151	169	-50.2
<b>Luxembourg</b>	24				22	22			23	23	23		22	-6.2
<b>Monaco</b>	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	30.2
<b>Netherlands</b>	1,302	1,326	1,283	1,262	1,233	1,190	1,182	1,106	1,068	1,020	968	949	891	-31.6
<b>New Zealand</b>	1,218	1,213	1,194	1,212	1,225	1,242	1,251	1,246	1,256	1,263	1,285	1,310	1,313	7.8



<b>Norway</b>	307	311	316	322	326	329	332	335	331	329	334	333	327	6.6
<b>Poland<sup>a</sup></b>	3,141	2,589	2,474	2,432	2,467	2,457	2,252	2,279	2,335	2,250	2,183	1,849		-41.1
<b>Portugal</b>	402	420	393	381	389	412	401	401	419	429	409	392	398	-1.0
<b>Romania<sup>a</sup></b>	2,464	1,904	1,656	1,559	1,508	1,522	1,534	1,363	1,274	1,226	1,225	1,195	1,158	-53.0
<b>Russian Federation</b>	26,190	24,238	22,952	21,238	19,571	18,714	18,476	14,381	14,714	13,810				-47.3
<b>Slovakia</b>	310	287	265	247	241	249	253	240	222	220	214	213	220	-29.0
<b>Slovenia<sup>a</sup></b>	121	116	113	113	112	113	112	113	113	112	112	108	109	-9.8
<b>Spain</b>	1,440	1,453	1,503	1,522	1,573	1,606	1,686	1,735	1,794	1,813	1,870	1,920	1,959	36.0
<b>Sweden</b>	317	316	321	323	320	316	314	310	302	292	281	279	271	-14.7
<b>Switzerland</b>	238	237	231	230	223	224	221	214	212	211	208	208	203	-14.7
<b>Ukraine</b>	9,402	8,654	8,348	7,932	7,570	7,295	7,059	6,606	6,457			8,786	8,815	-6.2
<b>United Kingdom</b>	3,662	3,615	3,539	3,397	3,090	3,062	2,988	2,837	2,686	2,504	2,323	2,192	2,098	-42.7
<b>United States of America</b>	30,603	30,623	30,798	30,420	30,720	30,960	30,333	29,944	29,530	29,193	29,259	28,815	28,482	-6.9
<b>European Community</b>	21,476	21,012	20,607	20,285	19,807	19,531	19,281	18,762	18,340	17,850	17,338	16,965	16,638	-22.5

<sup>a</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989); and Slovenia (1986).

Table B.10. CH<sub>4</sub> fugitive fuel emissions, 1990-2002 (Gigagrams and percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Change from 1990 to latest reported estimate (%)
<b>Australia</b>	1,084	1,059	1,108	1,067	1,057	1,175	1,165	1,206	1,294	1,190	1,256	1,203	1,129	4.1
<b>Austria</b>	13	13	13	14	13	14	15	15	15	15	15	15	14	9.3
<b>Belarus</b>													122	
<b>Belgium</b>	25	25	24	24	24	23	23	23	22	22	21	21	20	-18.4
<b>Bulgaria<sup>a</sup></b>	225	185	177	171	169	191	191	160	152	129	140	134	125	-44.5
<b>Canada</b>	1,338	1,405	1,511	1,573	1,656	1,753	1,869	1,865	1,839	1,828	1,867	1,889	1,856	38.7
<b>Croatia</b>	59	56	54	59	53	53	56	59	51	51	53	59	62	4.7
<b>Czech Republic</b>	394	356	344	333	320	315	301	298	281	258	268	268	261	-33.9
<b>Denmark</b>	4	6	6	6	9	10	9	10	6	8	7	7	6	41.7
<b>Estonia</b>	57	55	38	24	29	30	33	32	29	27	32	33	29	-49.3
<b>Finland</b>	1	1	1	1	1	1	2	1	2	1	1	2	1	16.1
<b>France</b>	324	305	309	313	313	307	253	229	225	218	213	170	160	-50.7
<b>Germany</b>	1,717	1,642	1,591	1,531	1,404	1,283	1,200	1,142	1,075	1,039	922	809	782	-54.5
<b>Greece</b>	54	55	57	56	58	59	62	61	66	69	73	75	80	47.9
<b>Hungary<sup>a</sup></b>	129	453	383	385	379	398	425	407	400	379	103	105	101	-21.7
<b>Iceland</b>														
<b>Ireland</b>	7	7	7	7	6	6	6	6	5	5	5	5	4	-45.3
<b>Italy</b>	323	316	308	294	289	277	271	269	269	264	263	250	246	-23.8
<b>Japan</b>	151	140	127	118	101	84	82	68	62	62	58	49	28	-81.2
<b>Latvia</b>	13	13	11	11	11	10	10	9	9	9	8	8	8	-38.5
<b>Liechtenstein</b>														
<b>Lithuania</b>	26		22	19	18	19	20	19					20	-23.2
<b>Luxembourg</b>	2				2	2			2	2	2	2	3	70.0
<b>Monaco</b>														
<b>Netherlands</b>	179	189	172	171	177	170	188	156	147	144	131	134	120	-32.8
<b>New Zealand</b>	25	23	23	22	24	27	34	30	34	35	34	35	36	44.2

<b>Norway</b>	14	16	20	23	25	25	25	28	26	25	30	35	31	124.5
<b>Poland<sup>a</sup></b>	1,248	925	793	877	896	927	943	937	822	777	772	786		-37.0
<b>Portugal</b>	5	5	5	4	4	2	2	2	5	12	10	12	14	195.2
<b>Romania<sup>a</sup></b>	1,380	951	801	773	726	735	740	591	553	509	533	536	522	-62.2
<b>Russian Federation</b>	18,900	17,095	16,040	14,465	13,300	13,050	12,860	9,349	9,245	9,357				-50.5
<b>Slovakia</b>	59	59	56	57	58	61	63	64	63	61	60	64	62	3.7
<b>Slovenia<sup>a</sup></b>	18	14	15	14	13	14	13	14	14	13	13	12	13	-27.8
<b>Spain</b>	113	105	105	101	101	103	105	110	107	91	97	98	104	-7.9
<b>Sweden</b>	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.004	0.005	0.004	0.004	0.005	0.004	3.5
<b>Switzerland</b>	15	14	14	14	13	13	13	13	12	12	12	12	12	-17.5
<b>Ukraine</b>	6,220	5,541	5,315	5,014	4,727	4,624	4,562	4,318	4,387			6,358	6,424	3.3
<b>United Kingdom</b>	1,332	1,335	1,299	1,207	938	981	938	887	812	724	661	648	634	-52.4
<b>United States of America</b>	11,247	11,208	11,089	10,656	10,654	10,785	10,575	10,468	10,335	9,902	9,992	9,913	9,588	-14.8
<b>European Community</b>	4,090	3,995	3,886	3,722	3,330	3,229	3,065	2,903	2,742	2,600	2,403	2,248	2,188	-46.5

<sup>a</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989); and Slovenia (1986).

**Table B.11. CH<sub>4</sub> emissions from agriculture, 1990-2002 (Gigagrams and percentage change)**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Change from 1990 to latest reported estimate (%)
<b>Australia</b>	3,580	3,591	3,524	3,473	3,412	3,411	3,414	3,465	3,478	3,539	3,618	3,676	3,672	2.6
<b>Austria</b>	219	216	208	208	210	211	208	205	205	201	197	195	190	-12.9
<b>Belarus</b>	530	508	482	456	430	404	384	374	367	350	334	319	312	-41.1
<b>Belgium</b>	342	343	341	345	346	350	346	342	343	341	329	332	325	-4.9
<b>Bulgaria<sup>a</sup></b>	273	234	192	150	126	122	116	110	114	115	108	84	95	-65.2
<b>Canada</b>	980	988	1,011	1,017	1,066	1,101	1,108	1,111	1,098	1,092	1,085	1,156	1,165	18.8
<b>Croatia</b>	75	72	67	56	51	48	45	45	43	44	43	43	42	-44.0
<b>Czech Republic</b>	204	186	162	148	134	139	134	129	121	121	114	113	105	-48.4
<b>Denmark</b>	183	184	185	189	187	187	188	184	186	180	181	183	179	-2.0
<b>Estonia</b>	70	65	60	47	44	36	27	26	25	22	21	21	21	-70.6
<b>Finland</b>	98	94	92	92	91	88	88	90	87	86	85	84	84	-14.7
<b>France</b>	2,185	2,148	2,114	2,095	2,096	2,102	2,101	2,076	2,062	2,057	2,078	2,089	2,057	-5.9
<b>Germany</b>	3,206	2,815	2,705	2,654	2,707	2,677	2,673	2,677	2,606	2,595	2,534	2,554	2,554	-20.3
<b>Greece</b>	170	168	167	168	169	170	171	171	171	171	171	172	172	1.4
<b>Hungary<sup>a</sup></b>	197	168	144	127	121	118	116	111	118	116	100	97	105	-46.7
<b>Iceland</b>	14	14	13	13	13	13	13	13	13	13	13	13	12	-11.8
<b>Ireland</b>	497	510	516	520	522	524	530	540	552	552	540	527	519	4.4
<b>Italy</b>	839	860	834	824	837	846	840	838	828	812	812	815	787	-6.2
<b>Japan</b>	741	746	750	756	752	737	718	696	682	667	659	651	646	-12.9
<b>Latvia</b>	111	107	89	55	46	45	42	39	36	31	31	32	32	-71.0
<b>Liechtenstein</b>	1									1				-16.1
<b>Lithuania</b>	181		308	302	301	95	89	88	86			65	67	-63.2
<b>Luxembourg</b>	18				17	17			17	17	17	17	16	-8.6
<b>Monaco</b>														
<b>Netherlands</b>	505	517	506	498	483	477	464	446	435	425	411	410	389	-23.0
<b>New Zealand</b>	1,046	1,042	1,039	1,056	1,070	1,085	1,087	1,091	1,098	1,103	1,128	1,151	1,150	10.0

<b>Norway</b>	97	98	98	97	98	99	100	100	101	101	99	97	95	-1.5
<b>Poland<sup>a</sup></b>	863	773	704	656	647	615	591	598	582	509	469	451		-47.8
<b>Portugal</b>	215	214	204	192	199	198	198	198	196	203	202	200	198	-7.8
<b>Romania<sup>a</sup></b>	775	651	553	478	463	440	437	434	401	396	370	348	334	-56.9
<b>Russian Federation</b>	5,060	4,920	4,740	4,510	3,830	3,676	3,362	2,951	2,650	2,421				-52.2
<b>Slovakia</b>	134	117	101	87	82	87	80	74	65	63	62	62	59	-55.8
<b>Slovenia<sup>a</sup></b>	51	48	46	45	44	43	42	41	41	41	41	40	41	-19.9
<b>Spain</b>	912	910	926	927	951	958	1,006	1,017	1,056	1,071	1,096	1,121	1,129	23.7
<b>Sweden</b>	161	158	163	170	172	168	168	167	163	161	157	158	157	-2.6
<b>Switzerland</b>	154	154	150	151	145	147	144	138	137	138	137	138	136	-11.4
<b>Ukraine</b>	2,254	2,200	2,118	2,006	1,938	1,774	1,608	1,414	1,196			916	896	-60.2
<b>United Kingdom</b>	1,034	1,018	1,019	1,012	1,020	1,008	1,018	1,005	1,007	1,005	971	914	905	-12.5
<b>United States of America</b>	7,462	7,509	7,614	7,577	7,839	7,962	7,752	7,756	7,816	7,823	7,711	7,693	7,688	3.0
<b>European Community</b>	10,587	10,176	10,001	9,915	10,011	9,986	10,020	9,978	9,917	9,877	9,780	9,770	9,663	-8.7

<sup>a</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989); and Slovenia (1986).

Table B.12. CH<sub>4</sub> emissions from waste, 1990-2002 (Gigagrams and percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Change from 1990 to latest reported estimate (%)
Australia	705	721	729	745	742	764	731	742	734	757	768	785	810	15.0
Austria	192	192	188	186	179	172	166	160	156	151	145	139	135	-29.6
Belarus	112	112	112	105	99	93	101	110	119	128	130	131	136	21.7
Belgium	132	131	132	122	128	126	121	124	118	104	100	77	72	-45.8
Bulgaria <sup>a</sup>	658	765	751	684	431	449	403	333	288	231	230	223	222	-66.3
Canada	900	930	950	973	984	988	991	1,015	1,040	1,078	1,104	1,070	1,066	18.5
Croatia	38	37	37	37	38	41	43	45	48	51	51	53	54	44.3
Czech Republic	133	105	131	100	125	101	124	111	113	103	104	98	107	-19.0
Denmark	62	64	65	65	65	63	62	59	58	58	57	57	54	-13.6
Estonia	77	49	40	41	49	50	61	71	67	62	57	34	36	-53.5
Finland	182	185	186	186	183	180	175	171	163	159	150	144	134	-26.6
France	578	611	642	671	693	713	733	646	636	612	596	570	562	-2.9
Germany	1,605	1,589	1,556	1,511	1,368	1,245	1,124	1,010	898	780	693	617	574	-64.2
Greece	184	185	192	199	209	216	223	229	241	253	260	262	270	47.0
Hungary <sup>a</sup>	251	257	256	256	255	255	254	253	128	155	235	250	226	-9.9
Iceland	8	8	9	9	9	10	10	11	11	11	13	13	13	62.1
Ireland	55	57	58	60	63	65	68	66	55	52	58	61	81	46.8
Italy	521	537	489	493	509	529	532	535	526	520	523	531	516	-0.9
Japan	244	246	245	247	249	250	250	248	245	241	236	230	225	-7.9
Latvia	36	37	38	34	35	40	41	42	46	47	49	51	50	37.4
Liechtenstein	0.001									0.002				50.0
Lithuania	128					139	130	145	80			74	72	-43.6
Luxembourg	4				3	3			3	3	3	3	3	-28.8
Monaco		0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.003	0.002	0.002	
Netherlands	578	578	563	551	532	502	485	469	452	413	390	368	346	-40.2
New Zealand	132	134	117	118	114	115	113	105	105	105	103	104	106	-19.1

<b>Norway</b>	183	185	185	188	189	190	192	191	189	189	190	186	185	1.4
<b>Poland<sup>a</sup></b>	966	855	941	833	855	848	652	677	870	905	886	552		-42.8
<b>Portugal</b>	139	144	149	154	159	164	168	173	177	181	154	143	144	4.1
<b>Romania<sup>a</sup></b>	286	283	283	288	299	294	289	291	278	282	285	281	270	-5.7
<b>Russian Federation</b>	1,940	1,950	1,950	1,950	1,950	1,770	1,770	1,806	1,801	1,800				-7.2
<b>Slovakia</b>	98	96	94	90	91	91	100	91	85	86	83	81	92	-6.1
<b>Slovenia<sup>a</sup></b>	45	49	47	49	50	52	52	54	54	54	53	52	51	11.8
<b>Spain</b>	356	377	409	435	462	491	520	553	577	597	626	651	676	90.0
<b>Sweden</b>	122	124	124	120	115	114	113	111	109	102	97	94	86	-28.9
<b>Switzerland</b>	61	60	59	58	58	57	57	57	56	55	53	52	49	-19.5
<b>Ukraine</b>	892	890	891	892	889	881	873	859	859			1,371	1,359	52.3
<b>United Kingdom</b>	1,165	1,129	1,093	1,052	1,019	972	928	842	766	662	589	524	457	-60.7
<b>United States of America</b>	11,147	11,157	11,322	11,434	11,471	11,436	11,224	10,990	10,679	10,763	10,841	10,541	10,557	-5.3
<b>European Community</b>	5,870	5,900	5,846	5,804	5,680	5,549	5,416	5,147	4,928	4,642	4,433	4,240	4,110	-30.0

<sup>a</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989); and Slovenia (1986).

**Table B.13. Total anthropogenic N<sub>2</sub>O emissions, 1990-2002 (Gigagrams and percentage change)**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Change from 1990 to latest reported estimate (%)
<b>Australia</b>	77.1	78.3	78.2	81.0	83.1	84.8	85.6	91.2	95.5	101.3	108.0	111.4	113.9	47.7
<b>Austria</b>	19.3	21.3	18.4	20.0	21.9	20.6	19.8	20.7	19.9	19.7	19.5	19.3	18.5	-4.0
<b>Belarus</b>	32.6	31.4	27.1	24.9	18.7	15.8	18.4	20.5	22.0	19.5	20.6	36.2	19.0	-41.8
<b>Belgium</b>	42.5	42.5	41.2	42.2	43.7	45.2	46.6	45.4	46.3	42.7	42.0	42.1	41.6	-2.2
<b>Bulgaria<sup>a</sup></b>	47.9	36.5	29.7	26.0	25.0	27.1	26.4	25.0	21.3	20.1	21.7	21.4	20.2	-57.8
<b>Canada</b>	173.3	172.2	172.7	182.1	221.6	224.7	203.1	194.7	201.9	179.5	172.6	166.1	170.7	-1.5
<b>Croatia</b>	12.5	12.4	12.6	10.0	10.0	9.3	10.2	11.4	9.9	10.6	11.2	10.0	9.7	-22.9
<b>Czech Republic</b>	36.3	23.4	29.8	21.2	26.7	21.6	29.7	28.4	27.1	26.2	26.4	26.7	26.3	-27.6
<b>Denmark</b>	34.2	33.9	32.4	31.7	31.2	30.9	30.0	29.6	29.3	28.3	27.6	26.8	25.7	-24.9
<b>Estonia</b>	3.3	3.2	2.6	1.7	1.5	1.3	1.2	1.4	1.4	1.2	1.3	1.2	1.0	-69.3
<b>Finland</b>	25.4	24.0	22.1	22.7	23.0	23.8	23.9	24.6	24.1	23.7	21.8	21.9	22.0	-13.4
<b>France</b>	288.4	288.0	283.9	279.0	282.9	288.2	292.8	294.5	271.7	253.1	245.9	242.6	233.8	-18.9
<b>Germany</b>	262.5	251.3	255.2	244.8	232.9	237.0	242.2	234.3	191.6	179.7	180.0	181.0	180.1	-31.4
<b>Greece</b>	45.6	44.8	44.0	42.8	43.3	41.5	43.3	44.8	44.8	44.0	46.8	45.1	45.0	-1.3
<b>Hungary<sup>a</sup></b>	50.2	4.3	5.0	4.9	5.4	4.9	5.1	4.4	35.0	36.3	27.9	30.7	33.6	-33.0
<b>Iceland</b>	1.1	1.1	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.1	1.1	1.0	-13.5
<b>Ireland</b>	30.8	30.9	31.1	31.2	32.0	32.4	33.1	33.6	34.3	34.9	34.7	33.5	31.4	2.1
<b>Italy</b>	123.3	127.9	125.8	126.7	124.6	128.2	126.9	130.8	130.0	132.9	133.8	137.4	136.1	10.4
<b>Japan</b>	129.7	128.1	128.9	128.0	131.0	131.6	134.6	136.0	131.7	113.2	121.8	113.4	114.2	-12.0
<b>Latvia</b>	10.0	9.4	7.0	4.9	4.1	3.6	3.6	3.7	3.6	3.3	3.4	3.8	3.7	-62.7
<b>Liechtenstein</b>	0.02									0.02				19.3
<b>Lithuania</b>	13.2								7.2			12.4	5.8	-56.0
<b>Luxembourg</b>	0.6				0.7	0.7			0.3	0.3	0.3	0.3	0.3	-50.7
<b>Monaco</b>	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	109.1
<b>Netherlands</b>	52.9	53.7	56.9	59.3	58.0	58.4	57.4	57.2	56.6	55.7	53.4	51.0	49.3	-6.8
<b>New Zealand</b>	33.2	33.3	33.6	34.7	35.9	36.7	37.1	37.2	37.7	38.4	39.6	41.3	42.5	27.9



<b>Norway</b>	17.8	17.3	15.1	16.3	16.6	16.9	16.9	16.7	17.6	18.3	17.9	17.9	18.8	5.4
<b>Poland<sup>a</sup></b>	70.5	52.0	50.2	49.8	50.2	54.0	53.9	54.0	51.6	75.1	77.1	77.2		9.6
<b>Portugal</b>	18.7	18.6	17.6	17.1	17.9	18.5	18.8	18.5	18.7	20.1	18.9	19.4	19.7	5.4
<b>Romania<sup>a</sup></b>	89.9	32.6	31.9	34.0	29.8	31.4	28.0	25.6	19.2	21.3	21.2	22.6	19.6	-78.2
<b>Russian Federation</b>	316.1	267.7	248.4	212.9	154.8	138.7	132.3	138.7	112.9	112.9				-64.3
<b>Slovakia</b>	19.5	16.7	14.2	12.4	12.9	13.4	13.6	13.6	12.8	12.4	12.1	12.8	12.4	-36.4
<b>Slovenia<sup>a</sup></b>	5.8	4.9	4.8	4.8	4.8	4.9	5.0	5.0	5.0	5.2	4.9	4.9	5.0	-13.6
<b>Spain</b>	84.8	84.0	81.7	75.6	82.7	81.7	89.2	87.0	89.2	93.6	97.8	94.0	92.8	9.4
<b>Sweden</b>	29.4	28.9	28.8	29.1	29.6	28.9	29.5	29.2	29.4	27.8	27.4	27.2	27.1	-7.9
<b>Switzerland</b>	11.5	11.7	11.9	11.8	11.8	11.7	11.9	11.7	11.7	11.8	11.8	11.5	11.5	-0.1
<b>Ukraine</b>	58.0	51.3	38.3	24.2	20.1	15.2	14.9	15.6	15.8			52.5	50.6	-12.7
<b>United Kingdom</b>	218.9	212.7	190.6	178.6	192.7	183.9	190.5	196.2	187.4	145.2	144.5	137.2	132.3	-39.6
<b>United States of America</b>	1,268.3	1,286.0	1,317.6	1,317.9	1,403.9	1,377.6	1,409.3	1,407.5	1,394.0	1,381.8	1,373.6	1,346.1	1,341.4	5.8
<b>European Community</b>	1,266.0	1,252.2	1,220.2	1,191.5	1,207.0	1,210.2	1,234.8	1,236.8	1,163.1	1,091.4	1,083.1	1,080.1	1,056.9	-16.5

<sup>a</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988), Romania (1989); and Slovenia (1986).

Table B.14. N<sub>2</sub>O emissions from fuel combustion, 1990-2002 (Gigagrams and percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Change from 1990 to latest reported estimate (%)
Australia	7.8	8.7	9.5	10.4	11.4	12.3	13.1	14.0	14.9	15.8	16.7	17.1	17.4	122.1
Austria	3.1	3.7	3.9	4.2	4.4	4.4	4.3	4.1	4.2	4.0	3.9	3.9	4.0	30.8
Belarus													0.4	0.4
Belgium	6.7	7.2	7.1	7.3	7.4	7.4	7.9	7.7	7.9	7.8	7.9	8.1	8.3	23.2
Bulgaria <sup>a</sup>	15.3	10.2	9.8	9.7	9.4	9.8	9.6	9.8	8.6	8.0	7.8	8.5	7.7	-49.3
Canada	27.1	27.4	29.3	31.4	34.0	35.1	35.2	35.9	36.0	36.6	36.8	36.4	36.6	35.2
Croatia	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.6	119.2
Czech Republic	4.6	18.5	4.1	16.6	3.9	16.4	4.2	4.3	4.5	4.5	4.8	5.0	5.0	9.0
Denmark	1.9	2.3	2.2	2.3	2.5	2.5	3.0	2.8	2.6	2.6	2.5	2.6	2.7	41.0
Estonia	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	-10.2
Finland	4.1	4.3	4.0	4.3	4.5	5.1	5.6	6.6	6.8	6.8	4.7	5.3	5.5	36.1
France	14.5	16.3	16.6	16.4	16.9	18.1	19.7	20.2	21.7	21.7	22.3	23.3	23.5	62.0
Germany	36.1	37.3	37.7	38.8	38.8	35.7	36.1	35.6	35.2	34.4	33.5	32.8	31.8	-11.7
Greece	9.9	10.0	10.7	10.2	10.5	10.4	11.0	11.4	11.8	11.5	12.2	12.6	12.6	27.9
Hungary <sup>a</sup>	10.6	2.6	3.3	3.4	3.6	3.3	3.4	2.7	0.5	0.5	8.4	8.8	8.8	-16.4
Iceland	0.08	0.08	0.08	0.09	0.09	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	121.5
Ireland	3.1	3.2	3.3	3.4	3.6	3.6	3.8	4.2	4.5	4.9	4.9	5.3	5.0	64.2
Italy	27.5	27.4	26.9	26.4	25.8	27.8	28.1	28.4	29.0	31.0	31.4	32.1	33.5	21.8
Japan	20.1	21.0	21.8	22.1	23.3	25.4	26.5	27.0	26.9	28.6	29.0	30.0	31.0	54.4
Latvia	0.7	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.5	0.5	-28.3
Liechtenstein	0.004									0.01				93.4
Lithuania	1.0		0.9	0.8	0.6	0.5	0.5	0.5	0.6			0.5	0.4	-56.9
Luxembourg	0.1				0.2	0.2			0.2	0.2	0.2	0.2	0.2	111.9
Monaco	0.003	0.004	0.004	0.005	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	144.0
Netherlands	1.7	1.8	2.0	2.1	1.9	2.4	2.1	2.3	2.4	2.3	2.3	2.2	2.3	37.8
New Zealand	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.8	66.5

<b>Norway</b>	1.0	1.0	1.1	1.2	1.3	1.5	1.7	1.9	2.1	2.3	2.4	2.7	2.9	189.4
<b>Poland<sup>a</sup></b>	7.2	6.3	5.8	6.6	6.2	6.7	7.2	7.1	7.4	7.4	7.2	7.5		4.0
<b>Portugal</b>	1.7	1.7	1.8	1.9	2.0	2.2	2.3	2.3	2.5	2.8	3.0	2.9	3.1	86.7
<b>Romania<sup>a</sup></b>	1.3	0.9	1.0	1.1	1.1	1.5	1.8	1.4	1.2	1.1	1.1	1.1	1.2	-10.3
<b>Russian Federation</b>	17.4	16.3	14.2	13.5	11.1	11.1	9.8	11.0	10.0	10.0				-42.5
<b>Slovakia</b>	0.8	0.7	0.6	0.6	0.7	0.8	0.8	0.8	0.9	0.8	0.8	0.9	1.0	15.1
<b>Slovenia<sup>a</sup></b>	0.5	0.4	0.4	0.4	0.4	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	53.0
<b>Spain</b>	11.8	12.5	13.3	12.6	14.0	15.1	14.4	15.4	16.4	18.1	18.7	19.5	20.0	69.1
<b>Sweden</b>	5.7	5.7	6.0	6.1	6.4	6.3	6.9	6.4	6.6	6.3	6.3	6.5	6.7	18.8
<b>Switzerland</b>	1.4	1.6	1.8	1.8	1.9	2.0	2.1	2.2	2.3	2.3	2.3	2.2	2.1	51.8
<b>Ukraine</b>	6.7	0.6	0.8	0.8	0.7	0.7	0.5	0.4	0.4			2.0	2.1	-69.1
<b>United Kingdom</b>	17.6	17.9	18.1	18.4	19.5	20.5	22.1	23.0	24.6	25.6	26.6	27.8	28.7	62.8
<b>United States of America</b>	205.5	212.4	224.2	232.4	238.7	240.7	241.9	240.8	237.9	235.1	232.8	223.4	217.0	5.6
<b>European Community</b>	145.3	151.5	153.7	154.4	158.2	161.5	167.5	170.7	176.3	179.8	180.2	185.1	188.1	29.4

<sup>a</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989); and Slovenia (1986).

Table B.15. N<sub>2</sub>O emissions from industrial processes, 1990-2002 (Gigagrams and percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Change from 1990 to latest reported estimate (%)
Australia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-24.3
Austria	2.9	3.0	2.7	2.8	2.7	2.8	2.8	2.8	2.9	3.0	3.1	2.5	2.6	-11.5
Belarus	1.1	1.1	1.0	1.0	0.9	0.8	0.9	0.9	1.0	1.0	1.0	1.0	1.2	8.0
Belgium	12.7	12.4	11.3	12.1	13.8	15.0	16.2	15.4	15.9	15.1	14.7	14.2	13.5	6.7
Bulgaria <sup>a</sup>	7.8	5.2	4.3	3.7	4.3	6.2	6.3	5.2	3.1	2.4	4.2	4.2	3.5	-55.0
Canada	37.1	34.7	34.6	31.8	37.9	37.1	39.6	34.4	18.8	8.2	5.5	5.2	6.7	-82.1
Croatia	3.0	2.6	3.4	2.6	2.8	2.7	2.5	2.6	2.0	2.3	2.8	2.3	2.2	-24.8
Czech Republic	3.9	2.8	3.2	2.7	3.2	3.4	3.3	3.6	3.9	3.2	3.6	3.6	3.1	-19.5
Denmark	3.4	3.1	2.7	2.6	2.6	2.9	2.7	2.7	2.6	3.1	3.2	2.9	2.5	-25.8
Estonia														
Finland	5.1	4.5	4.0	4.2	4.4	4.5	4.5	4.5	4.3	4.3	4.3	4.1	4.2	-17.9
France	77.9	78.5	79.8	79.7	81.8	84.4	84.8	83.9	60.1	41.6	37.0	36.9	29.1	-62.6
Germany	75.7	76.0	84.4	77.0	73.7	75.4	79.7	74.1	29.9	16.6	16.4	21.4	22.8	-69.8
Greece	2.3	1.9	2.0	1.9	1.8	1.8	2.1	1.8	1.8	1.8	1.8	1.8	1.8	-20.6
Hungary <sup>a</sup>	3.2	0.004	0.003	0.003	0.003	0.003	0.004	0.004	0.003	1.1	1.3	2.7	2.7	-15.9
Iceland	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	-100.0
Ireland	3.3	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	1.9	0.9	-71.8
Italy	18.7	20.1	18.5	19.3	18.5	21.3	20.7	20.8	21.4	22.2	23.6	24.6	24.1	28.5
Japan	23.9	21.8	21.6	21.2	24.0	23.8	26.6	28.1	24.8	5.0	13.6	4.4	3.8	-84.0
Latvia														
Liechtenstein														
Lithuania	1.4								4.9			6.7	2.9	105.7
Luxembourg														
Monaco														
Netherlands	24.4	24.7	24.9	26.7	25.5	24.2	24.2	24.2	24.1	23.2	23.0	21.3	20.2	-17.2
New Zealand														

Norway	6.7	6.1	4.2	5.0	5.4	5.3	5.2	4.8	5.4	6.1	5.6	5.5	6.2	-7.2
Poland <sup>a</sup>	20.1	13.1	12.9	13.1	14.3	15.8	16.2	15.7	12.9	12.1	14.0	14.4		-28.5
Portugal	1.8	1.7	1.6	1.0	1.6	1.9	2.0	2.1	1.4	2.4	1.4	1.9	1.9	4.1
Romania <sup>a</sup>	56.1	13.4	14.9	14.1	10.6	11.7	10.7	7.4	2.5	3.8	6.5	5.7	4.5	-92.0
Russian Federation	3.0	3.0	2.1	1.6	1.2	1.0	1.0	1.0	1.0	1.0				-66.7
Slovakia	1.6	1.5	1.4	1.2	1.9	2.0	2.4	2.5	2.3	2.5	2.3	2.6	2.0	21.7
Slovenia <sup>a</sup>								0.000048	0.000061	0.000053	0.000090	0.000090	0.000090	
Spain	9.3	8.3	7.1	5.9	7.0	7.7	7.9	7.5	7.0	7.6	7.4	6.6	6.3	-32.6
Sweden	2.8	3.0	2.8	2.8	2.7	2.5	2.4	2.4	2.6	2.4	2.3	1.9	1.7	-38.1
Switzerland	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.9
Ukraine	22.9	23.0	15.3	7.5	9.1	4.7	7.4	8.5	8.6			6.0	5.1	-77.8
United Kingdom	94.5	88.5	71.6	61.1	71.5	61.3	65.5	67.0	59.4	18.2	20.2	17.4	9.9	-89.5
United States of America	106.6	105.4	101.1	105.0	111.7	119.7	121.8	101.7	86.7	82.6	82.7	67.2	73.0	-31.5
European Community	334.9	328.3	316.3	299.6	310.1	308.3	318.2	311.7	236.1	163.9	160.9	159.2	141.7	-57.7

<sup>a</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989); and Slovenia (1986).

Table B.16. N<sub>2</sub>O emissions from agriculture, 1990-2002 (Gigagrams and percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Change from 1990 to latest reported estimate (%)
Australia	64.3	64.8	64.3	66.1	67.3	68.2	68.3	73.0	76.4	81.3	87.5	90.5	92.0	43.2
Austria	12.4	13.8	10.8	12.0	13.9	12.5	11.7	12.8	11.8	11.7	11.6	11.9	11.0	-11.6
Belarus	30.7	29.6	25.4	23.2	17.1	14.3	16.8	18.8	20.3	17.7	18.8	34.0	16.6	-45.9
Belgium	21.1	20.9	20.7	20.8	20.6	20.9	20.4	20.4	20.6	17.8	17.3	17.8	17.7	-15.9
Bulgaria <sup>a</sup>	24.1	20.5	15.0	12.0	10.7	10.6	9.9	9.5	9.1	9.2	9.2	8.2	8.5	-64.5
Canada	100.1	98.0	99.8	103.5	109.3	111.7	117.4	117.8	119.2	121.9	122.7	116.3	112.3	12.1
Croatia	8.8	9.1	8.6	6.8	6.6	6.1	7.2	8.2	7.4	7.6	7.8	6.9	6.6	-25.7
Czech Republic	26.6	2.0	21.0	1.8	18.2	1.7	20.6	19.3	17.4	17.1	16.6	16.8	16.8	-36.6
Denmark	29.0	28.5	27.5	26.8	26.1	25.5	24.4	24.1	24.0	22.6	21.8	21.4	20.5	-29.1
Estonia	3.1	3.1	2.5	1.6	1.4	1.2	1.1	1.2	1.2	1.0	1.2	1.0	0.9	-72.2
Finland	15.6	14.6	13.4	13.6	13.6	13.6	13.1	12.9	12.5	12.1	12.2	12.1	11.8	-24.2
France	191.6	188.7	183.0	178.4	179.8	181.2	183.8	186.1	185.7	185.7	182.4	178.3	177.0	-7.6
Germany	137.4	124.6	119.8	115.9	107.2	112.7	112.9	111.6	113.1	115.4	116.7	113.2	111.8	-18.6
Greece	32.3	31.8	30.1	29.6	29.8	28.1	29.1	30.3	29.9	29.6	31.3	29.4	29.4	-9.2
Hungary <sup>a</sup>	35.6	1.7	1.6	1.5	1.8	1.6	1.7	1.7	34.5	34.7	17.8	18.7	21.7	-39.1
Iceland	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.8	0.8	-11.0
Ireland	24.2	24.8	25.0	25.1	25.5	26.0	26.5	26.6	27.0	27.2	27.0	26.1	25.2	4.3
Italy	73.4	76.5	76.6	77.1	76.5	75.2	74.4	77.8	75.8	75.9	75.1	76.8	74.7	1.8
Japan	75.5	74.6	74.0	73.2	71.6	69.6	68.0	67.0	66.2	65.7	65.3	65.0	64.7	-14.3
Latvia	9.1	8.7	6.4	4.3	3.6	3.0	3.0	3.0	2.9	2.6	2.8	3.1	3.0	-66.8
Liechtenstein	0.01									0.01				-0.3
Lithuania	10.8								1.7			5.2	2.5	-76.9
Luxembourg	0.5				0.5	0.5								0.0
Monaco														
Netherlands	21.9	22.4	25.1	25.6	25.3	26.9	26.4	26.0	25.2	25.2	23.2	22.6	21.9	0.2
New Zealand	32.1	32.1	32.5	33.5	34.6	35.4	35.8	35.9	36.4	37.0	38.3	39.9	41.0	27.7

<b>Norway</b>	9.7	9.7	9.4	9.6	9.5	9.6	9.5	9.5	9.6	9.4	9.4	9.2	9.2	-5.2
<b>Poland<sup>a</sup></b>	43.2	32.6	31.5	30.0	29.7	31.4	30.5	31.2	31.2	55.6	53.3	52.8		22.3
<b>Portugal</b>	13.6	13.4	12.6	12.5	12.6	12.6	12.8	12.4	12.9	13.0	12.5	12.6	12.6	-6.9
<b>Romania<sup>a</sup></b>	31.4	17.3	14.9	17.8	17.1	17.0	14.4	15.8	14.4	15.3	12.4	14.8	12.9	-58.9
<b>Russian Federation</b>	200.0				110.0	111.0	105.0	114.0	84.0	88.0				-56.0
<b>Slovakia</b>	16.9	14.3	12.1	10.6	10.3	10.6	10.3	10.2	9.5	9.0	9.1	9.3	9.3	-45.0
<b>Slovenia<sup>a</sup></b>	4.8	4.3	4.1	4.2	4.1	4.2	4.2	4.2	4.2	4.2	3.9	3.9	3.9	-18.9
<b>Spain</b>	58.8	58.3	56.3	52.1	56.7	53.8	61.7	58.8	60.5	62.7	66.4	62.7	61.1	4.0
<b>Sweden</b>	20.0	19.3	19.0	19.4	19.6	19.1	19.2	19.4	19.2	18.1	18.0	18.0	17.7	-11.4
<b>Switzerland</b>	9.2	9.2	9.2	9.0	8.9	8.8	8.8	8.5	8.5	8.4	8.5	8.2	8.3	-10.3
<b>Ukraine</b>	28.0	27.4	21.3	15.7	9.6	9.4	5.9	6.5	6.4			41.1	40.0	42.8
<b>United Kingdom</b>	103.0	102.6	97.2	95.5	97.9	98.4	99.0	102.0	99.2	97.3	93.6	87.7	89.5	-13.1
<b>United States of America</b>	901.1	912.3	936.6	922.4	993.7	957.7	985.4	1,003.0	1,006.6	999.8	993.4	990.4	985.9	9.4
<b>European Community</b>	744.2	730.7	708.4	695.8	696.4	698.3	707.0	712.2	708.0	705.1	699.3	690.6	682.1	-8.4

<sup>a</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989); and Slovenia (1986).

Table B.17. N<sub>2</sub>O emissions from agricultural soils, 1990-2002 (Gigagrams and percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Change from 1990 to latest reported estimate (%)
Australia	48.9	49.3	49.0	49.9	50.3	49.8	49.3	52.6	55.4	58.6	61.4	62.6	62.8	28.6
Austria	9.9	11.2	8.4	9.6	11.5	10.0	9.3	10.3	9.4	9.3	9.3	9.5	8.7	-11.8
Belarus	30.7	29.6	25.4	23.2	17.1	14.3	16.8	18.8	20.3	17.7	18.8	34.0	16.6	-45.9
Belgium	18.2	18.0	17.9	17.9	17.7	17.9	17.5	17.4	17.6	14.8	14.4	14.8	14.8	-18.5
Bulgaria <sup>a</sup>	20.7	17.4	12.5	10.0	9.0	9.0	8.4	8.2	7.6	7.7	7.8	7.1	7.3	-64.5
Canada	88.3	86.0	87.4	91.0	96.1	98.1	103.6	103.7	105.3	107.9	108.7	101.5	97.3	10.3
Croatia	7.6	8.0	7.5	5.9	5.8	5.3	6.0	7.0	6.2	6.4	6.6	5.7	5.9	-23.0
Czech Republic	24.4	2.0	19.2	1.8	16.7	1.7	19.0	17.7	15.9	15.7	15.3	15.5	15.6	-36.2
Denmark	26.8	26.3	25.3	24.6	24.0	23.4	22.3	22.0	21.9	20.6	19.8	19.4	18.6	-30.5
Estonia	3.1	3.0	2.5	1.6	1.4	1.1	1.1	1.2	1.2	1.0	1.2	1.0	0.8	-72.5
Finland	13.8	12.9	11.7	11.9	11.9	12.1	11.7	11.4	11.1	10.7	10.9	10.8	10.6	-23.3
France	181.6	178.9	173.4	168.8	170.3	171.7	174.2	176.6	176.3	176.3	173.0	168.8	167.7	-7.7
Germany	122.9	111.8	107.3	103.6	97.0	102.6	102.7	101.4	103.1	105.6	107.0	103.5	102.0	-17.0
Greece	31.3	30.8	29.1	28.6	28.8	27.2	28.1	29.4	29.0	28.6	30.4	28.5	28.4	-9.4
Hungary <sup>a</sup>	30.5	1.7	1.6	1.5	1.8	1.6	1.7	1.7	32.9	33.2	15.2	16.2	17.7	-41.9
Iceland	0.8	0.8	0.7	0.7	0.8	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.7	-9.9
Ireland	22.2	22.7	22.9	22.9	23.3	23.8	24.3	24.4	24.7	24.9	24.8	23.9	23.1	4.0
Italy	61.0	63.6	64.2	65.0	64.1	62.3	61.4	64.6	62.5	62.6	62.1	63.2	61.2	0.5
Japan	31.4	30.7	30.4	30.2	29.5	28.4	27.4	26.8	26.4	26.3	26.3	26.2	26.2	-16.8
Latvia	8.1	7.7	5.5	3.7	3.0	2.4	2.4	2.5	2.4	2.2	2.4	2.7	2.6	-68.1
Liechtenstein														
Lithuania	10.8								0.8			4.6	1.8	-83.2
Luxembourg	0.5				0.5	0.5								0.0
Monaco														
Netherlands	21.2	21.7	24.4	24.8	24.5	26.1	25.7	25.3	24.6	24.6	22.6	22.0	21.4	0.5
New Zealand	31.9	32.0	32.3	33.3	34.4	35.2	35.6	35.7	36.1	36.8	38.0	39.7	40.7	27.6



<b>Norway</b>	9.3	9.4	9.1	9.3	9.1	9.3	9.1	9.1	9.2	9.0	9.1	8.9	8.9	-5.2
<b>Poland<sup>a</sup></b>	43.1	32.5	31.4	30.0	29.7	31.4	30.4	31.2	31.2	35.5	34.6	34.6		-100.0
<b>Portugal</b>	10.4	10.2	9.5	9.4	9.5	9.4	9.7	9.3	9.6	9.6	9.1	9.2	9.2	-11.9
<b>Romania<sup>a</sup></b>	30.1	16.2	14.1	17.0	16.2	16.2	13.7	14.9	13.7	14.5	11.8	14.1	12.3	-59.2
<b>Russian Federation</b>						111.0	105.0	114.0	84.0	88.0				
<b>Slovakia</b>	13.4	11.1	9.3	8.2	8.1	8.2	8.1	8.2	7.8	7.4	7.4	7.6	7.8	-42.1
<b>Slovenia<sup>a</sup></b>	3.5	3.1	3.0	3.1	3.0	3.0	3.0	3.0	3.1	3.1	3.1	3.1	3.1	-10.5
<b>Spain</b>	52.5	52.1	50.1	46.0	50.6	47.8	55.6	52.7	54.4	56.6	60.3	56.6	54.9	4.5
<b>Sweden</b>	17.4	16.8	16.5	17.0	17.3	17.0	17.0	17.2	16.9	16.1	16.0	16.1	15.8	-9.2
<b>Switzerland</b>	7.8	7.8	7.7	7.6	7.5	7.4	7.4	7.1	7.1	7.1	7.1	6.9	7.0	-10.8
<b>Ukraine</b>												31.3	30.4	
<b>United Kingdom</b>	97.9	97.5	92.3	90.7	93.1	93.6	94.2	97.1	94.3	92.4	88.9	83.2	85.2	-13.0
<b>United States of America</b>	847.7	857.3	882.1	866.8	937.8	901.4	929.3	945.8	949.2	942.4	934.7	930.9	926.9	9.3
<b>European Community</b>	677.2	665.1	644.1	632.3	634.8	636.8	645.1	650.2	645.8	643.4	638.6	629.3	621.5	-8.2

<sup>a</sup> In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988); Romania (1989); and Slovenia (1986).