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**REVIEW OF THE IMPLEMENTATION OF COMMITMENTS AND  
OF OTHER PROVISIONS OF THE CONVENTION**

**REVIEW OF INFORMATION COMMUNICATED UNDER ARTICLE 12**

**NATIONAL COMMUNICATIONS FROM PARTIES INCLUDED IN ANNEX I  
TO THE CONVENTION**

**Second compilation and synthesis of second national communications**

**Addendum**

**TABLES OF INVENTORIES OF ANTHROPOGENIC EMISSIONS AND REMOVALS  
OF GREENHOUSE GASES FOR 1990-1995 AND PROJECTIONS UP TO 2020**

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### General notes

This addendum provides numerical data on inventories and projections of greenhouse gases in a consistent and comparable fashion, although varying in degree of coverage in various tables because of the lack of information in some instances. The tables below contain information provided by 35 of the 36 reporting Parties, as the European Community is not considered in this document as information from each member State is dealt with here individually.

The information contained in this document covers greenhouse gas (GHG) inventories and projections of 33 Annex I Parties which submitted their national communication by 15 September 1998. Monaco and Slovenia, which under decision 4/CP.3 have been added to the list of Annex I Parties, have also submitted information, in the case of Slovenia only a 1990 GHG inventory as part of its first national communication. Lithuania and Ukraine have also submitted a first national communication which is considered in this report, although inventories were provided for the year 1990 only. Italy and Luxembourg submitted excerpts from their second national communication containing updated GHG inventories and projections, and the Russian Federation submitted a draft second national communication. These have also been considered in this document.

The tables provide information on a gas-by-gas basis, and on international bunkers. Information on land-use change and forestry is provided separately from other carbon dioxide (CO<sub>2</sub>) estimates, recognizing the concerns expressed by some Parties regarding procedures for the addition of emissions and removals from this sector to other sectors, as well as ongoing methodological work. To present information on hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF<sub>6</sub>) and total greenhouse gases in a comparable manner the secretariat has used Intergovernmental Panel on Climate Change (IPCC) 1995 global warming potentials (GWPs) to present information in terms of CO<sub>2</sub> equivalents. The footnotes and notes to the tables should be treated as an integral part of the tables. Charts have been included for illustrative purposes.

Inventory data on CO<sub>2</sub>, methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), CO<sub>2</sub> emissions from international bunkers, HFCs, PFCs, SF<sub>6</sub>, ozone precursors and sulphur dioxide (SO<sub>2</sub>) for 1990 and 1995 appear in tables A.1 to A.12. The trends in total greenhouse gases and in emissions of the various gases, and for the most important sectors for the years 1990 to 1995, are included in tables B.1 to B.16.

Numerical data on projected emissions of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs and SF<sub>6</sub>, as well as total greenhouse gas emissions, are given in tables C.1 to C.8. The tables present for each Party the projected emissions and removals of GHGs, as well as information on the 1990 levels used as a basis for projections, the 1990 (or other base year) inventory figures, and the latest reported inventory figures, generally 1995. The decrease or increase in projected emissions compared to the base year figures is presented as a percentage. For the land-use change and forestry sector, negative values in mass units denote removals by sinks and negative values in percentage denote increase in removals or decrease in emissions in the projected year compared to 1990. The

projections provided by Parties are not comparable. In some cases there are differences in the 1990 (or base year) emission figures for inventories and those used for projections. These differences are due to rounding, calibration of models, updating of inventories subsequent to the projections analysis, and the fact that some projections are only a subset of the information contained in Parties' inventories. In six cases (BEL, CHE, DNK, FRA, NLD, SWE), such differences also reflect the use of adjustments.

It should be noted that the data presented here do not necessarily correspond to those in the national communications as originally submitted, as some Parties have provided updates and/or supplementary materials.

Figures may differ from those submitted to the secretariat as a result of rounding during data input and processing, corrections of typographical and calculation errors or omissions, and the presentation (for consistency and comparability) of subtotals and totals not provided in the communications or other submissions. Some differences are also due to the fact that, in striving to ensure consistency and comparability of results, the secretariat has had to convert some of the estimates reported so that they concur with the guidelines for preparation of national communications.

#### Explanatory notes

Blanks in the tables signify an absence of provision of quantitative information. The secretariat has chosen to leave the spaces blank in order not to complicate the reading of the tables. The figure "zero" appears in the table only when reported as such by Parties.

The IPCC 1996 Revised Greenhouse Gas Guidelines for National Greenhouse Gas Inventories are referred to in this document as the IPCC Guidelines, and the revised guidelines for the preparation of national communications by Annex I Parties (FCCC/CP/1996/15/Add.1, decision 9/CP.2, annex) as the UNFCCC guidelines. Categories of sources of GHG emissions or their sinks corresponding to the IPCC Guidelines nomenclature are given in *italics*.

The following chemical symbols and abbreviations have been used:

CF <sub>4</sub>	tetrafluoromethane
CFCs	chlorofluorocarbons
C <sub>2</sub> F <sub>6</sub>	hexafluoroethane
CH <sub>4</sub>	methane
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
HCFCs	hydrochlorofluorocarbons
HFCs	hydrofluorocarbons
N <sub>2</sub> O	nitrous oxide
NO <sub>x</sub>	nitrogen oxides
NMVOCS	non-methane volatile organic compounds

PFCs	perfluorocarbons
SF <sub>6</sub>	sulphur hexafluoride
VOCs	volatile organic compounds

The following units of weight have been used:

Gg	gigagram (10 <sup>9</sup> grams)
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The following other abbreviations have been used:

EIT	country that is undergoing the process of transition to a market economy
GWP	global warming potential
GHGs	greenhouse gases

The following country abbreviations have been used:

Australia	AUS	Hungary	HUN	Poland	POL
Austria	AUT	Iceland	ICE	Portugal	POR
Belgium	BEL	Ireland	IRE	Russian Federation	RUS
Bulgaria	BUL	Italy	ITA	Slovakia	SLO
Canada	CAN	Japan	JPN	Slovenia	SVN
Czech Republic	CZE	Latvia	LAT	Spain	ESP
Denmark	DNK	Lithuania	LTU	Sweden	SWE
Estonia	EST	Luxembourg	LUX	Switzerland	CHE
Finland	FIN	Monaco	MON	Ukraine	UKR
France	FRA	Netherlands	NLD	United Kingdom	GBR
Germany	DEU	New Zealand	NZL	of Great Britain	
Greece	GRE	Norway	NOR	and Northern	
				Ireland	
				United States of	USA
				America	

**Table A.1. Anthropogenic CO<sub>2</sub> emissions, excluding land-use change and forestry,<sup>a</sup> 1990  
(Gigagrams and percentage of total by Party)**

		Energy				Industrial processes		Waste	
		Fuel combustion <sup>b</sup>		Fugitive fuel		(Gg)	%	(Gg)	%
		(Gg)	%	(Gg)	%				
Australia	AUS	262 623	96.2	3 845	1.4	6 655	2.4	0	0.0
Austria	AUT	46 490	75.1	2 140	3.5	12 700	20.5	10	0.0
Belgium	BEL	105 919	91.2			9 188	7.9	983	0.8
Bulgaria <sup>cd</sup>	BUL	90 327	93.2	0	0.0	5 890	6.1	661	0.7
Canada	CAN	426 000	92.0	7 620	1.6	21 800	4.7	691	0.1
Czech Republic	CZE	160 073	96.7			5 417	3.3		
Denmark <sup>e</sup>	DNK	50 898	97.4	240	0.5	1 006	1.9		
Estonia	EST	37 184	98.4			613	1.6		
Finland	FIN	52 600	97.8	100	0.2	1 200	2.2		
France	FRA	356 259	94.2	432	0.1	16 638	4.4	2 766	0.7
Germany	DEU	986 640	97.3			27 515	2.7		
Greece	GRE	76 834	90.8	0	0.0	7 398	8.7	343	0.4
Hungary <sup>cf</sup>	HUN	80 089	95.7			3 587	4.3		
Iceland	ICE	1 674	77.9	79	3.7	391	18.2		
Ireland	IRE	29 038	94.5			1 627	5.3	54	0.2
Italy	ITA	399 590	92.5	2 353	0.5	27 520	6.4	688	0.2
Japan	JPN	1 052 964	93.6			58 795	5.2	12 773	1.1
Latvia	LAT	24 209	97.7			563	2.3		
Lithuania	LTU	37 332	94.4			2 203	5.6		
Luxembourg	LUX	12 133	95.2	0	0.0	585	4.6	20	0.2
Monaco	MON							71	100.0
Netherlands <sup>e</sup>	NLD	164 800	98.4			1 850	1.1	900	0.5
New Zealand	NZL	22 474	88.2	615	2.4	2 387	9.4		
Norway	NOR	26 938	75.8	1 760	5.0	6 514	18.3	14	0.0
Poland <sup>c</sup>	POL	462 998	97.1	53	0.0	13 574	2.8		
Portugal	POR	43 281	91.8	159	0.3	3 421	7.3	0	0.0
Russian Federation	RUS	2 298 900	96.9	27 100	1.1	46 300	2.0	0	0.0
Slovakia	SLO	56 585	94.3			3 447	5.7		
Slovenia	SVN	13 294	95.4			641	4.6		
Spain <sup>g</sup>	ESP	207 592	91.7	414	0.2	17 690	7.8		
Sweden	SWE	51 329	92.6	53	0.1	3 787	6.8		
Switzerland	CHE	40 330	89.5	56	0.1	3 363	7.5	1 320	2.9
Ukraine	UKR	668 332	95.5			31 775	4.5		
United Kingdom	GBR	563 908	96.6	7 291	1.2	10 304	1.8	814	0.1
United States	USA	4 898 973	98.8	6 559	0.1	54 900	1.1		
<b>Total</b>		<b>13 808 610</b>	<b>96.4</b>	<b>60 869</b>	<b>0.4</b>	<b>411 244</b>	<b>2.9</b>	<b>22 108</b>	<b>0.2</b>

<sup>a</sup> In the light of the different ways of reporting used by Parties, emissions from *land-use change and forestry* were excluded from the table for comparison and consistency purposes; they are however presented in table A.5.

<sup>b</sup> For further details on fuel combustion see table A.3.

<sup>c</sup> According to decision 9/CP.2 some EIT Parties use different base years from 1990: Bulgaria (1988), Hungary (average of 1985 - 1987) and Poland (1988).

<sup>d</sup> Data for the base year provided in the second national communication were the same as in the first communication, which are presented here.

<sup>e</sup> Party also provided estimates adjusted for temperature correction, and in the case of Denmark also for electricity exchange, but non-adjusted estimates were included in this table for comparison and consistency purposes.

<sup>f</sup> The Party did not provide data for its base year or for 1990 in its second national communication, so base year data from the first national communication are presented here.

<sup>g</sup> An estimate of 2,161 Gg from waste was reported but not included in the Party's national total. On the other hand, the Party included an estimate of 727 Gg (corresponds to 0.3% of Party's total CO<sub>2</sub>) in its national total, which included emissions resulting from both non-renewable waste and torches in the chemical industry and refineries. An estimate of 18,725 Gg of emissions from agriculture was also provided for information purposes only.



Table A.1. (continued)

Other <sup>a</sup>		Total	
(Gg)	%	(Gg)	
		273 123	AUS
540	0.9	61 880	AUT
		116 090	BEL
0	0.0	96 878	BUL
7 090	1.5	464 000	CAN
		165 490	CZE
133	0.3	52 277	DNK
		37 797	EST
		53 800	FIN
2 284	0.6	378 379	FRA
		1 014 155	DEU
0	0.0	84 575	GRE
		83 676	HUN
4	0.2	2 147	ICE
		30 719	IRE
1 999	0.5	432 150	ITA
		1 124 532	JPN
		24 771	LAT
		39 535	LTU
12	0.1	12 750	LUX
		71	MON
		167 550	NLD
		25 476	NZL
319	0.9	35 544	NOR
		476 625	POL
262	0.6	47 123	POR
0	0.0	2 372 300	RUS
		60 032	SLO
		13 935	SVN
		226 423	ESP
276	0.5	55 445	SWE
		45 070	CHE
		700 107	UKR
1 430	0.2	583 747	GBR
		4 960 432	USA
14 349	0.1	14 318 604	Total

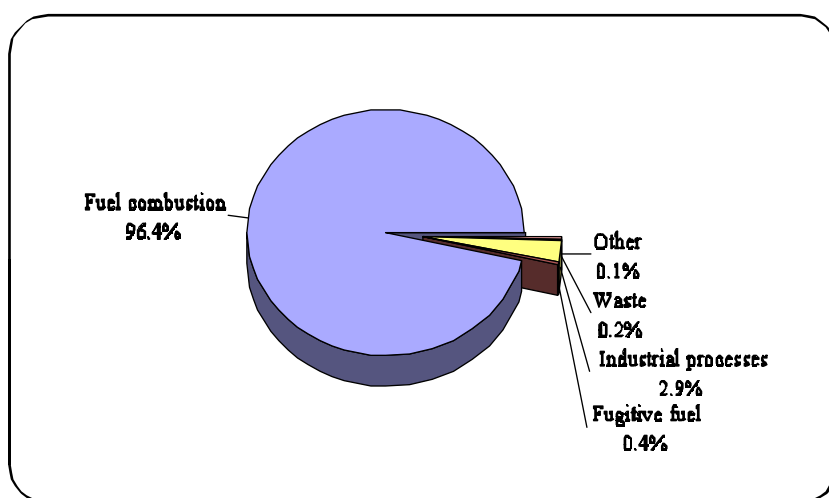


Figure A.1. Distribution of CO<sub>2</sub> emissions by source categories - 1990

<sup>a</sup> Includes solvent use and agriculture.

**Table A.2. Anthropogenic CO<sub>2</sub> emissions, excluding land-use change and forestry,<sup>a</sup> 1995  
(Gigagrams and percentage of total by Party)**

		Energy				Industrial processes		Waste	
		Fuel combustion <sup>b</sup>		Fugitive fuel		(Gg)	(Gg)	(Gg)	(Gg)
		(Gg)	%	(Gg)	%				
Australia	AUS	285 464	96.2	4 225	1.4	7 018	2.4	17	0.0
Austria	AUT	47 950	77.3	2 350	3.8	11 300	18.2	10	0.0
Belgium <sup>c</sup>	BEL	109 748	90.5			10 456	8.6	1 093	0.9
Bulgaria	BUL	56 225	90.4	0	0.0	5 602	9.0	400	0.6
Canada	CAN	460 886	92.3	10 589	2.1	24 834	5.0	737	0.1
Czech Republic	CZE	124 647	96.8			4 170	3.2		
Denmark <sup>d</sup>	DNK	57 748	97.0	348	0.6	1 311	2.2		
Estonia	EST	20 638	98.9			222	1.1		
Finland	FIN	55 130	98.4	80	0.1	840	1.5		
France	FRA	356 588	92.5	7 337	1.9	15 866	4.1	3 764	1.0
Germany	DEU	869 300	97.2			25 200	2.8		
Greece	GRE	82 426	91.1	0	0.0	7 713	8.5	353	0.4
Hungary	HUN	57 567	96.3			1 438	2.4	754	1.3
Iceland	ICE	1 774	77.7	79	3.5	425	18.6		
Ireland	IRE	32 105	94.6			1 772	5.2	54	0.2
Italy	ITA	409 116	93.5	2 677	0.6	22 985	5.3	727	0.2
Japan	JPN	1 138 478	93.4			61 236	5.0	18 663	1.5
Latvia	LAT	11 900	98.9			127	1.1		
Lithuania	LTU								
Luxembourg	LUX	9 109	95.4	0	0.0	406	4.3	18	0.2
Monaco <sup>e</sup>	MON	78	60.3					51	39.7
Netherlands <sup>d</sup>	NLD	180 400	98.4			2 000	1.1	900	0.5
New Zealand	NZL	24 004	87.7	627	2.3	2 736	10.0		
Norway	NOR	28 854	76.2	1 724	4.6	6 969	18.4	15	0.0
Poland <sup>c</sup>	POL	362 083	97.4	83	0.0	9 422	2.5		
Portugal <sup>c</sup>	POR	46 953	92.4	201	0.4	3 421	6.7	0	0.0
Russian Federation <sup>c</sup>	RUS	1 601 100	96.5	17 900	1.1	24 000	1.4		
Slovakia	SLO	45 426	93.6			3 090	6.4		
Slovenia	SVN								
Spain <sup>cf</sup>	ESP	213 707	92.4	428	0.2	16 372	7.1		
Sweden	SWE	53 385	91.9	16	0.0	4 458	7.7		
Switzerland	CHE	40 130	90.9	70	0.2	2 620	5.9	1 350	3.1
Ukraine	UKR								
United Kingdom	GBR	525 582	96.7	6 235	1.1	9 178	1.7	814	0.1
United States	USA	5 144 626	98.7	6 200	0.1	63 884	1.2		
<b>Total</b>		<b>12 453 127</b>	<b>96.4</b>	<b>61 169</b>	<b>0.5</b>	<b>351 071</b>	<b>2.7</b>	<b>29 720</b>	<b>0.2</b>

<sup>a</sup> In the light of the different ways of reporting used by Parties, emissions from *land-use change and forestry* were excluded from the table for comparison and consistency purposes; they are however presented in table A.5.

<sup>b</sup> For further details on fuel combustion see table A.4.

<sup>c</sup> As estimates for 1995 were not, or not fully provided, estimates for 1994 are given in this table.

<sup>d</sup> Party also provided estimates adjusted for temperature correction, and in the case of Denmark also for electricity exchange, but non-adjusted estimates were included in this table for comparison and consistency purposes.

<sup>e</sup> As Party did not provide estimates for 1995, but for 1996, these estimates are given in this table.

<sup>f</sup> An estimate of 2,657 Gg of emissions from waste was reported but not included in the Party's national total. On the other hand, the Party included an estimate of 863 Gg (corresponds to 0.4 % of the Party's CO<sub>2</sub> emissions) in its national total, which included emissions resulting from both non-renewable waste and torches in the chemical industry and refineries. An estimate of 17,554 Gg of emissions from agriculture was also provided for information purposes only.

Table A.2. (continued)

Other		Total	
(Gg)	%	(Gg)	
		296 724	AUS
410	0.7	62 020	AUT
		121 297	BEL
0	0.0	62 227	BUL
2 481	0.5	499 526	CAN
		128 817	CZE
125	0.2	59 532	DNK
		20 859	EST
		56 050	FIN
1 792	0.5	385 346	FRA
		894 500	DEU
0	0.0	90 492	GRE
		59 758	HUN
5	0.2	2 282	ICE
		33 931	IRE
1 962	0.4	437 467	ITA
		1 218 377	JPN
		12 027	LAT
			LTU
12	0.1	9 545	LUX
		129	MON
		183 400	NLD
		27 367	NZL
317	0.8	37 880	NOR
		371 588	POL
266	0.5	50 841	POR
		1 660 000	RUS
		48 516	SLO
			SVN
		231 370	ESP
249	0.4	58 108	SWE
		44 170	CHE
			UKR
1 529	0.3	543 338	GBR
		5 214 710	USA
9 148	0.1	12 922 194	Total

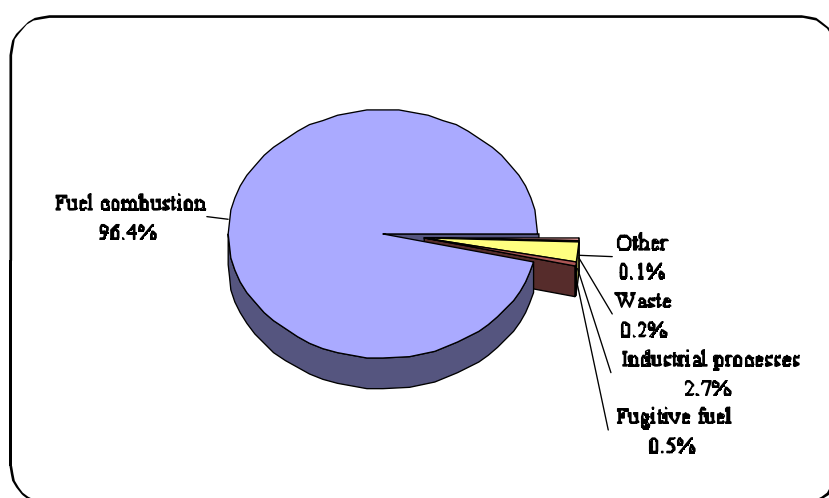


Figure A. 2. Distribution of CO<sub>2</sub> emissions by source categories - 1995

Table A.3. Anthropogenic CO<sub>2</sub> emissions from fuel combustion, 1990 (Gigagrams and percentage of total by Party)

	<u>Energy industries</u>		<u>Industry</u>		<u>Small combustion<sup>a</sup></u>		<u>Transport</u>	
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%
Australia	141 807	54.0	47 363	18.0	12 178	4.6	59 596	22.7
Austria	12 410	26.7	7 220	15.5	12 850	27.6	13 970	30.0
Belgium	28 140	26.6	31 027	29.3	26 262	24.8	19 964	18.8
Bulgaria <sup>bc</sup>	35 079	38.8	33 881	37.5	8 941	9.9	10 753	11.9
Canada	145 000	34.0	71 900	16.9	69 830	16.4	140 000	32.9
Czech Republic	94 090	58.8	23 104	14.4	35 948	22.5	7 959	5.0
Denmark <sup>d</sup>	25 865	50.0	5 776	11.3	8 664	17.0	10 474	20.6
Estonia	28 461	76.5	2 897	7.8	3 169	8.5	2 656	7.1
Finland	19 500	37.1	13 700	26.0	7 900	15.0	11 500	21.9
France	81 881	23.0	49 597	13.9	99 860	28.0	124 921	35.1
Germany	439 427	44.5	169 741	17.2	198 190	20.1	158 647	16.1
Greece	43 661	56.8	9 820	12.8	8 159	10.6	15 193	19.8
Hungary <sup>bc</sup>	36 928	46.1	10 893	13.6	23 174	28.9	7 741	9.7
Iceland	4	0.2	243	14.5	704	42.1	721	43.1
Ireland	10 863	37.4	5 431	18.7	7 859	27.1	4 885	16.8
Italy	148 445	37.1	78 117	19.5	76 805	19.2	95 063	23.8
Japan	339 065	32.2	339 378	32.2	158 298	15.0	207 431	19.7
Latvia	9 530	39.4	2 683	11.1	6 142	25.4	5 829	24.1
Lithuania	16 425	44.0	5 396	14.5	6 810	18.2	5 791	15.5
Luxembourg	1 883	15.5	6 353	52.4	1 272	10.5	2 625	21.6
Monaco <sup>f</sup>								
Netherlands <sup>d</sup>	51 400	31.2	48 200	29.2	37 300	22.6	26 800	16.3
New Zealand	6 079	27.0	4 766	21.2	2 766	12.3	8 748	38.9
Norway	7 444	27.6	3 023	11.2	2 506	9.3	13 885	51.5
Poland <sup>b</sup>	260 537	56.3	60 900	13.2	111 229	24.0	28 238	6.1
Portugal	17 015	39.3	7 225	16.7	4 468	10.3	14 060	32.5
Russian Federation <sup>g</sup>								
Slovakia	11 970	21.2	25 398	44.9	13 813	24.4	5 168	9.1
Slovenia	6 483	48.8	2 488	18.7	1 144	8.6	3 179	23.9
Spain	75 184	36.2	47 971	23.1	26 177	12.6	58 260	28.1
Sweden	8 849	17.2	13 051	25.4	10 672	20.8	18 650	36.3
Switzerland	963	2.4	5 406	13.4	18 322	45.4	14 668	36.4
Ukraine <sup>g</sup>								
United Kingdom	231 954	41.1	97 045	17.2	111 703	19.8	117 944	20.9
United States	1 748 893	35.7	1 066 241	21.8	550 683	11.2	1 499 076	30.6
Total <sup>h</sup>	4 085 235	37.7	2 296 234	21.2	1 663 798	15.3	2 714 395	25.0

<sup>a</sup> Includes emissions from the source/sink categories: *commercial/institutional, residential and agriculture/forestry/fishing*.

<sup>b</sup> According to decision 9/CP.2 some EIT Parties use different base years from 1990: Bulgaria (1988), Hungary (average of 1985 - 1987) and Poland (1988).

<sup>c</sup> Data for the base year provided in the second national communication were the same as in the first communication, which are presented here.

<sup>d</sup> Party also provided estimates adjusted for temperature correction, and in the case of Denmark also for electricity exchange; non-adjusted estimates were however included in this table for comparison and consistency purposes.

<sup>e</sup> The Party did not provide data for its base year or for 1990 in its second national communication, so base year data from the first national communication are presented here.

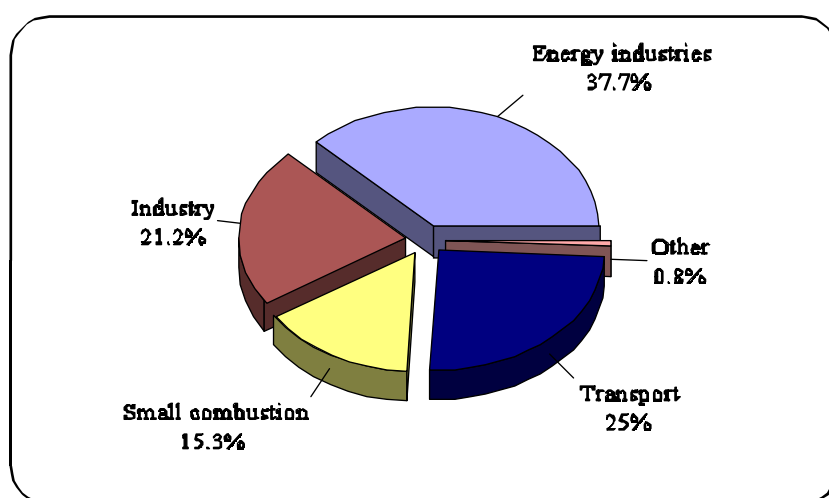
<sup>f</sup> Party only reported CO<sub>2</sub> emissions from waste incineration.

<sup>g</sup> Party only provided an aggregate estimate for *fuel combustion*, (see table A.1).

<sup>h</sup> The percentage of the total accounted for by each category has been calculated on the basis of the overall total with the exclusion of the Russian Federation and Ukraine, since data for the individual subcategories were not available.

Table A.3. (continued)

<u>Other<sup>a</sup></u>		<u>Total</u>	
(Gg)	%	(Gg)	
1 680	0.6	262 623	AUS
40	0.1	46 490	AUT
526	0.5	105 919	BEL
1 673	1.9	90 327	BUL
		426 000	CAN
		160 073	CZE
119	0.2	50 898	DNK
		37 184	EST
		52 600	FIN
0	0.0	356 259	FRA
20 635	2.1	986 640	DEU
		76 834	GRE
1 353	1.7	80 089	HUN
2	0.1	1 674	ICE
		29 038	IRE
1 159	0.3	399 590	ITA
8 792	0.8	1 052 964	JPN
25	0.1	24 209	LAT
2 910	7.8	37 332	LTU
		12 133	LUX
			MON
1 100	0.7	164 800	NLD
115	0.5	22 474	NZL
80	0.3	26 938	NOR
2 094	0.5	462 998	POL
512	1.2	43 281	POR
		2 298 900	RUS
234	0.4	56 585	SLO
		13 294	SVN
		207 592	ESP
107	0.2	51 329	SWE
972	2.4	40 330	CHE
		668 332	UKR
5 263	0.9	563 908	GBR
34 080	0.7	4 898 973	USA
83 471	0.8	13 808 610	Total

Figure A.3. Distribution of CO<sub>2</sub> fuel combustion emissions by source categories, percentage - 1990

<sup>a</sup> Includes emissions from all other non-specified fuel combustion except from combustion of biomass. Includes emissions from military fuel use.

Table A.4. Anthropogenic CO<sub>2</sub> emissions from fuel combustion, 1995 (Gigagrams and percentage of total by Party)

	<u>Energy industries</u>		<u>Industry</u>		<u>Small combustion<sup>a</sup></u>		<u>Transport</u>	
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%
Australia	156 807	54.9	47 841	16.8	13 646	4.8	65 185	22.8
Austria	11 050	23.0	7 390	15.4	13 580	28.3	15 880	33.1
Belgium	29 141	26.5	27 908	25.4	30 832	28.0	21 834	19.9
Bulgaria	37 479	66.7	8 414	15.0	2 625	4.7	7 394	13.2
Canada	160 690	34.9	75 319	16.3	74 425	16.1	150 453	32.6
Czech Republic	66 574	53.4	30 124	24.2	19 039	15.3	8 912	7.1
Denmark <sup>b</sup>	31 482	54.5	6 039	10.5	8 718	15.1	11 370	19.7
Estonia <sup>c</sup>	18 938	91.8					1 700	8.2
Finland	21 720	39.4	13 570	24.6	8 710	15.8	11 130	20.2
France	67 645	19.0	52 564	14.7	101 756	28.5	134 623	37.8
Germany	373 200	42.9	126 800	14.6	186 100	21.4	170 700	19.6
Greece	46 899	56.9	10 173	12.3	8 099	9.8	17 255	20.9
Hungary	26 431	45.9	6 352	11.0	16 761	29.1	7 001	12.2
Iceland	4	0.2	212	12.0	808	45.6	749	42.2
Ireland	13 189	41.1	3 442	10.7	9 265	28.9	6 209	19.3
Italy	139 180	34.0	83 043	20.3	76 481	18.7	108 842	26.6
Japan	359 385	31.6	346 492	30.4	177 084	15.6	242 123	21.3
Latvia	4 923	41.4	1 205	10.1	3 893	32.7	1 749	14.7
Lithuania								
Luxembourg	833	9.1	3 410	37.4	1 440	15.8	3 426	37.6
Monaco <sup>d</sup>					51	65.2	27	34.8
Netherlands <sup>b</sup>	59 500	33.0	47 400	26.3	40 700	22.6	30 100	16.7
New Zealand	4 741	19.8	5 416	22.6	2 775	11.6	10 983	45.8
Norway	9 059	31.4	3 220	11.2	1 891	6.6	14 578	50.5
Poland <sup>e</sup>	200 331	55.3	66 282	18.3	64 151	17.7	29 533	8.2
Portugal <sup>e</sup>	17 150	36.5	7 178	15.3	5 074	10.8	16 849	35.9
Russian Federation <sup>ef</sup>								
Slovakia	23 641	52.0	9 479	20.9	8 090	17.8	4 216	9.3
Slovenia								
Spain <sup>e</sup>	76 081	35.6	50 896	23.8	27 009	12.6	59 721	27.9
Sweden	10 493	19.7	13 541	25.4	9 903	18.6	19 341	36.2
Switzerland	1 150	2.9	5 170	12.9	18 290	45.6	14 580	36.3
Ukraine								
United Kingdom	198 570	37.8	88 479	16.8	114 893	21.9	119 787	22.8
United States	1 811 186	35.2	1 099 118	21.4	597 105	11.6	1 598 375	31.1
Total <sup>g</sup>	3 977 472	36.7	2 246 477	20.7	1 643 194	15.1	2 904 625	26.8

a

Includes emissions from the source/sink categories: *commercial/institutional, residential and agriculture/forestry/fishing*.

b

Party also provided estimates adjusted for temperature correction, and in the case of Denmark also for electricity exchange, but non-adjusted estimates were included in this table for comparison and consistency purposes.

c

Party only provided an aggregate estimate for stationary combustion, which includes all *fuel combustion* subcategories other than transport. This estimate is included under *energy industries* in this table.

d

As Party did not provide estimates for 1995, but for 1996, these estimates are given in this table.

e

As estimates for 1995 were not provided, estimates for 1994 are given in this table.

f

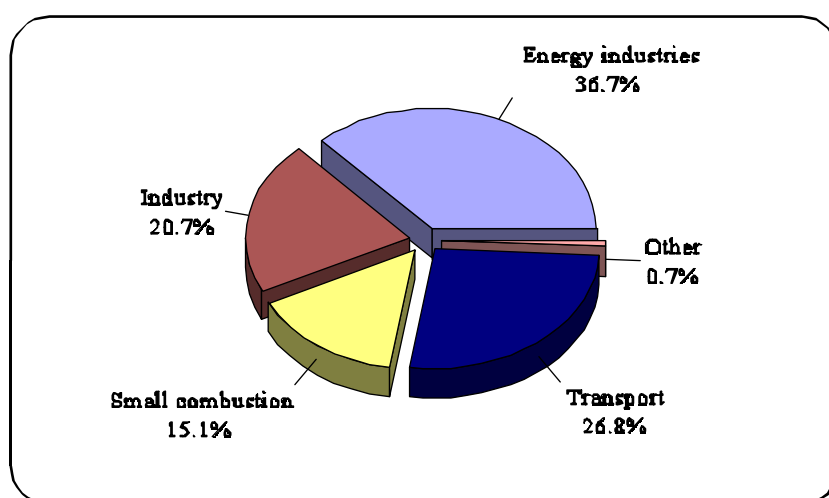
Party only provided an aggregate estimate for *fuel combustion*.

g

The percentage of the total accounted for by each category has been calculated on the basis of the overall total with the exclusion of the Russian Federation, since data for the individual subcategories were not available.

Table A.4. (continued)

<u>Other<sup>a</sup></u>		<u>Total</u>	
(Gg)	%	(Gg)	
1 984	0.7	285 464	AUS
40	0.1	47 950	AUT
221	0.2	109 936	BEL
314	0.6	56 225	BUL
		460 886	CAN
		124 647	CZE
139	0.2	57 748	DNK
		20 638	EST
		55 130	FIN
0	0.0	356 588	FRA
12 500	1.4	869 300	DEU
		82 426	GRE
1 022	1.8	57 567	HUN
1	0.0	1 774	ICE
		32 105	IRE
1 569	0.4	409 116	ITA
13 393	1.2	1 138 478	JPN
130	1.1	11 900	LAT
			LTU
		9 109	LUX
		78	MON
2 500	1.4	180 400	NLD
89	0.4	24 004	NZL
107	0.4	28 854	NOR
1 786	0.5	362 083	POL
701	1.5	46 953	POR
		1 601 100	RUS
		45 426	SLO
			SVN
		213 707	ESP
107	0.2	53 385	SWE
940	2.3	40 130	CHE
			UKR
3 852	0.7	525 582	GBR
38 842	0.8	5 144 626	USA
80 237	0.7	12 453 315	Total

Figure A. 4. Distribution of CO<sub>2</sub> fuel combustion emissions by source categories, percentage - 1995

<sup>a</sup> Includes emissions from all other non-specified fuel combustion except from combustion of biomass. Includes emissions from military fuel use.

**Table A.5. Anthropogenic CO<sub>2</sub> emissions from and removals<sup>a</sup> by land-use change and forestry and impact on total CO<sub>2</sub> emissions, 1990 and 1995, (Gigagrams)**

	<u>Land-use change and forestry, net emissions or removals</u>		<u>National CO<sub>2</sub> emissions including land-use change and forestry</u>	
	<u>1990</u> (Gg)	<u>1995</u> (Gg)	<u>1990</u> (Gg)	<u>1995</u> (Gg)
Australia <sup>b</sup>	-31 075	-29 106	242 100	267 617
Austria	-13 300	-13 580	48 580	48 440
Belgium <sup>c</sup>	-2 057	-2 057	114 033	119 240
Bulgaria	-4 657	-7 520	92 221	54 707
Canada <sup>d</sup>				
Czech Republic	-2 281	-5 454	163 209	123 363
Denmark	-924	-964	51 353	58 568
Estonia <sup>e</sup>	-11 317	-13 266	26 480	7 593
Finland <sup>f</sup>	(-30 000) - (-19 000)	(-14 000) - (-7 000)	23 800 - 34 800	46 250 - 52 250
France	-33 218	-46 801	345 161	338 545
Germany	-30 000	-30 000	984 155	864 500
Greece <sup>g</sup>				
Hungary	-3 097	-4 797	80 579	54 961
Iceland <sup>h</sup>				
Ireland	-5 160	-6 230	25 559	27 701
Italy	-24 949	-24 507	407 201	412 960
Japan	-83 341	-94 619	1 041 191	1 123 758
Latvia	-10 826	-10 484	13 946	1 544
Lithuania	-8 848		30 687	
Luxembourg	-295	-295	12 455	9 250
Monaco				
Netherlands	-1 500	-1 700	166 050	181 700
New Zealand	-20 571	-13 487	4 907	13 880
Norway	-10 200	-13 637	25 344	24 243
Poland <sup>c</sup>	-34 746	-41 953	441 879	329 635
Portugal <sup>c</sup>	-1 152	-1 152	45 971	49 689
Russian Federation <sup>c</sup>	-392 000	-568 000	1 980 300	1 092 000
Slovakia	-4 257	-5 116	55 775	43 400
Slovenia	-2 293		11 642	
Spain <sup>c</sup>	-28 970	-28 970	197 453	202 400
Sweden <sup>i</sup>	-34 368	-30 000	21 077	26 000
Switzerland	-4 360	-5 100	40 710	39 070
Ukraine	-51 976		648 131	
United Kingdom <sup>e</sup>	18 776	9 945	602 523	553 283
United States	-458 000	-428 000	4 502 432	4 786 710

<sup>a</sup> Negative values in Gg denote removal of CO<sub>2</sub>. Positive values denote a net source of emissions.

<sup>b</sup> The Party reported emissions from the *Forest and Grassland Conversion* sub-sector separately, and only included in the *land-use change and forestry* sector the subsectors *changes in forest and other woody biomass stocks* and *other* (pasture improvement). Inclusion of emissions from *forest and grassland conversion* would result in an additional 80,972 Gg of CO<sub>2</sub> in 1995.

<sup>c</sup> As estimates for 1995 were not fully provided, estimates for the last reported year, 1994, are given in this table.

<sup>d</sup> The Party was not able to provide estimates in the manner provided for in the IPCC Guidelines, but it did include in its national communication a detailed description of the model used for estimation of the carbon fluxes in its forests.

<sup>e</sup> The estimates include emissions and removals of wetland drainage and peat extraction.

<sup>f</sup> A range of estimates of emissions from cultivated peatlands and non-viable drainage areas was included, so a range for the total estimates from *land-use change and forestry* is given in this table.

<sup>g</sup> The Party did not provide sufficient inventory data for an estimation of CO<sub>2</sub> sinks to be made.

<sup>h</sup> The Party did not provide any estimates, but did include in its national communication a description of the ongoing activities and preliminary estimates from the sector.

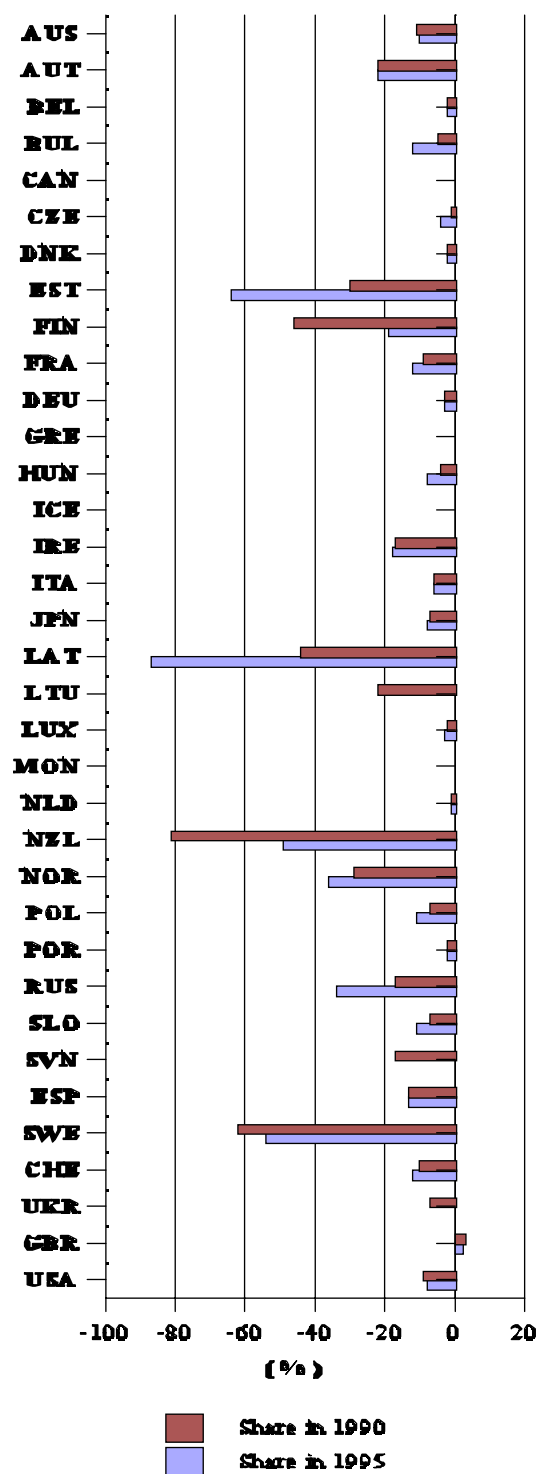
<sup>i</sup> As estimates for 1995 were not available, estimates for the last reported year, 1992, are given in this table.



Table A.5. (continued)

Percentage reduction or increase (-/+) of national CO <sub>2</sub> emissions taking into account land-use change and forestry		
1990	1995	
%	%	
-11	-10	AUS
-22	-22	AUT
-2	-2	BEL
-5	-12	BUL
		CAN
-1	-4	CZE
-2	-2	DNK
-30	-64	EST
-46	-19	FIN
-9	-12	FRA
-3	-3	DEU
		GRE
-4	-8	HUN
		ICE
-17	-18	IRE
-6	-6	ITA
-7	-8	JPN
-44	-87	LAT
-22		LTU
-2	-3	LUX
		MON
-1	-1	NLD
-81	-49	NZL
-29	-36	NOR
-7	-11	POL
-2	-2	POR
-17	-34	RUS
-7	-11	SLO
-17		SVN
-13	-13	ESP
-62	-54	SWE
-10	-12	CHE
-7		UKR
3	2	GBR
-9	-8	USA

Figure A.5.



Percentage reduction or increase of total CO<sub>2</sub> emissions with the inclusion of emissions/removals of land-use change and forestry for 1990 and 1995

Table A.6. Anthropogenic emissions of CH<sub>4</sub>, 1990 (Gigagrams and percentage of total by Party)

	Energy				Agriculture				Waste	
	Fuel combustion		Fugitive fuel		Livestock <sup>a</sup>		Other <sup>b</sup>		(Gg)	%
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%		
Australia	109	2.1	1 050	20.4	2 892	56.1	331	6.4	704	13.7
Austria	21	3.6	4	0.7	173	29.4	36	6.0	227	38.7
Belgium	16	2.4	53	8.4	374	58.9	15	2.3	174	27.4
Bulgaria <sup>cd</sup>	56	4.0	315	22.3	299	21.2	8	0.5	732	51.8
Canada	47	1.5	1 400	43.5	900	28.0			840	26.1
Czech Republic	59	6.7	460	51.8	204	23.0			149	16.7
Denmark	10	2.4	12	2.8	329	77.9			71	16.9
Estonia <sup>ef</sup>	3	2.5			60	57.1			42	40.2
Finland <sup>e</sup>	15	6.1			101	41.1			126	51.2
France	163	5.4	332	11.0	1 598	53.0	28	0.9	800	26.5
Germany	205	3.6	1 563	27.5	2 044	36.0			1 870	32.9
Greece	15	3.3	44	9.9	166	37.4	107	24.2	112	25.3
Hungary <sup>cg</sup>	8	1.2	448	67.5	205	30.8	4	0.6		
Iceland <sup>e</sup>	0	1.4			12	85.0			2	13.6
Ireland	5	0.7	10	1.3	603	74.4	37	4.5	136	16.8
Italy	97	4.1	309	13.3	835	35.8	74	3.2	823	35.3
Japan	119	7.6	166	10.5	465	29.5	378	24.0	397	25.2
Latvia	2	1.3	53	28.6	111	59.7			19	10.4
Lithuania	5	1.4	26	6.9	181	47.8			166	43.8
Luxembourg <sup>h</sup>	1	3.2	2	6.8	18	73.9	0	0.0	4	16.1
Monaco <sup>h</sup>										
Netherlands	33	3.0	179	16.2	505	45.7			379	34.3
New Zealand	8	0.5	25	1.5	1 513	88.7			155	9.1
Norway	16	3.7	21	4.9	91	21.1			302	70.1
Poland <sup>c</sup>	47	1.5	1 248	39.7	862	27.4	1	0.0	966	30.8
Portugal	15	1.9	4	0.5	192	23.7	19	2.3	578	71.5
Russian Federation	200	0.8	18 900	71.3	4 930	18.6	130	0.5	1 940	7.3
Slovakia	25	6.1	122	29.8	187	45.7			65	15.9
Slovenia	7	3.8	51	28.5	44	24.6	0	0.1	76	42.6
Spain	76	3.5	687	31.5	811	37.1	116	5.3	491	22.5
Sweden <sup>e</sup>	39	12.0			200	61.7			85	26.2
Switzerland	9	3.7	15	6.0	151	61.9			69	28.2
Ukraine	36	0.4	6 229	65.9	2 239	23.7	15	0.2	934	9.9
United Kingdom	98	2.2	1 298	29.1	1 130	25.3	12	0.3	1 925	43.1
United States	956	3.2	9 893	33.4	8 310	28.1	448	1.5	9 971	33.7
Total	2 521	2.3	44 919	41.5	32 735	30.2	1 759	1.6	25 330	23.4

<sup>a</sup> Includes source/sink categories: *enteric fermentation* and *manure management*.

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

<sup>c</sup> According to decision 9/CP.2 some EIT Parties use different base years from 1990: Bulgaria (1988), Hungary (average of 1985 - 1987) and Poland (1988).

<sup>d</sup> Data for the base year provided in the second national communication were the same as in the first communication, which are presented here.

<sup>e</sup> Party did not report estimates for *fugitive fuel* emissions.

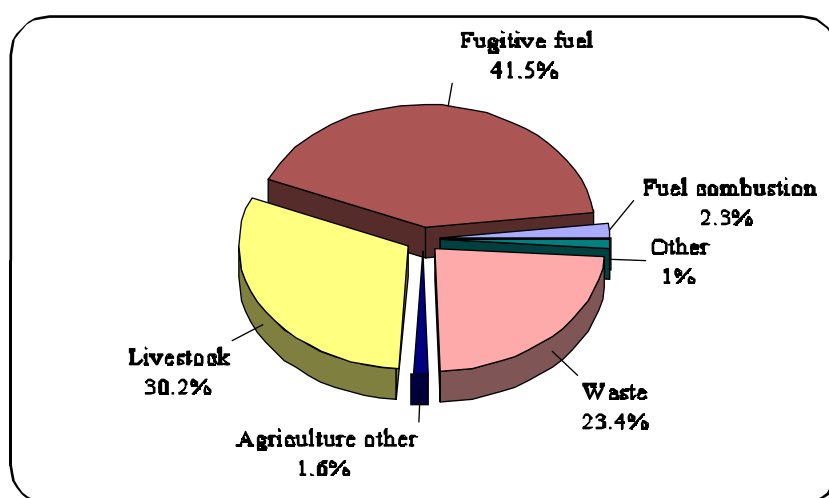
<sup>f</sup> Party only reported aggregate emissions from *agriculture*; this estimate is included under livestock in this table.

<sup>g</sup> The Party did not provide estimates for its base year or for 1990 in its second national communication, so base year data from the first national communication are presented here.

<sup>h</sup> Party did not provide estimates but indicated that emissions were negligible.

Table A. 6. (continued)

Other <sup>a</sup>		Total	
(Gg)	%	(Gg)	
65	1.3	5 140	AUS
127	21.6	587	AUT
4	0.6	634	BEL
2	0.2	1 413	BUL
38	1.2	3 200	CAN
16	1.8	888	CZE
		421	DNK
0	0.3	105	EST
4	1.6	246	FIN
95	3.2	3 017	FRA
		5 682	DEU
0	0.0	443	GRE
		664	HUN
		14	ICE
20	2.4	811	IRE
192	8.2	2 329	ITA
51	3.2	1 575	JPN
		186	LAT
0	0.1	378	LTU
0	0.0	24	LUX
			MON
8	0.7	1 104	NLD
5	0.3	1 706	NZL
1	0.2	432	NOR
17	0.5	3 141	POL
0	0.0	809	POR
400	1.5	26 500	RUS
10	2.4	409	SLO
1	0.3	176	SVN
2	0.1	2 181	ESP
		324	SWE
0	0.2	244	CHE
		9 453	UKR
		4 464	GBR
		29 578	USA
1 058	1.0	108 278	Total

Figure A. 6. Distribution of CH<sub>4</sub> emissions by source categories - 1990

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

Table A.7. Anthropogenic emissions of CH<sub>4</sub>, 1995 (Gigagrams and percentage of total by Party)

	Energy				Agriculture				Waste	
	Fuel combustion		Fugitive fuel		Livestock <sup>a</sup>		Other <sup>b</sup>		(Gg)	%
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%		
Australia	113	2.2	1 017	19.9	2 852	55.8	294	5.7	778	15.2
Austria	19	3.3	5	0.9	173	29.8	36	6.2	220	37.9
Belgium <sup>c</sup>	14	2.2	45	7.1	375	59.0	14	2.3	184	29.0
Bulgaria	5	0.6	265	29.4	123	13.6	2	0.2	503	55.8
Canada	43	1.2	1 791	48.0	996	26.7			889	23.8
Czech Republic	32	4.4	405	55.2	139	19.0			144	19.7
Denmark	11	2.6	17	4.0	327	76.0			74	17.2
Estonia <sup>de</sup>	2	2.5			34	50.0			32	46.8
Finland <sup>d</sup>	16	6.6			88	36.5			133	55.2
France	187	6.6	333	11.7	1 520	53.4	31	1.1	678	23.8
Germany <sup>f</sup>	119	2.5	1 170	24.1	1 660	34.2			1 900	39.2
Greece	15	3.4	49	10.8	167	36.6	109	23.9	115	25.2
Hungary	21	2.9	315	44.2	116	16.3	6	0.8	255	35.8
Iceland <sup>d</sup>	0	1.5			11	81.6			2	16.9
Ireland	4	0.5	11	1.4	607	74.6	29	3.6	138	17.0
Italy	115	4.6	352	14.0	789	31.4	83	3.3	989	39.3
Japan <sup>c</sup>	105	6.8	169	10.9	455	29.4	394	25.5	373	24.1
Latvia	8	7.4	22	21.3	45	44.0			26	25.3
Lithuania										
Luxembourg	1	3.1	2	7.9	17	76.5	0	0.0	3	12.4
Monaco <sup>g</sup>										
Netherlands	31	2.9	170	16.0	475	44.7			380	35.7
New Zealand	8	0.5	27	1.7	1 460	89.3			132	8.1
Norway	20	4.3	30	6.4	96	20.5			322	68.7
Poland <sup>c</sup>	59	2.4	896	36.3	645	26.1	1	0.0	855	34.7
Portugal <sup>c</sup>	15	1.8	3	0.4	182	22.0	13	1.6	613	74.2
Russian Federation <sup>c</sup>	130	0.7	13 300	67.8	3 700	18.9	130	0.7	1 950	9.9
Slovakia	15	4.7	107	33.9	122	38.6			63	19.9
Slovenia										
Spain <sup>c</sup>	74	3.2	618	26.7	832	36.0	101	4.4	686	29.6
Sweden <sup>d</sup>	38	12.8			197	66.6			61	20.6
Switzerland	8	3.3	13	5.4	148	62.8			67	28.3
Ukraine										
United Kingdom	83	2.2	843	22.1	1 104	28.9			1 786	46.8
United States	801	2.6	9 347	30.2	9 079	29.3	489	1.6	11 259	36.3
Total	2 112	2.3	31 322	34.7	28 534	31.6	1 732	1.9	25 610	28.4

<sup>a</sup> Includes source/sink categories: *enteric fermentation* and *manure management*.

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

<sup>c</sup> As Party did not provide estimates for 1995, or did not provide them for all sources, estimates for 1994 are given in this table.

<sup>d</sup> Party did not report estimates for *fugitive fuel* emissions.

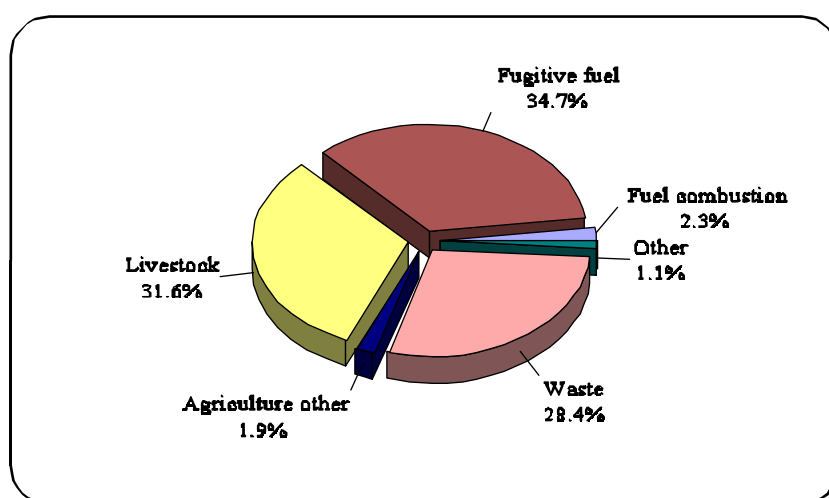
<sup>e</sup> Party only reported aggregate emissions from *agriculture*; this estimate is included under livestock in this table.

<sup>f</sup> As Party only provided an aggregate estimate for 1995, estimates for 1994 are given in this table.

<sup>g</sup> Party did not provide estimates but indicated that emissions were negligible.

Table A.7. (continued)

<u>Other<sup>a</sup></u>		<u>Total</u>	
(Gg)	%	(Gg)	
59	1.2	5 114	AUS
127	21.9	580	AUT
3	0.5	635	BEL
3	0.4	901	BUL
13	0.3	3 732	CAN
13	1.8	733	CZE
1	0.2	430	DNK
0	0.0	68	EST
4	1.7	241	FIN
95	3.3	2 844	FRA
		4 849	DEU
0	0.0	456	GRE
0	0.0	712	HUN
		14	ICE
24	3.0	812	IRE
188	7.5	2 516	ITA
51	3.3	1 548	JPN
2	2.0	101	LAT
			LTU
0	0.0	22	LUX
			MON
7	0.7	1 063	NLD
8	0.5	1 635	NZL
1	0.2	469	NOR
11	0.4	2 467	POL
0	0.0	827	POR
400	2.0	19 610	RUS
9	2.8	316	SLO
			SVN
2	0.1	2 314	ESP
		296	SWE
0	0.2	235	CHE
			UKR
		3 817	GBR
		30 975	USA
1 021	1.1	90 332	Total

Figure A. 7. Distribution of CH<sub>4</sub> emissions by source categories - 1995

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

Table A.8. Anthropogenic emissions of N<sub>2</sub>O, 1990 (Gigagrams and percentage of total by Party)

	Energy		Industrial processes		Agriculture		Waste			
	Transport		Other <sup>a</sup>							
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%		
Australia	5.2	6.6	2.6	3.3	1.6	2.0	68.2	86.7		
Austria	3.1	27.0	1.4	11.7	0.6	5.2	3.3	28.5	0.0	0.1
Belgium	0.9	3.0	7.4	24.0	11.5	37.3	10.9	35.4	0.1	0.3
Bulgaria <sup>bc</sup>	0.2	0.6	6.8	22.1	10.4	33.8	13.4	43.5	0.0	0.0
Canada	29.0	33.4	6.8	7.8	37.0	42.7	11.0	12.7	0.1	0.1
Czech Republic	0.8	3.1	19.2	74.4	3.3	12.8	2.3	8.9		
Denmark	0.0	0.0	1.0	2.9			33.0	97.1		
Estonia	0.0	1.6	1.4	59.6			0.9	38.8		
Finland	2.0	11.1	3.0	16.7	3.0	16.7	10.0	55.6		
France	4.0	2.2	10.3	5.7	90.0	49.5	54.5	30.0	3.1	1.7
Germany	11.0	4.9	26.0	11.5	83.0	36.7	96.0	42.5	4.0	1.8
Greece	1.6	9.0	5.0	29.2	2.3	13.3	8.4	48.5	0.0	0.0
Hungary <sup>db</sup>	0.8	6.2	7.6	58.9			4.6	35.7		
Iceland	0.0	4.8	0.0	4.8	0.2	38.1	0.2	52.4		
Ireland	0.2	0.6	2.6	8.6	2.6	8.7	23.3	77.8	0.0	0.0
Italy	3.6	2.2	41.0	24.9	23.5	14.3	75.2	45.7	0.3	0.2
Japan	12.9	12.3	52.7	50.0	23.8	22.6	9.7	9.2	5.3	5.0
Latvia	0.1	0.5	0.2	0.7			22.0	97.6	0.3	1.2
Lithuania	0.2	1.4	0.8	5.8	1.4	10.6	10.8	82.1		
Luxembourg	0.0	6.9	0.1	9.3	0.0	0.0	0.5	74.9	0.0	3.5
Monaco <sup>e</sup>										
Netherlands	4.9	9.6	0.6	1.2	18.6	36.3	22.2	43.4	0.6	1.2
New Zealand	0.4	0.8	2.3	4.8			44.9	94.4		
Norway	1.0	6.7	1.0	6.7	7.0	46.7	6.0	40.0		
Poland <sup>b</sup>	1.0	1.4	6.0	8.6	20.0	28.6	43.0	61.4		
Portugal	0.5	3.6	1.3	9.3	1.9	13.9	7.4	52.5	2.9	20.9
Russian Federation <sup>f</sup>			17.4	7.7	3.0	1.3	200.0	88.6	0.3	0.1
Slovakia	0.0	0.0	0.6	4.8	2.1	16.8	9.5	76.0	0.3	2.4
Slovenia	0.1	2.4	0.4	7.7			4.6	89.9		
Spain	2.0	2.1	18.2	19.3	10.4	11.0	63.5	67.4	0.1	0.1
Sweden	2.6	28.3	3.7	40.2	2.7	29.3	0.2	2.2		
Switzerland	1.1	9.8	0.3	2.2	0.3	2.8	9.2	80.2	0.2	1.9
Ukraine <sup>f</sup>			6.7	28.6	6.2	26.3	10.2	43.7	0.1	0.6
United Kingdom	3.4	2.8	11.3	9.4	94.0	78.6	10.4	8.7	0.4	0.4
United States	98.0	23.1	35.0	8.2	96.0	22.6	196.1	46.1		
Total	190.6	8.6	300.7	13.6	556.4	25.1	1 085.4	49.0	18.7	0.8

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

<sup>b</sup> According to decision 9/CP.2 some EIT Parties use different base years from 1990: Bulgaria (1988) Hungary (average of 1985 - 1987) and Poland (1988).

<sup>c</sup> Data for the base year provided in the second national communication was the same as in the first national communication, which is presented here.

<sup>d</sup> The Party did not provide data for its base year or for 1990 in its second national communication, so base year data from the first national communication are presented here.

<sup>e</sup> Party did not provide estimates but indicated that emissions were negligible.

<sup>f</sup> Party only reported aggregate emissions from *fuel combustion*, this estimate is included under *other* in this table.

Table A.8. (continued)

<u>Other<sup>a</sup></u>		<u>Total</u>	
(Gg)	%	(Gg)	
1.1	1.4	79.0	AUS
3.4	29.1	711.6	AUT
		30.8	BEL
0.0	0.0	30.8	BUL
2.6	3.0	86.0	CAN
0.2	0.8	25.8	CZE
		34.0	DNK
0.0	0.1	2.3	EST
		18.0	FIN
19.8	10.9	181.7	FRA
6.0	2.7	226.0	DEU
0.0	0.0	17.3	GRE
		12.9	HUN
		0.4	ICE
0.6	2.1	29.4	IRE
20.9	12.7	164.5	ITA
0.9	0.9	105.3	JPN
		22.5	LAT
		13.2	LTU
0.0	5.4	0.6	LUX
			MON
4.3	8.4	51.2	NLD
0.0	0.1	47.5	NZL
		15.0	NOR
0.0	0.0	70.0	POL
		14.0	POR
5.0	2.2	225.7	RUS
		12.5	SLO
0.0	0.1	5.1	SVN
0.0	0.0	94.2	ESP
		9.2	SWE
0.3	3.0	11.5	CHE
0.2	0.7	23.4	UKR
		120.0	GBR
		425.0	USA
65.3	2.9	2 216.4	Total

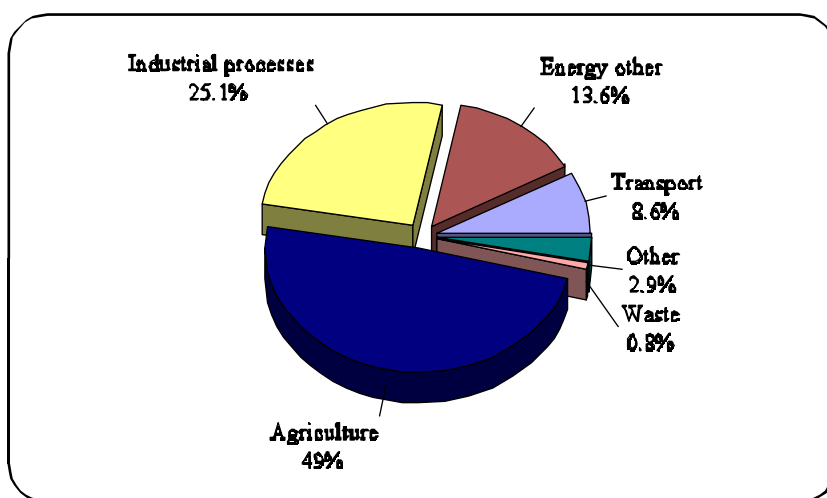


Figure A. 8. Distribution of N<sub>2</sub>O emissions by source categories - 1990

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

Table A.9. Anthropogenic emissions of N<sub>2</sub>O, 1995 (Gigagrams and percentage of total by Party)

	Energy				Industrial processes		Agriculture		Waste	
	Transport		Other <sup>a</sup>		(Gg)	%	(Gg)	%	(Gg)	%
	(Gg)	%	(Gg)	%						
Australia	9.8	11.7	2.9	3.5	1.4	1.7	68.7	82.0		
Austria	4.3	34.0	1.2	9.2	0.6	4.3	3.3	26.1	0.0	0.1
Belgium <sup>b</sup>	1.2	3.7	7.8	24.2	12.3	38.2	10.8	33.5	0.1	0.3
Bulgaria	0.1	0.5	9.6	46.6	8.3	40.5	2.5	12.2	0.0	0.0
Canada	48.0	44.5	7.4	6.9	37.1	34.4	13.3	12.3	0.2	0.2
Czech Republic	1.0	4.6	15.3	70.8	3.4	15.7	1.7	7.9		
Denmark	1.0	2.9	2.0	5.8			30.0	88.2		
Estonia <sup>c</sup>			0.8	66.7			0.4	33.3		
Finland	2.0	11.1	4.0	22.2	3.0	16.7	9.0	50.0		
France	6.7	3.9	10.3	5.9	80.4	46.3	52.6	30.3	3.7	2.1
Germany <sup>d</sup>	19.0	9.1	24.0	11.5	81.0	38.8	86.0	41.1		
Greece	1.6	9.5	5.0	29.6	2.0	11.6	8.3	49.4	0.0	0.0
Hungary	0.2	2.2	2.9	38.7	2.7	35.2	1.6	21.2	0.0	0.0
Iceland	0.0	10.0	0.0	5.0	0.1	35.0	0.2	47.5		
Ireland	0.5	1.9	3.0	11.6	2.6	10.1	19.1	73.4	0.0	0.0
Italy	5.5	3.4	38.6	23.9	20.4	12.6	75.9	46.9	0.5	0.3
Japan <sup>b</sup>	13.8	12.5	55.3	50.3	23.9	21.7	9.1	8.3	6.6	6.0
Latvia	0.1	0.7	0.2	0.9			15.7	96.8	0.3	1.5
Lithuania										
Luxembourg	0.1	15.6	0.0	7.1	0.0	0.0	0.5	69.0	0.0	3.3
Monaco <sup>e</sup>										
Netherlands	7.7	13.2	0.7	1.2	18.1	30.9	26.9	46.0	0.8	1.4
New Zealand	0.5	1.0	2.0	4.4			44.1	94.5		
Norway	1.0	7.7	1.0	7.7	5.0	38.5	6.0	46.2		
Poland <sup>b</sup>	1.0	2.0	5.0	10.0	14.0	28.0	30.0	60.0		
Portugal <sup>b</sup>	0.8	5.6	1.3	9.2	1.9	13.8	7.2	50.8	2.9	20.8
Russian Federation <sup>bc</sup>			11.1	8.7	1.2	0.9	110.0	86.2	0.3	0.2
Slovakia	0.3	3.9	0.5	6.5	1.1	14.3	5.4	70.1	0.4	5.2
Slovenia										
Spain <sup>b</sup>	2.6	3.0	17.9	20.6	8.0	9.2	58.2	67.0	0.1	0.2
Sweden	2.9	31.3	3.9	41.6	2.3	24.5	0.2	2.2		
Switzerland	1.8	15.1	0.3	2.1	0.3	2.6	8.8	74.6	0.3	2.4
Ukraine										
United Kingdom	8.3	8.8	12.5	13.3	63.7	67.3	9.7	10.3	0.4	0.5
United States	109.0	23.3	36.0	7.7	105.0	22.5	217.1	46.5		
Total	250.8	12.2	282.5	13.8	499.8	24.4	932.3	45.4	16.6	0.8

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

<sup>b</sup> As Party did not provide estimates for 1995, or did not provide them for all sources, estimates for 1994 are given in this table.

<sup>c</sup> Party only reported aggregate emissions from *fuel combustion*; this estimate is included under *other* in this table.

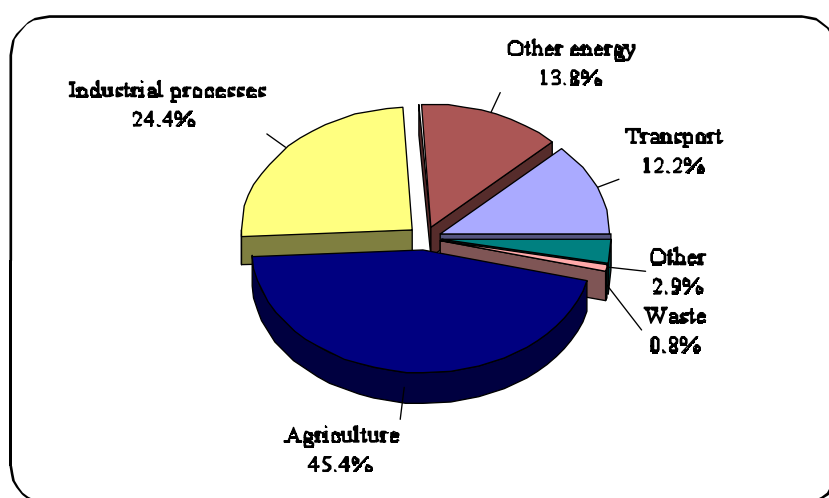
<sup>d</sup> As Party only provided an aggregate estimate for 1995, estimates for 1994 are given in this table.

<sup>e</sup> Party did not provide estimates but indicated that emissions were negligible.



Table A.9. (continued)

Other <sup>a</sup>		Total	
(Gg)	%	(Gg)	
1.0	1.2	83.7	AUS
3.4	26.4	12.8	AUT
		32.3	BEL
		20.6	BUL
1.8	1.7	107.8	CAN
0.1	0.5	21.6	CZE
1.0	2.9	33.0	DNK
0.0	0.0	1.2	EST
		18.0	FIN
19.8	11.4	173.5	FRA
		219.0	DEU
0.0	0.0	16.9	GRE
0.0	0.0	8.0	HUN
		0.4	ICE
0.8	3.0	26.0	IRE
20.9	12.9	161.8	ITA
1.4	1.3	110.0	JPN
0.0	0.1	16.3	LAT
			LTU
0.0	4.9	0.7	LUX
			MON
4.3	7.4	58.5	NLD
0.1	0.1	46.7	NZL
		14.0	NOR
0.0	0.0	50.0	POL
		14.1	POR
5.0	3.9	127.6	RUS
		7.8	SLO
			SVN
0.0	0.0	86.8	ESP
		9.2	SWE
0.4	3.2	11.8	CHE
			UKR
		95.0	GBR
		467.0	USA
60.0	2.9	2 052.1	Total

Figure A. 9. Distribution of N<sub>2</sub>O emissions by source categories - 1995

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

**Table A.10. Anthropogenic emissions of other greenhouse gases, 1990 and 1995<sup>a</sup> (Gigagrams of CO<sub>2</sub> equivalent using IPCC 1995 GWP values with a time horizon of 100 years, percentage relative to 1990, 1990=100 per cent)**

	HFCs <sup>b</sup>			PFCs <sup>c</sup>			SF <sub>6</sub>		
	1990 Gg	1995 Gg	%	1990 Gg	1995 Gg	%	1990 Gg	1995 Gg	%
Australia				~ 5 000	1 432	29			
Austria <sup>d</sup>		321			7.7			1 315	
Belgium		585		68	68	100	478	478	100
Bulgaria									
Canada		500		5 936	6 019	101	2 868	1 888	66
Czech Republic		1					60	62	103
Denmark <sup>e</sup>		216		n.a.	<1		179	203	113
Estonia									
Finland <sup>f</sup>		79			~0			96	
France <sup>f</sup>	2 230	1 404	63	3 033	1 272	42	2 423	2 655	110
Germany <sup>f</sup>	2 340	3 210	137	2 694	1 665	62	3 896	5 999	154
Greece									
Hungary									
Iceland		14		312	54	18	5	5	100
Ireland									
Italy	351	1 014	289	245	121	49	276	312	113
Japan <sup>g</sup>	17 564	30 852	176	5 670	15 110	266	38 240	52 580	138
Latvia									
Lithuania									
Luxembourg									
Monaco									
Netherlands	4 910	8 452	172	2 458	2 391	97	1 386	1 457	105
New Zealand <sup>f</sup>		183		601	196	33	5	5	100
Norway		244		2 545	1 441	57	2198	573	26
Poland									
Portugal									
Russian Federation <sup>h</sup>	9 659	9 659	100	31 906	28 938	91			
Slovakia				499	320	64			
Slovenia									
Spain									
Sweden		195		400	390	98	956	1 242	130
Switzerland		260			34			717	
Ukraine									
United Kingdom <sup>f</sup>	12 645	15 400	122	2 087	560	27	574	720	125
United States	44 040	76 652	174	18 350	29 186	159	25 690	30 831	120

<sup>a</sup> Australia, Canada, Italy, the Russian Federation, Slovakia and the United States reported actual emissions, and Austria, Belgium and Japan reported potential emissions. Denmark and the United Kingdom reported actual and potential emissions for all gases. France, Iceland, New Zealand and Norway reported potential emissions for HFCs, and actual emissions for PFCs and SF<sub>6</sub>, while the Netherlands reported actual emissions for HFCs and PFCs, but potential emissions for SF<sub>6</sub>. In cases where both kinds of emissions of a gas were reported, actual emissions are presented. The rest of the Parties did not clearly indicate whether emissions reported are potential or actual.

<sup>b</sup> Belgium, Finland, Iceland, New Zealand and Switzerland only reported aggregate data in full mass for HFC figures. The secretariat therefore assumed that all these emissions were HFC-134a.

<sup>c</sup> Belgium, Finland, Iceland, New Zealand and Switzerland reported only aggregate PFC figures in full mass. The secretariat therefore assumed that approximately 90 per cent was CF<sub>4</sub> and 10 per cent C<sub>2</sub>F<sub>6</sub>.

<sup>d</sup> Since 1995 estimates for HFCs and SF<sub>6</sub> were not reported, 1994 estimates for these gases are given here. Not fully disaggregated HFC estimates were assumed to be HFC 134a.

<sup>e</sup> The Party reported actual emissions for 1995 only, but potential emissions for the years 1990 to 1995. The secretariat therefore estimated actual emissions for 1990 based on the relation of potential SF<sub>6</sub> emissions to actual SF<sub>6</sub> emissions in the year 1995.

<sup>f</sup> The Party provided to secretariat with additional or corrected estimates since the last compilation and synthesis.

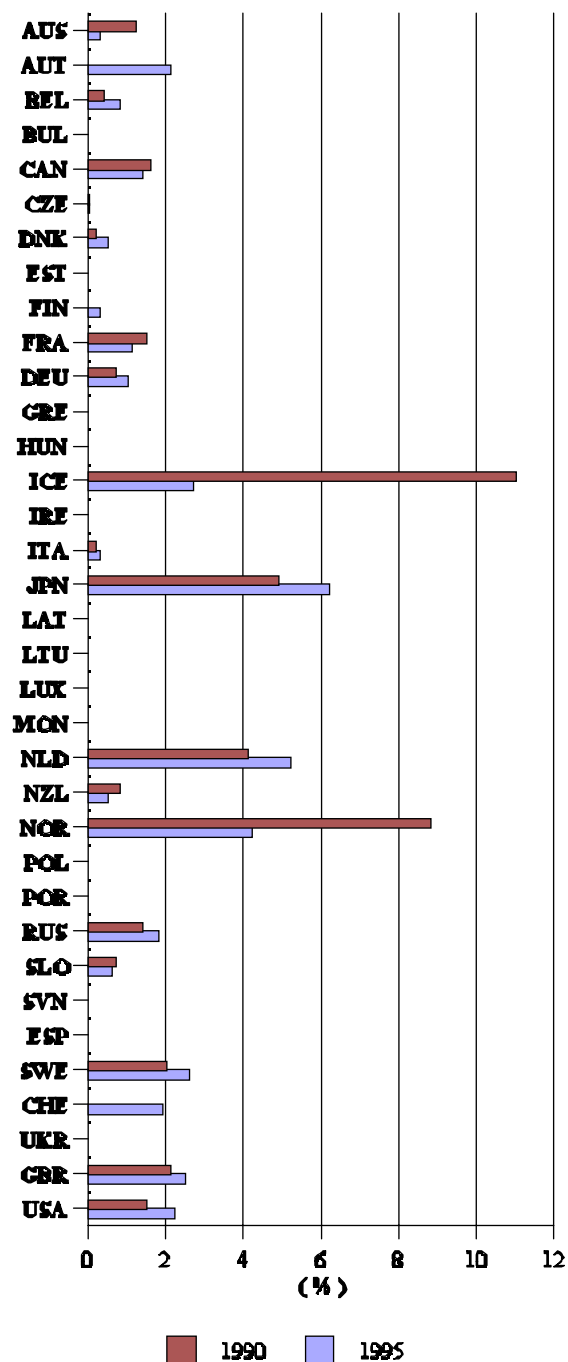
<sup>g</sup> The Party reported among others also Other HFCs and Other PFCs. The secretariat assumed that these emissions were HFC-152a and C<sub>3</sub>F<sub>8</sub>/C<sub>4</sub>F<sub>10</sub>, respectively.

<sup>h</sup> Since 1995 estimates for HFCs were not provided, 1994 HFC estimates are given in this table.

Table A.10. (continued)

Total			
1990	1995	%	
Gg	Gg		
~ 5 000	1 432	29	AUS
	1 643		AUT
546	1 131	207	BEL
			BUL
8 804	8 407	95	CAN
60	63	105	CZE
179	419	234	DNK
			EST
	175		FIN
7 686	5 331	69	FRA
8 930	10 874	122	DEU
			GRE
			HUN
318	74	23	ICE
			IRE
872	1 447	166	ITA
61 474	98 542	160	JPN
			LAT
			LTU
			LUX
			MON
8 755	12 302	141	NLD
606	384	63	NZL
4 744	2 259	48	NOR
			POL
			POR
41 565	38 597	93	RUS
499	320	64	SLO
			SVN
			ESP
1 356	1 827	135	SWE
	1 011		CHE
			UKR
15 306	16 680	109	GBR
88 080	136 669	155	USA

Figure A.10



Percentage contribution of HFCs, PFCs and SF<sub>6</sub> to total greenhouse gases in 1990 and 1995 (using IPCC 1995 GWP values)

**Table A.11. Anthropogenic CO<sub>2</sub> emissions from international bunkers, 1990-1995 (Gigagrams and percentage)**

	Percentage relative to 1990, 1990=100					
	1990 (Gg)	1991 %	1992 %	1993 %	1994 %	1995 %
Australia	6 401	100	103	109	113	133
Austria	890	117	125	121	128	136
Belgium	15 726	102	106	107	102	99
Bulgaria <sup>a</sup>	874	100	100	97	97	101
Canada <sup>b</sup>	5 133	94	94	87	92	94
Czech Republic <sup>c</sup>						
Denmark	4 986	90	94	121	135	142
Estonia <sup>c</sup>						
Finland	2 800		107	89	76	66
France	17 485	96	98	102	92	96
Germany	19 569	92	91	103	103	103
Greece	10 423	91	102	122	125	131
Hungary <sup>d</sup>	376	n.a.	103	96	141	139
Iceland	319	81	83	92	96	118
Ireland	1 172	112	96	132	115	129
Italy	12 204				102	107
Japan	30 806	107	111	119	122	121
Latvia <sup>c</sup>						
Lithuania <sup>c</sup>						
Luxembourg	111				175	175
Monaco <sup>e</sup>						
Netherlands	40 400	103	106	110	107	110
New Zealand	2 413	92	92	94	116	113
Norway	1 800	78	106	111	117	128
Poland <sup>c</sup>						
Portugal	2 062	100	103	90	90	
Russian Federation	12 400				81	
Slovakia <sup>c</sup>						
Slovenia <sup>c</sup>						
Spain	18 024	104	108	99	106	
Sweden	4 207	103	114	115	128	128
Switzerland	2 160	102	104	106	108	113
Ukraine <sup>c</sup>						
United Kingdom	19 341	99	107	113	113	120
United States <sup>c</sup>						

<sup>a</sup> Estimates for 1990 are given here instead of base year (1988) estimates.

<sup>b</sup> Party reported aggregate emissions from bunker fuels for CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O in CO<sub>2</sub> equivalent for the years 1990 to 1995, which are given here. A figure for CO<sub>2</sub> emissions from bunker fuels for 1995 was also provided, which was 4,640 Gg, approximately 96 per cent of the aggregate emissions of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O in 1995.

<sup>c</sup> Party did not provide estimates.

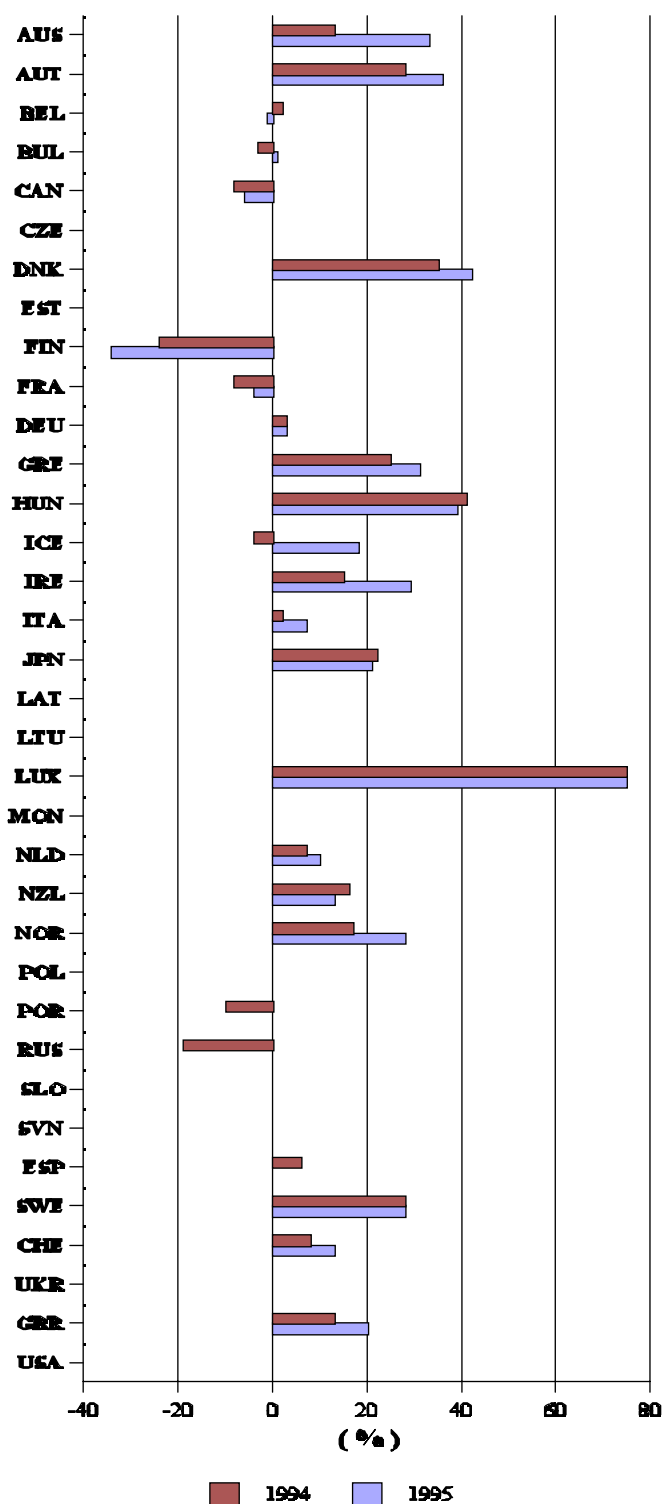
<sup>d</sup> As the Party did not provide estimates for its base year or for 1990 either in its first or in its second national communication, estimates for 1991 are presented in this table for 1990.

<sup>e</sup> Party reported emissions as negligible.

Table A.11. (continued)

Last reported value		
1994 (Gg)	1995 (Gg)	
	8 533	AUS
	1 210	AUT
	15 555	BEL
	882	BUL
	4 814	CAN
		CZE
	7 080	DNK
		EST
	1 850	FIN
	16 815	FRA
	20 100	DEU
	13 623	GRE
	524	HUN
	377	ICE
	1 510	IRE
	13 099	ITA
	37 328	JPN
		LAT
		LTU
	194	LUX
		MON
	44 600	NLD
	2 736	NZL
	2 300	NOR
		POL
1 850		POR
10 000		RUS
		SLO
		SVN
19 144		ESP
	5 367	SWE
	2 430	CHE
		UKR
	23 243	GBR
		USA

Figure A.11



Percentage change in CO<sub>2</sub> emissions from international bunkers in 1994 and 1995, relative to 1990

Table A.12. Anthropogenic emissions of precursor gases and SO<sub>2</sub>, 1990 and 1995 (Gigagrams)

	Precursor gases					
	CO		NO <sub>x</sub>		NMVOC	
	1990	1995	1990	1995	1990	1995
Australia	19 925	16 232	2 300	2 137	2 115	1 841
Austria	1 333	1 146	197	176	491	406
Belgium <sup>a</sup>	1 127	1 252	339	345	331	321
Bulgaria	827	759	486	139	132	73
Canada <sup>b</sup>						
Czech Republic	1 055	874	742	413	311	241
Denmark	785	702	280	253	179	162
Estonia <sup>c</sup>	186		80		23	
Finland	487	434	295	259	213	182
France	11 355	9 469	1 910	1 778	3 156	2 770
Germany <sup>a</sup>	10 743	6 738	2 640	2 211	3 155	2 135
Greece	1 280	1 448	344	373	271	339
Hungary <sup>d</sup>	1 491	1 128	231	206	89	82
Iceland	58	49	26	28	13	12
Ireland	429	295	115	118	180	170
Italy	7 892	7 786	1 943	1 849	2 222	2 375
Japan <sup>a</sup>	3 888	3 862	2 212	2 237	1 966	1 873
Latvia	388	454	93	42	148	70
Lithuania <sup>c</sup>	644		178		94	
Luxembourg	175	107	23	21	20	17
Monaco <sup>e</sup>						
Netherlands	1 072	873	574	518	444	364
New Zealand	704	797	113	134	179	201
Norway	961	829	227	222	299	378
Poland <sup>f</sup>						
Portugal <sup>a</sup>	984	1 192	340	372	258	294
Russian Federation	8 140	5 010	3 040	2 000	5 990	3 850
Slovakia	537	438	229	191	149	153
Slovenia <sup>c</sup>	174		64		37	
Spain <sup>a</sup>	4 734	4 519	1 164	1 178	1 123	1 171
Sweden	1 211	1 089	335	308	526	457
Switzerland	707	510	163	134	281	200
Ukraine <sup>c</sup>	7 481		1 243		656	
United Kingdom	7 374	5 474	2 867	2 259	2 618	2 252
United States	79 827	82 930	20 483	19 728	18 388	20 624

<sup>a</sup> As estimates for 1995 were not available, estimates for the last reported year, 1994, are given in this table.

<sup>b</sup> The Party did not provide estimates, but stated that the information would be provided in a separate addendum to its second national communication.

<sup>c</sup> Estimates other than for 1990 were not available.

<sup>d</sup> The Party did not provide estimates for its base year or for 1990 in its second national communication. As estimates in the first national communication were not fully consistent with the methodology used in the second one, estimates for 1991 are given in this table.

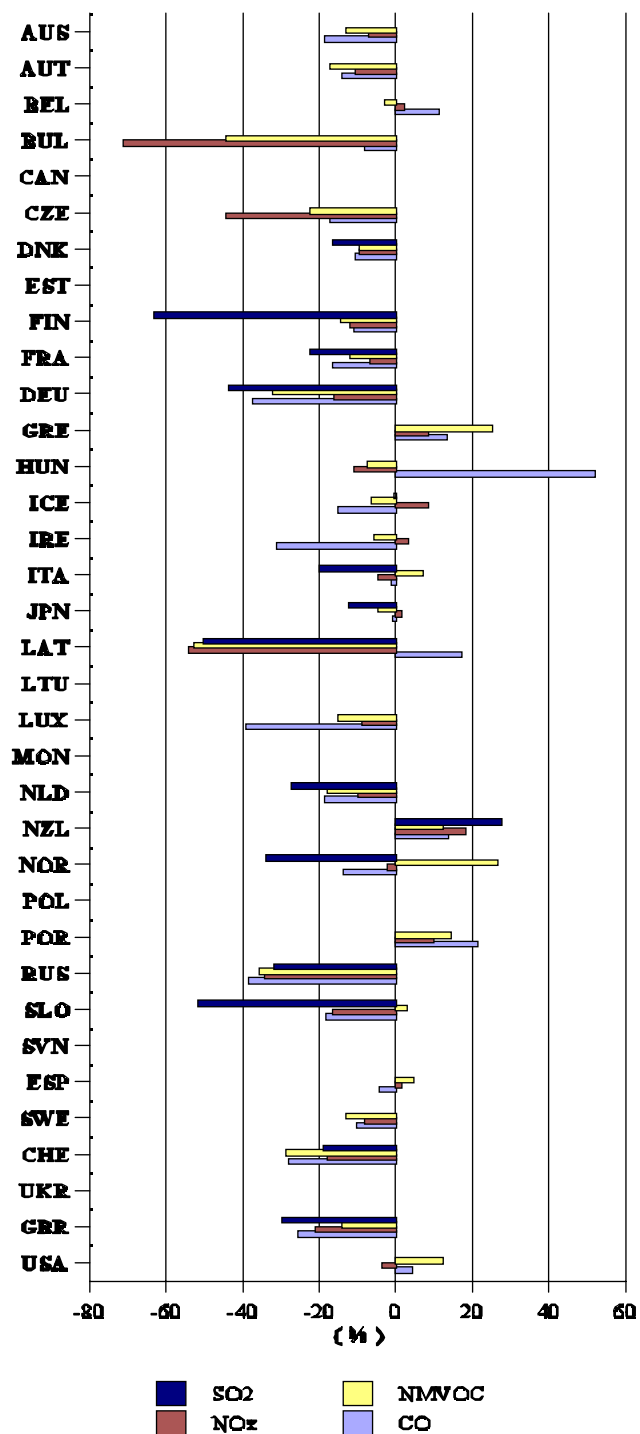
<sup>e</sup> The Party reported emissions as negligible.

<sup>f</sup> The Party did not provide estimates.

Table A.12. (continued)

SO <sub>2</sub>		
1990	1995	
		AUS
		AUT
		BEL
		BUL
		CAN
		CZE
180	150	DNK
		EST
260	96	FIN
1 348	1 048	FRA
5 326	2 995	DEU
		GRE
		HUN
24	24	ICE
		IRE
1 650	1 322	ITA
966	847	JPN
119	59	LAT
		LTU
		LUX
		MON
		NLD
203	147	NZL
16	21	NOR
53	35	POL
		POR
		POR
9 440	6 420	RUS
543	262	SLO
		SVN
		ESP
		SWE
42	34	CHE
		UKR
3752	2 630	GBR
	16 600	USA

Figure A.12



Percentage change in CO, NO<sub>x</sub>, NMVOC and SO<sub>2</sub> emissions in 1995, relative to 1990

**Table B.1. Total anthropogenic CO<sub>2</sub> emissions, excluding land-use change and forestry, 1990 - 1995 (Gigagrams and percentage)**

	Percentage relative to 1990, 1990=100					
	1990	1991	1992	1993	1994	1995
	(Gg)	%	%	%	%	%
Australia	273 123	101	102	103	105	109
Austria	61 880	107	97	96	96	100
Belgium	116 090	103	102	99	104	
Bulgaria <sup>ab</sup>	96 878	68	62	64	61	64
Canada	464 000	98	101	101	104	108
Czech Republic	165 490	93	85	81	77	78
Denmark <sup>c</sup>	52 277	120	110	114	121	114
Estonia	37 797	98	73	58	60	55
Finland <sup>d</sup>	53 800		97	99	110	104
France	378 379	106	106	99	99	102
Germany	1 014 155	96	91	91	89	88
Greece	84 575	100	102	103	105	107
Hungary <sup>ae</sup>	83 676	81	72	73	71	71
Iceland	2 147	96	102	107	105	106
Ireland	30 719	103	105	104	108	110
Italy <sup>d</sup>	432 150				95	101
Japan	1 124 532	102	103	101	108	108
Latvia	24 771	78	66	58	48	49
Lithuania	39 535					
Luxembourg <sup>d</sup>	12 750				94	75
Monaco <sup>f</sup>	71					
Netherlands <sup>c</sup>	167 550	104	103	105	105	109
New Zealand	25 476	102	110	107	107	107
Norway	35 544	95	97	101	106	107
Poland <sup>ad</sup>	476 625		78		78	
Portugal	47 123	104	112	107	108	
Russian Federation	2 372 300	93	85	78	70	
Slovakia	60 032	88	81	77	72	81
Slovenia	13 935					
Spain	226 423	100	104	100	102	
Sweden	55 445	100	101	101	106	105
Switzerland	45 070	104	101	98	96	98
Ukraine	700 107					
United Kingdom	583 747	101	98	95	95	93
United States	4 960 432	99	100	103	104	105

<sup>a</sup> According to decision 9/CP.2 some EIT Parties use different base years from 1990: Bulgaria (1988), Hungary (average of 1985 - 1987) and Poland (1988).

<sup>b</sup> Data for the base year provided in the second national communication were the same as in the first communication, which are presented here.

<sup>c</sup> Party also provided estimates adjusted for temperature correction, and in the case of Denmark also for electricity exchange, but non-adjusted estimates were included in this table for comparison and consistency purposes.

<sup>d</sup> The Party did not provide estimates for all years subsequent to 1990.

<sup>e</sup> The Party did not provide estimates for its base year or for 1990 in its second national communication, so base year data from the first national communication are presented here. Estimates for 1991 to 1995 include emissions from *waste*, which were not included in estimates for the base year.

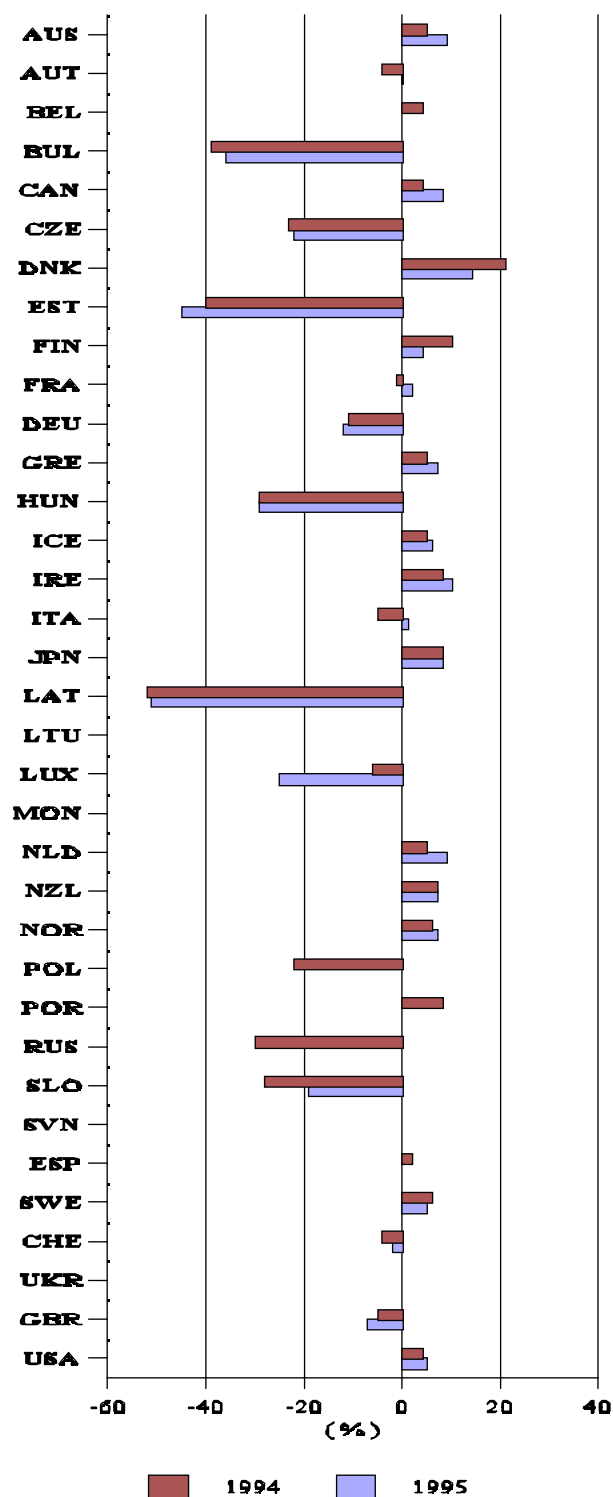
<sup>f</sup> As Party did not provide estimates for 1995, but for 1996, this estimate is given in the table. The trend in emissions is not given here since the estimate for 1990 includes only emissions from *waste* while the estimate for 1995 includes emissions from *waste* and *fuel combustion*.



Table B.1. (continued)

Last reported value		
1994	1995	
(Gg)	(Gg)	
	296 724	AUS
	62 020	AUT
121 297		BEL
	62 227	BUL
	499 526	CAN
	128 817	CZE
	59 532	DNK
	20 859	EST
	56 050	FIN
	385 346	FRA
	894 500	DEU
	90 492	GRE
	59 758	HUN
	2 282	ICE
	33 931	IRE
	437 467	ITA
	1 218 377	JPN
	12 027	LAT
		LTU
	9 545	LUX
	129	MON
	183 400	NLD
	27 367	NZL
	37 880	NOR
371 588		POL
50 841		POR
1 660 000		RUS
	48 516	SLO
		SVN
231 370		ESP
	58 108	SWE
	44 170	CHE
		UKR
	543 338	GBR
	5 214 710	USA

Figure B.1.



Percentage change in total CO<sub>2</sub> emissions excluding land-use change and forestry in 1994 and 1995, relative to 1990

Table B.2. CO<sub>2</sub> emissions from fuel combustion, 1990 - 1995 (Gigagrams and percentage)

	Percentage relative to 1990, 1990=100					
	1990	1991	1992	1993	1994	1995
	(Gg)	%	%	%	%	%
Australia	262 623	101	102	103	104	109
Austria	46 490	110	99	98	98	103
Belgium	105 919	103	102	99	104	104
Bulgaria <sup>ab</sup>	90 327	67	61	64	60	62
Canada	426 000	98	101	101	104	108
Czech Republic	160 073	93	85	82	77	78
Denmark <sup>c</sup>	50 898	120	109	113	120	113
Estonia	37 184	98	74	59	61	56
Finland <sup>d</sup>	52 600		98	99	111	105
France	356 259	106	105	100	98	100
Germany	986 640	96	91	91	89	88
Greece	76 834	100	102	103	106	107
Hungary <sup>ae</sup>	80 089	81	73	73	71	72
Iceland	1 674	97	105	108	106	106
Ireland	29 038	103	105	104	108	111
Italy <sup>d</sup>	399 590				96	102
Japan	1 052 964	102	103	101	108	108
Latvia	24 209	78	67	59	49	49
Lithuania	37 332					
Luxembourg <sup>d</sup>	12 133				95	75
Monaco <sup>f</sup>						
Netherlands <sup>c</sup>	164 800	104	103	105	105	109
New Zealand	22 474	101	110	106	107	107
Norway	26 938	97	100	104	109	107
Poland <sup>ad</sup>	462 998		78		78	
Portugal	43 281	104	114	107	108	
Russian Federation	2 298 900	92	85	79	70	
Slovakia	56 585	88	81	77	71	80
Slovenia	13 294					
Spain	207 592	101	105	101	103	
Sweden	51 329	100	101	101	105	104
Switzerland	40 330	105	102	99	97	100
Ukraine	668 332					
United Kingdom	563 908	101	99	96	95	93
United States	4 898 973	99	100	103	104	105

<sup>a</sup> According to decision 9/CP.2 some EIT Parties use different base years from 1990: Bulgaria (1988), Hungary (average of 1985 - 1987) and Poland (1988).

<sup>b</sup> Data for the base year provided in the second national communication were the same as in the first communication, which are presented here.

<sup>c</sup> Party also provided estimates adjusted for temperature correction, and in the case of Denmark also for electricity exchange, but non-adjusted estimates were included in this table for comparison and consistency purposes.

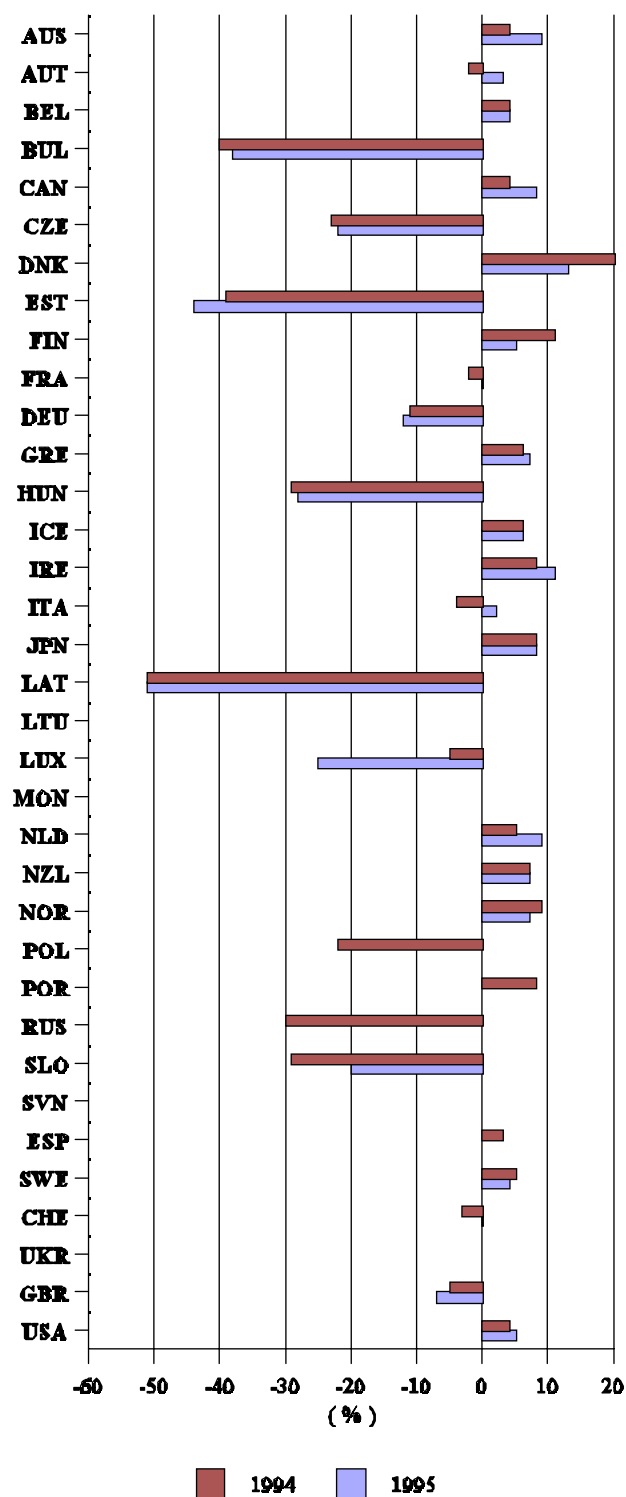
<sup>d</sup> The Party did not provide estimates for all years subsequent to 1990.

<sup>e</sup> The Party did not provide estimates for its base year or for 1990 in its second national communication, so base year data from the first national communication are presented here.

<sup>f</sup> As Party did not provide estimates for 1995, but for 1996, this estimate is given in the table. The trend in emissions is not given here since only an estimate for the last reported year was provided.

Table B.2. (continued)  
Figure B.2.

Last reported value		
1994	1995	
(Gg)	(Gg)	
	285 464	AUS
	47 950	AUT
	109 936	BEL
	56 225	BUL
	460 886	CAN
	124 647	CZE
	57 748	DNK
	20 638	EST
	55 130	FIN
	356 588	FRA
	869 300	DEU
	82 426	GRE
	57 567	HUN
	1 774	ICE
	32 105	IRE
	409 116	ITA
	1 138 478	JPN
	11 900	LAT
		LTU
	9 109	LUX
	78	MON
	180 400	NLD
	24 004	NZL
	28 854	NOR
362 083		POL
46 953		POR
1 601 100		RUS
	45 426	SLO
		SVN
213 707		ESP
	53 385	SWE
	40 130	CHE
		UKR
	525 582	GBR
	5 144 626	USA



Percentage change in CO<sub>2</sub> emissions from fuel combustion in 1994 and 1995, relative to 1990

Table B.3. CO<sub>2</sub> emissions from transport, 1990 - 1995 (Gigagrams and percentage)

	Percentage relative to 1990, 1990=100					
	1990	1991	1992	1993	1994	1995
	(Gg)	%	%	%	%	%
Australia	59 596	99	101	103	105	109
Austria	13 970	111	111	108	112	114
Belgium	19 964	100	105	106	110	109
Bulgaria <sup>ab</sup>	10 753	64	65	76	67	69
Canada	140 000	96	97	99	105	107
Czech Republic	7 959	86	102	104	104	112
Denmark	10 474	105	106	108	108	109
Estonia	2 656	90	54	61	67	64
Finland <sup>c</sup>	11 500		101	96	99	97
France	124 921	102	104	104	106	108
Germany	158 647	102	106	109	106	108
Greece	15 193	105	108	109	111	114
Hungary <sup>ad</sup>	7 741	95	93	92	93	90
Iceland	721	101	101	102	103	104
Ireland	4 885	105	114	113	119	127
Italy <sup>c</sup>	95 063				108	114
Japan	207 431	105	107	108	113	117
Latvia	5 829	54	49	44	38	30
Lithuania	5 791					
Luxembourg <sup>c</sup>	2 625				140	131
Monaco <sup>e</sup>						
Netherlands	26 800	100	104	106	108	112
New Zealand	8 748	100	104	109	117	126
Norway	13 885	98	99	103	103	105
Poland <sup>ac</sup>	28 238		108		105	
Portugal	14 060	106	114	116	120	
Russian Federation <sup>f</sup>						
Slovakia	5 168	86	80	78	81	82
Slovenia	3 179					
Spain	58 260	102	104	104	103	
Sweden	18 650	100	103	99	101	104
Switzerland	14 668	104	100	100	101	99
Ukraine <sup>f</sup>						
United Kingdom	117 944	99	101	102	102	102
United States	1 499 076	98	99	101	105	107

a According to decision 9/CP.2 some EIT Parties use different base years from 1990: Bulgaria (1988), Hungary (average of 1985 - 1987) and Poland (1988).

b Data for the base year provided in the second national communication were the same as in the first communication, which are presented here.

c The Party did not provide estimates for all years subsequent to 1990.

d The Party did not provide estimates for its base year or for 1990 in its second national communication, so base year data from the first national communication are presented here.

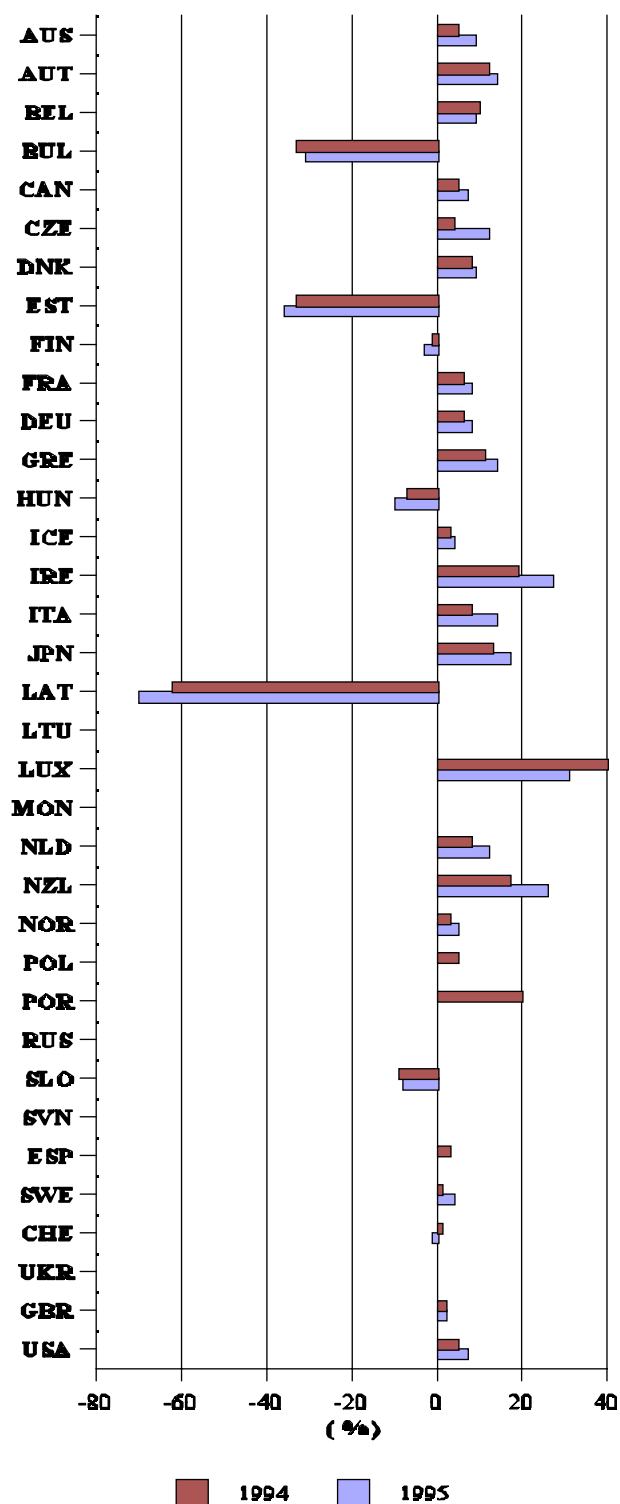
e As Party did not provide estimates for 1995, but for 1996, this estimate is given in the table. The trend in emissions is not given here since only an estimate for the last reported year was provided.

f The Party did not provide disaggregated estimates for the *fuel combustion* subcategories.

Table B.3. (continued)

Last reported value		
1994	1995	
(Gg)	(Gg)	
	65 185	AUS
	15 880	AUT
	21 834	BEL
	7 394	BUL
	150 453	CAN
	8 912	CZE
	11 370	DNK
	1 700	EST
	11 130	FIN
	134 623	FRA
	170 700	DEU
	17 255	GRE
	7 001	HUN
	749	ICE
	6 209	IRE
	108 842	ITA
	242 123	JPN
	1 749	LAT
		LTU
	3 426	LUX
	27	MON
	30 100	NLD
	10 983	NZL
	14 578	NOR
29 533		POL
16 849		POR
	4 216	RUS
		SVN
59 721		ESP
	19 341	SWE
	14 580	CHE
		UKR
	119 787	GBR
	1 598 375	USA

Figure B.3.



Percentage change in CO<sub>2</sub> emissions from transport in 1994 and 1995, relative to 1990

Table B.4. CO<sub>2</sub> emissions from small combustion<sup>a</sup>, 1990 - 1995 (Gigagrams and percentage)

	Percentage relative to 1990, 1990=100					
	1990	1991	1992	1993	1994	1995
	(Gg)	%	%	%	%	%
Australia	12 178	101	103	107	108	112
Austria	12 850	119	109	115	109	106
Belgium	26 262	115	114	113	112	117
Bulgaria <sup>bc</sup>	8 941	46	52	46	37	29
Canada	69 830	97	101	107	106	107
Czech Republic	35 948	83	66	64	57	53
Denmark	8 664	103	101	101	93	101
Estonia <sup>d</sup>	3 169					
Finland <sup>e</sup>	7 900		110	100	105	110
France	99 860	110	110	106	101	102
Germany	198 190	101	93	98	92	94
Greece	8 159	103	99	98	98	99
Hungary <sup>bf</sup>	23 174	94	75	76	73	72
Iceland	704	103	111	116	113	115
Ireland	7 859	120	118	114	120	118
Italy <sup>e</sup>	76 805				91	100
Japan	158 298	104	107	107	105	112
Latvia	6 142	32	31	29	26	63
Lithuania	6 810					
Luxembourg <sup>c</sup>	1 272				102	113
Monaco <sup>g</sup>						
Netherlands	37 300	114	106	112	105	109
New Zealand	2 766	95	108	98	105	100
Norway	2 506	85	76	74	79	75
Poland <sup>be</sup>	111 229		63		58	
Portugal	4 468	103	106	106	114	
Russian Federation <sup>h</sup>						
Slovakia <sup>e</sup>	13 813					59
Slovenia	1 144					
Spain	26 177	101	105	101	103	
Sweden	10 672	96	96	94	96	93
Switzerland	18 322	105	104	101	95	100
Ukraine <sup>h</sup>						
United Kingdom	111 703	110	107	110	105	103
United States	550 683	103	105	109	106	108

<sup>a</sup> Includes emissions from source/sink categories *commercial/institutional, residential and agriculture/forestry/fishing*.

<sup>b</sup> According to decision 9/CP.2 some EIT Parties use different base years from 1990: Bulgaria (1988), Hungary (average of 1985 - 1987) and Poland (1988).

<sup>c</sup> Data for the base year provided in the second national communication were the same as in the first communication, which are presented here.

<sup>d</sup> As the Party did not provide disaggregated estimates for the fuel combustion subcategories for the years 1991 to 1995, but for 1996, this estimate is given in the table.

<sup>e</sup> The Party did not provide estimates for all years subsequent to 1990.

<sup>f</sup> The Party did not provide estimates for its base year or for 1990 in its second national communication, so base year data from the first national communication are presented here.

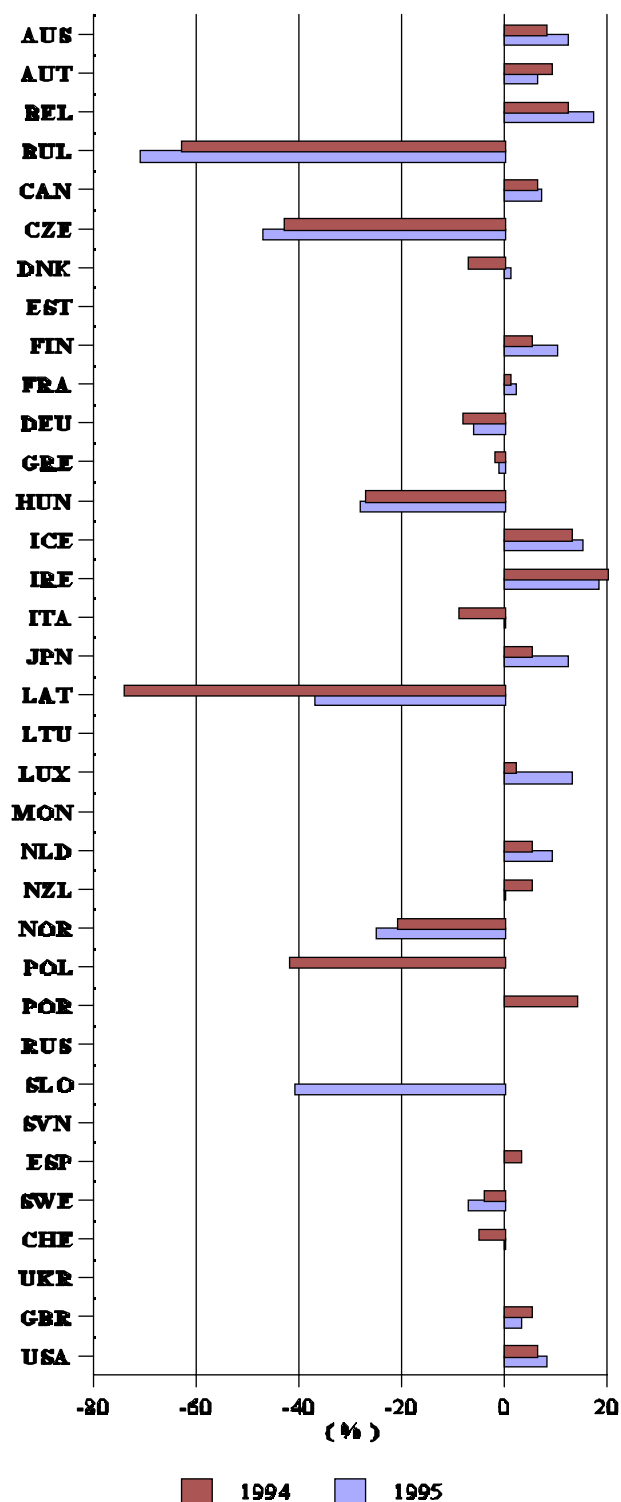
<sup>g</sup> As Party did not provide estimates for 1995, but for 1996, this estimate is given in the table. The trend in emissions is not given here since only an estimate for the last reported year was provided.

<sup>h</sup> The Party did not provide disaggregated estimates for the *fuel combustion* subcategories.

Table B.4. (continued)

Last reported value		
1994	1995	
(Gg)	(Gg)	
	13 646	AUS
	13 580	AUT
	30 832	BEL
	2 625	BUL
	74 425	CAN
	19 039	CZE
	8 718	DNK
	776	EST
	8 710	FIN
	101 756	FRA
	186 100	DEU
	8 099	GRE
	16 761	HUN
	808	ICE
	9 265	IRE
	76 481	ITA
	177 084	JPN
	3 893	LAT
		LTU
	1 440	LUX
	51	MON
	40 700	NLD
	2 775	NZL
	1 891	NOR
64 151		POL
5 074		POR
	8 090	RUS
		SVN
27 009		ESP
	9 903	SWE
	18 290	CHE
		UKR
	114 893	GBR
	597 105	USA

Figure B.4.



Percentage change in CO<sub>2</sub> emissions from small combustion in 1994 and 1995, relative to 1990

Table B.5. CO<sub>2</sub> emissions from industrial processes, 1990 - 1995 (Gigagrams and percentage)

	Percentage relative to 1990, 1990=100					
	1990	1991	1992	1993	1994	1995
	(Gg)	%	%	%	%	%
Australia	6 655	95	93	97	110	105
Austria	12 700	100	90	86	88	89
Belgium	9 188	104	105	106	114	
Bulgaria <sup>ab</sup>	5 890	81	68	70	82	95
Canada	21 800	101	101	110	115	114
Czech Republic	5 417	80	85	77	76	77
Denmark	1 006	117	129	130	131	130
Estonia	613	100	51	31	35	36
Finland <sup>c</sup>	1 200		85	72	70	70
France	16 638	95	128	84	86	95
Germany	27 515	89	92	92	92	92
Greece	7 398	99	99	102	100	104
Hungary <sup>ad</sup>	3 587	39	33	37	39	40
Iceland	391	91	92	105	105	109
Ireland	1 627	102	104	100	112	109
Italy <sup>c</sup>	27 520				83	84
Japan	58 795	103	104	103	104	104
Latvia	563	104	51	20	27	23
Lithuania	2 203					
Luxembourg <sup>c</sup>	585				76	69
Monaco <sup>e</sup>						
Netherlands	1 850	97	97	103	108	108
New Zealand	2 387	105	111	116	112	115
Norway	6 514	92	90	94	102	107
Poland <sup>ac</sup>	13 574		78		69	
Portugal	3 421	100	100	100	100	
Russian Federation	46 300	94	77	64	52	50
Slovakia	3 447	79	90	82	89	90
Slovenia	641					
Spain	17 690	98	89	84	93	
Sweden	3 787	98	108	106	111	118
Switzerland	3 363	90	81	76	81	78
Ukraine	31 775					
United Kingdom	10 304	90	78	79	88	89
United States	54 900	98	99	102	106	116

<sup>a</sup> According to decision 9/CP.2 some EIT Parties use different base years from 1990: Bulgaria (1988), Hungary (average of 1985 - 1987) and Poland (1988).

<sup>b</sup> Data for the base year provided in the second national communication were the same as in the first communication, which are presented here.

<sup>c</sup> The Party did not provide estimates for all years subsequent to 1990.

<sup>d</sup> The Party did not provide estimates for its base year or for 1990 in its second national communication, so base year data from the first national communication are presented here.

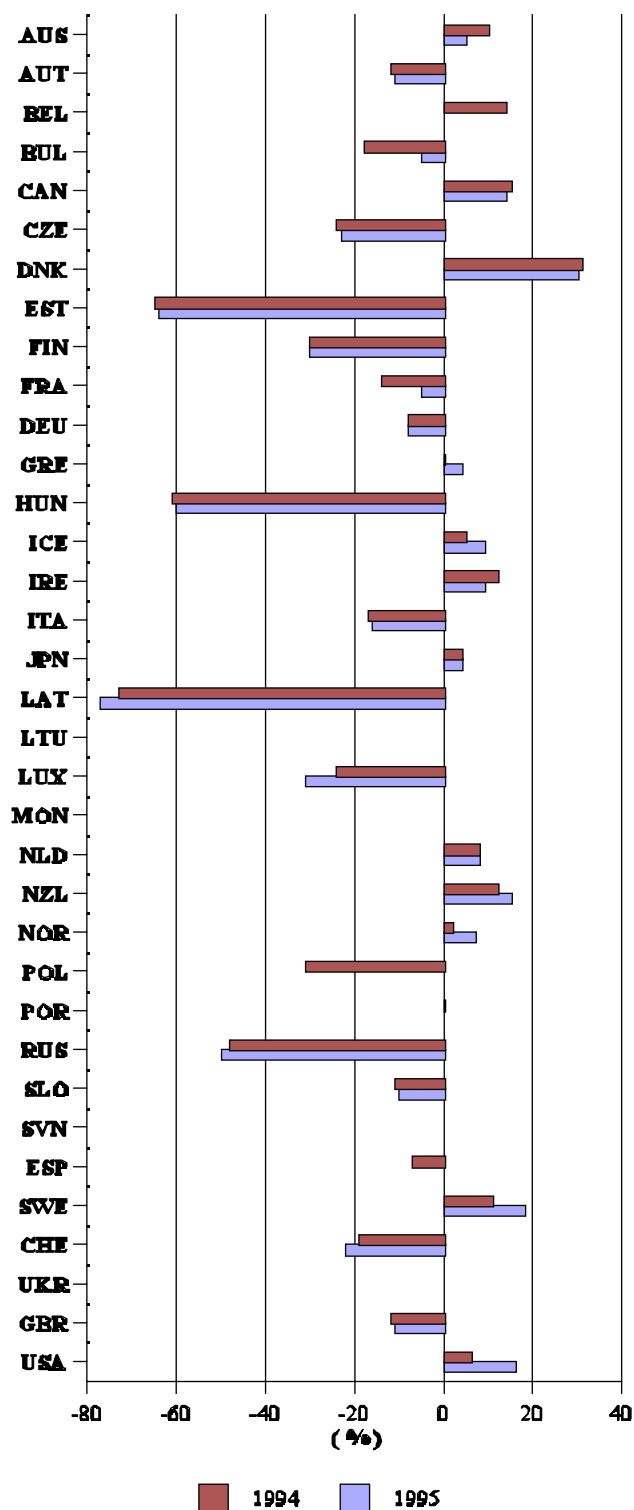
<sup>e</sup> Party did not provide estimates but indicated that emissions were negligible.



Table B.5. (continued)

Last reported value		
1994	1995	
(Gg)	(Gg)	
	7 018	AUS
	11 300	AUT
10 456		BEL
	5 602	BUL
	24 834	CAN
	4 170	CZE
	1 311	DNK
	222	EST
	840	FIN
	15 866	FRA
	25 200	DEU
	7 713	GRE
	1 438	HUN
	425	ICE
	1 772	IRE
	22 985	ITA
	61 236	JPN
	127	LAT
		LTU
	406	LUX
		MON
		NLD
	2 000	NZL
	2 736	NOR
	6 969	POL
9 422		POR
3 421		RUS
	23 100	SLO
	3 090	SVN
		ESP
16 372		SWE
	2 620	CHE
		UKR
	9 178	GBR
	63 884	USA

Figure B.5.



Percentage change in CO<sub>2</sub> emissions from industrial processes in 1994 and 1995, relative to 1990

Table B.6. Total anthropogenic CH<sub>4</sub> emissions, 1990 - 1995 (Gigagrams and percentage)

	Percentage relative to 1990, 1990=100					
	1990	1991	1992	1993	1994	1995
	(Gg)	%	%	%	%	%
Australia	5 140	100	100	99	99	99
Austria	587	98	98	98	99	99
Belgium	634	99	99	100	100	
Bulgaria <sup>ab</sup>	1 413	96	89	79	58	64
Canada	3 200	100	103	109	113	117
Czech Republic	888	92	87	82	80	83
Denmark	421	101	102	106	102	102
Estonia	105	97	87	76	76	64
Finland <sup>c</sup>	246		100	99	100	98
France	3 017	100	97	97	95	94
Germany	5 682	92	91	88	85	84
Greece	443	100	100	101	103	103
Hungary <sup>ad</sup>	664	138	122	120	117	107
Iceland	14	99	98	98	99	97
Ireland	811	98	99	99	99	100
Italy <sup>c</sup>	2 329				110	108
Japan	1 575	99	99	99	98	
Latvia	186	98	81	56	52	54
Lithuania	378					
Luxembourg <sup>c</sup>	24				92	93
Monaco <sup>e</sup>						
Netherlands	1 104	102	98	97	97	96
New Zealand	1 706	98	95	93	95	96
Norway	432	100	101	104	108	109
Poland <sup>ac</sup>	3 141		79		79	
Portugal	809	101	101	100	102	
Russian Federation <sup>f</sup>	26 500				74	
Slovakia	409	93	88	81	77	77
Slovenia	176					
Spain	2 181	99	103	106	106	
Sweden	324	99	99	99	94	91
Switzerland	244	100	99	99	97	97
Ukraine	9 453					
United Kingdom	4 464	99	98	91	86	86
United States	29 578	101	102	101	104	105

<sup>a</sup> According to decision 9/CP.2 some EIT Parties use different base years from 1990: Bulgaria (1988), Hungary (average of 1985 - 1987) and Poland (1988).

<sup>b</sup> Data for the base year provided in the second national communication were the same as in the first communication, which are presented here.

<sup>c</sup> The Party did not provide estimates for all years subsequent to 1990.

<sup>d</sup> The Party did not provide estimates for its base year or for 1990 in its second national communication, so base year data from the first national communication are presented here. Estimates for 1991 to 1995 include emissions from *waste*, which were not included in estimates for the base year.

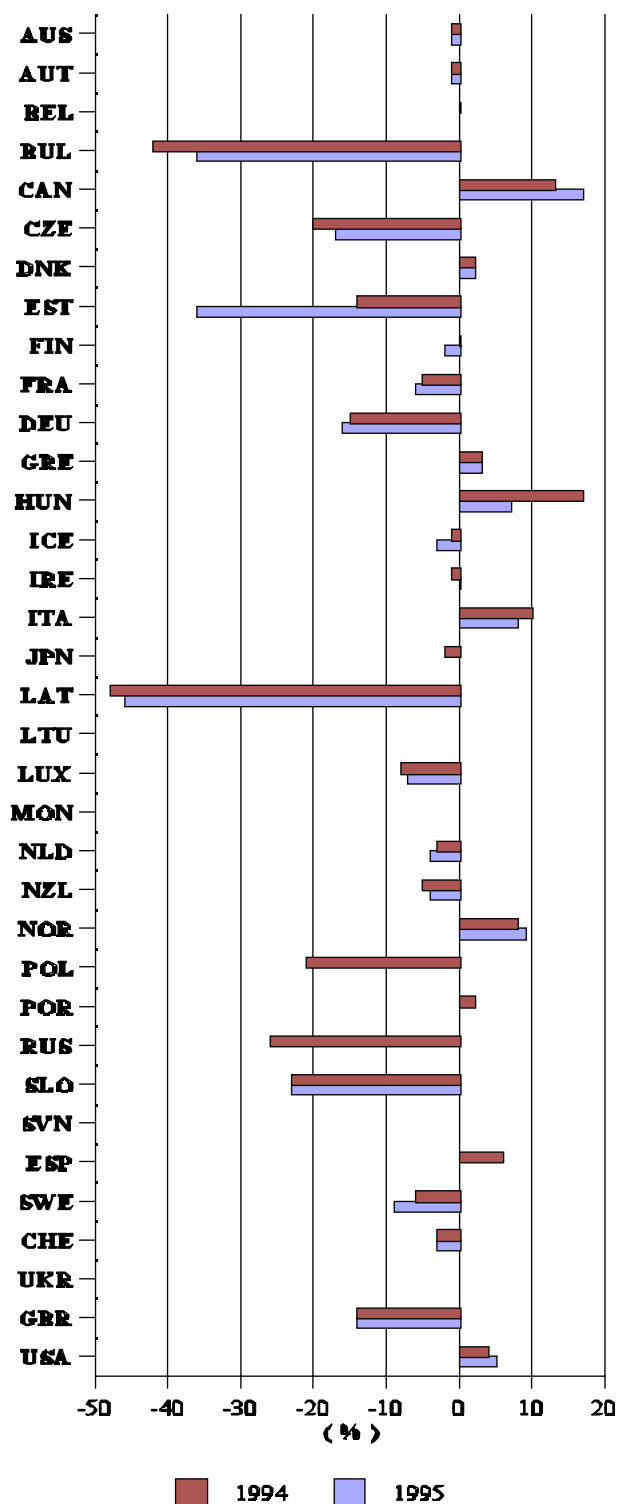
<sup>e</sup> Party did not provide estimates but indicated that emissions were negligible.

<sup>f</sup> Party only provided estimates for some categories for the years 1991 to 1993, without giving an estimate for the annual CH<sub>4</sub> national total.

Table B.6. (continued)

Last reported value		
1994	1995	
(Gg)	(Gg)	
	5 114	AUS
	580	AUT
635		BEL
	901	BUL
	3 732	CAN
	733	CZE
	430	DNK
	68	EST
	241	FIN
	2 844	FRA
	4788	DEU
	456	GRE
	712	HUN
	14	ICE
	812	IRE
1 548	2 516	ITA
		JPN
	101	LAT
		LTU
	22	LUX
		MON
	1 063	NLD
	1 635	NZL
	469	NOR
2 467		POL
827		POR
19 610		RUS
	316	SLO
		SVN
2 314		ESP
	296	SWE
	235	CHE
		UKR
	3 817	GBR
	30 975	USA

Figure B.6.



Percentage change in total CH<sub>4</sub> emissions in 1994 and 1995, relative to 1990

Table B.7. CH<sub>4</sub> fugitive fuel emissions, 1990 - 1995 (Gigagrams and percentage)

	Percentage relative to 1990, 1990=100					
	1990	1991	1992	1993	1994	1995
	(Gg)	%	%	%	%	%
Australia	1 050	97	101	97	97	97
Austria	4	106	104	109	112	122
Belgium	53	93	83	82	84	
Bulgaria <sup>ab</sup>	315	82	77	74	71	84
Canada	1 400	100	107	114	121	128
Czech Republic	460	91	87	85	81	88
Denmark	12	117	117	117	142	142
Estonia <sup>c</sup>						
Finland <sup>c</sup>						
France	332	99	98	102	101	100
Germany	1 563	94	93	83	75	
Greece	44	101	106	105	111	113
Hungary <sup>ad</sup>	448	101	85	86	85	70
Iceland <sup>c</sup>						
Ireland	10	95	100	105	105	109
Italy <sup>e</sup>	309				114	114
Japan	166	103	105	104	102	
Latvia	53	96	68	46	34	41
Lithuania	26					
Luxembourg <sup>e</sup>	2				94	107
Monaco <sup>f</sup>						
Netherlands	179	105	91	88	95	95
New Zealand	25	88	89	88	93	110
Norway	21	105	129	138	143	143
Poland <sup>ae</sup>	1 248		64		72	
Portugal	4	96	95	89	79	
Russian Federation <sup>g</sup>	18 900				70	
Slovakia	122	93	84	87	86	88
Slovenia	51					
Spain	687	94	97	95	90	
Sweden <sup>c</sup>						
Switzerland	15	99	97	94	91	87
Ukraine	6 229					
United Kingdom	1 298	101	98	77	62	65
United States	9 893	99	98	94	96	94

<sup>a</sup> According to decision 9/CP.2 some EIT Parties use different base years from 1990: Bulgaria (1988), Hungary (average of 1985 - 1987) and Poland (1988).

<sup>b</sup> Data for the base year provided in the second national communication were the same as in the first communication, which are presented here.

<sup>c</sup> Party did not provide estimates.

<sup>d</sup> The Party did not provide estimates for its base year or for 1990 in its second national communication, so base year data from the first national communication are presented here.

<sup>e</sup> The Party did not provide estimates for all years subsequent to 1990.

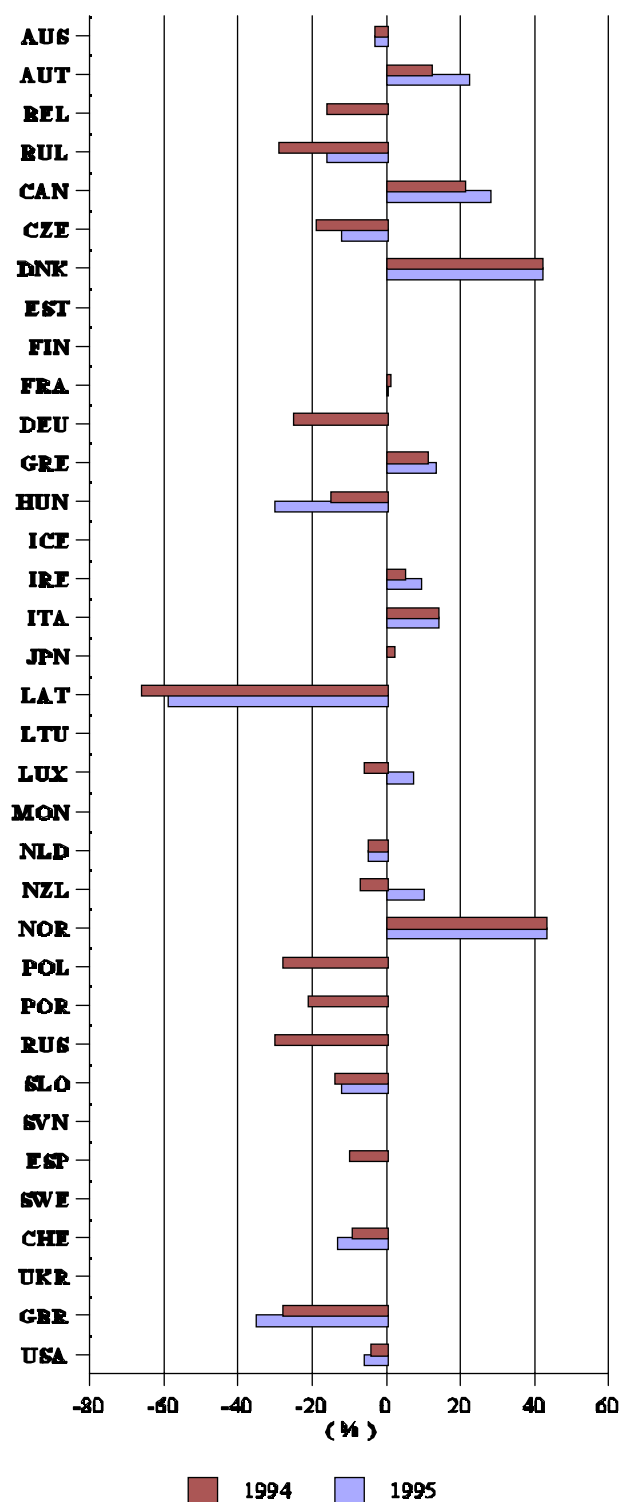
<sup>f</sup> Party did not provide estimates but indicated that emissions were negligible.

<sup>g</sup> Estimates for the years 1991-1993 and 1995 provided by the Party were not as complete as estimates provided for 1990 and 1994 and are therefore not shown in this table.

Table B.7. (continued)

Last reported value			
1994	1995		
(Gg)	(Gg)		
	1 017	AUS	
	5	AUT	
45		BEL	
	265	BUL	
	1 791	CAN	
	405	CZE	
	17	DNK	
		EST	
		FIN	
	333	FRA	
1 170		DEU	
	49	GRE	
	315	HUN	
		ICE	
	11	IRE	
	352	ITA	
169		JPN	
	22	LAT	
		LTU	
	2	LUX	
		MON	
	170	NLD	
	27	NZL	
	30	NOR	
896		POL	
3		POR	
13 300		RUS	
	107	SLO	
		SVN	
		ESP	
		SWE	
618	13	CHE	
		UKR	
	843	GBR	
	9 347	USA	

Figure B.7.



Percentage change in CH<sub>4</sub> fugitive fuel emissions in 1994 and 1995, relative to 1990

Table B.8. CH<sub>4</sub> emissions from agriculture, 1990 - 1995 (Gigagrams and percentage)

	Percentage relative to 1990, 1990=100					
	1990	1991	1992	1993	1994	1995
	(Gg)	%	%	%	%	%
Australia	3 223	100	98	98	97	98
Austria	208	96	97	98	101	100
Belgium	388	99	99	100	100	
Bulgaria <sup>a b</sup>	307	78	64	50	42	41
Canada	890	101	100	104	108	112
Czech Republic	204	91	83	72	68	68
Denmark	329	100	102	106	99	99
Estonia	60	100	92	78	77	57
Finland	101	96	93	92	92	87
France	1 627	98	96	96	96	95
Germany	2 044	88	84	83	81	
Greece	273	100	99	100	102	101
Hungary <sup>a c</sup>	208	83	71	62	60	58
Iceland	12	98	96	95	96	93
Ireland	640	98	98	99	99	99
Italy <sup>d</sup>	909				101	96
Japan	843	100	101	102	101	
Latvia	111	96	80	49	41	40
Lithuania	181					
Luxembourg <sup>d</sup>	18				96	96
Monaco <sup>e</sup>						
Netherlands	505	102	100	98	96	94
New Zealand	1 513	98	95	93	95	96
Norway	91	102	104	102	107	105
Poland <sup>a d</sup>	863		82		75	
Portugal	211	101	94	89	92	
Russian Federation	5 060	97	94	89	83	74
Slovakia	187	92	81	70	65	65
Slovenia	44					
Spain	926	100	102	102	101	
Sweden	200	98	99	99	101	99
Switzerland	151	101	100	100	98	98
Ukraine	2 254					
United Kingdom	1 143	98	98	97	98	97
United States	8 758	102	104	105	109	109

<sup>a</sup> According to decision 9/CP.2 some EIT Parties use different base years from 1990: Bulgaria (1988), Hungary (average of 1985 - 1987) and Poland (1988).

<sup>b</sup> Data for the base year provided in the second national communication were the same as in the first communication, which are presented here.

<sup>c</sup> The Party did not provide estimates for its base year or for 1990 in its second national communication, so base year data from the first national communication are presented here.

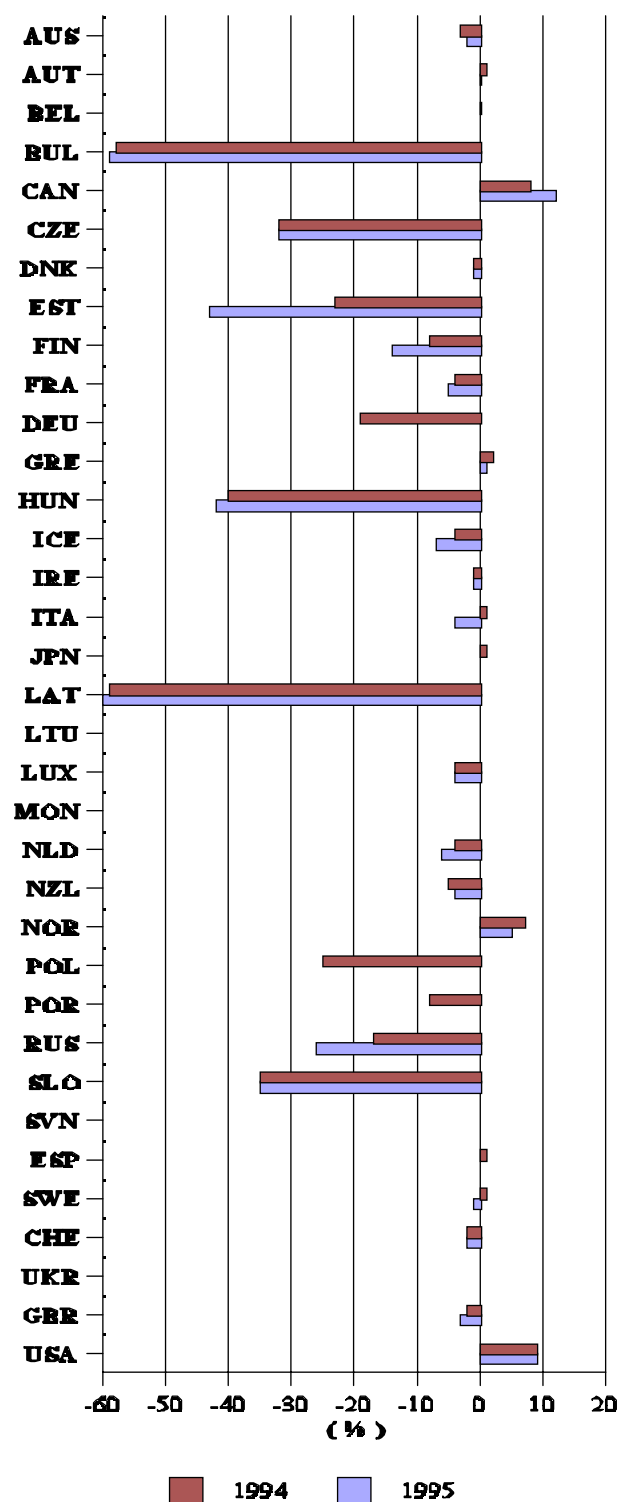
<sup>d</sup> The Party did not provide estimates for all years subsequent to 1990.

<sup>e</sup> Party did not provide estimates but indicated that emissions were negligible.

Table B.8. (continued)

Last reported value		
1994	1995	
(Gg)	(Gg)	
	3 146	AUS
	209	AUT
389		BEL
	125	BUL
	996	CAN
	139	CZE
	327	DNK
	34	EST
	88	FIN
1 660	1 551	FRA
		DEU
	276	GRE
	121	HUN
	11	ICE
	637	IRE
	872	ITA
849		JPN
	45	LAT
		LTU
	17	LUX
		MON
	475	NLD
1 460		NZL
	96	NOR
646		POL
195		POR
	3 750	RUS
	122	SLO
		SVN
933		ESP
	197	SWE
	148	CHE
		UKR
	1 104	GBR
	9 568	USA

Figure B.8.



Percentage change in CH<sub>4</sub> emissions from agriculture in 1994 and 1995, relative to 1990

Table B.9. CH<sub>4</sub> emissions from waste, 1990 - 1995 (Gigagrams and percentage)

	Percentage relative to 1990, 1990=100					
	1990	1991	1992	1993	1994	1995
	(Gg)	%	%	%	%	%
Australia	704	102	104	107	109	110
Austria	227	99	99	98	97	97
Belgium	174	102	104	105	106	
Bulgaria <sup>a b</sup>	732	116	110	99	63	69
Canada	840	99	100	102	104	106
Czech Republic	149	100	99	97	97	97
Denmark	71	100	101	101	104	104
Estonia	42	91	82	73	74	75
Finland	126	102	105	106	105	106
France	800	99	97	95	89	85
Germany	1 870	97	101	101	102	
Greece	112	101	102	102	103	103
Hungary <sup>a c</sup>	257	n.a.	100	100	99	99
Iceland	2	100	105	111	116	121
Ireland	136	100	100	100	100	101
Italy <sup>d</sup>	823				120	120
Japan	397	97	95	94	94	
Latvia	19	117	120	124	128	132
Lithuania	166					
Luxembourg <sup>d</sup>	4				70	71
Monaco <sup>e</sup>						
Netherlands	379	100	99	99	100	100
New Zealand	155	101	98	96	91	85
Norway	302	100	100	102	106	107
Poland <sup>a d</sup>	966		97		89	
Portugal	578	102	103	105	106	
Russian Federation	1 940	101	101	101	101	99
Slovakia	65	106	118	108	100	97
Slovenia	76					
Spain	491	103	116	129	140	
Sweden	85	100	100	100	72	72
Switzerland	69	99	99	98	98	97
Ukraine	934					
United Kingdom	1 925	98	98	96	95	93
United States	9 971	102	103	106	109	113

<sup>a</sup> According to decision 9/CP.2 some EIT Parties use different base years from 1990: Bulgaria (1988), Hungary (average of 1985 - 1987) and Poland (1988).

<sup>b</sup> Data for the base year provided in the second national communication were the same as in the first communication, which are presented here.

<sup>c</sup> As the Party did not provide estimates for its base year or for 1990 either in its first or in its second national communication, estimates for 1991 are presented in this table for 1990.

<sup>d</sup> The Party did not provide estimates for all years subsequent to 1990.

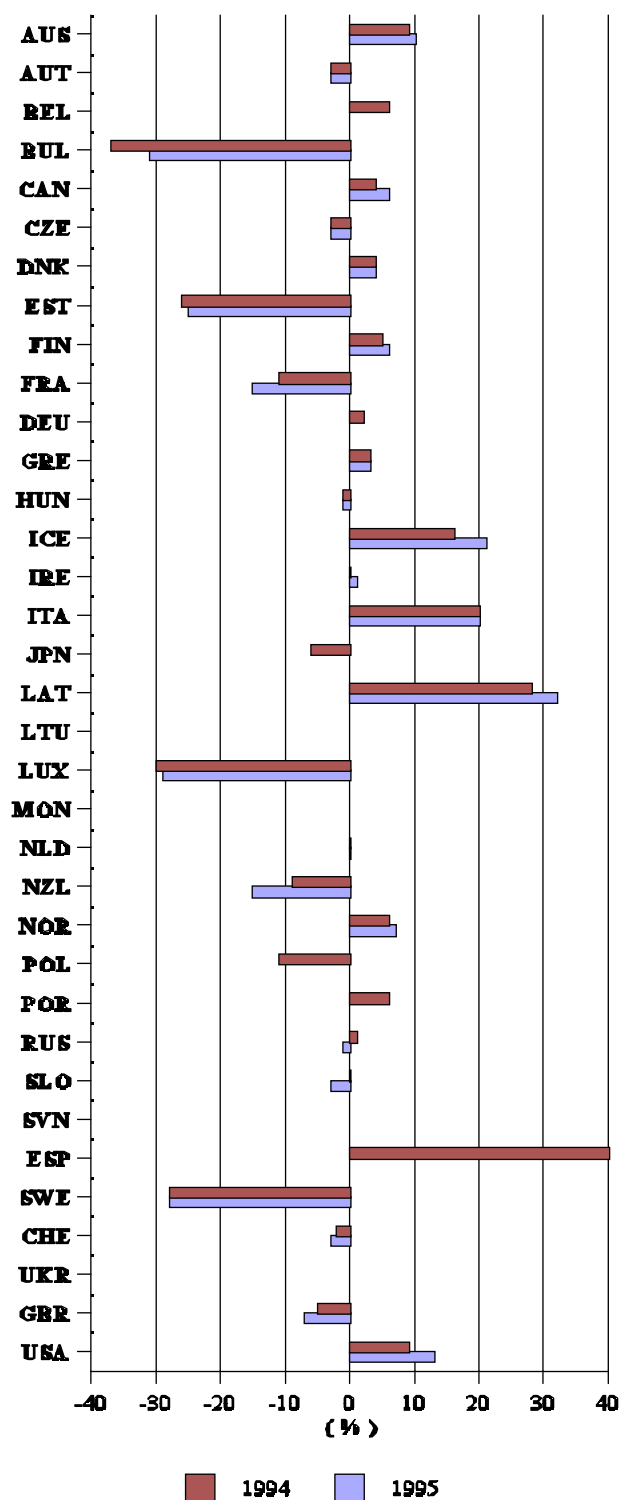
<sup>e</sup> Party did not provide estimates but indicated that emissions were negligible.



Table B.9. (continued)

Last reported value		
1994	1995	
(Gg)	(Gg)	
	778	AUS
	220	AUT
184		BEL
	503	BUL
	889	CAN
	144	CZE
	74	DNK
	32	EST
	133	FIN
	678	FRA
1 900		DEU
	115	GRE
	255	HUN
	2	ICE
	138	IRE
	989	ITA
373		JPN
	26	LAT
		LTU
	3	LUX
		MON
	380	NLD
	132	NZL
	322	NOR
855		POL
613		POR
	1 930	RUS
	63	SLO
		SVN
		ESP
686	61	SWE
	67	CHE
		UKR
	1 786	GBR
	11 259	USA

Figure B.9.



Percentage change in CH<sub>4</sub> emissions from waste in 1994 and 1995, relative to 1990

Table B.10. Total anthropogenic N<sub>2</sub>O emissions, 1990 - 1995 (Gigagrams and percentage)

	Percentage relative to 1990, 1990=100					
	1990	1991	1992	1993	1994	1995
	(Gg)	%	%	%	%	%
Australia	79.0	103	101	104	103	106
Austria	11.6	104	105	106	109	110
Belgium	30.8	100	97	99	105	
Bulgaria <sup>a b</sup>	30.8	75	62	56	57	67
Canada	86.0	101	107	109	116	125
Czech Republic	25.8	91	87	82	83	84
Denmark	34.0	100	100	97	97	97
Estonia	2.3	100	74	61	57	52
Finland <sup>c</sup>	18.0		94	100	100	100
France	181.7	99	96	90	93	95
Germany	226.0	97	100	96	97	93
Greece	17.3	97	98	96	97	98
Hungary <sup>ad</sup>	12.9	62	62	54	70	62
Iceland	0.4	95	90	88	88	95
Ireland	29.4	86	87	87	88	89
Italy <sup>c</sup>	164.5				98	98
Japan	105.3	103	101	102	104	
Latvia	22.5	88	85	77	75	72
Lithuania	13.2					
Luxembourg <sup>c</sup>	0.6				110	109
Monaco <sup>e</sup>						
Netherlands	51.2	104	111	112	113	114
New Zealand	47.5	96	97	97	97	98
Norway	15.0	100	87	93	93	93
Poland <sup>a c</sup>	70.0		71		71	
Portugal	14.0	101	100	99	101	
Russian Federation <sup>f</sup>	225.7				57	
Slovakia	12.5	87	72	57	58	62
Slovenia	5.1					
Spain	94.2	98	97	92	92	
Sweden	9.2	100	96	100	103	100
Switzerland	11.5	101	102	103	103	103
Ukraine	23.4					
United Kingdom	120.0	95	81	73	83	79
United States	425.0	100	102	106	108	110

<sup>a</sup> According to decision 9/CP.2 some EIT Parties use different base years from 1990: Bulgaria (1988), Hungary (average of 1985 - 1987) and Poland (1988).

<sup>b</sup> Data for the base year provided in the second national communication were the same as in the first communication, which are presented here.

<sup>c</sup> The Party did not provide estimates for all years subsequent to 1990.

<sup>d</sup> The Party did not provide estimates for its base year or for 1990 in its second national communication, so base year data from the first national communication are presented here. Estimates for 1991 to 1995 include emissions from *industrial processes*, which were not included in estimates for the base year.

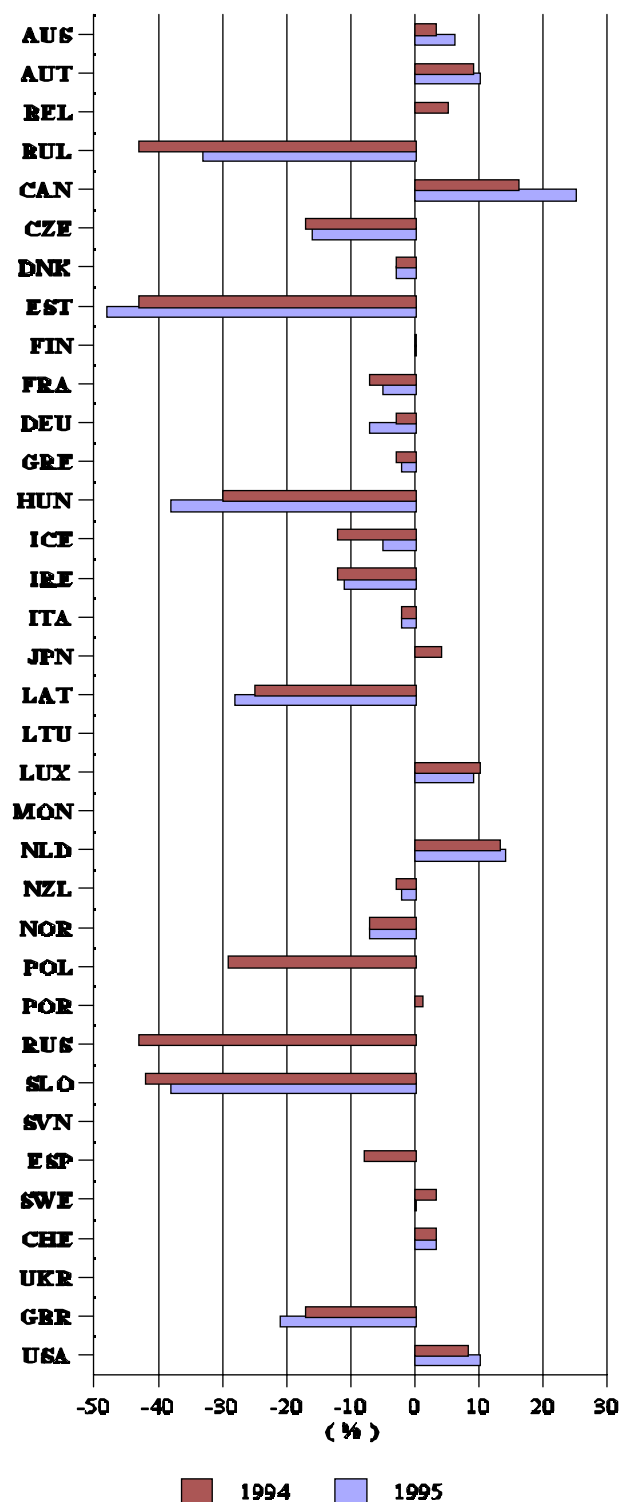
<sup>e</sup> Party did not provide estimates but indicated that emissions were negligible.

<sup>f</sup> Party only provided estimates for some categories for the years 1991 to 1993, without giving an estimate for the annual N<sub>2</sub>O national total.

Table B.10. (continued)

Last reported value		
1994	1995	
(Gg)	(Gg)	
	83.7	AUS
	12.8	AUT
32.3		BEL
	20.6	BUL
	107.8	CAN
	21.6	CZE
	33.0	DNK
	1.2	EST
	18.0	FIN
	173.5	FRA
	210.0	DEU
	16.9	GRE
	8.0	HUN
	0.4	ICE
	26.0	IRE
110.0	161.8	ITA
		JPN
	16.3	LAT
		LTU
	0.7	LUX
		MON
	58.5	NLD
	46.7	NZL
	14.0	NOR
50.0		POL
14.1		POR
127.6		RUS
	7.8	SLO
		SVN
86.8		ESP
	9.2	SWE
	11.8	CHE
		UKR
	95.0	GBR
	467.0	USA

Figure B.10.



Percentage change in total N<sub>2</sub>O emissions in 1994 and 1995, relative to 1990

Table B.11. N<sub>2</sub>O emissions from fuel combustion, 1990 - 1995 (Gigagrams and percentage)

	Percentage relative to 1990, 1990=100					
	1990	1991	1992	1993	1994	1995
	(Gg)	%	%	%	%	%
Australia	7.7	109	125	138	151	164
Austria	4.3	112	115	117	124	128
Belgium	7.7	105	106	106	109	
Bulgaria <sup>a b</sup>	7.0	146	141	139	135	139
Canada	36.0	106	117	128	142	154
Czech Republic	20.0	93	86	83	83	82
Denmark	2.0	100	100	100	150	150
Estonia	1.4	99	71	64	56	56
Finland <sup>c</sup>	5.0		120	120	120	120
France	14.3	107	108	106	111	118
Germany	37.0	105	108	111	114	
Greece	6.6	98	98	97	98	100
Hungary <sup>a d</sup>	8.4	31	40	41	43	39
Iceland	0.0	100	100	100	100	175
Ireland	2.8	121	124	119	127	127
Italy <sup>c</sup>	44.6				93	99
Japan	65.6	108	105	106	105	
Latvia	0.3	69	62	60	114	100
Lithuania	1.0					
Luxembourg <sup>c</sup>	0.1				152	151
Monaco <sup>e</sup>						
Netherlands	5.5	115	127	136	144	153
New Zealand	2.6	105	112	106	101	95
Norway	2.0	100	100	100	150	100
Poland <sup>a c</sup>	7.0		86		86	
Portugal	1.8	103	107	110	116	
Russian Federation	17.4	94	82	78	64	59
Slovakia	0.6	100	133	117	117	133
Slovenia	0.5					
Spain	20.2	100	106	100	101	
Sweden	6.3	100	100	106	111	108
Switzerland	1.4	109	118	127	135	146
Ukraine	6.7					
United Kingdom	14.7	102	105	118	131	141
United States	133.0	94	103	105	107	109

<sup>a</sup> According to decision 9/CP.2 some EIT Parties use different base years from 1990: Bulgaria (1988), Hungary (average of 1985 - 1987) and Poland (1988).

<sup>b</sup> Data for the base year provided in the second national communication were the same as in the first communication, which are presented here.

<sup>c</sup> The Party did not provide estimates for all years subsequent to 1990.

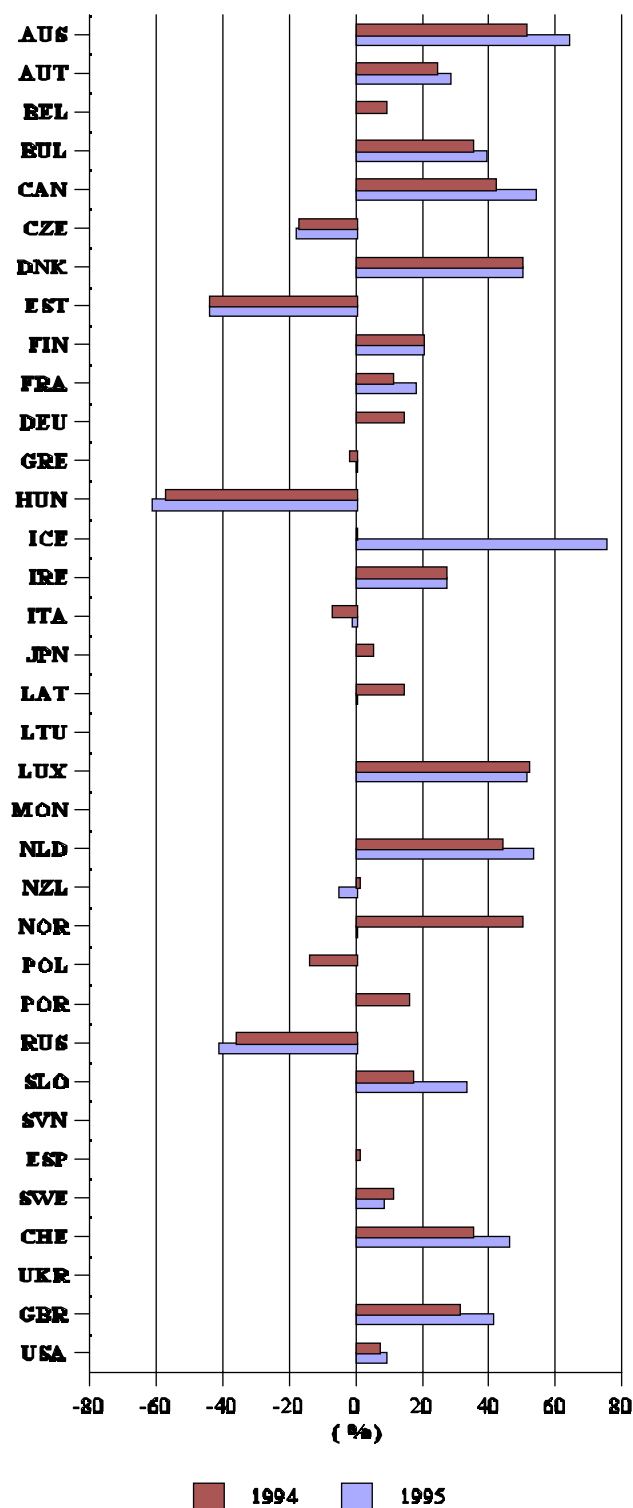
<sup>d</sup> The Party did not provide estimates for its base year or for 1990 in its second national communication, so base year data from the first national communication are presented here.

<sup>e</sup> Party did not provide estimates but indicated that emissions were negligible.

Table B.11. (continued)

Last reported value		
1994	1995	
(Gg)	(Gg)	
	12.6	AUS
	5.5	AUT
8.4		BEL
	9.7	BUL
	55.4	CAN
	16.4	CZE
	3.0	DNK
	0.8	EST
	6.0	FIN
	16.9	FRA
42.0		DEU
	6.6	GRE
	3.3	HUN
	0.1	ICE
	3.5	IRE
	44.0	ITA
69.0		JPN
	0.3	LAT
		LTU
	0.2	LUX
		MON
		NLD
	8.4	NZL
	2.5	NZL
	2.0	NOR
6.0		POL
2.1		POR
	10.3	RUS
	0.8	SLO
		SVN
20.5		ESP
	6.8	SWE
	2.0	CHE
		UKR
	20.8	GBR
	145.0	USA

Figure B.11.



Percentage change in N<sub>2</sub>O emissions from fuel combustion in 1994 and 1995, relative to 1990

Table B.12. N<sub>2</sub>O emissions from transport, 1990 - 1995 (Gigagrams and percentage)

	Percentage relative to 1990, 1990=100					
	1990	1991	1992	1993	1994	1995
	(Gg)	%	%	%	%	%
Australia	5.2	112	137	154	171	188
Austria	3.1	115	123	125	134	138
Belgium	0.9	97	108	118	129	
Bulgaria <sup>a b</sup>	0.2	103	51	103	51	51
Canada	29.0	107	121	138	155	166
Czech Republic	0.8	87	100	100	113	125
Denmark <sup>c</sup>	0.4	~100	250	250	250	250
Estonia <sup>d</sup>	~0.0					
Finland <sup>e</sup>	2.0		100	100	100	100
France	4.0	106	112	123	146	167
Germany	11.0	127	145	164	173	
Greece	1.6	92	98	104	107	103
Hungary <sup>a f</sup>	0.8	25	25	25	25	25
Iceland	~0.0	100	100	100	100	200
Ireland	0.2	244	250	244	256	272
Italy <sup>e</sup>	3.6				150	153
Japan	12.9	104	106	106	107	
Latvia	0.1	48	42	35	107	100
Lithuania	0.2					
Luxembourg <sup>e</sup>	0.0				220	243
Monaco <sup>g</sup>						
Netherlands	4.9	110	124	135	147	157
New Zealand	0.4	101	106	110	117	126
Norway	1.0	100	100	100	100	100
Poland <sup>a e</sup>	1.0		200		100	
Portugal	0.5	106	113	130	149	
Russian Federation <sup>h</sup>						
Slovakia	0.0					
Slovenia	0.1					
Spain	2.0	102	105	119	127	
Sweden	2.6	100	100	100	108	112
Switzerland	1.1	111	122	134	145	157
Ukraine <sup>h</sup>						
United Kingdom	3.4	106	121	159	203	244
United States	98.0	102	104	106	108	111

<sup>a</sup> According to decision 9/CP.2 some EIT Parties use different base years from 1990: Bulgaria (1988), Hungary (average of 1985 - 1987) and Poland (1988).

<sup>b</sup> Data for the base year provided in the second national communication were the same as in the first communication, which are presented here.

<sup>c</sup> The Party reported an estimate of 0 Gg for 1990 and 1991 in its second national communication. Assuming that these values are rounded, the estimate of 0.4 Gg from the first national communication is given here for both years in order to calculate the trend in emissions.

<sup>d</sup> The Party provided disaggregated estimates only for 1990.

<sup>e</sup> The Party did not provide estimates for all years subsequent to 1990.

<sup>f</sup> The Party did not provide estimates for its base year or for 1990 in its second national communication, so base year data from the first national communication are presented here.

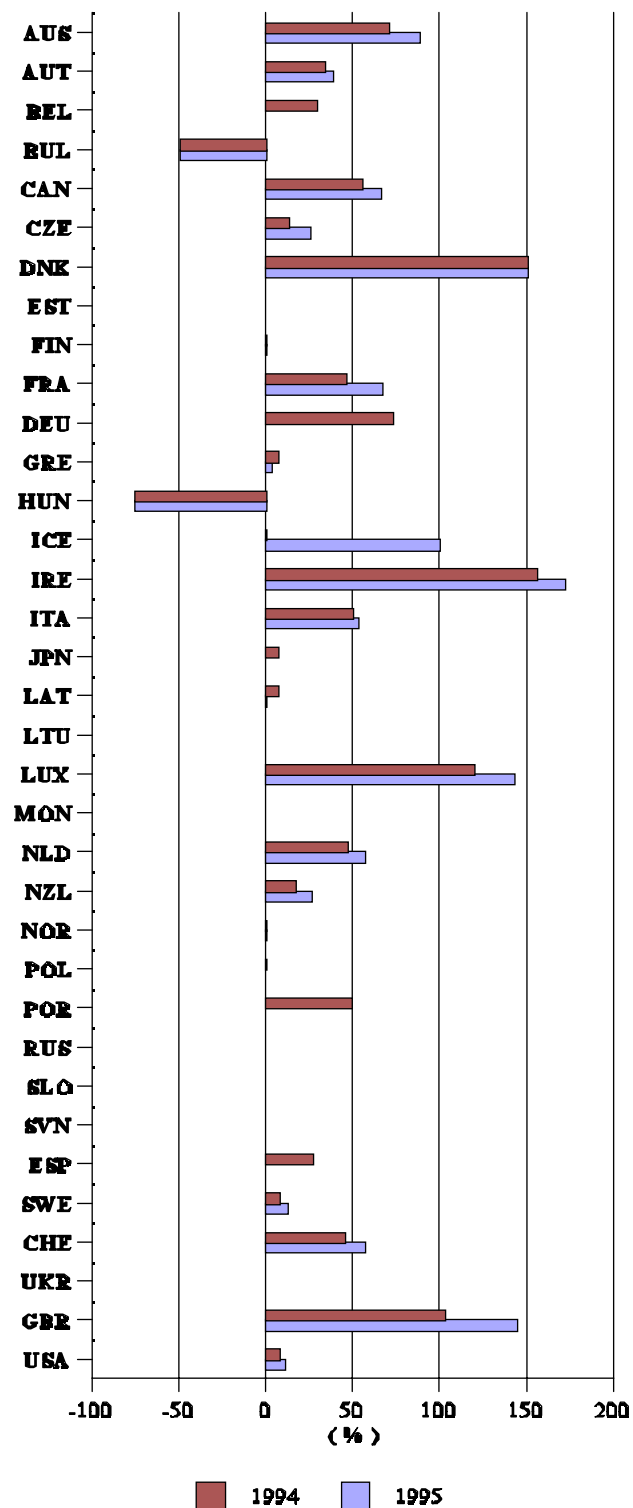
<sup>g</sup> Party did not provide estimates but indicated that emissions were negligible.

<sup>h</sup> Party only reported aggregate N<sub>2</sub>O emissions from fuel combustion.

Table B.12. (continued)

Last reported value		
1994	1995	
(Gg)	(Gg)	
	9.8	AUS
	4.3	AUT
1.2		BEL
	0.1	BUL
	48.0	CAN
	1.0	CZE
	1.0	DNK
		EST
	2.0	FIN
	6.7	FRA
19.0		DEU
	1.6	GRE
	0.2	HUN
	~0	ICE
	0.5	IRE
	5.5	ITA
13.8		JPN
	0.1	LAT
		LTU
	0.1	LUX
	0.1	MON
	7.7	NLD
	0.5	NZL
	1.0	NOR
1.0		POL
0.8		POR
		RUS
	0.3	SLO
		SVN
2.6		ESP
	2.9	SWE
	1.8	CHE
		UKR
	8.3	GBR
	109	USA

Figure B.12.



Percentage change in N<sub>2</sub>O emissions from transport in 1994 and 1995, relative to 1990

Table B.13. N<sub>2</sub>O emissions from industrial processes, 1990 - 1995 (Gigagrams and percentage)

	Percentage relative to 1990, 1990=100					
	1990	1991	1992	1993	1994	1995
	(Gg)	%	%	%	%	%
Australia	1.6	94	113	100	87	87
Austria	0.6	100	92	97	95	92
Belgium	11.5	97	88	95	107	
Bulgaria <sup>a b</sup>	10.4	67	55	47	56	80
Canada	37.0	95	95	86	103	100
Czech Republic	3.3	85	106	82	91	103
Denmark						
Estonia						
Finland	3.0	100	67	100	100	100
France	90.0	97	92	83	86	89
Germany	83.0	101	112	104	98	
Greece	2.3	82	86	82	80	85
Hungary <sup>a c</sup>	3.7	n.a.	76	68	92	73
Iceland	0.2	94	88	88	88	88
Ireland	2.6	100	100	100	100	100
Italy <sup>d</sup>	23.5				88	87
Japan	23.8	91	90	88	100	
Latvia						
Lithuania	1.4					
Luxembourg						
Monaco <sup>e</sup>						
Netherlands	18.6	105	103	102	97	97
New Zealand						
Norway	7.0	86	57	71	71	71
Poland <sup>a d</sup>	20.0		65		70	
Portugal	1.9	100	100	100	100	
Russian Federation <sup>d</sup>	3.0				40	
Slovakia	2.1	71	67	52	38	52
Slovenia						
Spain	10.4	92	78	64	77	
Sweden	2.7	100	85	85	85	84
Switzerland	0.3	100	100	97	97	97
Ukraine	6.2					
United Kingdom	94.0	94	75	64	75	68
United States	96.0	103	98	103	110	109

<sup>a</sup> According to decision 9/CP.2 some EIT Parties use different base years from 1990: Bulgaria (1988), Hungary (average of 1985 - 1987) and Poland (1988).

<sup>b</sup> Data for the base year provided in the second national communication were the same as in the first communication, which are presented here.

<sup>c</sup> As the Party did not provide estimates for its base year or for 1990 either in its first or in its second national communication, estimates for 1991 are presented in this table for 1990.

<sup>d</sup> The Party did not provide estimates for all years subsequent to 1990.

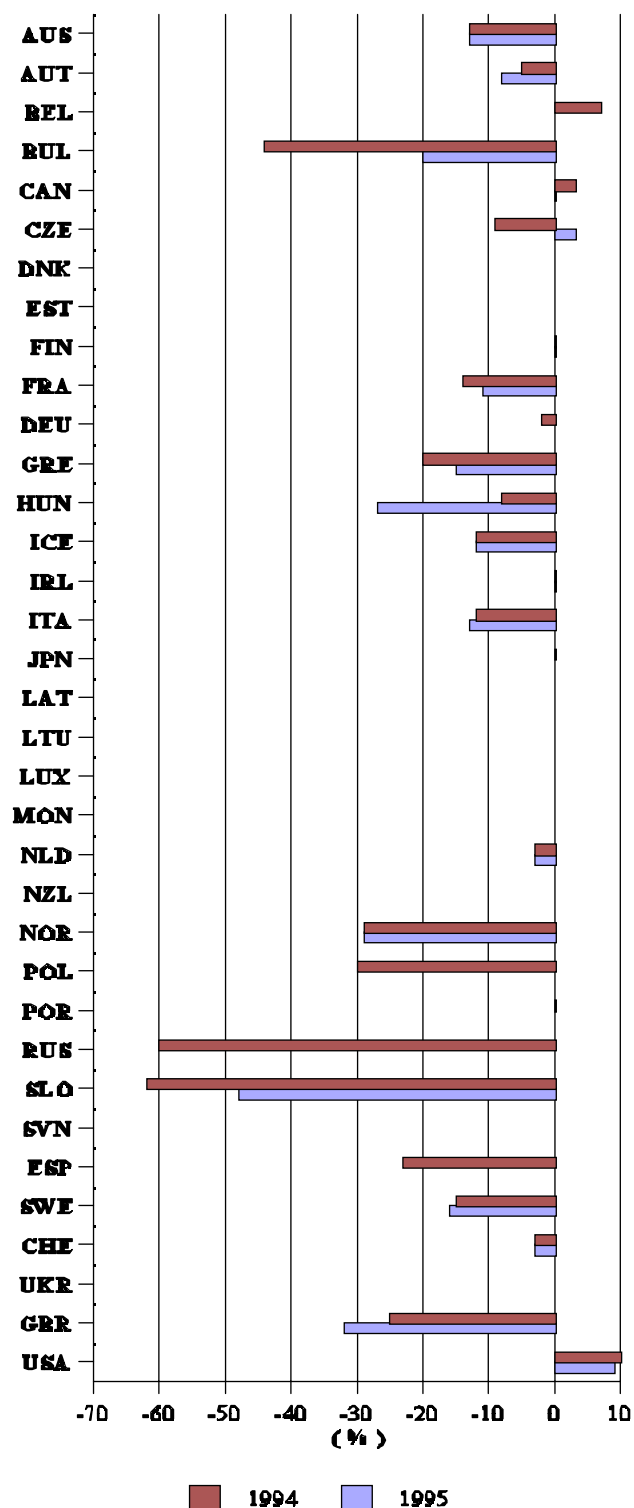
<sup>e</sup> Party did not provide estimates but indicated that emissions were negligible.



Table B.13. (continued)

Last reported value		
1994	1995	
(Gg)	(Gg)	
	1.4	AUS
	0.6	AUT
12.3		BEL
	8.3	BUL
	37.1	CAN
	3.4	CZE
		DNK
		EST
	3.0	FIN
	80.4	FRA
81.0		DEU
	2.0	GRE
	2.7	HUN
	0.1	ICE
	2.6	IRE
	20.4	ITA
23.9		JPN
		LAT
		LTU
		LUX
		MON
	18.1	NLD
		NZL
	5.0	NOR
14.0		POL
1.9		POR
1.2		RUS
	1.1	SLO
		SVN
8.0		ESP
	2.3	SWE
	0.3	CHE
		UKR
	63.7	GBR
	105.0	USA

Figure B.13.



Percentage change in N<sub>2</sub>O emissions from industrial processes in 1994 and 1995, relative to 1990

Table B.14. N<sub>2</sub>O emissions from agriculture, 1990 - 1995 (Gigagrams and percentage)

	Percentage relative to 1990, 1990=100					
	1990	1991	1992	1993	1994	1995
	(Gg)	%	%	%	%	%
Australia	68.2	100	98	99	99	101
Austria	3.3	100	100	101	101	101
Belgium	10.9	100	100	98	99	
Bulgaria <sup>a b</sup>	13.4	45	27	22	19	19
Canada	11.0	100	109	118	118	121
Czech Republic	2.3	87	74	78	78	74
Denmark	33.0	97	97	94	91	91
Estonia	0.9	100	78	56	56	44
Finland	10.0	100	90	90	90	90
France	54.5	99	97	93	95	97
Germany	96.0	91	86	84	90	
Greece	8.4	101	101	99	100	99
Hungary <sup>a c</sup>	4.6	37	36	32	39	35
Iceland	0.2	95	91	86	86	86
Ireland	23.3	80	80	81	82	82
Italy <sup>d</sup>	75.2				101	101
Japan	9.7	98	96	95	94	
Latvia	22.0	88	85	77	74	72
Lithuania	10.8					
Luxembourg <sup>d</sup>	0.5				101	100
Monaco <sup>e</sup>						
Netherlands	22.2	103	118	118	120	121
New Zealand	44.9	96	96	96	97	98
Norway	6.0	100	100	100	100	100
Poland <sup>a d</sup>	43.0		74		70	
Portugal	7.4	101	98	96	97	
Russian Federation <sup>d</sup>	200.0				55	
Slovakia	9.5	89	68	53	57	57
Slovenia	4.6					
Spain	63.5	99	97	94	92	
Sweden	0.2	100	100	100	100	100
Switzerland	9.2	100	99	98	97	96
Ukraine	10.2					
United Kingdom	10.4	101	97	94	96	93
United States	196.0	103	104	108	108	111

<sup>a</sup> According to decision 9/CP.2 some EIT Parties use different base years from 1990: Bulgaria (1988), Hungary (average of 1985 - 1987) and Poland (1988).

<sup>b</sup> Data for the base year provided in the second national communication were the same as in the first communication, which are presented here.

<sup>c</sup> The Party did not provide estimates for its base year or for 1990 in its second national communication, so base year data from the first national communication are presented here.

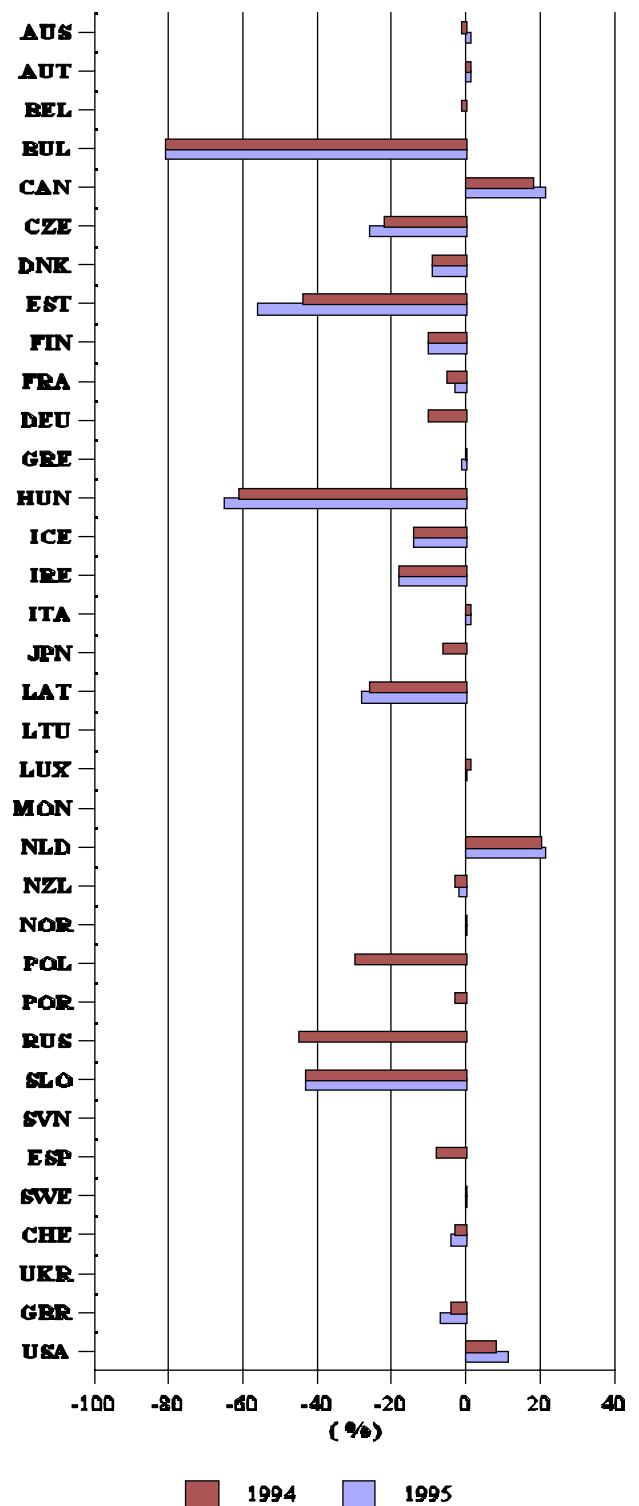
<sup>d</sup> The Party did not provide estimates for all years subsequent to 1990.

<sup>e</sup> Party did not provide estimates but indicated that emissions were negligible.

Table B.14. (continued)

Last reported value			
1994	1995		
(Gg)	(Gg)		
	68.7	AUS	
	3.3	AUT	
10.8		BEL	
	2.5	BUL	
	13.3	CAN	
	1.7	CZE	
	30.0	DNK	
	0.4	EST	
	9.0	FIN	
	52.6	FRA	
86.0		DEU	
	8.3	GRE	
	1.6	HUN	
	0.2	ICE	
	19.1	IRE	
	75.9	ITA	
9.1		JPN	
	15.7	LAT	
		LTU	
	0.5	LUX	
		MON	
	26.9	NLD	
	44.1	NZL	
	6.0	NOR	
30.0		POL	
7.2		POR	
110.0		RUS	
	5.4	SLO	
		SVN	
58.2		ESP	
	0.2	SWE	
	8.8	CHE	
		UKR	
	9.7	GBR	
	217.1	USA	

Figure B.14.



Percentage change in N<sub>2</sub>O emissions from agriculture in 1994 and 1995, relative to 1990

**Table B.15. Total anthropogenic emissions of main greenhouse gases<sup>a</sup> (CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O), excluding land-use change and forestry, 1990 - 1995 (Gigagrams of CO<sub>2</sub> equivalent and percentage)**

	Percentage relative to 1990, 1990=100					
	1990	1991	1992	1993	1994	1995
	(Gg)	%	%	%	%	%
Australia	405 553	101	101	102	103	106
Austria	77 814	106	98	97	97	101
Belgium	138 943	102	101	99	104	
Bulgaria <sup>b c</sup>	136 093	75	68	67	61	64
Canada	557 860	98	101	103	106	110
Czech Republic	192 130	92	85	82	78	79
Denmark	71 658	115	108	110	115	110
Estonia	40 719	98	74	59	61	56
Finland <sup>d</sup>	64 546		97	99	108	103
France	498 067	104	104	98	97	100
Germany	1 203 537	96	92	91	89	88
Greece	99 232	100	102	102	105	106
Hungary <sup>b e</sup>	101 634	88	79	78	77	76
Iceland	2 571	97	101	105	104	105
Ireland	56 861	99	100	100	103	104
Italy <sup>d</sup>	532 048				97	102
Japan	1 190 250	102	103	101	107	108
Latvia	35 669	82	72	62	54	54
Lithuania	51 548					
Luxembourg <sup>d</sup>	13 488				94	76
Monaco <sup>f</sup>						
Netherlands	206 602	104	103	105	104	108
New Zealand	76 034	99	100	99	99	100
Norway	49 266	97	97	101	105	106
Poland <sup>b d</sup>	564 286		78		78	
Portugal	68 442	103	109	105	106	
Russian Federation <sup>g</sup>	2 998 767				70	
Slovakia	72 496	89	82	77	72	79
Slovenia	19 212					
Spain	301 431	100	103	100	102	
Sweden	65 101	100	101	101	104	103
Switzerland	53 749	103	101	98	97	98
Ukraine	905 878					
United Kingdom	714 691	100	97	94	93	91
United States	5 713 320	99	101	103	104	105

<sup>a</sup> In light of the different ways of presentation and degrees of completeness of reporting HFCs, PFCs and SF<sub>6</sub>, only aggregate emissions of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O are presented in this table for comparison and consistency purposes. Aggregate emissions of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, and where reported HFCs, PFCs and SF<sub>6</sub> are however presented in table B.16.

<sup>b</sup> According to decision 9/CP.2 some EIT Parties use different base years from 1990: Bulgaria (1988), Hungary (average of 1985 - 1987) and Poland (1988).

<sup>c</sup> Data for the base year provided in the second national communication were the same as in the first communication, which are presented here.

<sup>d</sup> The Party did not provide estimates for all years subsequent to 1990.

<sup>e</sup> The Party did not provide estimates for its base year or for 1990 in its second national communication, so base year data from the first national communication are presented here.

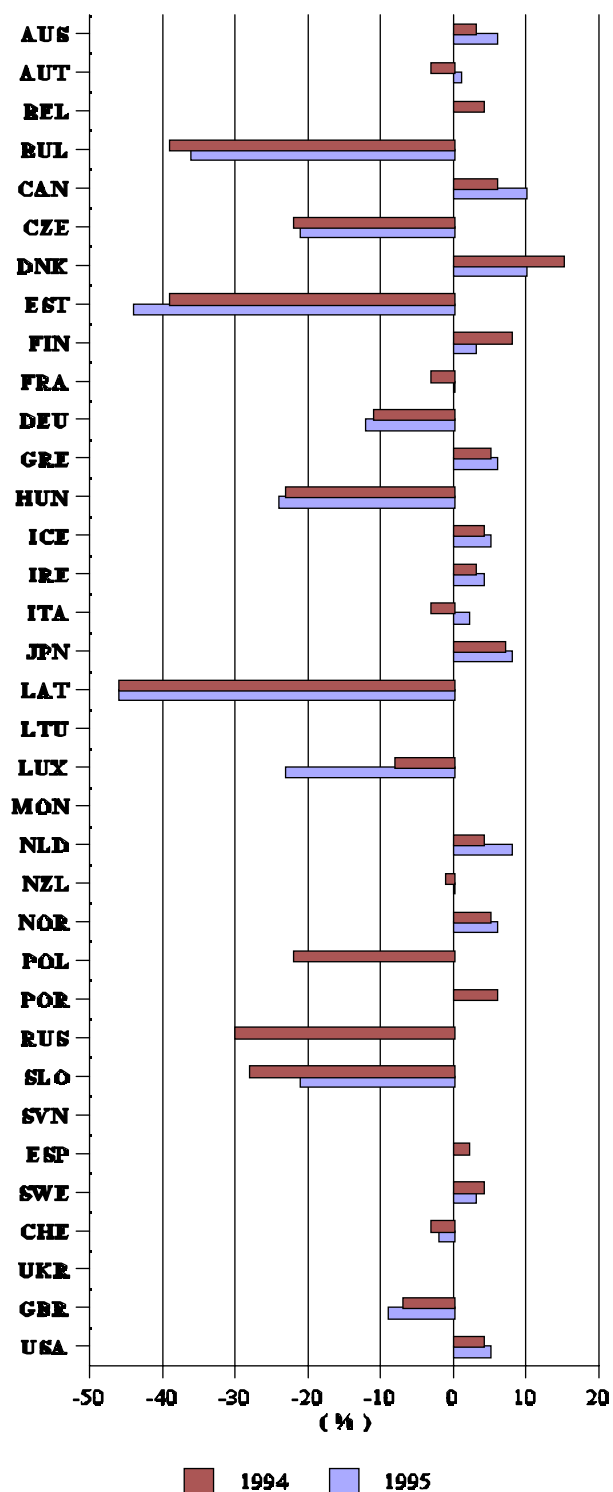
<sup>f</sup> No trend is given here since the CO<sub>2</sub> estimate for 1990 includes only emissions from *waste*, while the estimate provided for 1996 includes emissions from *waste* and *fuel combustion*.

<sup>g</sup> Since emission estimates for 1991-1993 and 1995 were not fully provided by the Party, no trends for all years subsequent to 1990 are shown in this table.

Table B.15. (continued)

Last reported value		
1994		
1995		
(Gg)	(Gg)	
	430 065	AUS
	78 166	AUT
144 651		BEL
	87 542	BUL
	611 318	CAN
	150 912	CZE
	78 792	DNK
	22 653	EST
	66 691	FIN
	498 854	FRA
1 060 148		DEU
	105 294	GRE
	77 198	HUN
	2 692	ICE
	59 060	IRE
	540 453	ITA
1 284 985		JPN
	19 196	LAT
		LTU
	10 223	LUX
		MON
	223 852	NLD
	76 164	NZL
	52 069	NOR
438 895		POL
72 579		POR
2 111 366		RUS
	57 570	SLO
		SVN
306 876		ESP
	67 176	SWE
	52 763	CHE
		UKR
	652 945	GBR
	6 009 955	USA

Figure B.15.



Percentage change in total greenhouse gas emissions in 1994 and 1995, relative to 1990 (aggregated using IPCC 1995 GWP values)

**Table B.16. Total anthropogenic emissions of all greenhouse gases<sup>a</sup>, excluding land-use change and forestry, 1990 -1995 (Gigagrams of CO<sub>2</sub> equivalent and percentage)**

	Percentage relative to 1990, 1990=100					
	1990	1991	1992	1993	1994	1995
	(Gg)	%	%	%	%	%
Australia	410 553					105
Austria <sup>b</sup>						
Belgium	139 488	102	101	99	104	105
Bulgaria						
Canada	566 664	99	101	103	105	109
Czech Republic	192 190	92	85	82	78	79
Denmark <sup>c</sup>	71 837					110
Estonia						
Finland <sup>d</sup>						
France	505 753	104	104	97	97	100
Germany	1 212 467	96	92	91	90	88
Greece						
Hungary						
Iceland	2 889	95	94	96	94	96
Ireland						
Italy	532 920				97	102
Japan	1 251 724	102	104	102	109	111
Latvia						
Lithuania						
Luxembourg						
Monaco						
Netherlands <sup>e</sup>	215 357			104	105	110
New Zealand	76 640	99	100	99	99	100
Norway	54 011	96	93	96	101	101
Poland						
Portugal						
Russian Federation <sup>f</sup>	3 040 332				71	
Slovakia	72 995	89	82	77	72	79
Slovenia						
Spain						
Sweden	66 457		101		105	104
Switzerland	53 749	103	101	98	97	100
Ukraine						
United Kingdom	729 997	100	97	94	93	92
United States	5 801 400	99	101	103	105	106

<sup>a</sup> Aggregate emissions of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, and HFCs, PFCs and SF<sub>6</sub> where reported (see table A.10.), using IPCC 1995 global warming potentials. Aggregate emissions of all greenhouse gases from Parties not reporting HFCs, PFCs and SF<sub>6</sub> are presented in table B.15.

<sup>b</sup> Party provided HFC, PFC and SF<sub>6</sub> estimates for the years 1991-1995 but not for 1990, so no trend is shown in this table.

<sup>c</sup> Party reported actual emissions of HFCs, PFCs and SF<sub>6</sub> for 1995 only, but potential emissions for the years 1990 to 1995. The secretariat estimated actual emissions for 1990 based on the ratio of potential SF<sub>6</sub> emissions to actual SF<sub>6</sub> emissions in 1995.

<sup>d</sup> Party only provided HFC, PFC and SF<sub>6</sub> estimates for 1995.

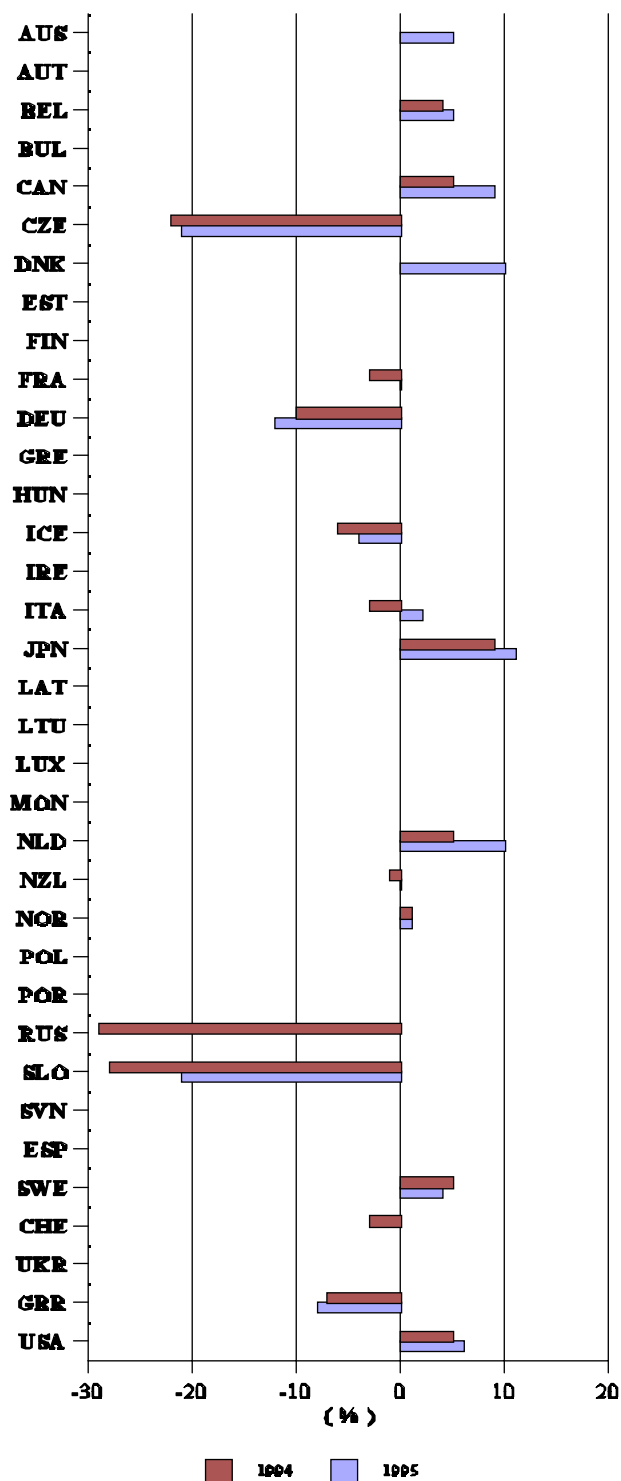
<sup>e</sup> Party reported actual emissions of HFCs, PFCs and SF<sub>6</sub> for 1990 and for 1993-1995. However, potential emissions were reported for all years subsequent to 1990.

<sup>f</sup> Since emission estimates for 1991-1993 and 1995 were not fully provided by the Party, no trends for all years subsequent to 1990 are shown in this table.

Table B.16. (continued)

Last reported value		
1994	1995	
(Gg)	(Gg)	
	431 497	AUS
	78 173	AUT
	145 782	BEL
		BUL
	619 726	CAN
	150 975	CZE
	79 211	DNK
		EST
	66 866	FIN
	504 185	FRA
	1 071 022	DEU
		GRE
		HUN
	2 765	ICE
		IRE
	541 900	ITA
	1 383 527	JPN
		LAT
		LTU
		LUX
		MON
	236 154	NLD
	76 549	NZL
	54 329	NOR
		POL
		POR
	2 149 221	RUS
		RUS
	57 890	SLO
		SVN
		ESP
	69 004	SWE
	53 774	CHE
		UKR
	669 625	GBR
	6 146 624	USA

Figure B.16.



Percentage change in total greenhouse gas emissions, excluding land-use change and forestry, in 1994 and 1995, relative to 1990 (aggregated using IPCC 1995 values)

**Table C.1. Projected anthropogenic emissions of CO<sub>2</sub>, excluding land-use change and forestry, until 2020 (Gigagrams)**

	Base level (1990) <sup>a</sup>			Projection and percentage deviation relative to the projection base level			
	Inventory	Projection	Last reported inventory <sup>b</sup>	2000		2005	
				(Gg)	(Gg)	(Gg)	(%)
Australia	273 123	262 600	296 724	311 200	19	336 500	28
Austria	61 880	61 880	62 020	57 300	-7	57 500	-7
Belgium <sup>c</sup>	116 090	115 800	121 297	125 200	8	133 300	15
Bulgaria	96 878	84 405	62 227	74 730	-11	84 753	0
Canada	464 000	463 700	499 526	500 600	8	522 900	13
Czech Republic	165 490	167 000	128 817	139 000	-17	153 000	-8
Denmark	52 277	[59 958]	59 532	54 309	-9	50 547	-16
Estonia	37 797	37 184	20 859	- 19 700	-47	- 16 700	-55
Finland	53 800	53 800	56 050	(58 000) - (60 000)	(8 - 12)		
France	378 379	[379 901]	385 347	372 934	-2		
Germany	1 014 155	1 014 000	894 500	894 000	-12	867 000	-14
Greece	84 575	76 834	90 492	89 120	16	92 090	20
Hungary	83 676	83 676	59 758	- 64 300	-23		
Iceland	2 147	2 147	2 282	2 697	26	2 796	30
Ireland	30 719	30 719	33 931	34 998	14	38 228	24
Italy	432 150	402 000	437 467	421 272	5	403 000	0
Japan	1 124 532	1 125 000	1 218 377				
Latvia	24 771	24 906	12 027	12 274	-51	11 067	-56
Lithuania	39 535	39 535		27 147	-31		
Luxembourg	12 750	10 427	9 545	5 684	-45	5 756	-45
Monaco							
Netherlands	167 550	[173 000]	183 400	173 500	0	181 000	5
New Zealand	25 476	25 476	27 367	31 080	22	33 570	32
Norway	35 544	36 000	37 880	44 000	22	47 000	31
Poland	476 625	484 000	371 589	425 000	-12		
Portugal	47 123	37 260	50 841	50 130	35	56 600	52
Russian Federation	2 372 300	2 372 000	1 660 000	1 750 000	-26	2 000 000	-16
Slovakia	60 032	59 752	48 516	(44 780) - (46 178)	(-25) - (-23)	(49 142) - (51 919)	(-18) - (-13)
Slovenia	13 935						
Spain	226 423	226 423	231 370	258 247	14		
Sweden <sup>d</sup>	55 445	[58 500]	58 108	60 100	3	62 100	6
Switzerland	45 070	[47 100]	44 170	43 900	-7	44 700	-5
Ukraine	700 107	711 447		530 042	-25	569 149	-20
United Kingdom	583 747	580 000	543 338	550 000	-5	593 000	2
United States	4 960 432	4 960 000	5 214 710	5 627 310	13	5 865 600	18

<sup>a</sup> Differences between the inventory base level and the projection base level are, for example, due to revisions of inventories, rounding, calibration of models, or the projection of only a subset of the sources. For some Parties (Denmark, France, Netherlands, Sweden and Switzerland) differences are also due to temperature adjustments. Base year values for projections that have been subject to temperature adjustments are put in brackets. Inventory figures are from tables A.1 and A.2

<sup>b</sup> All Parties reported their last inventory for 1995, with the exception of Belgium, Poland, Portugal, the Russian Federation and Spain whose most recent reported inventory was for 1994.

<sup>c</sup> Belgium reported 1995 data only for CO<sub>2</sub> energy sector emissions. Belgium also provided a projection base level adjusted for temperature which had a value of 121,100 Gg.

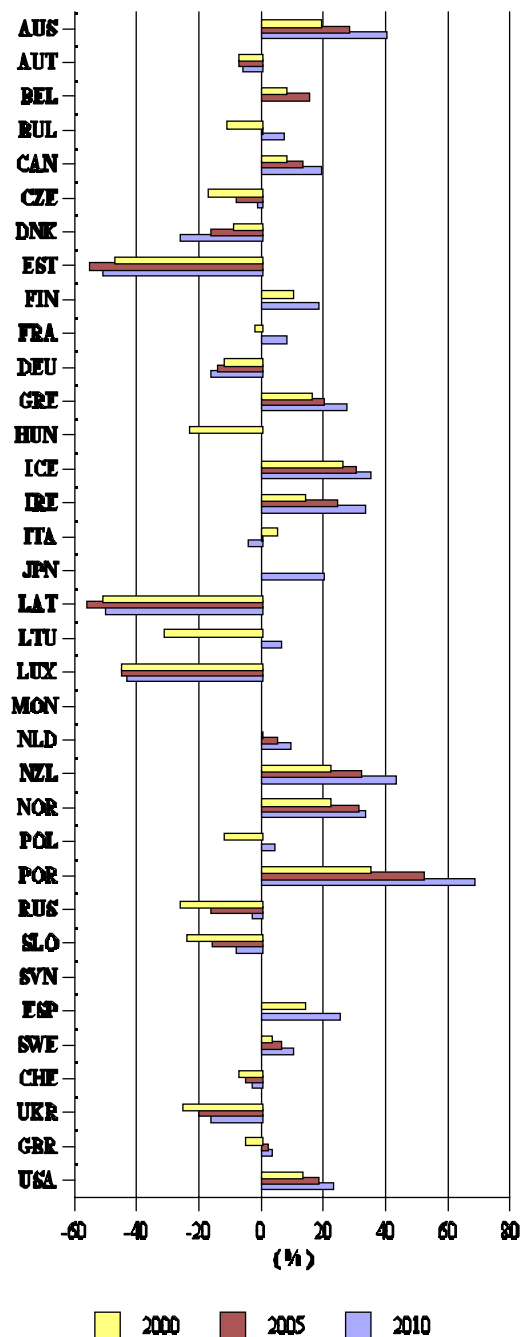
<sup>d</sup> Sweden reported 1995 rather than 1990 as the base level for projections. All variations from the base level are thus given in relation to 1995.



Table C.1. (continued)

Projection and percentage deviation relative to the projection base level				
2010		2020		
(Gg)	(%)	(Gg)	(%)	
366 800	40	431 100	64	AUS
58 300	-6			AUT
				BEL
90 286	7	99 248	18	BUL
549 900	19	628 300	35	CAN
166 000	-1			CZE
44 660	-26	34 158	-43	DNK
- 18 300	-51	- 21100	-43	EST
(56 000) -	(4 - 32)	(49 000) -	(-9) - (-49)	FIN
(71 000)		(80 000)		FRA
411 621	8	(453 975) -	(19 - 45)	DEU
		(550 417)		GRE
854 000	-16	847 000	-16	HUN
97 680	27			ICE
				IRE
2 893	35	2 944	37	ITA
40 775	33			JPN
386 700	-4			LAT
1 353 000	20			LTU
12 566	-50	13 936	-44	LUX
(33 543) -	(-15) - (-27)			MON
(50 296)				NLD
5 977	-43	5 945	-43	NZL
				NOR
188 000	9	202 000	17	NZL
36 310	43	43 560	71	POL
48 000	33	46 000	28	POR
502 000	4			RUS
62 520	68			SLO
2 300 000	-3			SVN
(53 220) -	(-11) - (-5)			ESP
(56 519)				SWE
				CHE
282 440	25			UKR
64 300	10	~80 000	~37	GBR
45 700	-3			CHE
598 016	-16			UKR
595 000	3	682 000	18	GBR
6 118 554	23	6 496 512	31	USA

Figure C.1.



Percentage change in projected CO<sub>2</sub> emissions, excluding land-use change and forestry, in 2000, 2005 and 2010, relative to the base year

Table C.2. CO<sub>2</sub> projections in land-use change and forestry until 2020 (Gigagrams)<sup>a</sup>

	Base level (1990) <sup>b</sup>			Projection and percentage deviation relative to the projection base level			
	<u>Inventory</u>	<u>Projection</u>	<u>Last reported inventory<sup>c</sup></u>	2000		2005	
	(Gg)	(Gg)	(Gg)	(Gg)	(%)	(Gg)	(%)
Australia	-31 075	-23 100	-29 106	-29 000	-26	-29 300	-27
Austria	-13 300		-13 580				
Belgium	-2 057	-2 057	-2 057	-2 057	0	-2 057	0
Bulgaria	-4 657	-5 801	-7 520	-7 614	-31	-7 710	-33
Canada							
Czech Republic	-2 281	-2 000	-5 454	-5 000	-150	-5 000	-150
Denmark	-924	-924	-964	-1 046	-13	-1 128	-22
Estonia	-11 317	-11 317	-13 266	-12 314	-9	-11 979	-6
Finland <sup>d</sup>	(-30 000) -	-24 500	(-14 000) -	(-17 000) -	(31) - (51)		
	(-19 000)		(-7 000)	(-12 000)			
France	-33 218	-35 203	-46 801	-53 538	-52		
Germany	-30 000		-30 000				
Greece							
Hungary	-3 097		-4 797				
Iceland							
Ireland	-5 160	-5 160	-6 230	-7 580	-47	-8 630	-67
Italy	-24 949	-24 949	-24 507	-24 507	2		
Japan	-83 341	-83 341	-94 619	-67 192	19	-59 762	28
Latvia	-10 826	-10 844	-10 484				
Lithuania	-8 848	-8 848		-9 124	-3		
Luxembourg	-295	-295	-295	-295	0	-295	0
Monaco							
Netherlands	-1 500	-1 500	-1 700	-1 700	-13	-1 700	-13
New Zealand	-20 571	-20 569	-13 487	-18 944	8	-20 807	-1
Norway	-10 200	-9 400	-13 637	-11 000	-17	-12 900	-37
Poland	-34 746		-41 953				
Portugal	-1 152		-1 152				
Russian Federation	-392 000	-392 000	-568 000	(-570 000) - (-620 000)	(-45) - (-58)		
Slovakia	-4 257	-4 257	-5 118	-5 227	-23		
Slovenia	-2 293						
Spain	-28 970		-28 970				
Sweden <sup>e</sup>	-34 368	-34 000	-30 000	-29 000	15	-26 000	24
Switzerland	-4 360	-4 360	-5 100	-5 100	-17	-5 100	-17
Ukraine	-51 976	-51 976		-66 643	-28	-68 548	-32
United Kingdom	18 776	20 600	9 945	11 100	-46	8 900	-57
United States	-458 000	-458 750	-428 000	-411 040	10	-403 700	12

<sup>a</sup> Negative values in Gg denote removal of CO<sub>2</sub>. Positive values denote a net source of emissions. Negative values in percentage denote more removals in 2000 and beyond than in 1990, or a decrease in net emissions.

<sup>b</sup> Differences in 1990 levels between inventories and projections are, for example, due to revisions of inventories, rounding, or the fact that only a subset of the sources was projected. Inventory figures are from table A.5.

<sup>c</sup> All Parties reported their most recent inventory for 1995, with the exception of Sweden whose last inventory was for 1992, and Poland, Portugal, the Russian Federation and Spain whose last inventory was for 1994.

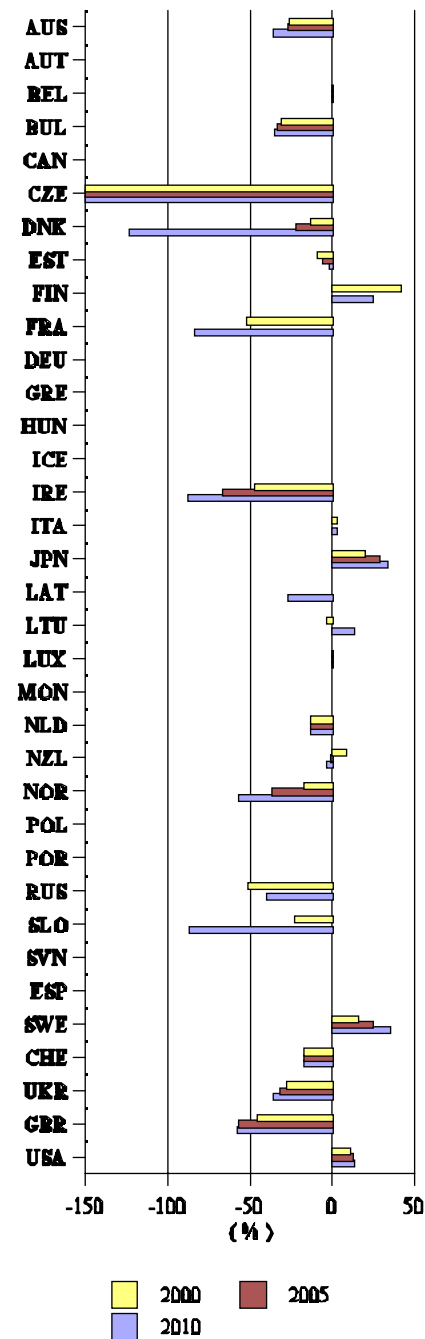
<sup>d</sup> Deviation relative to the projection base level calculated on the basis of the mean of the range (-30,000)-(-19,000) Gg.

<sup>e</sup> Sweden reported 1995 rather than 1990 as the base level for projections. All variations from the base level are thus given in relation to 1995.

Table C.2. (continued)

Projection and percentage deviation relative to the projection base level				
2010		2020		
(Gg)	(%)	(Gg)	(%)	
-31 500	-36	-32 800	-42	AUS
				AUT
-2 057	0	-2 057	0	BEL
-7 807	-35	-7 905	-36	BUL
				CAN
-5 000	-150			CZE
-2 063	-123	-2 703	-193	DNK
-11 546	-2	-13 199	-17	EST
(-15 000) -	(39) - (10)	(-27 000) -	(-10) - (104)	FIN
(-22 000)		(1 000)		
-64 906	-84			FRA
				DEU
				GRE
				HUN
				ICE
				IRE
-9 690	-88			ITA
-24 507	2			JPN
-55 811	33			LAT
-13 752	-27	-12 512	-15	LTU
-7 667	13			LUX
-295	0	-295	0	LUX
				MON
				NLD
-1 700	-13	-1 700	-13	NLD
-21 208	-3	-31 654	-54	NZL
-14 800	-57	-15 700	-67	NOR
				POL
				POR
				RUS
-550 000	-40			RUS
-7 957	-87	-12 397	-191	SLO
				SVN
				ESP
				SWE
-22 000	35			SWE
-5 100	-17	-5 100	-17	CHE
-70 702	-36			UKR
8 700	-58	12 800	-38	GBR
-400 030	13	-348 650	24	USA

Figure C.2.



Percentage change in projected CO<sub>2</sub> emissions (and removals) in land-use change and forestry, in 2000, 2005 and 2010, relative to the base year

Table C.3. Projected anthropogenic emissions of CH<sub>4</sub> until 2020 (Gigagrams)

	Base level (1990) <sup>a</sup>			Projection and percentage deviation relative to the projection base level			
			Last reported inventory <sup>b</sup> (Gg)	2000		2005	
	Inventory (Gg)	Projection (Gg)		(Gg)	(%)	(Gg)	(%)
Australia	5 140	5 051	5 114	5 306	5	5 499	9
Austria	587	587	580	600	2		
Belgium	634	626	635	530	-15	487	-22
Bulgaria	1 413	1 420	901	1 093	-23	1 492	5
Canada	3 200	3 148	3 732	3 546	13	3 600	14
Czech Republic	888	886	733	742	-16	864	-2
Denmark	421	424	430	408	-4	377	-11
Estonia	105		68				
Finland	246	246	241	226	-8	206	-16
France	3 017	2 253	4 788	2 095	-7		
Germany	5 682	5 682	4 845	3 892	-32	3 004	-47
Greece	443		456				
Hungary	664		712				
Iceland	14	14	14	13.5	-4	13.6	-3
Ireland	811	811	812	837	3	838	3
Italy	2 329	2 476	2 516	2 469	0	1 852	-25
Japan	1 575	1 575	1 548	1 576	0	1 473	-6
Latvia	186	186	101	95	-49	100	-46
Lithuania	378	378		309	-18		
Luxembourg	24	24	22	22	-8	22	-8
Monaco							
Netherlands	1 104	1 067	1 063	788	-26	700	-34
New Zealand	1 706	1 706	1 635	1 541	-10	1 552	-9
Norway	432	432	469	414	-4	377	-13
Poland	3 141		2 467				
Portugal	809	812	827	712	-12	712	-12
Russian Federation	26 500	26 500	19 610	21 200	-20	22 600	-15
Slovakia	409	401	316	(251 - 401)	(-37) - (0)	(237 - 348)	(-41) - (-13)
Slovenia	176						
Spain	2 181	2 181	2 314	2 356	8		
Sweden <sup>c</sup>	324	302	296	284	-6	271	-10
Switzerland	244	244	235	229	-6	211	-14
Ukraine	9 453	10 115		8 383	-17	7 951	-21
United Kingdom	4 464	4 402	3 817	3 418	-22	3 227	-27
United States	29 578	29 676	30 975	26 186	-12	26 534	-11

<sup>a</sup> Differences between the inventory base level and the projection base level are due to revisions of inventories, rounding, etc. Inventory figures are from tables A.6 and A.7.

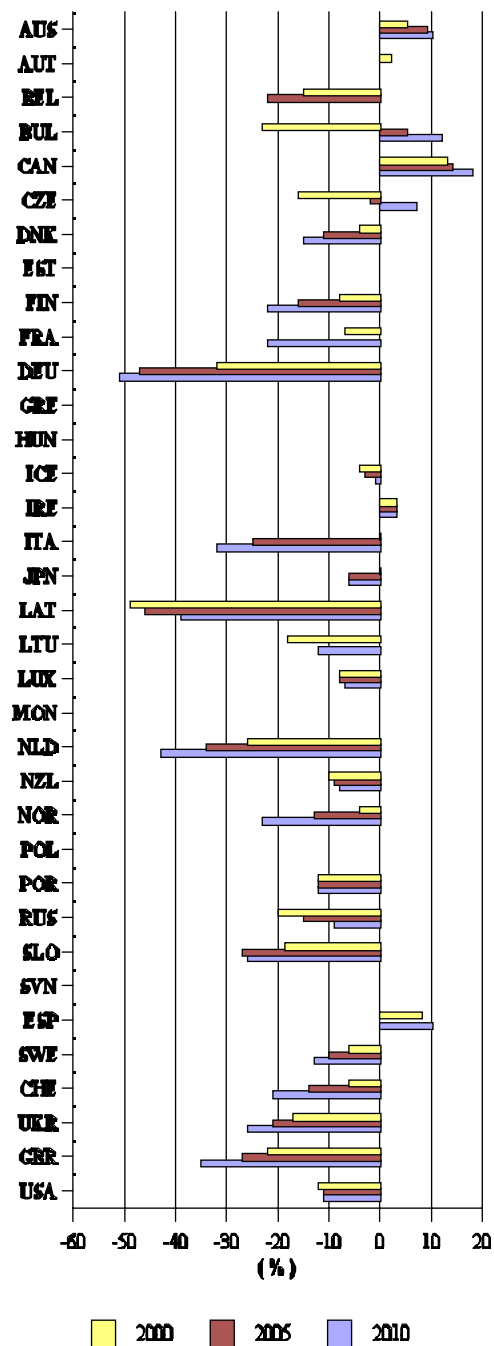
<sup>b</sup> All Parties reported their most recent inventory for 1995, with the exception of Belgium, Japan, Poland, Portugal, the Russian Federation and Spain, whose last reported inventory was for 1994.

<sup>c</sup> Sweden reported 1995 rather than 1990 as the base level for projections. All variations from the base level are thus given in relation to 1995.

Table C.3. (continued)

Projection and percentage deviation relative to the projection base level				
2010		2020		
(Gg)	(%)	(Gg)	(%)	
5 537	10	5 919	17	AUS
				AUT
				BEL
1 593	12	1 817	28	BUL
3 719	18	4 179	33	CAN
951	7			CZE
362	-15			DNK
				EST
191	-22	179	-27	FIN
1 764	-22	1 676	-26	FRA
2 759	-51	2 505	-56	DEU
				GRE
				HUN
13.9	-1	13.2	-6	ICE
839	3			IRE
1 690	-32			ITA
1 487	-6			JPN
114	-39	143	-23	LAT
(331 - 334)	-12			LTU
22	-7	22	-6	LUX
				MON
611	-43	594	-44	NLD
1 573	-8	1 604	-6	NZL
332	-23	325	-25	NOR
				POL
712	-12			POR
24 000	-9			RUS
(224 - 367)	(-44) - (-8)			SLO
				SVN
2 399	10			ESP
262	-13			SWE
192	-21			CHE
7 467	-26			UKR
2 852	-35	2 670	-39	GBR
26 534	-11	26 840	-10	USA

Figure C.3.



Percentage change in projected CH<sub>4</sub> emissions, in 2000, 2005 and 2010, relative to the base year

Table C.4. Projected anthropogenic emissions of N<sub>2</sub>O until 2020 (Gigagrams)

	Base level (1990) <sup>a</sup>			Projection and percentage deviation relative to the projection base level			
	<u>Inventory</u>	<u>Projection</u>	<u>Last reported inventory<sup>b</sup></u>	2000		2005	
	(Gg)	(Gg)	(Gg)	(Gg)	(%)	(Gg)	(%)
Australia	79.0	75.0	83.7	86.0	15	91.0	21
Austria <sup>c</sup>	11.6		12.8				
Belgium	30.8	27.9	32.3	30.4	9	32.5	16
Bulgaria	30.8	29.7	20.6	40.0	35	45.0	52
Canada	86.0	86.0	107.8	74.0	-14	77.1	-10
Czech Republic	25.8	25.0	21.6	22.0	-12	24.0	-4
Denmark	34.0	34.0	33.0	28.0	-18	28.0	-18
Estonia	2.3		1.2				
Finland	18.0	18.0	18.0	21.5	19	(23 - 25)	(28 - 39)
France	181.7	154.0	173.5	80.3	-48		
Germany	226.0	226.0	210.0	162.0	-28	159.0	-30
Greece	17.3		16.9				
Hungary	12.9		8.0				
Iceland	0.4	0.4	0.4	0.5	25	0.5	25
Ireland	29.4	29.4	26.0	26.0	-12	26.1	-11
Italy	164.5	173.9	161.8	161.0	-7	161.0	-7
Japan	105.3	105.3	110.0	121.4	15	127.4	21
Latvia	22.5	23.0	16.3	15.0	-35	15.0	-35
Lithuania	13.2	13.2		4.3	-67		
Luxembourg	0.6	0.6	0.7	0.7	8	0.7	8
Monaco							
Netherlands	51.2	62.6	58.5	65.2	4	67.0	7
New Zealand	47.5	47.5	46.7	46.0	-3	45.6	-4
Norway	15.0	15.3	14.0	16.0	5	16.5	8
Poland	70.0		50.0				
Portugal	14.0	14.5	14.1	14.6	1	14.8	2
Russian Federation	225.7	225.7	127.6	140.0	-38	160.0	-29
Slovakia	12.5	10.9	7.8	(6.8 - 10.6)	(-38) - (-3)	(6.9 - 11.7)	(-37) - (7)
Slovenia	5.1						
Spain	94.2	94.0	86.8	94.0	0		
Sweden <sup>d</sup>	9.2	9.3	9.2	10.5	13	11.5	24
Switzerland	11.5	11.5	11.8	11.7	2	11.6	1
Ukraine	23.4	38.2		34.7	-9.2	39.3	3
United Kingdom	120.0	111.7	95.0	42.9	-62	48.3	-57
United States	425.0	426.0	467.0	367.0	-14	378.0	-11

<sup>a</sup> Differences between the inventory base level and the projection base level are, due to revisions of inventories, rounding, etc. Inventory figures are from tables A.8 and A.9.

<sup>b</sup> All Parties reported their last inventory for 1995, with the exception of Belgium, Japan, Poland, Portugal, the Russian Federation and Spain, whose last reported inventory was for 1994.

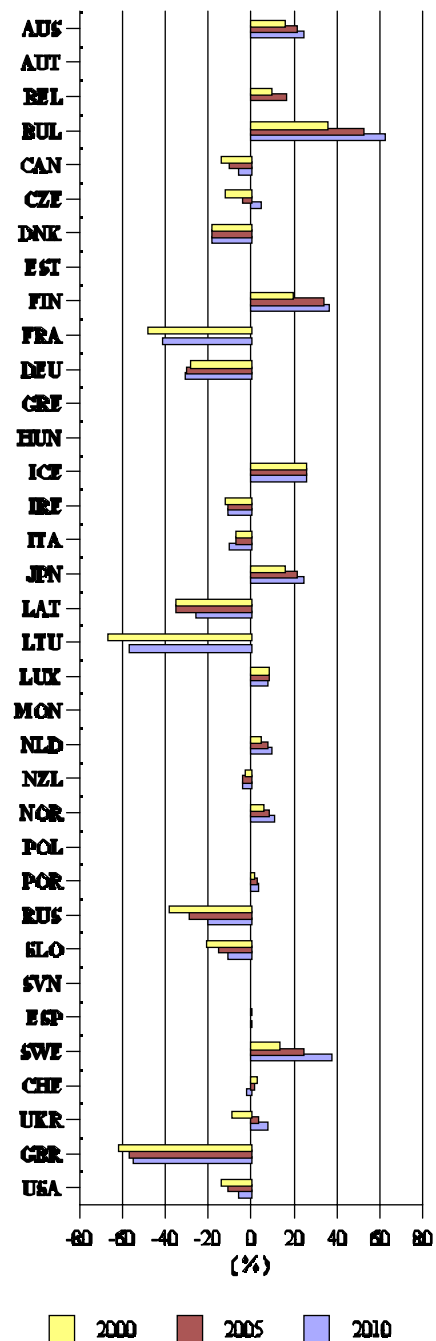
<sup>c</sup> Austria stated that reliable projections for 2000 and beyond cannot be presented because of revised emission factors; the existing emission projections for N<sub>2</sub>O no longer agree with the emissions reported for 1990 and 1995 (p. 146).

<sup>d</sup> Sweden reported 1995 rather than 1990 as the base level for projections. All variations from the base level are thus given in relation to 1995.

Table C.4. (continued)

Projection and percentage deviation relative to the projection base level				
2010		2020		
(Gg)	(%)	(Gg)	(%)	
93.0	24	101.0	35	AUS
				AUT
				BEL
48.0	62	56.0	89	BUL
81.1	-6	88.3	3	CAN
26.0	4			CZE
28.0	-18			DNK
				FIN
				EST
(24 - 25)	(33 - 39)	(23 - 26)	(28 - 44)	FIN
90.8	-41	101.1	-34	FRA
157.0	-31	156.0	-31	DEU
				GRE
				HUN
				HUN
0.5	25	0.5	25	ICE
26.1	-11			IRE
156.8	-10			ITA
130.9	24			JPN
17.0	-26	18.0	-22	JPN
(5.6 - 5.9)	(-58) - (-55)			LAT
0.7	7	0.7	6	LAT
				LTU
				LUX
				MON
68.1	9	70.1	12	NLD
45.7	-4	45.7	-4	NLD
16.9	10	17.7	16	NZL
				NOR
				POL
14.9	3			POR
180.0	-20			RUS
(7.4 - 12.0)	(-32) - (-10)			POR
				RUS
				SVN
94.0	0			ESP
12.7	37			SWE
11.3	-2			SVN
40.8	7.0			ESP
50.8	-55.0	53.3	-52	SWE
				CHE
402.0	-6.0	402.0	-6	UKR
				GBR
				USA

Figure C.4.



Percentage change in projected N<sub>2</sub>O emissions, in 2000, 2005 and 2010, relative to the base year

Table C.5.1. Projected emissions of HFCs until 2020 (Gigagrams, CO<sub>2</sub> equivalent)<sup>a</sup>

	Base level (1990)			Projection and percentage deviation relative to the projection base level			
	<u>Inventory</u>	<u>Projection</u>	<u>Last reported inventory<sup>b</sup></u>	2000		2005	
	(Gg)	(Gg)	(Gg)	(Gg)	(%)	(Gg)	(%)
Australia							
Austria			321				
Belgium <sup>c</sup>			585				
Bulgaria							
Canada <sup>d</sup>		500	500	2 000	300	4 000	700
Czech Republic			1				
Denmark			216				
Estonia							
Finland <sup>c d</sup>		79	79	130	65	156	97
France	2 230		1 404				
Germany	2 340	2 340	3 210	6 336	171	10 388	344
Greece							
Hungary							
Iceland <sup>c</sup>		14	14	26	90	40	286
Ireland							
Italy	351	351	1 014	3 291	838	3 913	1 015
Japan	17 564		30 852				
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands	4 910	4 880	8 452	4 763	-2	5 767	18
New Zealand <sup>c d</sup>		183	183	213	16	247	35
Norway		244	244	800	300	1 300	550
Poland							
Portugal							
Russian Federation	9 659		9 659				
Slovakia							
Slovenia							
Spain							
Sweden <sup>d</sup>		200	195	800	300	900	350
Switzerland			260				
Ukraine							
United Kingdom <sup>e</sup>	12 645	12 645	15 400	4 651	-63	(4 556 - 8 212)	(-35)-(-64)
United States	44 040		76 652				

<sup>a</sup> Estimates based on IPCC 1995 GWPs, with an assumed horizon of 100 years.

<sup>b</sup> All Parties reported their last inventory for 1995, with the exception of Germany and the Russian Federation, whose most recent inventory was reported for 1994. Inventory figures are from table A.10.

<sup>c</sup> Belgium, Finland, Iceland and New Zealand only reported aggregate data for HFCs. The secretariat therefore assumed that all these emissions were HFC-134a.

<sup>d</sup> Canada, Finland, New Zealand and Sweden used 1995 as base level for the HFC projections. The secretariat used 1995 as base level to calculate the percentage deviation of Iceland.

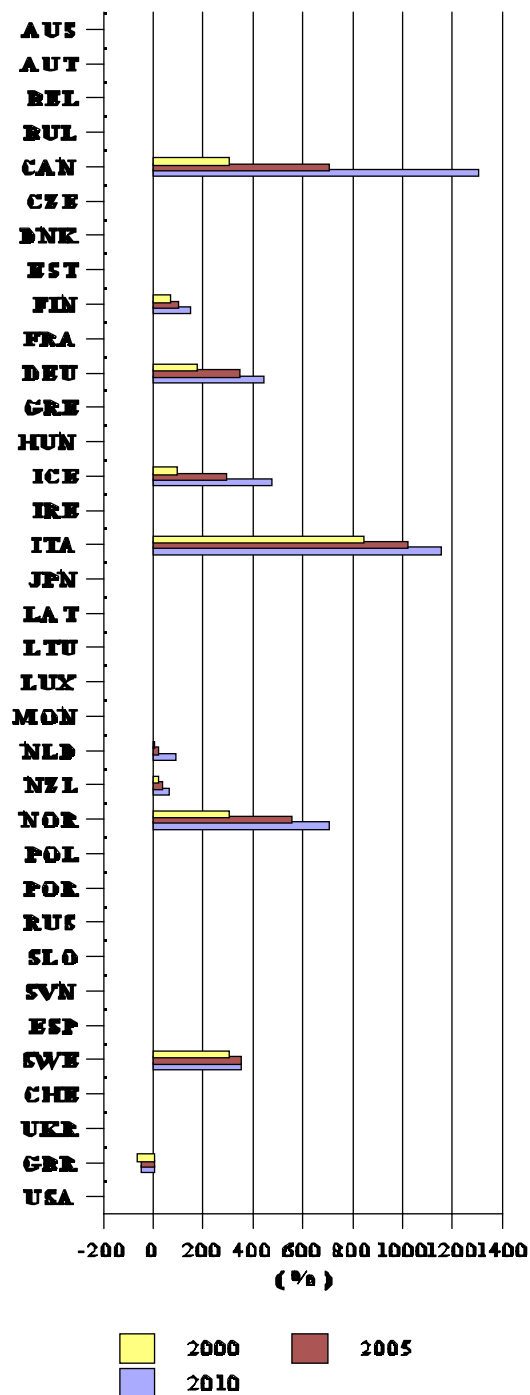
<sup>e</sup> The estimate for 2000 is the value based on the mid point of the projected range for HFCs.



Table C.5.1. (continued)

Projection and percentage deviation relative to the projection base level			
2010		2020	
(Gg)	(%)	(Gg)	(%)
7 000	1 300	14 000	2 700
195	145	195	145
12 609	439	12 355	428
66	471	166	1 185
4 384	1 149		
8 964	84	16 119	230
287	57	583	219
1 600	700	1 900	850
900	350		
(4 307 - 9 262)	(-27)-(-66)		

Figure C.5.1.



Percentage change in projected HFC emissions, in 2000, 2005 and 2010, relative to the base year

Table C.5.2. Projected emissions of PFCs until 2020 (Gigagrams, CO<sub>2</sub> equivalent)<sup>a</sup>

	Base level (1990)			Projection and percentage deviation relative to the projection base level			
	Inventory (Gg)	Projection (Gg)	Last reported inventory <sup>b</sup> (Gg)	2000		2005	
				(Gg)	(%)	(Gg)	(%)
Australia	~5 000		1 432				
Austria			7.7				
Belgium <sup>c</sup>	68		68				
Bulgaria							
Canada	5 936	7 144	6 019	7 420	4	7 420	4
Czech Republic							
Denmark			<1				
Estonia							
Finland <sup>c d</sup>		0.3	0.3	0.4	33	0.4	33
France	3 033		1 272				
Germany	2 693	2 694	1 665	799	-70	784	-71
Greece							
Hungary							
Iceland <sup>c</sup>	312	305	54	88	-71	88	-71
Ireland							
Italy	245	245	121	104	-58	102	-59
Japan	5 670		15 110				
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands	2 458	2 234	2 391	2 512	12	2 640	18
New Zealand <sup>c</sup>	601	601	196	230	-62	237	-61
Norway	2 545	2 500	1 441	1 300	-48	1 200	-52
Poland							
Portugal							
Russian Federation	31 906		28 938				
Slovakia	499		320				
Slovenia							
Spain							
Sweden	400	400	390	500	25	500	25
Switzerland			34				
Ukraine							
United Kingdom	2 087	2 087	560	398	-81	544	-74
United States	18 350		29 186				

<sup>a</sup> Estimates based on IPCC 1995 GWPs with a time-horizon of 100 years.

<sup>b</sup> All Parties reported their most recent inventory for 1995, with the exception of Germany and the Russian Federation, whose last inventory was reported for 1994. Inventory figures are from table A.10.

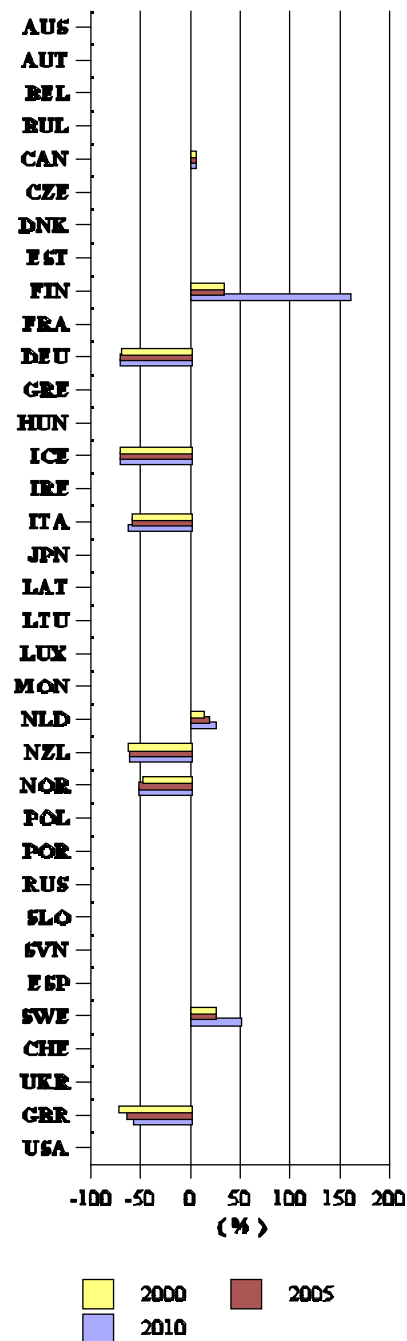
<sup>c</sup> Belgium, Finland, Iceland and New Zealand reported only aggregate PFC figures. In order to estimate the CO<sub>2</sub> equivalent, the secretariat assumed that approximately 90 per cent was CF<sub>4</sub> and 10 per cent C<sub>2</sub>F<sub>6</sub>.

<sup>d</sup> Finland used 1995 as base level for the PFC projections. Finland projected PFC emissions but noted that they are small.

Table C.5.2. (continued)

Projection and percentage deviation relative to the projection base level				
2010		2020		
(Gg)	(%)	(Gg)	(%)	
				AUS
				AUT
				BEL
				BUL
7 420	4	7 420	4	CAN
				CZE
				DNK
				EST
0.8	160	0.8	160	FIN
				FRA
784	-71	784	-71	DEU
				GRE
				HUN
88	-71	88	-71	ICE
				IRE
93	-62			ITA
				JPN
				JPN
				LAT
				LTU
				LUX
				MON
2 776	24	3 033	36	NLD
237	-61	251	-58	NZL
1 200	-52	1 200	-52	NOR
				POL
				POR
				RUS
				SLO
				SVN
				ESP
600	50			SWE
				CHE
				UKR
672	-68			GBR
				USA

Figure C.5.2.



Percentage change in projected PFC emissions, in 2000, 2005 and 2010, relative to the base year

Table C.5.3. Projected emissions of SF<sub>6</sub> until 2020 (Gigagrams CO<sub>2</sub> equivalent)<sup>a</sup>

	Base level (1990)			Projection and percentage deviation relative to the projection base level			
	<u>Inventory</u>	<u>Projection</u>	<u>Last reported inventory<sup>b</sup></u>	2000		2005	
	(Gg)	(Gg)	(Gg)	(Gg)	(%)	(Gg)	(%)
Australia			1 315				
Austria			478				
Belgium	478		478				
Bulgaria							
Canada	2 868	2 868	1 888	1 912	-33	1 912	-33
Czech Republic	60		62				
Denmark	179		203				
Estonia							
Finland <sup>c</sup>		96	96	120	25	143	49
France	2 423		2 655				
Germany	3 896	3 896	5 999	4 971	28	4 445	14
Greece							
Hungary							
Iceland	5		5				
Ireland							
Italy	276	276	312	375	36	359	30
Japan	38 240		52 580				
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands	1 386	1 386	1 457	1 625	17	1 793	29
New Zealand	5	5	5	7	50	7	50
Norway	2 198	2 200	573	525	-76	525	-76
Poland							
Portugal							
Russian Federation							
Slovakia							
Slovenia							
Spain							
Sweden	956	1 000	1 242	1 200	20	1 200	20
Switzerland			717				
Ukraine							
United Kingdom	574	574	720	1 028	79	1 028	79
United States	25 690		30 831				

<sup>a</sup> Estimates based on IPCC 1995 GWPs with an assumed horizon of 100 years.

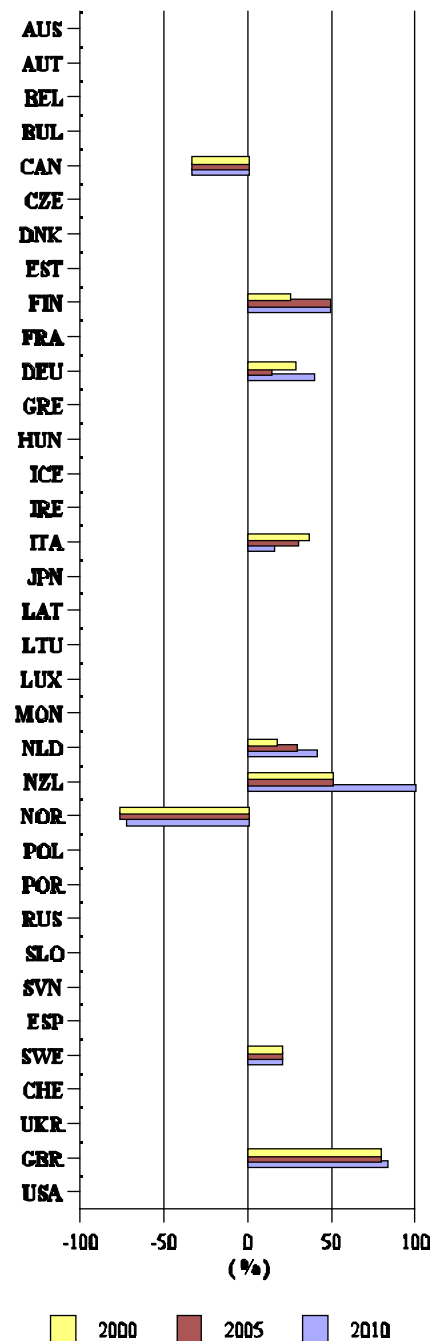
<sup>b</sup> All Parties reported their last inventory for 1995, with the exception of Germany and the Russian Federation, whose last inventory was reported for 1994. Inventory figures are from table A.10.

<sup>c</sup> Finland used 1995 as base level for the SF<sub>6</sub> projections.

Table C.5.3. (continued)

Projection and percentage deviation relative to the projection base level				
2010		2020		
(Gg)	(%)	(Gg)	(%)	
				AUS
				AUT
				BEL
				BUL
1 912	-33	1 912	-33	CAN
				CZE
				DNK
				EST
143	49	143	49	FIN
				FRA
5 401	39	6 979	79	DEU
				GRE
				HUN
				ICE
				IRE
318	15			ITA
				JPN
				LAT
				LTU
				LUX
				MON
1 960	41	2 271	64	NLD
10	100	34	610	NZL
600	-72	700	-68	NOR
				POL
				POR
				RUS
				SLO
				SVN
1 200	20			ESP
				SWE
				CHE
1 052	83			UKR
				GBR
				USA

Figure C.5.3.



Percentage change in projected SF<sub>6</sub> emissions, in 2000, 2005 and 2010, relative to the base year

**Table C.6. Projected anthropogenic emissions of all greenhouse gases, excluding land use change and forestry until 2020 (Gigagrams, CO<sub>2</sub> equivalent)<sup>a</sup>**

	Base level (1990) <sup>b</sup>			Projection and percentage deviation relative to the projection base level			
	Inventory (Gg)	Projection (Gg)	Last reported inventory <sup>c</sup> (Gg)	2000		2005	
				(Gg)	(%)	(Gg)	(%)
Australia	410 553	410 990	431 497	463 800	13	495 905	21
Austria	77 814		78 166				
Belgium	139 488	137 595	145 782	145 754	6	153 602	12
Bulgaria	136 093	123 432	87 542	110 083	-11	130 035	5
Canada	566 664	566 480	619 726	609 118	8	635 513	12
Czech Republic	192 190	193 356	150 975	161 402	-17	178 594	-8
Denmark	71 837	79 402	79 211	71 557	-10	67 144	-15
Estonia	40 719		22 653				
Finland	64 546	65 546	66 866	69 660	6		
France	505 753	474 946	504 185	441 831	-7		
Germany	1 251 724	1 210 232	1 071 027	1 038 058	-14	994 991	-18
Greece	99 232		105 294				
Hungary	101 634		77 198				
Iceland	2 889	2 565	2 765	3 250	27	3 365	31
Ireland	56 861	56 864	59 060	60 625	7	64 486	13
Italy	532 920	508 777	541 900	526 801	4	496 176	-2
Japan	1 190 250	1 190 718	1 383 527				
Latvia	35 669	35 795	19 196	18 919	-47	17 817	-50
Lithuania	51 548	51 548		34 980	-32		
Luxembourg	13 488	11 125	10 223	6 359	-43	6 431	-42
Monaco							
Netherlands	215 357	223 313	236 154	219 160	-2	226 670	2
New Zealand	76 640	76 816	76 549	78 151	2	80 789	5
Norway	54 011	54 515	54 329	60 279	11	63 057	16
Poland	564 286		438 895				
Portugal	68 442	58 807	72 579	69 608	18	76 125	29
Russian Federation	3 040 332	3 038 467	2 111 366	2 281 100	-25	2 571 200	-15
Slovakia	72 995	73 064	57 890	55 840	-24	61 875	-15
Slovenia	19 212						
Spain	301 431	301 364	306 876	336 863	12		
Sweden <sup>d</sup>	66 457	68 225	69 004	71 447	5	73 919	8
Switzerland	53 749	55 789	53 774	52 336	-6	52 727	-5
Ukraine	905 878	935 789		716 910	-23	748 369	-20
United Kingdom <sup>e</sup>	729 997	722 375	669 625	641 154	-11	(681 868 - 685 524)	(-6)-(-5)
United States	5 801 400	5 803 278	6 146 624	6 444 828	11	6 789 432	17

<sup>a</sup> Using IPCC 1995 GWPs, with a time-horizon of 100 years. Figures from tables C.1, C.3, C.4, C.5.1, C.5.2, and C.5.3 were used as the starting point for these projections. Only gases and sources that were projected are included.

<sup>b</sup> Differences in 1990 levels between inventories and projections are, for example, due to revisions of inventories, rounding, and temperature adjustments for the projection base level (Denmark, Netherlands, Sweden and Switzerland). Inventory figures are from table B.15 or B.16.

<sup>c</sup> All Parties reported their most recent inventory for 1995, with the exception of Belgium, Poland, Portugal, the Russian Federation and Spain, whose last inventory was for 1994.

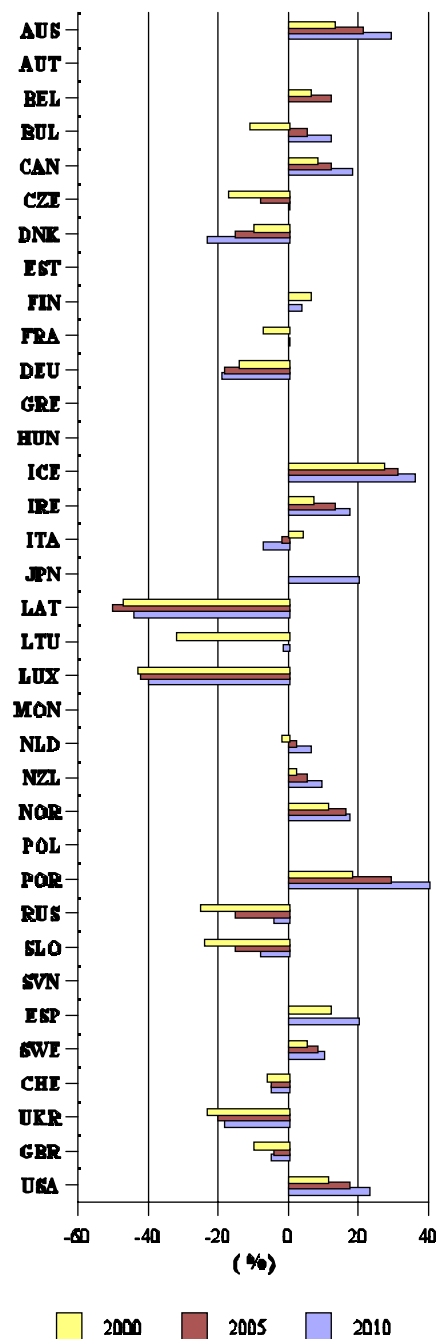
<sup>d</sup> Sweden reported 1995 rather than 1990 as the base level for projections. All variations from the base level are thus given in relation to 1995.

<sup>e</sup> The estimate for 2020 does not include emissions of HFCs, PFCs, or SF<sub>6</sub> as they were not reported for 2020.

Table C.6. (continued)

Projection and percentage deviation relative to the projection base level				
2010		2020		
(Gg)	(%)	(Gg)	(%)	
528 810	29	607 120	48	AUS
				AUT
				BEL
138 619	12	154 765	25	BUL
669 252	18	766 544	35	CAN
194 031	~0			CZE
60 942	-23			DNK
				EST
(67 790) -	3-4	(60 227) -	-8	FIN
(67 900)		(60 607)		
476 805	0	(520 519) -	10 - 30	FRA
		(616 961)		
979 403	-19	968 083	-20	DEU
				IRE
				GRE
3 494	36	3 630	42	HUN
66 454	17			ICE
475 593	-7			IRE
1 424 806	20			ITA
20 139	-44	22 608	-37	JPN
(42 208 - 59 148)	(-18) - (15)			LAT
6 653	-40	6 622	-40	LTU
				LUX
235 642	6	257 658	15	MON
84 044	9	92 279	20	NLD
63 611	17	62 112	14	NZL
				NOR
82 091	40			POL
2 911 800	-4			POR
66 975	-8			RUS
				SLO
361 959	20			SVN
74 996	10			ESP
53 235	-5			SWE
767 540	-18			CHE
(676 671 - 681 626)	-6	754 593	4	UKR
7 134 036	23	7 324 668	26	GBR
				USA

Figure C.6.



Percentage change in projected emissions of all greenhouse gases, for all sectors but land-use change and forestry, in 2000, 2005 and 2010, relative to the base year

**Table C.7. Projected anthropogenic net emissions of all greenhouse gases, including land-use change and forestry, until 2020 (Gigagrams, CO<sub>2</sub> equivalent)<sup>a</sup>**

	Base level (1990) <sup>b</sup>			Projection and percentage deviation relative to the projection base level			
	Inventory (Gg)	Projection (Gg)	Last reported inventory <sup>c</sup> (Gg)	2000		2005	
				(Gg)	(%)	(Gg)	(%)
Australia	379 478	387 890	402 391	434 800	12	466 605	20
Austria <sup>d</sup>	64 514		64 593				
Belgium	137 431	135 538	143 725	143 697	6	151 545	12
Bulgaria	131 436	117 631	80 022	102 469	-13	122 325	4
Canada <sup>d</sup>							
Czech Republic	189 909	191 356	145 521	156 402	-18	173 548	-9
Denmark	70 913	78 478	78 247	70 511	-10	66 016	-16
Estonia	29 402		9 387				
Finland	(34 546) - (45 546)	41 046	(53 137) - (59 691)	(52 660) - (57 660)	28-40		
France	472 535	439 742	457 384	388 293	-12		
Germany <sup>d</sup>	1 182 467		1 045 093				
Greece							
Hungary	98 537		72 401				
Iceland <sup>d</sup>							
Ireland	51 701	51 701	52 830	53 045	3	55 856	8
Italy	507 093	483 828	517 393	502 294	4		
Japan	1 168 383	1 107 377	1 268 673				
Latvia	24 843	24 835	8 712				
Lithuania	42 700	42 700		25 856	-39		
Luxembourg	13 153	11 420	9 928	6 654	-42	6 726	-41
Monaco							
Netherlands	213 857	221 813	234 454	217 460	-2	224 970	1
New Zealand	56 619	56 247	63 062	59 207	5	59 982	7
Norway	43 811	45 115	40 692	49 279	9	50 157	11
Poland	529 540		396 942				
Portugal	67 290		71 427				
Russian Federation	2 648 332	2 646 467	1 581 221	(1 661 100 - 1 711	(-37)-(-35)		
Slovakia	68 738	68 738	52 452	50 613	-26		
Slovenia	16 919						
Spain	272 461		277 906				
Sweden <sup>e</sup>	32 089	34 225	39 004	42 447	24	47 919	40
Switzerland	49 389	51 429	48 674	47 236	-8	47 627	-7
Ukraine	853 902	883 809		650 262	-26	679 814	-23
United Kingdom	748 773	731 694	679 570	650 172	-11	688 508	-6
United States	5 343 400	5 345 028	5 718 624	6 034 236	13	6 386 172	19

<sup>a</sup> Estimates based on IPCC 1995 GWPs, with an assumed horizon of 100 years. Figures from tables C.6 and C.2 were used as the starting point for these projections.

<sup>b</sup> Differences in 1990 levels between inventories and projections are, for example, due to revisions of inventories, rounding, and temperature adjustments for the projection base level (Denmark, Netherlands, Sweden and Switzerland). Inventory figures are from tables A.1, A.2, and A.5 to A.10.

<sup>c</sup> All Parties reported their most recent inventory for 1995, with the exception of Sweden whose last inventory was for 1992, and Belgium, Poland, Portugal, the Russian Federation and Spain, whose last inventory was for 1994.

<sup>d</sup> Austria, Canada, Germany and Iceland did not present projections in the land-use change and forestry subcategory and therefore they were not included here.

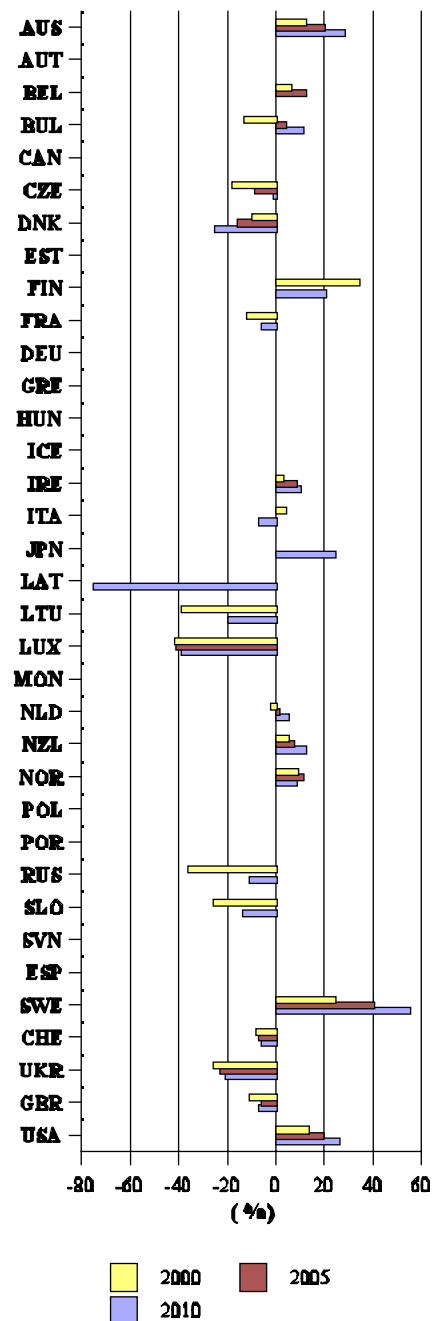
<sup>e</sup> Sweden reported 1995 rather than 1990 as the base level for projections. All variations from the base level are thus given in relation to 1995.



Table C.7. (continued)

Projection and percentage deviation relative to the projection base level				
2010		2020		
(Gg)	(%)	(Gg)	(%)	
497 310	28	574 320	48	AUS
				AUT
				BEL
130 812	11	146 860	25	BUL
				CAN
189 031	-1			CZE
58 879	-25			DNK
				EST
(45 900)-	12-29	(33 227) -	-19-51	FIN
(52 790)		(62 147)		
411 900	-6			FRA
				DEU
				GRE
				HUN
				ICE
56 764	10			IRE
451 086	-7			ITA
1 368 995	24			JPN
6 269	-75	9 978	-60	LAT
(32 541 -	-24-16			LTU
49 481)				NLD
6 948	-39	6 917	-39	LUX
				MON
233 942	5	255 928	15	NLD
62 836	12	60 625	8	NZL
48 811	8	46 412	3	NOR
				POL
				POR
2 361 800	-11			RUS
59 018	-14			SLO
				SVN
				ESP
52 996	55			SWE
48 135	-6			CHE
696 833	-21			UKR
683 549	-7			GBR
6 734 442	26	7 324 668	37	USA

Figure C.7.



Percentage change in projected emissions of all greenhouse gases, including land-use change and forestry, in 2000, 2005 and 2010, relative to the base year

Table C.8. Projected CO<sub>2</sub> emissions from bunker fuels (Gigagrams)

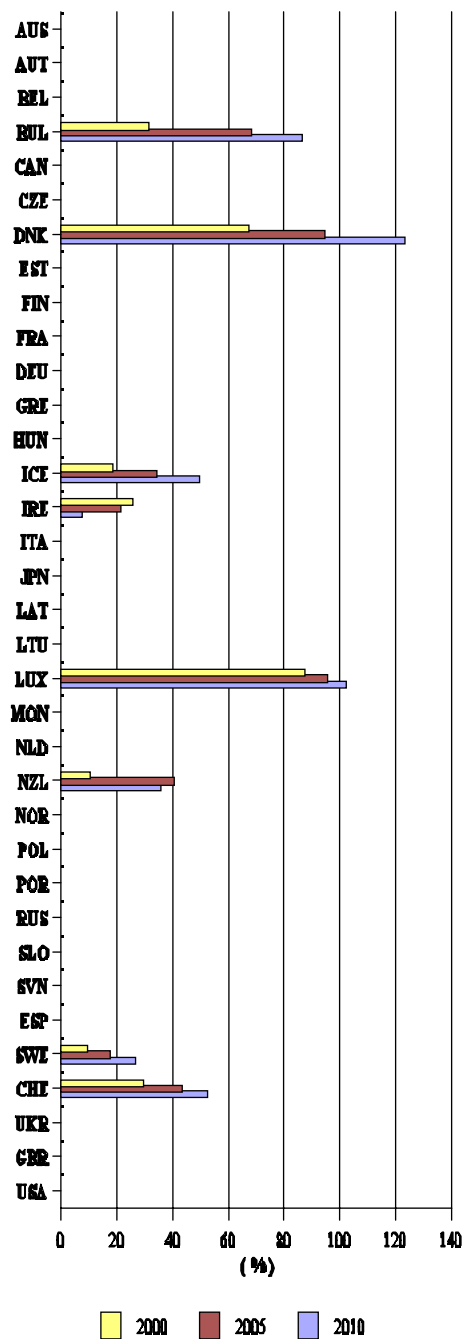
	Base level (1990) <sup>a</sup>		Last reported inventory (Gg)	Projection and percentage deviation relative to the projection base level			
	Inventory	Projection		2000		2005	
	(Gg)	(Gg)		(Gg)	(%)	(Gg)	(%)
Australia	6 401		8 533				
Austria	890		1 210				
Belgium	15 726		15 555				
Bulgaria	874	874	882	1 142	31	1 464	68
Canada	5 133		4 814				
Czech Republic							
Denmark	4 986	4 975	7 080	8 327	67	9 645	94
Estonia							
Finland	2 800		1 850				
France	17 485		16 815				
Germany	19 569		20 100				
Greece	10 423		13 623				
Hungary	376		524				
Iceland	319	319	377	377	18	427	34
Ireland	1 172	1 172	1 510	1 465	25	1 414	21
Italy	12 204		13 099				
Japan	30 806		37 328				
Latvia							
Lithuania							
Luxembourg	111	111	194	208	87	217	95
Monaco							
Netherlands	40 400		44 600				
New Zealand	2 413	2 413	2 736	2 645	10	3 378	40
Norway	1 800		2 300				
Poland							
Portugal	2 062		1 850				
Russian Federation	12 400		10 000				
Slovakia							
Slovenia							
Spain	18 024		19 144				
Sweden	4 207	5 400	5 367	5 900	9	6 300	17
Switzerland	2 160	2 100	2 430	2 700	29	3 000	43
Ukraine							
United Kingdom	19 341		23 243				
United States							

<sup>a</sup> Inventory figures are from table A.11.

Table C.8. (continued)

Projection and percentage deviation relative to the projection base level			
2010		2020	
(Gg)	(%)	(Gg)	(%)
1 625	86	2 428	178
11 094	123	12 530	152
474	49	553	73
1 253	7		
224	102	228	105
3 251	35	3 967	64
6 800	26		
3 200	52		

Figure C.8.



Percentage change in projected CO<sub>2</sub> emissions from bunker fuels, in 2000, 2005 and 2010, relative to the base year

### **Explanatory notes to tables C.1 to C.8**

All references in parentheses are to the national communications. To the extent possible, the figures in the tables are taken from the "with measures" projections or from projection scenarios that best represent or reflect the implementation of measures; the notes below indicate where "with measures" projections were not provided or provide some additional information and/or further explanation. In the notes to table C.1 where a description is given of the approach/scenarios used which are applicable to data provided in C.2 through C.8, notes for these Parties are not necessarily repeated in the notes to these tables.

#### **Table C.1**

**Australia:** The projections are for energy-related emissions only, taking into account the estimated impact of policies currently in place. Projections do not include effects of measures from the Commonwealth package of strengthened greenhouse gas measures announced in November 1997 (p. 69).

**Belgium:** The projection given in table C.1 is based on the "with measures" scenario. It includes a CO<sub>2</sub>/energy tax, which is envisaged. One other scenario was supplied: "with envisaged measures", which incorporates supplementary measures. In addition, Belgium submitted projections from a temperature-adjusted base year.

**Bulgaria:** The projections given in the table are those of the baseline scenario. As noted in the national communication, given past "experience, the currency board restrictions and political situation", the baseline scenario is considered the "likely-to-be" scenario (p.V-21). It is assumed the mitigation measures are applied to 40-50 per cent of their potential in the baseline scenario (p. V-19). Three other scenarios were also provided: "energy supply scenario"; "energy efficiency scenario"; and "mitigation scenario" (which assumes mitigation measures applied to their full potential).

**Czech Republic:** The "with measures" scenario represented here for the Czech Republic was called "base scenario" in the second national communication. No baseline projection was supplied. For 1995, CO<sub>2</sub> emissions of 129,000 Gg were projected. The CO<sub>2</sub> emissions for 1990 and 1995, as reported in the inventories, differ from those of the projection, because different calculation methodologies were used. These differences, however, do not exceed expected limits of confidence.

**Estonia:** Four projection scenarios were presented for energy-related CO<sub>2</sub> emissions: "west-west base case"; "west-west high taxes case"; "west-east base case"; and "west-east high taxes case". "west-west" (WW) scenarios are moderate growth scenarios assuming close integration with western political and economic structures, especially the European Union, and weak relations with the Russian Federation and other countries of the Commonwealth of Independent States. The "west-east" (WE) scenarios are high growth scenarios assuming a market oriented towards both West and East with Estonia as a transit country. The "high taxes cases" correspond to the "ExternE study high tax case proposal for EU to introduce 5,500 \$/t of SO<sub>2</sub> and 11,460 \$/t of NO<sub>x</sub> externalities and 20 \$/t CO<sub>2</sub> tax" (p. 50). It is noted in the national communication that "considering that Estonia's actual economic growth during 1996-97 exceeded even the optimistic WE scenario assumptions and significant changes in the energy conversion sector have not taken place yet, the CO<sub>2</sub> emissions will hardly be lower than the WE base case projection in the near future" (p. 50) and therefore the WE base case scenario is presented in this table.

**Finland:** The range of emissions as given in the table reflects two scenarios, one being the energy market scenario (EMS) without national or international measures to curb CO<sub>2</sub> emissions, and the other, the "energy policy scenario" (EPO), which assumes strengthening current control measures. Two different variants of strengthening the control measures are examined within the EPO scenario, one in which the use of wood and gas is increased, and one in which more nuclear power capacity is built.

**France:** Projections are from the "with measures" scenario; a range is given for 2020, however, to take account of the possible future composition of electricity production units and competition among European electric utilities.

**Germany:** The scenario presented in table C.1 is the "with-measures scenario", / "IWG-measures scenario" where CO<sub>2</sub> reduction measures are taken into account to the greatest possible extent. In addition, a "without-measures scenario"/"reference scenario" was presented where efficiency improvements are the main factor to counter increases in CO<sub>2</sub> emissions. The latter leads to a reduction of CO<sub>2</sub> emissions by 3 per cent instead of 12 per cent under the scenario reported in the table.

**Greece:** Five projection scenarios were presented for energy-related CO<sub>2</sub> emissions: "business-as-usual"; "conventional wisdom"; "forum"; "current trends"; and "effects of the Community Support Framework". The "conventional wisdom" scenario is in line with the Government's stated intention to restrict the increase in CO<sub>2</sub> emissions to 13 per cent in 2010 (p. 90) and is the scenario presented in this table.

**Hungary:** Four projection scenarios for fuel-related CO<sub>2</sub> emissions were provided: B-BAU; B-REF; S-MOD; and S-SEF. B-BAU and B-REF are "without measures" scenarios, with B-BAU assuming no change in energy efficiency indicators, and B-REF assuming substantial restructuring and improvement in energy intensity due to decline in energy-intensive industries. S-MOD is a policy scenario which supposes moderate penetration

of climate change mitigation measures. S-SEF supposes significant progress in the utilization of the theoretical energy-saving potential toward a sustainable energy future. The S-MOD can be regarded as the most probable outlook for the medium term (p. 54) and is the scenario presented in this table.

**Italy:** Four scenarios were presented: "main scenario/trend"; "modernization/environment safeguard"; "further interventions to achieve EU aims"; and "further interventions". The projections given in the table are those of the "further interventions to achieve EU aims" scenario except for 2000 which is the "without intervention" estimate as no other estimate was provided. The fulfilment of the interventions included in the "further interventions to achieve EU aims" scenario could lead to a total reduction of GHG emissions of 7.1 per cent in comparison with 1990 levels (p. 16, excerpt of second national communication). CO<sub>2</sub> estimates are for energy-related emissions only.

**Japan:** A "with measures" scenario was not presented as "studies are currently being conducted" (p. 91). Forecasts were made using the latest socio-economic data including "factors such as economic growth forecasts contained in the Ministry of Health and Welfare's estimate of future population, the report of the Economic Council, and the interim report of the Subcommittee for Industrial Structure Council" (p. 91). Under this framework a "standard scenario" was established based on past trends, not taking into consideration possible effects of policies and measures. Forecasts represent fiscal years (April 1 to March 31).

**Latvia:** A reference (without measures) and a mitigation (with measures) scenario were presented. The mitigation scenario is presented in this table.

**Lithuania:** The projections are based on "Projections of Economic Development in the Republic of Lithuania" prepared by the Ministry of Economics and development programmes of different sectors of industry (p. 20). While for 2000 only one scenario of economic growth (between slow and rapid) was considered, for 2010 two scenarios were considered which took into account the rates of growth with and without the Ignalina State Nuclear Power Plant in operation. A range is presented for 2010 to take account of these scenarios.

**Netherlands:** The emission projections presented here are based on the trend scenario, which according to the second national communication "can be considered as an existing policy scenario" (p. 75). In addition, a "favourable CO<sub>2</sub> scenario" and a "without measures" scenario were presented. As the Energy Research Foundation (ECN) scenarios used in the second national communication only provide figures for 2020, estimates for the years 2005 and 2010 are based on linear interpolation between 2000 and 2020. The Netherlands projection figures are to be updated by the end of 1998, and should therefore be interpreted with caution.

**New Zealand:** The "with measures" scenario presented in the table is estimated to reduce the growth in energy-related CO<sub>2</sub> emissions by about 21.5 per cent below the "business-as-usual" scenario.

**Norway:** The emission projections presented in the table are based on a variant of the "reference alternative" scenario based on current policies. In addition, a "baseline reference scenario" was developed, which assumes stabilization of global CO<sub>2</sub> emissions at 1990 levels by means of a global CO<sub>2</sub> tax.

**Poland:** Three reference scenarios were presented to reflect the uncertainty concerning strategies for future development: the "baseline scenario" is based on political assumptions currently declared by authorities; the "scenario of chance" is based on the assumption of faster and more thorough structural changes than the baseline scenario; the "scenario of stagnation" is based on the assumed lack of public acceptance for structural change in the economy and related costs; with a lower rate of transformation than in the baseline scenario (p. 44). The "baseline scenario" is presented in this table. Also presented were the results of macroeconomic reduction scenarios (chance and baseline), assuming "moderate activities toward climate protection" (p. 45), which project for 2010 for the baseline scenario emissions of 469,000 Gg (as compared to 502,000 Gg for the regular baseline scenario in 2010 given in this table).

**Portugal:** Two projection scenarios for energy-related CO<sub>2</sub> emissions were provided, one based on estimates of the Directorate General for Energy and a "national commitment" scenario which encompasses more restrictive measures in line with the national commitment. The figures given in the table are those of the "national commitment" scenario.

**Russian Federation:** Three scenarios were provided for CO<sub>2</sub> emissions: basic; probable and optimistic. The basic scenario assumes no implementation of new energy and fuel saving technologies and fast economic growth, leading to an increase over 1990 levels of 7 per cent by 2010. The probable scenario, which is presented in this table, considers some implementation of energy and fuel saving technologies. The optimistic scenario considers a little more implementation of energy and fuel saving technologies, leading to a decrease in emissions compared to 1990 of 8 per cent.

**Slovakia:** Slovakia did not present a "with measures" scenario. The ranges of emissions given here reflect scenarios 2 and 3. Some of the measures indicated under the scenario have not been implemented (p. 50).

**Sweden:** Sweden reported 1995 rather than 1990 as the base level for projections. All variations from the base level are thus given in relation to 1995.

The Swedish forecast assumes that the estimation of future additional emissions, resulting from an increased use of electricity, is based on an emission factor that "on average is equivalent to emissions for natural gas combined cycle plants" (p. 123).

**Switzerland:** The projection for the year 2000 given in the table results from a scenario with "implemented measures". Bunker fuel emissions were deducted from the total CO<sub>2</sub> emission level. A second scenario was developed with "measures under consideration". Under this scenario, a 10 per cent reduction of emissions would be reached as compared to the 3 per cent reduction under the "implemented measures" scenario. The CO<sub>2</sub> emissions exclude emissions arising from the generation of electricity which is subsequently exported.

**Ukraine:** Three scenarios were presented: pessimistic; baseline; and optimistic. The scenarios reflect the high level of uncertainty regarding future economic development and economic functioning (p. 56), and thus the considerable variations in energy-related and industrial emissions. The baseline (middle) scenario is the one presented in this table.

**United Kingdom:** Land-use change and forestry figures were deducted from the summary CO<sub>2</sub> figure given in the second national communication. The figures given in the national communication represent the mid-point of the central scenarios in the United Kingdom Energy Paper 65 (p. 28).

#### Table C.2

**Australia:** Projections only include net changes in forest and other woody biomass, while the inventory estimates include removals due to pasture improvement as well. Estimates for projected removals from "agriculture" were given for 2000 to 2020 but not included in this table.

**Finland:** The emissions for land-use change and forestry include emissions and uptakes from wetland drainage and peat extraction. The range of emissions given for Finland results from the two scenarios given in the national communication.

**Hungary:** Several scenarios (baseline and four afforestation) were mentioned, but estimates in terms of CO<sub>2</sub> sequestration were not provided. It was mentioned that the current afforestation programme which was launched in 1991, has the aim to afforest 150,000 hectares by 2000.

**Italy:** Estimates reflect a "without intervention" scenario as a "without measures" scenario was not provided.

**Japan:** Forecasts were "based upon factors such as the estimations of deforestation and forest area set out in the Basic Plan for Forestry Resources and Long-Range Demand and Supply Projection for Important Forest Products" (p. 93).

**Netherlands:** The projection figures are to be updated by the end of 1998, and should therefore be interpreted with caution.

**New Zealand:** Three scenarios were reported on the basis of different planting strategies. The "central estimate of new planting post - 1997" is given in the table.

**Norway:** Three scenarios are presented: "maximum", "best estimate" and "minimum". The figures given in the table correspond to the "best estimate" scenario.

**Slovakia:** Projections were based on an analysis of the impact of measures to be applied (tree species composition change, afforestation of non-forest lands and protection of existing carbon stock in forests affected by emissions) listing three different scenarios. Figures presented correspond to the medium scenario.

**United Kingdom:** The emissions for land-use change and forestry include emissions and uptakes from wetland drainage and peat extraction.

#### Table C.3

**Australia:** Some sector estimates were provided in CO<sub>2</sub>-equivalent aggregated for all GHGs. The proportion of CH<sub>4</sub> contribution to certain sectors (fugitive fuel, industrial processes, waste) was used to calculate total CH<sub>4</sub> projection estimates in this table. Estimates do not include emissions from land-use change and forestry.

**Austria:** A "certain reduction" of CH<sub>4</sub> emissions beyond 2000 is expected (p. 146).

**Japan:** A "with measures" scenario was not presented as "studies are currently being conducted" (p. 91). Estimates are from a "standard scenario" based upon past trends of the principal sources of emissions.

**Netherlands:** The projection is based on the National Environmental Policy Plan (NEPP2) and the Second Memorandum on Energy Conservation (SMEC) policies with the "European renaissance" scenario with high prices, "ER-High", as basic scenario. The value for 2005 has been interpolated.

The projection figures are to be updated by the end of 1998, and should therefore be interpreted with caution.

**Russian Federation:** Preliminary forecast assuming active economic growth and implementation of planned measures.

**Slovakia:** Slovakia produced two scenarios for CH<sub>4</sub>: scenario 1, which can be taken as baseline, and scenario 3. As not all measures in scenario 3 are under way, the range of both scenarios is given here.

**Ukraine:** Three scenarios were presented: pessimistic; baseline; and optimistic. The baseline (middle) scenario is the one presented in this table.

#### Table C.4

**Australia:** Only aggregate estimates for industrial processes for all GHGs in CO<sub>2</sub>-equivalent were provided. The proportion of N<sub>2</sub>O contribution to total industrial processes emissions in 1995 was used to calculate total N<sub>2</sub>O projection estimates in this table. Estimates do not include emissions from land-use change and forestry.

**Japan:** A "with measures" scenario was not presented as "studies are currently being conducted" (p. 91). Estimates are from a "standard scenario" based upon past trends of the principal sources of emissions.

**Netherlands:** The projection of nitrous oxide emissions is based on existing policies on the assumption that these policies remain unchanged after 2000, with the "european renaissance" scenario with high prices as basic scenario (p.77). Recent developments in manure practices in the agricultural sector could add an additional 3.5 Gg emissions per annum from 2000 onwards. The value for 2005 has been interpolated. The evaluation of emissions was undertaken on the basis of actual emissions (p. 78- 79). The projection figures are to be updated by the end of 1998, and should therefore be interpreted with caution.

**Russian Federation:** Preliminary forecast.

**Slovakia:** In the second national communication two scenarios for N<sub>2</sub>O, were produced: scenario 1, which can be taken as baseline, and scenario 3. As not all measures in scenario 3 are under way, the range of both scenarios is given here.

**Ukraine:** Three scenarios were presented: pessimistic; baseline; and optimistic. The baseline (middle) scenario is the one presented in this table.

#### Table C.5.1-3

With the exception of Canada, the Netherlands and the United Kingdom, which projected actual emissions, and Iceland, which projected potential emissions, Parties did not express clearly whether HFC emissions projected are potential or actual. Several Parties that did not present projections for HFCs, PFCs and SF<sub>6</sub> stated that they had not been able to establish a comprehensive inventory of these gases and that work was ongoing.

**Iceland:** Iceland noted that it does not use or produce SF<sub>6</sub>.

**Italy:** With and without measures projections were presented, with a disaggregation by gas species and production - and consumption - related emissions.

**Netherlands:** The projection of emissions is based on the "european renaissance" scenario with high prices. The reference scenario of the projections is based on the assumption that the Montreal Protocol and its subsequent amendments is fully implemented (p. 78). The projection figures are to be updated by the end of 1998, and should therefore be interpreted with caution.

**Slovakia:** Slovakia noted that it does not use or produce these products.

**Switzerland:** Table C.5.1: very rapid growth rates are anticipated in certain applications: 5-30 per cent in refrigeration and airconditioning, 3-5 per cent in insulation foam, 100 per cent in aerosol propellants (p. 87). Table C.5.2: consumption in the solvent sector is expected to increase at a rate of 10-50 per cent per annum. PFC emissions in the metal industry (aluminium) will decline, as plans exist to stop production in Switzerland (p. 87). Table C.5.3: the information available is insufficient to define a trend (p. 87)

**Russian Federation:** This Party presented projections of HFCs, PFCs and SF<sub>6</sub> together (p. 93), expressed in terms of CO<sub>2</sub> equivalent. The secretariat was not able to separate those emissions. The figures presented, in Gigagrams of CO<sub>2</sub> equivalent, are:

Base level (1990)	1994	2000	2005	2010
Projection (Gg)	Inventory (Gg)	(Gg)	(Gg)	(Gg)
40 000	40 000	42 500	47 000	52 000

**United States:** This Party presented projections of HFCs, PFCs and SF<sub>6</sub> together (p. 116), expressed in terms of CO<sub>2</sub> equivalent. The secretariat was not able to separate those emissions. The figures presented are:(Gigagrams of CO<sub>2</sub> equivalent)

Base level (1990)	1995	2000	2005	2010	2020
Projection (Gg)	Inventory (Gg)	(Gg)	(Gg)	(Gg)	(Gg)
87 984	135 790	153 720	252 940	333 606	486 780

The growth in baseline emissions of HFCs and PFCs is beginning now and can be expected to continue through 2000 and beyond (p.116).

#### **Table C.6**

**Austria:** As Austria did not present projections for N<sub>2</sub>O and its projection for CH<sub>4</sub> is only for the year 2000, a figure for all greenhouse gases is not presented in this table to ensure consistency among reporting Parties.

**Estonia:** As only CO<sub>2</sub> projections were provided, a figure for all greenhouse gases is not presented in this table to ensure consistency among reporting Parties.

**Greece:** As only CO<sub>2</sub> projections were provided, a figure for all greenhouse gases is not presented in this table to ensure consistency among reporting Parties.

**Hungary:** As only CO<sub>2</sub> projections were provided, a figure for all greenhouse gases is not presented in this table to ensure consistency among reporting Parties.

**Monaco:** No projections were presented.

**Netherlands:** The projections figures are to be updated by the end of 1998, and should therefore be interpreted with caution.

**Poland:** As only CO<sub>2</sub> projections were provided, a figure for all greenhouse gases is not presented in this table to ensure consistency among reporting Parties.

**Slovakia:** The Slovakian aggregated projections presented here are taken from the "medium scenario". They include CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emissions only.

**Slovenia:** No projections were presented.

#### **Table C.7**

It should be noted that as the aggregation of sources and sinks commonly leads to lower aggregate emissions, the uncertainty of these figures is increased as a consequence of the higher uncertainty associated with land-use and forestry estimates.

#### **Table C.8**

**Denmark and New Zealand:** Information on the share of air and marine bunker emissions in projections was also given in the national communication.

**Bulgaria, Denmark, Luxembourg, New Zealand and Sweden:** These Parties also projected emissions for other greenhouse gases or precursors.