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NATIONAL COMMUNICATIONS

COMMUNICATIONS FROM PARTIES INCLUDED IN ANNEX I TO THE CONVENTION

Updated information on greenhouse gas emissions and projections

Note by the secretariat

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I. INTRODUCTION

A. Mandate

1. The Conference of the Parties, at its second session (COP 2), by its decision 9/CP.2,[1] requested Annex I Parties to submit their second national communication by 15 April 1997. For those Parties which were due to submit the first communication in 1996, an update of this communication was to be submitted by the same date; second national communications by Parties with economies in transition should in principle be submitted not later than 15 April 1998. National inventory data on emissions by sources and removals by sinks are to be submitted on an annual basis by 15 April of each year. By the same decision, COP 2 requested the secretariat to prepare the documentation on the results of the review of second national communications, including compilation and synthesis and/or other reports, according to schedules to be adopted by the subsidiary bodies. A first compilation and synthesis of second national communications from Annex I Parties should be available for consideration by the Conference of the Parties at its third session.

2. The Subsidiary Body for Scientific and Technological Advice (SBSTA), at its fifth session, *inter alia*, requested the secretariat to prepare an initial compilation and synthesis by the seventh session of the SBSTA of all communications received by 15 April 1997 (see document FCCC/SBSTA/1997/4).

B. Scope of the note

3. The present note compiles, in a preliminary manner, the latest available **numerical data** on greenhouse gas inventories and projections drawn from both first and second national communications as well as from in-depth review reports and annual inventory submissions, where appropriate. Thus this note is not to be regarded as a compilation and synthesis report, since no discussion or conclusions are contained in the note, but rather as a presentation of the most recent information on the actual trends in greenhouse gas emissions for the years 1990-1995 and projections for the year 2000 and up to 2020 as reported by Annex I Parties. It was felt that this information may be helpful as reference data to be taken into account in the Berlin Mandate process. An initial compilation and synthesis of second national communications containing the late submissions will be prepared for consideration at the seventh sessions of the subsidiary bodies as requested by the SBSTA at its fifth session.

C. Possible action by the subsidiary bodies

4. No action is envisaged by the subsidiary bodies in relation to this note.

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1 For decisions adopted by the Conference of the Parties at its second session, see document FCCC/CP/1996/15/Add.1

II. TABLES OF INVENTORIES OF ANTHROPOGENIC EMISSIONS AND REMOVALS IN 1990-95 AND PROJECTED ANTHROPOGENIC EMISSIONS UP TO THE YEAR 2020

A. General notes

5. Data on inventories of emissions and removals as well as data on projections are included in the tables below. The purpose of these tables is to present in as much a consistent and comparable fashion as possible the latest available inventory and projections data. However, it should be borne in mind that part of the information presented in these tables is provisional and has not been subject to a technical analysis and review by experts. The data provided by the Parties will be further reviewed and analysed for incorporation in the first compilation and synthesis of second national communications from Annex I Parties.

6. In some cases, the figures presented differ from those in the second compilation and synthesis report of first national communications (FCCC/CP/1996/12 and Add.1 and 2) or from first national communications as originally submitted. This is mainly due to the fact that all Parties when submitting their second national communication or the latest inventory data have revised their earlier estimates. These revised estimates are marked in the tables in *italics*.

7. Footnotes to the tables were kept to a minimum. It should be noted that the footnotes to the tables contained in the second compilation and synthesis report (FCCC/CP/1996/12 and Add.1 and 2) have not been reproduced in this document.

8. The tables comprise estimates provided by all Annex I Parties. At the time of writing the secretariat received second national communications from eleven Annex I Parties, namely Canada, Finland, France, Germany, Ireland, Netherlands, New Zealand, Norway, Sweden, Switzerland and the United Kingdom, as well as from Monaco2. Data for Belgium contained in its first communication have also been included in the tables since the communication was received by the secretariat after publication of the second compilation and synthesis report. Some Parties (Hungary, Japan, Latvia, Russian Federation and Slovakia) made available to the secretariat greenhouse gas inventories (in some cases advance or preliminary ones); these data have been taken into account in this note. In a number of cases updated information made available by Parties to the review teams during the in-depth reviews of their first communication have also been included in the tables.

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[2] Monaco notified the Depositary of its intention to be bound by subparagraphs (a) and (b) of Article 4.2

B. Explanatory notes to the tables

9. Blanks in the tables signify an absence 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 tables only when reported as such by the Parties.

References to "guidelines" are to document FCCC/CP/1996/15/Add.1, decision 9/CP.2, annex to this decision entitled "Revised guidelines for the preparation of national communications by Parties included in Annex I to the Convention".

When converting units of mass for non-CO_2 gases into carbon dioxide-equivalent terms, global warming potentials (GWP) over a 100-year time horizon provided by the Intergovernmental Panel on Climate Change (IPCC) in its Second Assessment Report (1995) have been used unless otherwise indicated.

The following chemical symbols have been used:

CF_4	Tetrafluoromethane
CFCs	Chlorofluorocarbons
C_2F_6	Hexafluoroethane
CH_4	Methane
CO	Carbon monoxide
CO_2	Carbon dioxide
HCFCs	Hydrochlorofluorocarbons
HFCs	Hydrofluorocarbons
N_2O	Nitrous oxide
NO_x	Nitrogen oxides
NMVOCs	Non-methane volatile organic compounds
PFCs	Perfluorocarbons
SF_6	Sulphur hexafluoride
VOCs	Volatile organic compounds

The following weights have been used:

Gg	Gigagrams (10^9 grams)

Table A.1 Anthropogenic CO_2 emissions, excluding land-use change and forestry[a], 1990 and 1994 (Gigagrams and percentage of total by Party)

	Energy[b]				Industrial Processes				Other[c]				Total	
	1990		1994		1990		1994		1990		1994		1990	1994
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	(Gg)
Australia	*266 468*	*97.6*	*278 208*	*97.4*	*6 655*	*2.4*	*7 293*	*2.6*					*273 123*	*285 501*
Austria	57 100	96.5			2 100	3.5							59 200	
Belgium	*103 234*	*91.0*	*108 843*	*90.4*	*9 188*	*8.1*	*10 456*	*8.7*	*983*	*0.9*	*1 093*	*0.9*	*113 405*	*120 392*
Bulgaria (1990)	*76 113*	*92.4*	*54 317*	*93.9*	*5 538*	*6.7*	*2 916*	*5.0*	*721*	*0.9*	*631*	*1.1*	*82 372*	*57 864*
Bulgaria (1998)[d]	90 327	93.2			5 890	6.1			661	0.7			96 878	
Canada	*433 620*	*93.5*	*453 100*	*94.0*	*21 800*	*4.7*	*25 100*	*5.2*	*7 781*	*1.7*	*4 218*	*0.9*	*464 000*	*482 000*
Czech Republic	*160 073*	*96.7*			*5 417*	*3.3*							*165 490*	
Denmark	50 997	98.0	61 805	97.9	1 028	2.0	1 327	2.1			0	0.0	52 025	63 132
Estonia	37 184	98.4	21 413	99.0	613	1.6	215	1.0			0	0.0	37 797	21 628
Finland	*52 700*	*98.0*	*58 420*	*98.6*	*1 200*	*2.2*	*840*	*1.4*			*0*	*0.0*	*53 800*	*59 250*
France	*356 691*	*94.3*	*353 277*	*94.7*	*16 638*	*4.4*	*14 335*	*3.8*	*5 050*	*1.3*	*5 473*	*1.5*	*378 379*	*373 085*
Germany	*986 640*	*97.3*	*879 300*	*97.2*	*27 515*	*2.7*	*25 200*	*2.8*					*1 014 155*	*904 500*
Greece	76 210	92.8			5 890	7.2							82 100	
Hungary (1990)	*68 105*	*95.0*	*57 046*	*96.4*	*3 568*	*5.0*	*1 397*	*2.4*			*754*	*1.3*	*71 673*	*59 196*
Hungary (1985-87)[d]	80 089	95.7			3 587	4.3							83 676	
Iceland	*1 753*	*81.6*	*1 852*	*81.7*	*391*	*18.2*	*409*	*18.0*	*5*	*0.2*	*5*	*0.2*	*2 147*	*2 265*
Ireland	*29 038*	*94.5*	*31 443*	*94.4*	*1 627*	*5.3*	*1 827*	*5.5*	*54*	*0.2*	*54*	*0.2*	*30 719*	*33 324*
Italy	401 350	93.6			27 591	6.4							428 941	
Japan	*1 052 964*	*93.6*	*1 133 291*	*93.5*	*58 795*	*5.2*	*61 303*	*5.1*	*12 773*	*1.1*	*17 416*	*1.4*	*1 124 532*	*1 211 740*
Latvia	*22 606*	*98.4*			*371*	*1.6*							*22 976*	
Luxembourg	10 626	93.7			585	5.2			132	1.2			11 343	
Monaco	*0*	*0.0*							*71*	*100.0*			*71*	
Netherlands	*164 800*	*98.4*	*172 300*	*98.3*	*1 850*	*1.1*	*2 000*	*1.1*	*900*	*0.5*	*900*	*0.5*	*167 550*	*175 200*
New Zealand	*23 089*	*90.6*	*24 655*	*90.2*	*2 387*	*9.4*	*2 671*	*9.8*					*25 476*	*27 326*
Norway	*28 698*	*80.7*	*30 834*	*81.6*	*6 514*	*18.3*	*6 615*	*17.5*	*333*	*0.9*	*335*	*0.9*	*35 544*	*37 785*
Poland (1990)													414 930	
Poland (1988)[d]	465 281	97.2			13 599	2.8							478 880	
Portugal	*38 686*	*91.8*	*42 055*	*91.0*	*3 462*	*8.2*	*4 157*	*9.0*					*42 148*	*46 212*
Romania (1990)[e]													171 103	
Romania (1989)[d, f]	198 472	99.9							7	0.0			198 479	
Russian Federation	*2 334 120*	*98.3*	*1 614 800*	*98.9*	*41 471*	*1.7*	*18 717*	*1.1*					*2 375 591*	*1 633 517*
Slovakia	*56 585*	*94.3*	*40 389*	*92.9*	*3 447*	*5.7*	*3 065*	*7.1*					*60 032*	*43 454*
Spain	209 425	92.1			17 696	7.8			201	0.1			227 322	
Sweden	*51 382*	*92.7*	*53 920*	*92.2*	*3 787*	*6.8*	*4 200*	*7.2*	*276*	*0.5*	*200*	*0.3*	*55 445*	*58 500*
Switzerland	*40 386*	*89.6*	*39 272*	*90.6*	*3 363*	*7.5*	*2 730*	*6.3*	*1 320*	*2.9*	*1 340*	*3.1*	*45 070*	*43 340*
United Kingdom	*569 813*	*98.2*	*542 689*	*98.4*	*9 911*	*1.7*	*8 373*	*1.5*	*513*	*0.1*	*513*	*0.1*	*580 237*	*551 574*
United States	4 901 992	98.9	5 103 000	99.5	55 030	1.1	23 083	0.5					4 957 022	5 126 084
Total[g]	**12 662 447**	**97.1**	**11 156 228**	**97.7**	**345 427**	**2.6**	**228 229**	**2.0**	**31 113**	**0.2**	**32 932**	**0.3**	**13 625 718**	**11 416 869**

[a] In 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, however are presented in table A.2.
[b] Includes fuel combustion and fugitive fuel emissions.
[c] Includes emissions from solvent use, agriculture and waste.
[d] Some EIT Parties by COP2 decision 9/CP.2 were allowed to use different base years from 1990; Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).
[e] Party did not provide inventory data according to IPCC reporting format. Estimate calculated by the secretariat using the per capita emissions and population figures provided by Party.
[f] An estimate of 9,244 Gg of emissions from industrial processes was reported but not included to avoid double counting, as the Party included these emissions in fuel combustion (industry).
[g] The percentage of the total accounted for by each category have been calculated on the basis of the overall total with the exclusion of Poland and Romania since data for the individual categories for these Parties were not included in the table. The emissions for non-1990 base years were also not taken into account in the overall total or total percentages for categories.

Table A.2 **Anthropogenic CO_2 emissions and removals[a] from land-use change and forestry and impact on total CO_2 emissions, 1990 and 1994 or 1995[b], (Gigagrams)**

	Land-use change and forestry, net emissions or removals		National CO_2 emissions excluding land-use change and forestry		National CO_2 emissions including land-use change and forestry		Percentage reduction or increase (-/+) of national CO_2 emissions taking into account land-use change and forestry	
	1990 (Gg)	**1994 / 1995 (Gg)**	**1990 (Gg)**	**1994 / 1995 (Gg)**	**1990 (Gg)**	**1994 / 1995 (Gg)**	**1990 %**	**1994 / 1995 %**
Australia[c]	*121 688*	*-27 512*	*273 123*	*285 501*	*394 811*	*257 989*	*45*	*-10*
Austria	-15 000		59 200		44 200		-25	
Belgium	-2 057	-2 057	113 405	120 392	111 348	118 335	-2	-2
Bulgaria (1990)	*-5 801*	*-6 941*	*82 372*	*57 864*	*76 571*	*50 923*	*-7*	*-12*
Bulgaria (1988)[d]	-4 657	-6 941	96 878	57 864	92 221	50 923	-5	-12
Canada								
Czech Republic	*-2 281*	*-5 454*	*165 490*	*128 817*	*163 209*	*123 363*	*-1*	*-4*
Denmark	-2 600		52 025		49 425		-5	
Estonia	1 796	1 646	37 797	21 628	39 593	23 274	5	8
Finland[e]	(-30 000)- (-19 000)	(-14 000) - (-7 000)	53 800	59 250	23 800 - 34 800	46 250-52 250	(-56) - (-35)	(-22) - (-12)
France	-33 218	-46 801	378 379	385 347	345 161	338 546	-9	-12
Germany	-30 000	-30 000	1 014 155	894 500	984 155	864 500	-3	-3
Greece								
Hungary (1990)	-4 467	-4 820	71 673	59 196	67 206	54 376	-6	-8
Hungary (1985-87)[d]	-3 097	-4 820	83 676	59 196	80 579	54 376	-4	-8
Iceland								
Ireland	-5 160	-6 230	30 719	33 931	25 559	27 701	-17	-18
Italy	-36 730		428 941		392 211		-9	
Japan	-83 341	-94 619	1 124 532	1 218 377	1 041 191	1 123 758	-7	-8
Latvia	-14 300	-15 831	22 976	11 267	8 676	-4 564	-62	-141
Luxembourg								
Netherlands	-1 500	-1 700	167 550	183 400	166 050	181 700	-1	-1
New Zealand	-20 569	-13 487	25 476	27 367	4 907	13 880	-81	-49
Norway	-10 200	-13 637	35 544	37 880	25 344	24 243	-29	-36
Poland (1990)								
Poland (1988)[d]	-1 408		478 880		477 472			
Portugal								
Romania (1990)								
Romania (1989)[d]	-2 925		198 479		195 554		-1	
Russian Federation	*-392 690*	*-568 850*	*2 375 591*	*1 633 517*	*1 982 901*	*1 064 667*	*-17*	*-35*
Slovakia	-4 257	-5 118	60 032	48 516	55 775	43 398	-7	-11
Spain	-23 166		227 322		204 156		-10	
Sweden	-34 368		55 445		21 077		-62	
Switzerland	-4 360	-5 100	45 070	44 170	40 710	39 070	-10	-12
United Kingdom[e]	20 240	12 540	580 237	551 574	600 477	564 114	3	2
United States	-436 000	-458 000	4 957 022	5 126 084	4 521 022	4 668 084	-9	-9

[a] Negative values inGg denote removal of CO2. Positive values denote a net source of emissions.
[b] Estimates for Australia, Belgium, Bulgaria, Estonia, Hungary, Russia, United Kingdom and United States are for 1994.
[c] The 1990 estimate includes emissions from forest and grassland conversion of 152,062 Gg. Emissions from forest and grassland conversion were not estimated for 1994.
[d] Some EIT Parties by COP2 decision 9/CP.2 were allowed to use different base years from 1990; Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).
[e] The estimates include emissions and removals from wetland drainage and peat extraction.

Table A.3.1 Totalanthropogenic CO_2 emissions, excluding land-use change and forestry, 1990 - 1995 (Gigagrams and percentage)

		Percentage relative to 1990, 1990=100					Last Reported Value	
	1990 (Gg)	1991 %	1992 %	1993 %	1994 %	1995 %	1994 (Gg)	1995 (Gg)
Australia	*273 123*	*101*	*102*	*103*	*105*		*285 501*	
Austria	59 200	108	100					
Belgium	*113 405*	*105*	*104*	*101*	*106*		*120 392*	
Bulgaria (1990)	*82 372*	*78*	*72*	*74*	*70*		*57 864*	
Bulgaria (1988)[a]	96 878	67	61	63	60		57 864	
Canada	*464 000*	*98*	*101*	*101*	*104*	*108*		*499 526*
Czech Republic	*165 490*	*93*	*85*	*81*		*78*		*128 817*
Denmark	52 025	121	110	114	121		63 132	
Estonia	37 797	97	73	55	57		21 628	
Finland	*53 800*	*0*	*97*	*99*	*110*	*104*		*56 050*
France	*378 379*	*106*	*106*	*99*	*99*	*102*		*385 347*
Germany	*1 014 155*	*96*	*91*	*91*	*89*	*88*		*894 500*
Greece	82 100							
Hungary (1990)[b]	*71 673*	*94*	*84*	*85*	*83*		*59 196*	
Hungary (1985-87)[a, b]	83 676	81	72	73	71		59 196	
Iceland	*2 147*	*96*	*102*	*107*	*105*	*106*		*2 282*
Ireland	*30 719*	*103*	*105*	*104*	*108*	*110*		*33 931*
Italy	428 941							
Japan	*1 124 532*	*102*	*103*	*101*	*108*	*108*		*1 218 377*
Latvia	*22 976*					*49*		*11 267*
Luxembourg	11 343							
Monaco	*71*							
Netherlands	*167 550*	*104*	*103*	*105*	*105*	*109*		*183 400*
New Zealand	*25 476*	*102*	*110*	*107*	*107*	*107*		*27 367*
Norway	*35 544*	*95*	*97*	*101*	*106*	*107*		*37 880*
Poland (1990)	414 930	96	90					
Poland (1988)[a]	478 880	83	78					
Portugal	*42 148*	*106*	*118*	*112*	*110*		*46 212*	
Romania (1990)[a]	171 103	83	72	70				
Romania (1989)	198 479	71	62	61				
Russian Federation	*2 375 591*				*69*		*1 633 517*	
Slovakia	*60 032*	*88*	*81*	*77*	*72*	*81*		*48 516*
Spain	227 322							
Sweden	*55 445*	*100*	*101*	*101*	*106*	*105*		*58 108*
Switzerland	*45 070*	*104*	*101*	*98*	*96*	*98*		*44 170*
United Kingdom	*580 237*	*101*	*98*	*96*	*95*		*551 574*	
United States	4 957 022	99	100	103	103		5 126 084	

[a] Some EIT Parties by COP2 decision 9/CP.2 were allowed to use different base years from 1990; Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).
[b] The estimates for the base year and 1990 do not include emissions from waste while emissions from waste of 754 Gg annually are included

Table A.3.2 CO_2 emissions from fuel combustion, 1990 - 1995 (Gigagrams and percentage)

		Percentage relative to 1990, 1990=100					Last reported value	
	1990 (Gg)	1991 %	1992 %	1993 %	1994 %	1995 %	1994 (Gg)	1995 (Gg)
Australia	*262 623*	*101*	*102*	*103*	*104*		*273 934*	
Austria	57 100	108	100					
Belgium	*103 234*	*105*	*104*	*101*	*105*		*108 843*	
Bulgaria (1990)	76 113	79	73	76	71		54 317	
Bulgaria (1988)[a]	90 327	67	61	64	60		54 317	
Canada	*426 000*	*98*	*101*	*101*	*104*	*108*		*460 886*
Czech Republic	*160 073*	*93*	*85*	*82*		*78*		*124 647*
Denmark	50 997	121	109	113	121		61 805	
Estonia	37 184	98	74	56	58		21 413	
Finland	*52 600*		*98*	*99*	*111*	*105*		*55 130*
France	*356 259*	*106*	*105*	*100*	*98*	*100*		*356 588*
Germany	*986 640*	*96*	*91*	*91*	*89*	*88*		*869 300*
Greece	76 210							
Hungary (1990)	*68 105*	*96*	*86*	*86*	*84*		57 046	
Hungary (1985-87)[a]	80 089	81	73	73	71		57 046	
Iceland	*1 674*	*97*	*105*	*108*	*106*	*106*		*1 773*
Ireland	*29 038*	*103*	*105*	*104*	*108*	*111*		*32 105*
Italy	401 350							
Japan	*1 052 964*	*102*	*103*	*101*	*108*	*108*		*1 138 478*
Latvia	*22 606*					49		11 163
Luxembourg	10 626							
Monaco								
Netherlands	*164 800*	*104*	*103*	*105*	*105*	*109*		*180 400*
New Zealand	*22 474*	*101*	*110*	*106*	*107*	*107*		*24 004*
Norway	*26 938*	*97*	*100*	*104*	*109*	*107*		*28 854*
Poland (1990)								
Poland (1988)[a]	465 229		78					
Portugal	*38 686*	*105*	*119*	*111*	*109*		*42 055*	
Romania								
Romania (1989)[a]	198 472							
Russian Federation	*2 334 120*				*69*		*1 614 800*	
Slovakia	*56 585*	*88*	*81*	*77*	*71*	*80*		*45 426*
Spain	209 012							
Sweden	*51 329*	*100*	*101*	*101*	*105*	*104*		*53 385*
Switzerland	*40 330*	*105*	*102*	*99*	*97*	*100*		*40 130*
United Kingdom	*562 522*	*101*	*99*	*96*	*95*		534 123	
United States	4 895 432	99	100	103	104		5 098 000	

[a] Some EIT Parties by COP2 decision 9/CP.2 were allowed to use different base years from 1990; Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).

Table A.3.3 CO_2 emissions from transport, 1990 - 1995 (Gigagrams and percentage)

		Percentage relative to 1990, 1990=100					Last reported value	
	1990 (Gg)	1991 %	1992 %	1993 %	1994 %	1995 %	1994 (Gg)	1995 (Gg)
Australia	*59 596*	*99*	*101*	*103*	*105*		*62 689*	
Austria	16 200	109	109					
Belgium	*20 018*	*102*	*110*	*110*	*112*		*22 473*	
Bulgaria (1990)	*11 756*	*58*	*60*	*70*	*61*		*7 179*	
Bulgaria (1988)[a]	10 753	64	65	76	67		7179	
Canada	*140 000*	*96*	*97*	*99*	*105*	*107*		*150 453*
Czech Republic	*7 959*	*86*	*102*	*104*		*112*		*8 912*
Denmark	10 491	106	106	109	113		11 887	
Estonia	2 656							
Finland	*11 500*		*101*	*96*	*99*	*97*		*11 130*
France	*124 921*	*102*	*104*	*104*	*106*	*108*		*134 623*
Germany	*158 647*	*102*	*106*	*109*	*106*	*108*		*170 700*
Greece	14 460							
Hungary (1990)	*8 208*	*90*	*88*	*87*	*88*		*7 212*	
Hungary (1985-87)[a]	7 741	95	93	92	93		7 212	
Iceland	*1 376*	*102*	*107*	*110*	*109*	*110*		*1 521*
Ireland	*4 885*	*105*	*114*	*113*	*119*	*127*		*6 209*
Italy	95 624							
Japan	*207 431*	*105*	*107*	*108*	*113*	*117*		*242 123*
Latvia	*5 661*					*34*		*1 926*
Luxembourg	908							
Monaco								
Netherlands	*26 800*	*100*	*104*	*106*	*108*	*112*		*30 100*
New Zealand	*8 748*	*100*	*104*	*109*	*117*	*126*		*10 983*
Norway	*13 885*	*98*	*99*	*103*	*103*	*105*		*14 578*
Poland (1990)								
Poland (1988)[a]	34 792		87					
Portugal	*9 947*	*108*	*119*	*124*	*134*		*13 369*	
Romania (1990)								
Romania (1989)[a]	7 893							
Russian Federation								
Slovakia	*5 168*	*86*	*80*	*78*	*80*	*81*		*4210*
Spain	60 218							
Sweden	*18 650*	*100*	*103*	*99*	*101*	*104*		*19 341*
Switzerland	*14 668*	*104*	*100*	*100*	*101*	*99*		*14 865*
United Kingdom	*119 255*	*99*	*101*	*102*	*102*		*121 961*	
United States	1 502 626				103		1 551 000	

[a] Some EIT Parties by COP2 decision 9/CP.2 were allowed to use different base years from 1990; Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).

Table A.3.4 CO_2 emissions from small combustion, 1990 - 1995 (Gigagrams and percentage)

		Percentage relative to 1990, 1990=100					Last reported value	
	1990 (Gg)	1991 %	1992 %	1993 %	1994 %	1995 %	1994 (Gg)	1995 (Gg)
Australia	*12 178*	*101*	*103*	*107*	*108*		*13 181*	
Austria	12 100	116	103					
Belgium	*25 861*	*112*	*115*	*112*	*111*		*28 674*	
Bulgaria (1990)	*5 378*	*76*	*86*	*77*	*62*		*3 325*	
Bulgaria (1988)[a]	8 941	46	52	46	37		3 325	
Canada	*69 830*	*97*	*101*	*107*	*106*	*107*		*74 425*
Czech Republic	*35 948*	*83*	*66*	*64*		*53*		*19 039*
Denmark	8 062	106	101	101	97		7 826	
Estonia	1 581							
Finland	*7 900*		*110*	*100*	*105*	*110*		*8 710*
France	*99 860*	*110*	*110*	*106*	*101*	*102*		*101 756*
Germany	*198 190*	*101*	*93*	*98*	*92*	*94*		*186 100*
Greece	8 260							
Hungary (1990)	*20 877*	*104*	*83*	*84*	*81*		*16 960*	
Hungary (1985-87)[a]	23 174	94	75	76	73		*16 960*	
Iceland	*49*	*97*	*92*	*89*	*74*	*75*		*37*
Ireland	*7 859*	*120*	*118*	*114*	*120*	*118*		*9 265*
Italy	75 585							
Japan	*158 298*	*104*	*107*	*107*	*105*	*112*		*177 084*
Latvia	*4 590*					*45*		*2 084*
Luxembourg	1 174							
Monaco								
Netherlands	*37 300*	*114*	*106*	*112*	*105*	*109*		*40 700*
New Zealand	*2 766*	*95*	*108*	*98*	*105*	*100*		*2 775*
Norway	*2 506*	*85*	*76*	*74*	*79*	*75*		*1 891*
Poland (1990)								
Poland (1988)[a]	105 287		67					
Portugal	*3 274*	*159*	*165*	*169*	*174*		*5 696*	
Romania (1990)								
Romania (1989)[a]								
Russian Federation								
Slovakia	*13 813*					*59*		*8 090*
Spain	25 609							
Sweden	*10 672*	*96*	*96*	*94*	*96*	*93*		*9 903*
Switzerland	*18 322*	*105*	*104*	*101*	*95*	*100*		*18 290*
United Kingdom	*111 377*	*110*	*107*	*110*	*104*		*116 373*	
United States	551 002				109		601 000	

[a] Some EIT Parties by COP2 decision 9/CP.2 were allowed to use different base years from 1990; Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).

Table A.4.1 Total anthropogenic CH_4 emissions, 1990 - 1995 (Gigagrams and percentage)

		Percentage relative to 1990, 1990=100					Last reported value	
	1990 (Gg)	1991 %	1992 %	1993 %	1994 %	1995 %	1994 (Gg)	1995 (Gg)
Australia	*5 590*	*95*	*95*	*95*	*95*		*5 302*	
Austria	603							
Belgium	*634*	99	99	100	100		*635*	
Bulgaria (1990)	*1 380*	*97*	*89*	*81*	*77*		*1 068*	
Bulgaria (1988)[a]	1 413	94	87	79	76			
Canada	*3 200*	100	103	109	113	117		*3 732*
Czech Republic	*888*	*92*	*86*	*82*		*83*		*733*
Denmark	407	100	100	100	99		401	
Estonia	323	89	70	56	58		188	
Finland	*246*		100	99	100	98		*241*
France	*3 017*	100	97	97	95	94		*2 844*
Germany	*5 682*	92	91	88	85	84		*4 788*
Greece	343							
Hungary (1990)[b]	*545*						*776*	
Hungary (1985-87)[a, b]	664						*776*	
Iceland	*23*	*101*	*91*	*92*	*93*	*92*		*21*
Ireland	*811*	98	99	99	99	100		*812*
Italy	3 901							
Japan	*1 575*	99	99	99	98		*1 548*	
Latvia	*159*					*65*		*103*
Luxembourg	24							
Monaco								
Netherlands	*1 104*	102	98	97	97	96		*1 063*
New Zealand	*1 706*	98	95	93	95	96		*1 635*
Norway	*432*	100	101	104	108	109		*469*
Poland (1990)	6 100		41					
Poland (1988)[a]	3042		81					
Portugal	*227*	*100*	*100*	*100*	*99*		*225*	
Romania (1990)	1 954	88	77	77				
Romania (1989)[a]	2 328	74	65	65				
Russian Federation	*26 690*				*89*		*23 880*	
Slovakia	*409*	93	90	81	77	77		*315*
Spain	2 151							
Sweden	*324*	99	99	99	94	91		*296*
Switzerland	*244*	100	99	99	97	97		*235*
United Kingdom	*4 402*	99	97	92	87		*3843*	
United States	27 000	101	101	99	104		28 171	

[a] Some EIT Parties by COP2 decision 9/CP.2 were allowed to use different base years from 1990; Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).
[b] Although estimates were reported for the years 1991-1994, it was not possible to present the trends since the estimates for energy-related emissions for the base year and 1990 were not fully consistent with estimates for 1991-1994 and estimates of emissions from waste were only reported for 1991-1994.

Table A.4.2 CH_4 emissions from fugitive fuel, 1990 - 1995 (Gigagrams and percentage)

		Percentage relative to 1990, 1990=100					Last Reported Value	
	1990 (Gg)	1991 %	1992 %	1993 %	1994 %	1995 %	1994 (Gg)	1995 (Gg)
Australia	*1 213*	*98*	*102*	*99*	*100*		*1 218*	
Austria	92							
Belgium	*53*	*93*	*83*	*82*	*84*		*45*	
Bulgaria (1990)	*311*	*83*	*78*	*74*	*72*		*225*	
Bulgaria (1988)[a]	315	82	77	74	71		225	
Canada	*1 400*	*100*	*107*	*114*	*121*	*128*		*1 791*
Czech Republic	*460*	*90*	*87*	*84*		*88*		*405*
Denmark	11	106	105	101	101		11	
Estonia	217	85	64	48	50		109	
Finland								
France	*332*	*99*	*98*	*102*	*101*	*100*		*333*
Germany	*1 563*	*94*	*93*	*83*	*75*		*1 170*	
Greece	39							
Hungary (1990)[b]	*366*						*379*	
Hungary (1985-87)[a, b]	448						*379*	
Iceland								
Ireland	*10*	*95*	*100*	*105*	*105*	*109*		*11*
Italy	348							
Japan	*166*	*103*	*105*	*104*	*102*		*169*	
Latvia	*2*					*58*		*1*
Luxembourg	2							
Monaco								
Netherlands	*179*	*105*	*91*	*88*	*95*	*95*		*170*
New Zealand	*25*	*88*	*89*	*88*	*93*	*110*		*27*
Norway	*21*	*105*	*129*	*138*	*143*	*143*		*30*
Poland (1990)								
Poland (1988)[a]	1 222		65					
Portugal	*2*	*95*	*80*	*80*				
Romania (1990)	0							
Romania (1989)[a]	1 416							
Russian Federation	*18 900*				*91*		*17 200*	
Slovakia	*122*	*93*	*84*	*87*	*86*	*87*		*106*
Spain	695							
Sweden								
Switzerland	*15*	*99*	*97*	*94*	*91*	*87*		*13*
United Kingdom	*1 238*	*100*	*94*	*81*	*65*		*808*	
United States	7 641	99	97	90	100		7 630	

[a] Some EIT Parties by COP2 decision 9/CP.2 were allowed to use different base years from 1990; Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).

[b] Although estimates were reported for the years 1991-1994, it was not possible to present the trends since the estimates for energy-related emissions for the base year and 1990 were not fully consistent with estimates for 1991-1994.

Table A.4.3 CH_4 emissions from agriculture, 1990 - 1995 (Gigagrams and percentage)

		Percentage relative to 1990, 1990=100					Last reported value	
	1990 (Gg)	1991 %	1992 %	1993 %	1994 %	1995 %	1994 (Gg)	1995 (Gg)
Australia	*3 223*	*100*	*98*	*98*	*97*		*3 141*	
Austria	259							
Belgium	*388*	*99*	*99*	*100*	*100*		*389*	
Bulgaria (1990)	*258*	*86*	*67*	*53*	*48*		*124*	
Bulgaria (1988)[a]	307	73	56	45	40		*124*	
Canada	*890*	*101*	*100*	*104*	*108*	*112*		*996*
Czech Republic	*204*	*91*	*83*	*73*		*68*		*139*
Denmark	263	100	99	100	97		256	
Estonia	60	100	91	78	77		46	
Finland0	*101*	*96*	*93*	*92*	*92*	*87*		*88*
France	*1 626*	*98*	*96*	*96*	*96*	*95*		*1 551*
Germany	*2 044*	*88*	*84*	*83*	*81*		*1 660*	
Greece	175							
Hungary (1990)	*173*	*97*	*83*	*73*	*70*		*121*	
Hungary (1985-87)[a]	208	80	69	61	58		121	
Iceland	*12*	*99*	*96*	*95*	*95*	*96*		*11*
Ireland	*640*	*98*	*98*	*99*	*99*	*99*		*637*
Italy	1 860							
Japan	*843*	*100*	*101*	*102*	*101*		*849*	
Latvia	*111*					*40*		*45*
Luxembourg	18							
Monaco								
Netherlands	*505*	*102*	*100*	*98*	*96*	*94*		*475*
New Zealand	*1 513*	*98*	*95*	*93*	*95*	*96*		*1 460*
Norway	*91*	*102*	*104*	*102*	*107*	*105*		*96*
Poland (1990)								
Poland (1988)[a]	862		82					
Portugal	*176*	*100*	*100*	*100*	*100*		*176*	
Romania (1990)								
Romania (1989)[a]	610							
Russian Federation	*4 890*				*77*		*3 770*	
Slovakia	*187*	*92*	*81*	*70*	*65*	*65*		*122*
Spain	887							
Sweden	*200*	*98*	*99*	*99*	*101*	*99*		*197*
Switzerland	*151*	*101*	*100*	*100*	*98*	*98*		*148*
United Kingdom	*1 143*	*98*	*98*	*97*	*98*		*1 116*	
United States	8 596	99	102	102	107		9 196	

[a] Some EIT Parties by COP2 decision 9/CP.2 were allowed to use different base years from 1990; Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).

Table A.4.4 CH_4 emissions from waste, 1990 - 1995 (Gigagrams and percentage)

		Percentage relative to 1990, 1990=100					Last reported value	
	1990 (Gg)	1991 %	1992 %	1993 %	1994 %	1995 %	1994 (Gg)	1995 (Gg)
Australia	*704*	*102*	*104*	*107*	*109*		*767*	
Austria	228							
Belgium	*174*	*102*	*104*	*105*	*106*		*184*	
Bulgaria (1990)	*802*	*105*	*100*	*92*	*88*		*704*	
Bulgaria (1988)[a]	732	115	110	100	96		704	
Canada	*840*	*99*	*100*	*102*	*104*	*106*		*889*
Czech Republic	*149*	*99*	*99*	*97*		*97*		*144*
Denmark	122	100	100	100	100		122	
Estonia	42	98	74	67	71		30	
Finland	*126*	*102*	*105*	*106*	*105*	*106*		*133*
France	*800*	*99*	*97*	*95*	*83*	*85*		*678*
Germany	*1 870*	*97*	*101*	*101*	*102*		*1 900*	
Greece	110							
Hungary (1990)[b]							*255*	
Hungary (1985-87)[a, b]								
Iceland	*11*	*103*	*86*	*89*	*90*	*87*		*10*
Ireland	*136*	*100*	*100*	*100*	*100*	*101*		*138*
Italy	1 611							
Japan	*397*	*97*	*95*	*94*	*94*		*373*	
Latvia	*44*					*118*		*51*
Luxembourg	4							
Monaco								
Netherlands	*379*	*100*	*99*	*99*	*100*	*100*		*380*
New Zealand	*155*	*101*	*98*	*96*	*91*	*85*		*132*
Norway	*302*	*100*	*100*	*102*	*106*	*107*		*322*
Poland (1990)								
Poland (1988)[a]	906		104					
Portugal	*35*	*100*	*100*	*100*	*100*		*35*	
Romania (1990)								
Romania (1989)[a]	241							
Russian Federation	*1 940*				*101*		*1 950*	
Slovakia	*66*	*105*	*117*	*106*	*98*	*95*		*63*
Spain	491							
Sweden	*85*	*100*	*100*	*100*	*72*	*72*		*61*
Switzerland	*69*	*99*	*99*	*98*	*98*	*97*		*67*
United Kingdom	*1 923*	*98*	*98*	*96*	*95*		*1 826*	
United States	10 150	101	100	100	102		10 400	

[a] Some EIT Parties by COP2 decision 9/CP.2 were allowed to use different base years from 1990; Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).
[b] Although estimates were reported for the years 1991-1994, it was not possible to present the trends since the estimates of emissions from waste were only reported for 1991-1994.

Table A.5.1 Total anthropogenic N_2O emissions, 1990 - 1995 (Gigagrams and percentage)

		Percentage relative to 1990, 1990=100					Last reported value	
	1990	1991	1992	1993	1994	1995	1994	1995
	(Gg)	%	%	%	%	%	(Gg)	(Gg)
Australia	*81.2*	*98*	*98*	*100*	*100*		*81.6*	
Austria	4.1							
Belgium	*30.8*	*100*	*97*	*99*	*105*		*32.3*	
Bulgaria (1990)	*29.6*	*78*	*65*	*59*	*61*		*18.0*	
Bulgaria (1988)[a]	30.8	75	63	57	58		18.0	
Canada	*86.0*	*101*	*107*	*109*	*116*	*125*		*107.8*
Czech Republic	*24.0*	*96*	*96*	*88*		*90*		*21.6*
Denmark	10.3	104	103	105	106		10.9	
Estonia	2.4	98	77	60	55		1.3	
Finland	*18.0*		*94*	*100*	*100*	*100*		*18.0*
France	*181.7*	*99*	*96*	*90*	*93*	*95*		*173.5*
Germany	*226.0*	*97*	*100*	*96*	*97*	*93*		*210.0*
Greece	13.7							
Hungary (1990)	*11.4*	*65*	*63*	*60*	*72*		*8.2*	
Hungary (1985-87)[a]	12.9	58	56	53	63		8.2	
Iceland	*0.5*	*100*	*98*	*98*	*96*	*104*		*0.6*
Ireland	*29.4*	*86*	*87*	*87*	*88*	*89*		*26.0*
Italy	120.3							
Japan	*105.3*	*103*	*101*	*102*	*104*		*110.0*	
Latvia	*2.4*					*28*		*0.7*
Luxembourg	0.6							
Monaco								
Netherlands	*51.2*	*104*	*111*	*112*	*113*	*114*		*58.5*
New Zealand	*47.5*	*96*	*97*	*97*	*97*	*98*		*46.7*
Norway	*15.0*	*100*	*87*	*93*	*93*	*93*		*14.0*
Poland (1990)	156.0		32					
Poland (1988)[a]	58.9		85					
Portugal	*10.6*	*105*	*111*	*106*	*103*		*10.9*	
Romania (1990)	106.8	85	64	92				
Romania (1989)[a]	122.7	74	56	80				
Russian Federation	*228.0*				*59*		*134.5*	
Slovakia	*10.7*	*87*	*73*	*58*	*59*	*64*		*6.8*
Spain	93.9							
Sweden	*9.2*	*100*	*96*	*100*	*103*	*100*		*9.2*
Switzerland	*11.5*	*101*	*102*	*103*	*103*	*103*		*11.8*
United Kingdom	*112.5*	*95*	*81*	*72*	*83*		*93.7*	
United States	411.4	97	97	97	87		359.0	

[a] Some EIT Parties by COP2 decision 9/CP.2 were allowed to use different base years from 1990; Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).

Table A.5.2 N_2O emissions from transport, 1990 - 1995 (Gigagrams and percentage)

		Percentage relative to 1990, 1990=100					Last reported value	
	1990	1991	1992	1993	1994	1995	1994	1995
	(Gg)	%	%	%	%	%	(Gg)	(Gg)
Australia	*5.2*	*112*	*137*	*154*	*171*		*8.9*	
Austria	0.5							
Belgium	*0.9*	*97*	*108*	*118*	*129*		*1.2*	
Bulgaria (1990)	*0.3*	*67*	*33*	*67*	*33*		*0.1*	
Bulgaria (1988)[a]	0.2	103	51	103	51		0.1	
Canada	*29.0*	*107*	*121*	*138*	*155*	*166*		*48.0*
Czech Republic	*1.0*	*100*	*100*	*100*		*100*		*1.0*
Denmark	0.4	125	150	200	200		0.8	
Estonia	0.0							
Finland	*2.0*		*100*	*100*	*100*	*100*		*2.0*
France	*4.0*	*106*	*112*	*123*	*146*	*167*		*6.7*
Germany	*11.0*	*127*	*145*	*164*	*173*		*19.0*	
Greece	1.2							
Hungary (1990)								
Hungary *(1985-87)*[a]	0.8							
Iceland	*0.0*	*100*	*100*	*100*	*100*	*100*		*0.0*
Ireland	*0.2*	*244*	*250*	*244*	*256*	*272*		*0.5*
Italy	3.5							
Japan	*12.9*	*104*	*106*	*106*	*107*		*13.8*	
Latvia	*0.1*					*93*		*0.1*
Luxembourg	0.0							
Monaco								
Netherlands	*4.9*	*110*	*124*	*135*	*147*	*157*		*7.7*
New Zealand	*0.4*	*101*	*106*	*110*	*117*	*126*		*0.5*
Norway	*1.0*	*100*	*100*	*100*	*100*	*100*		*1.0*
Poland *(1990)*								
Poland *(1988)*[a]	106		88					
Portugal	*0.4*	*100*	*125*	*125*	*125*		*0.5*	
Romania *(1990)*								
Romania *(1989)*[a]	0.3							
Russian Federation								
Slovakia								*0.3*
Spain	2.1							
Sweden	*2.6*	*100*	*100*	*100*	*108*	*112*		*2.9*
Switzerland	*1.1*	*111*	*122*	*134*	*145*	*157*		*1.8*
United Kingdom	*3.1*	*105*	*125*	*168*	*220*		*6.8*	
United States	92.3	108	108	108	115		106.0	

[a] Some EIT Parties by COP2 decision 9/CP.2 were allowed to use different base years from 1990; Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).

Table A.5.3 N_2O emissions from agriculture, 1990 - 1995 (Gigagrams and percentage)

		Percentage relative to 1990, 1990=100					Last reported value	
	1990	1991	1992	1993	1994	1995	1994	1995
	(Gg)	%	%	%	%	%	(Gg)	(Gg)
Australia	*68.2*	*100*	*98*	*99*	*99*		*67.4*	
Austria	2.0							
Belgium	*10.9*	*100*	*100*	*98*	*99*		*10.8*	
Bulgaria (1990)	*8.2*	*73*	*44*	*35*	*32*		*2.6*	
Bulgaria (1988)[a]	13.4	45	27	22	19		2.6	
Canada	*11.0*	*100*	*109*	*118*	*118*	*121*		*13.3*
Czech Republic	*2.0*	*100*	*100*	*100*		*85*		*1.7*
Denmark	8.5	100	100	100	100		8.5	
Estonia	0.9	99	77	55	55		0.5	
Finland	*10.0*	*100*	*90*	*90*	*90*	*90*		*9.0*
France	*54.5*	*99*	*97*	*93*	*95*	*97*		*52.6*
Germany	*96.0*	*91*	*86*	*84*	*90*		*86.0*	
Greece	7.5							
Hungary (1990)	*4.1*	*27*	*26*	*24*	*29*		*1.2*	
Hungary (1985-87)[a]	4.6	25	24	21	26		1.2	
Iceland	*0.5*	*100*	*98*	*98*	*98*	*104*		*0.5*
Ireland	*23.3*	*80*	*80*	*81*	*82*	*82*		*19.1*
Italy	58.7							
Japan	*9.7*	*98*	*96*	*95*	*94*		*9.1*	
Latvia	*1.4*					*32*		*0.4*
Luxembourg	0.5							
Monaco								
Netherlands	*22.2*	*103*	*118*	*118*	*120*	*121*		*26.9*
New Zealand	*44.9*	*96*	*96*	*96*	*97*	*98*		*44.1*
Norway	*6.0*	*100*	*100*	*100*	*100*	*100*		*6.0*
Poland (1990)								
Poland (1988)[a]	31.5		100					
Portugal	*3.6*	*100*	*100*	*100*	*100*		*3.6*	
Romania (1990)								
Romania (1989)[a]	25.3							
Russian Federation	*190.0*				*53*		*100.0*	
Slovakia	*7.7*	*90*	*68*	*53*	*57*	*57*		*4.4*
Spain	63.4							
Sweden	*0.2*	*100*	*100*	*100*	*100*	*100*		*0.2*
Switzerland	*9.2*	*100*	*99*	*98*	*97*	*96*		*8.8*
United Kingdom	*10.4*	*100*	*97*	*92*	*95*		*9.9*	
United States	187.9	106	106	106	115		216.0	

[a] Some EIT Parties by COP2 decision 9/CP.2 were allowed to use different base years from 1990; Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).

Table A.6 Anthropogenic emissions of other greenhouse gases, 1990 and 1995[a,b]
(Gigagrams of CO_2 equivalent, percentage relative to 1990, 1990=100 per cent)

	HFCs[c]			PFCs[d]			SF_6			Total		
	1990	1995		1990	1995		1990	1995		1990	1995	
	Gg	Gg	%	Gg	Gg	%	Gg	Gg	%	Gg	Gg	%
Australia				4 842	*2 096*	43				4 842	*2 096*	43
Canada		500		5 936	6 019	101	2 868	1 888	66	8 804	8 407	95
Denmark							215			215		
France	2 970			2 002			141			5 113		
Germany	260	2 878	1107	2 693	1 665	62	3 895	5 998	154	6 849	10 542	154
Iceland		25		312	54	18				312	79	25
Italy				103						103		
Japan	2 080	14 560	700	5 416	14 217	263	38 240	52 580	138	45 736	81 357	178
Netherlands	4 910	8 452	172	2 458	2 391	97	1 386	1 457	105	8 755	12 302	141
New Zealand		183		601	196	33	552	4 368	791	1 153	4 748	412
Norway		244		2 545	1 441		2 198	573	26	4 744	2 259	48
Sweden		195		400	390	98	956	1 242	130	1 356	1 827	135
Switzerland		260			66			717			1 043	
United Kingdom	1 366	*2 051*	150	2 085	*473*	23	573	*621*	108	4 025	*3 146*	78
United States	48 695	*66 075*	136	18 133	*14 840*	82	22 466	*24 617*	110	89 294	*105 532*	118

[a] When the data for 1995 were not available the data for 1994 are given in *italics*.
[b] With the exception of Canada, the Netherlands, the United Kingdom and the United States, which reported actual emissions, and Japan, which reported potential emissions, Parties did not indicate clearly whether emissions reported are potential or actual ones.
[c] Finland, Germany, New Zealand and the United Kingdom only reported aggregated data for HFC figures. The secretariat therefore assumed that all these emissions were HFC-134a.
[d] Finland, New Zealand and the United Kingdom reported only aggregated PFC figures. The secretariat therefore assumed that approximately 90 per cent was CF_4 and 10 per cent C_2F_6.

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Table A.7 Total anthropogenic emissions of all greenhouse gases[a], 1990 - 1995 (Gigagrams of CO_2 equivalent and percentage)

		Percentage relative to 1990, 1990=100					Last Reported Value	
	1990	1991	1992	1993	1994	1995	1994	1995
	(Gg)	%	%	%	%	%	(Gg)	(Gg)
Australia	*420 521*	*99*	*99*	*100*	*101*		*424 241*	
Austria	73 134							
Belgium	*136 258*	*104*	*103*	*101*	*105*		*143 746*	
Bulgaria (1990)	120 536	83	75	75	71		85 870	
Bulgaria (1988)[b]	136 099	73	67	66	63		85 870	
Canada	*566 664*	*98*	*101*	*103*	*105*	*109*		*619 869*
Czech Republic	*191 578*	*93*	*85*	*82*		*79*		*150 912*
Denmark	63 974	117	108	111	117		74 924	
Estonia	45 309	96	73	55	57		25 969	
Finland	*64 546*		*97*	*99*	*108*	*103*		*66 691*
France	*503 181*	*103*	*103*	*97*	*96*	*99*		*498 855*
Germany	*1 210 387*	*96*	*92*	*91*	*90*	*88*		*1 070 691*
Greece	*93 550*							
Hungary (1990)[c]	*86 652*						*78 039*	
Hungary (1985-87)[b, c]	101 619						78 039	
Iceland	*3 109*	*96*	*94*	*95*	*94*	*96*		*2 977*
Ireland	*56 861*	*99*	*100*	*100*	*103*	*104*		*59 060*
Italy	548 259							
Japan	*1 235 986*	*102*	*104*	*103*	*109*		*1 347 200*	
Latvia	*27 059*					*50*		*13 637*
Luxembourg	12 028							
Monaco	71							
Netherlands	*215 357*	*99*	*99*	*104*	*105*	*110*		*236 154*
New Zealand	*77 188*	*99*	*100*	*99*	*104*	*105*		*80 913*
Norway	*54 011*	*96*	*93*	*96*	*101*	*102*		*54 878*
Poland (1990)	591 390	67	74					
Poland (1988)[b]	561 021	71	78					
Portugal	*50 195*	*105*	*116*	*110*	*108*		*54 314*	
Romania (1990)	245 245	84	72	74				
Romania (1989)[b]	285 404	72	62	64				
Russian Federation	*3 006 761*				*72*		*2 176 692*	
Slovakia	*71 938*	*88*	*82*	*77*	*72*	*80*		*57 239*
Spain	301 602							
Sweden	*66 457*	*97*	*101*	*100*	*105*	*104*		*69 004*
Switzerland	*53 749*	*103*	*101*	*98*	*97*	*100*		*53 806*
United Kingdom	*711 579*	*100*	*97*	*94*	*93*		*664 471*	
United States	5 740 851	99	101	102	103		5 934 137	

[a] Aggregated emissions of CO_2, CH_4, N_2O, and where reportedHFCs, PFCs, SF_6 (see table A.6), using IPCC 1995 global warming potentials.
[b] Some EIT Parties by COP2 decision 9/CP.2 were allowed to use different base years from 1990; Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).
[c] Although estimates were reported for the years 1991-1994, it was not possible to present the trends since the estimates for energy-related emissions for the base year and 1990 were not fully consistent with estimates for 1991-1994 and estimates of emissions from waste were not provided for all gases for all years.

Table B.1. Projected anthropogenic emissions of CO_2 for the year 2000, excluding land-use change and forestry (Gigagrams)

	Data from inventory	Data from projection		Variations	
	Base level[a]	Base level[b]	2000 level[c]	from inventory	from projection
	(Gg)	(Gg)	(Gg)	(Percentage)	
Australia	*273 123*	288 965	332 799	15.1	15.1
Austria	59 200	59 900	65 800	11.1	9.8
Belgium	*113 405*	*[121 000]*	*125 200*	*10.4*	*3.5*
Bulgaria[d] (1990)	*82 372*	82 990	69 898	-15.8	-15.8
Bulgaria (1988)	96 878	96 878	69 898	-27.9	-27.9
Canada	*464 000*	*463 700*	*500 600*	*8.0*	*8.0*
Czech Republic	*165 490*	163 584	135 536	-18.2	-17.1
Denmark	52 025	58 353	53 753	3.3	-7.9
Estonia	37 797	37 800	17 500 - 23 000	(-53.7)-(-39.2)	(-53.7)-(-39.2)
Finland	*53 800*	*53 800*	*(58 000 - 60 000)*	*(7.8 - 11.5)*	*(7.8 - 11.5)*
France	*378 379*	383 167	397 833	5.1	3.8
Germany	*1 014 155*	*1 014 000*	*894 000*	*-11.8*	*-12.0*
Greece	82 100	82 100	94 500	15.1	15.1
Hungary (1990)	*71 673*	69 116	68 741	-4.1	-0.5
Hungary[d] (1985-87)	83 676	81 534	68 741	-17.8	-15.7
Iceland	*2 147*	*2 147*	*2 456*	*14.4*	*14.4*
Ireland	*30 719*	*30 719*	*34 988*	*13.8*	*13.8*
Italy	428 941	423 776	482 440	12.5	13.8
Japan	*1 124 532*	1 173 000	1 200 000	3.9	2.3
Latvia	*22 976*	22 976	16 956	-26.2	-26.2
Luxembourg	11 343	11 244	7 556	-33.3	-32.8
Netherlands	*167 550*	*[173 000]*	*168 000*	*~0*	*-2.9*
New Zealand	*25 476*	*25 476*	*31 080*	*21.9*	*21.9*
Norway	*35 544*	*36 000*	*44 000*	*23.7*	*22.0*
Poland (1990)	414 930	338 000-455 000	(-18.5)-(9.7)		
Poland[d] (1988)	478 880	458 000	338 000-455 000		(-26.2)-(-0.7)
Portugal	42 148	38 689	54 274	28.8	40.3
Romania (1990)	171 103				
Romania[d] (1989)	198 479				
Russian Federation	2 375 591	2 330 000	1 930 000 - 2 026 000	(-19.1)-(-15.1)	(-17.2)-(-13.0)
Slovakia	*60 032*	57 808	48 639	-16.5	-15.9
Spain	227 322	222 908	276 523		24.1
Sweden	*55 445*	*[57 600]*	*60 100*	*8.3*	*4.3*
Switzerland	*45 070*	*[47 100]*	*43 900*	*-2.6*	*-6.8*
UK	*580 237*	*580 000*	*550 000*	*-5.1*	*-5.1*
USA	4 957 022	5 012 789	5 163 136	4.2	3.0

[a] Data from inventory table A.1.

[b] Differences in 1990 levels between inventories and projections are, for example, due to revisions of inventories, rounding, calibration of models, or the projection of only a subset of the sources. For some countries differences are also due to statistical adjustments. Several countries, as indicated through square brackets, have made temperature adjustments for the projection base level (Belgium, the Netherlands, Sweden, Switzerland). Denmark's emissions are adjusted for electricity imports. Sweden's base year for projections is 1995.

[c] "With measures" levels for 2000.

[d] Some EIT parties by COP2 decision 9/CP.2 were allowed to use different base years from 1990; Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).

Note

Additional information on the projections from Parties which submitted second national communications is given as notes in the C.1 table.

Table B.2. Projections of CO_2 removals or emissions in land-use change and forestry[a] for the year 2000 (Gigagrams)

	Data from inventory	Data from projection		Variations from projection
	Base level[b] (Gg)	Base level[c] (Gg)	2000 level[d] (Gg)	(Percentage)
Australia	*121 688*	130 843	121 992	-6.8
Austria	-15 000			
Belgium	*-2 057*	*-2 100*	*-2 100*	0
Bulgaria (1990)	*-5 801*	-5 801	-5 801	0
Bulgaria[e] (1988)	-4 657	-4 657	-5 801	0
Canada				
Czech Republic	*-2 281*	-2 300	-2 800	-22.8
Denmark	-2 600	-2 600	-2 600	0
Estonia	1 796			
Finland[f]	*-31 000*	*-31 000*	*(-12 000)-(-17 000)*	*(62)-(46)*
France	*-33 128*	-32 000	-39 000	-21.8
Germany	*- 30 000*			
Greece				
Hungary (1990)	*-4 467*			
Hungary[e] (1985-1987)	-3 097			
Ireland	*-5 160*	*-5 160*	*-7 580*	*-46.8*
Italy	-36 730	-36 730	-46 730	-27.2
Japan	*-83 341*	-90 000	-92 000	-2.2
Latvia	*-14 300*	-14 300	-8 940	37.5
Luxembourg				
Netherlands	*-1 500*	*-1 500*	*-1 700*	*-13.0*
New Zealand[g]	*-20 569*	*-20 569*	*-18 994*	*8.0*
Norway	*-9 400*	*-9 400*	*-11 000*	*17.0*
Poland (1990)				
Poland[e] (1988)	-1 408			
Portugal				
Romania (1990)				
Romania[e] (1989)	-2 925			
Russian Federation	*-392 620*			
Slovakia	*-4 257*			
Spain	-23 166	-23 170	-25 700	-10.9
Sweden[h]	*-34 368*	*-34 000*	*-29 000*	*14.7*
Switzerland	*-4 360*	*-4 360*	*-5 100*	*-17.0*
UK	*20 240*	*20 600*	*11 100*	*-46.1*
USA	-436 000	-476 710	-539 049	-13.1

[a] Negative values in Gg denote removal of CO_2. Positive values denote a net source of emissions. Negative values in percentage denote more removals in 2000 than in 1990, or a decrease in net emissions.

[b] Data from inventory table A.2.

[c] Differences in 1990 levels between inventories and projections are, for example, due to late revisions of inventories, rounding, or the fact that only a subset of the sources was projected.

[d] "With measures" levels for 2000.

[e] Some EIT countries have asked for special consideration under Article 4.6 to use different base years from 1990; Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).

[f] The emissions for land-use change and forestry in both Finland and the United Kingdom include emissions and uptakes from wetland drainage and peat extraction. The range of emissions given for Finland results from the two scenarios given in its national communication.

[g] New Zealand reported three different scenarios on the basis of different planting strategies. The "Central estimate of New Planting post 1997" is given in the table.

[h] 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.

Note

Additional information on the projections from Parties which submitted second national communications is given as notes in the C.1 table.

Table B.3. Projected anthropogenic emissions of CH_4 for the year 2000 (Gigagrams)

	Data from inventory	Data from projection		Variations from projection
	Base level[b]	Base level[c]	2000 level[d]	
	(Gg)	(Gg)	(Gg)	(Percentage)
Australia	*5 589*		6 244	6 480
3.8				
Austria	603	~600	~600	~0
Belgium	*634*			
Bulgaria (1990)	*1 380*	1 006	1 057	5.1
Bulgaria[e] (1988)	1 413	1 119	1 057	-5.5
Canada	*3 200*	*3 148*	*3 546*	*12.6*
Czech Republic	*888*	623	511	-18.0
Denmark	407	406	354	-12.8
Estonia	323			
Finland	*246*	*246*	*226*	*-8.0*
France	*3 017*	2 900	2 900	0
Germany	*5 682*	*5 682*	*3 892*	*-31.5*
Greece	343	343	< 343	< 0.0
Hungary (1990)	*545*	492	278	-43.5
Hungary[e] (1985-87)	664	605	278	-54.0
Iceland	*23*	*23*	*21*	*-8.0*
Ireland	*811*	*811*	*837*	*3.2*
Italy	3 901	3 900	2 965	-24.0
Japan	*1 575*	1 380	1 150	-16.7
Latvia	*159*	159	114	-28.2
Luxembourg	24	25	26	6.1
Netherlands	*1 103*	*1 067*	*788*	*-33.6*
New Zealand	*1 706*	*1 706*	*1 541*	*-9.7*
Norway	*432*	*432*	*414*	*-4.0*
Poland (1990)	6 100	6 100	1 780	-70.9
Poland[e] (1988)	3 042	6 060	1 780	-70.6
Portugal	226			
Romania (1990)	1 954			
Romania[e] (1989)	2 328			
Russian Federation	*26 900*			
Slovakia	*409*	342	293	-14.3
Spain	2 151			
Sweden[f]	*324*	*302*	*284*	*-6.0*
Switzerland	*244*	*244*	*229*	*-6.0*
UK	*4 402*	*4 402*	*3 418*	*-22.3*
USA	27 000	27 669	22 335	-19.3

[a] Figures provided in CO_2 and C equivalents have been converted.
[b] Data from inventory table A.4.1.
[c] Differences in 1990 levels between inventories and projections are, for example, due to late revisions of inventories, rounding, calibration of models, or the projection of only a subset of the sources.
[d] "With measures" levels for 2000.
[e] Some EIT parties by COP2 decision 9/CP.2 were allowed to use different base years from 1990; Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).
[f] 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

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Table B.4. Projected anthropogenic emissions of N_2O[a] for the year 2000 (Gigagrams)

	Data from inventory	Data from projection		Variations from projection	
	Base level[b] (Gg)	Base level[c] (Gg)	2000 level[d] (Gg)	(Percentage)	
Australia	*81.2*		60.1	61.1	1.5
Austria	4.1	~ 4.2	~ 4.2	~ 0	
Belgium	*31.0*				
Bulgaria (1990)	*29.6*	14.3	16.3	14.0	
Bulgaria[e] (1988)	30.8	17.4	16.3	-6.3	
Canada	*86.0*	*86.0*	*74.0*	*-14.0*	
Czech Republic	*24.0*				
Denmark	10.3	10.5	11.5	9.5	
Estonia	2.4				
Finland	*18.0*	*18.0*	*21.5*	*19.4*	
France	*181.7*	177.0	93.0	- 47.0	
Germany	*226.0*	*226.0*	*162.0*	*-28.0*	
Greece	13.7	13.7	13.7	0.0	
Hungary (1990)	*11.4*	7.3	6.2	-14.3	
Hungary[e] (1985-87)	12.9	8.4	6.2	-26.2	
Iceland	*0.6*	*0.6*	*0.6*	*0*	
Ireland	*29.4*	*29.4*	*26.0*	*-11.5*	
Italy	120.3	119.4	123.6	3.5	
Japan	*105.3*	47.0	~ 52.0	8.3	
Latvia	*2.4*	2.4	1.4	-41.6	
Luxembourg	0.6	0.7	0.7	0	
Netherlands	*51.2*	*62.6*	*65.2*	*4.0*	
New Zealand	*47.5*	*47.5*	*46.0*	*-3.0*	
Norway	*15.0*	*15.3*	*16.0*	*4.5*	
Poland (1990)	156.0		61.8		
Poland (1988)	58.9	73.0	61.8	-15.3	
Portugal	10.5				
Romania (1990)	106.8				
Romania (1989)	122.7				
Russian Federation	*228.0*				
Slovakia	*10.7*	14.7	14.1	-4.1	
Spain	93.9				
Sweden[f]	*9.2*	*9.3*	*9.3*	*1.0*	
Switzerland	*11.5*	*11.5*	*11.7*	*1.7*	
UK	*112.5*	*111.7*	*42.9*	*-61.6*	
USA	411.4	529.7	421.0	-20.5	

[a] Figures provided in Mt C equivalents have been converted.
[b] Data from inventory table A.5.1.
[c] Differences in 1990 levels between inventories and projections are, for example, due to late revisions of inventories, rounding, calibration of models, or the projection of only a subset of the sources.
[d] "With measures" levels for 2000.
[e] Some EIT parties by COP2 decision 9/CP.2 were allowed to use different base years from 1990; Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).
[f] 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.

Comments

Twenty-six Parties projected emissions of N_2O. One Party provided figures covering a sector that only represented a minor part of the emissions in 1990, while another four did not cover all sources represented in the inventories. Fifteen Parties, representing 58 per cent of the aggregated inventory figure for 1990, projected stabilization or decreases compared to their base years, four of the decreases being more than 35 per cent, often due to expected changes in industrial processes. One only gave an indication that overall emissions were not expected to increase. Nine Parties, representing 26 per cent of the aggregated inventory figures for 1990, projected increases, eight of these less than 10 per cent.

Notes*

Australia: The effects of measures are subtracted (p. 76) from the "without measures" scenario (p.72) to obtain a "with measures" figure.

Austria: This is a "without measures" projection (p.88).

Bulgaria: Baseline scenario was chosen as it was seen to be closest to implemented policies and measures. N_2O from agriculture was not included.

Canada: The projection is updated following the IDR and the figures refer to energy-related and industry emissions, while agriculture is not included.

France: The projection figures are taken from the summary of the communication, where they were given as carbon equivalents.

Germany: Projections for 2000 were submitted on 29 April 1996.

Greece: An increase in emissions is expected for the year 2000, but no specific projection was provided.

Japan: The projection figure for 2000 refers only to the effects of energy conservation and waste reduction measures (p.144).

Monaco: Emissions are expected to be negligible in 2000 as in 1990.

Netherlands: The projection figure for 2000 incorporates the effects of policies and measures initiated under NEPP2. However, a number of policies implemented to reduce N_2O emissions associated with fertilizer application and animal manure have not been incorporated because of a lack of knowledge about their effects (p.65).

Poland: 1990 inventory data were given in the CORINAIR format and no separate figure compatible with the 2000 projection was provided.

Switzerland: The projection figure covers only a minor part of the sources (from transportation) and does not allow for calculation of trends (p.80).

Hungary: The corresponding 1985-1987 inventory figure was 8.36 Gg. The projection figures include fuel-related emissions only. The 2000 S scenario is used (table 6.2 b, p.74).

Poland: Different methods were used for calculating 1988 and 1990 figures. The communication states that the methodology used for 1990 overestimates the emissions and this, rather than a real increase, explains the difference. Therefore a comparison with the 1990 figures appears to be non-applicable.

Romania: No projections were provided.

*All references in parentheses are to the national communications.

Table B.5. Projected emissions of other greenhouse gases for the year 2000 (Gigagrams)

	Base level projections[a]			2000 level			Variations from projections		
	HFCs[b]	PFCs[c]	SF_6[d]	HFCs[b]	PFCs[c]	SF_6[d]	HFCs	PFCs	SF_6
	(CO_2 equivalent in Gg)[e]			(CO_2 equivalent in Gg)[e]			(Percentage)		
Australia		4 842			1 700			-59	
Canada	*500*	*7 144*	*2 868*	*2 000*	*7 420*	*1 912*	*300*	*3.9*	*-33*
Finland	*79*	*271*	*96*	*130*	*339*	*120*	*65*	*25*	*25*
Germany	*260*	*2 694*	*3 896*	*6 336*	*799*	*4 971*	*2 337*	*-70*	*28*
Iceland		311		26	55		0	-82	
Italy		106		2 500	63				
Netherlands	*4 880*	*2 234*	*1 386*	*4 763*	*2 512*	*1 625*	*-2*	*12*	*17*
New Zealand	*183*	*601*	*550*	*213*	*230*	*5 067*	*16*	*-62*	*821*
Norway	*200*	*2 500*	*2 200*	*800*	*1 300*	*525*	*300*	*-48*	*-76*
Sweden	*200*	*400*	*1 000*	*800*	*500*	*1 200*	*300*	*25*	*20*
UK	*1 366*	*2 085*	*574*	*2 390*	*575*	*1 028*	*75*	*-72*	*79*
USA	67 500	17 000		120 300	9 700		78	-43	

[a] The figures are rounded.

[b] Finland, Germany, New Zealand and the United Kingdom only reported aggregated data for HFC. The secretariat therefore assumed that all these emissions were HFC-134a. Finland, New Zealand and Sweden used 1995 as base level for the HFC projections.

[c] Finland, New Zealand and the United Kingdom reported only aggregated PFC figures. In order to estimate the CO_2 equivalent, the secretariat assumed that approximately 90 per cent was CF_4 and 10 per cent was C_2F_6. Finland and Sweden used 1995 as base level for the PFC projections.

[d] Finland, New Zealand and Sweden used 1995 as base level for the SF_6 projections.

[e] Australia, Italy and the USA reported emissions based on 1994 GWPs, as given in their first national communications, whilst all other countries presented in the table reported on the basis of 1995 GWPs as given in their second national communications. The assumed time-horizon = 100 years.

Table B.6. Projected anthropogenic emissions of all greenhouse gases, excluding land-use change and forestry[a] (Gigagrams CO_2 equivalent)[b]

	Data from inventory	Data from projection		Variations from projection
	Base level (CO_2 equivalent in Gg)[b]	Base level[c] (CO_2 equivalent in Gg)[b]	2000 level	(Percentage)
Australia	*420 521*	465 275	512 811	10.0
Austria	75 286	75 944	81 844	~8.0
Belgium	*136 258*	*[121 000]*	*125 200*	*3.0*
Bulgaria (1990)	*120 536*	112 213	101 011	-10.0
Bulgaria (1988)	141 345	129 862	101 011	-22.0
Canada[e]	*566 664*	*564 480*	*609 118*	*8.0*
Czech Republic	*191 578*	178 848	148 056	-17.0
Denmark	63 974	71 660	66 106	-8.0
Estonia	45 309	37 800	17 500 -23 000	(-54.0)-(-39.0)
Finland	*64 546*	*64 546*	*70 000*	*9.0*
France	*503 181*	510 857	498 643	-2.0
Germany	*1 210 387*	*1 210 232*	*1 038 058*	*-14.0*
Greece	93 550	94 888	107 288	13.0
Hungary (1990)	*86 652*	83 506	77 536	-7.0
Hungary (1985-87)	104 082	99 045	77 536	-22.0
Iceland	*3 109*	*3 227*	*3 094*	*-4.0*
Ireland	*56 819*	*56 819*	*60 625*	*7.0*
Italy	548 259	557 640	597 200	7.0
Japan	*1 235 986*	1 221 850	1 244 815	2.0
Latvia	*27 059*	27 640	20 197	-27.0
Luxembourg	12 123	12 081	8 417	-30.0
Netherlands	*215 357*	*[223 313]*	*213 660*	*-4.0*
New Zealand	*77 188*	*77 178*	*83 211*	*8.0*
Norway	*54 011*	*54 515*	*60 279*	*11.0*
Poland (1990)	591 390	401 386-518 386		
Poland[d] (1988)	572 257	629 830	401 386 - 518 386	(-36.0) - (-18.0)
Portugal	50 195	38 689	54 274	40.0
Romania (1990)	245 245			
Romania[d] (1989)	285 404			
Russian Federation	*3 006 781*	2 330 000	1 930 000 - 2 026 000	(-17.0) - (-13.0)
Slovakia	*71 938*	70 891	60 330	-15.0
Spain	301 602	222 908	276 523	24.0
Sweden	*66 457*	*[68 225]*	*69 009*	*5.0*
Switzerland	*53 749*	*[55 749]*	*52 336*	*-6.0*
UK	*711 579*	*711 094*	*639 072*	*-10.0*
USA	5 842 371	5 944 684	5 975 064	0.5

[a] Figures from tables B.1, B.3, B.4 and B.5 have been used as the starting point for these projections. Only gases and sources that were projected are included.

[b] All data presented in italics, i.e. all information from second national communications, the first national communication from Belgium and updated inventories submitted by the parties, are calculated using 1995 GWPs. All other figures are based on 1994 GWPs. The time-horizon = 100 years; figures differ from those in the communications where countries did not use those GWPs.

[c] Major differences between inventory figures and projection figures for 1990 indicate that projections were not given for all gases reported in the inventories (for example Belgium) or for all sectors, or that temperature [Belgium, France, Netherlands, Switzerland] or electricity imports (Denmark) adjustments had been taken into account.

[d] Some EIT parties by COP2 decision 9/CP.2 were allowed to use different base years from 1990; Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).

[e] Sweden reported 1995 rather than 1990 as the base level for projections. All variations from the base level are thus given in relations to 1995.

Table C.1. Projected anthropogenic emissions of CO_2 excluding land-use change and forestry until 2020 (Gigagrams)

	Base level (1990)		Last reported inventory[b]	Projection and percentage deviation relative to the projection base level, base year = 100 per cent							
				2000		2005		2010		2020	
	Inventory (Gg)	Projection[a] (Gg)	(Gg)	(Gg)	(%)	(Gg)	(%)	(Gg)	(%)	(Gg)	(%)
Canada	464 000	463 700	499 526	500 600	8	522 900	13	549 900	19	628 300	36
Finland	53 800	53 800	56 050	58 000 - 60 000	8- 12			56 000 - 71 000	4 - 31	49 000 - 80 000	(-9) (46)
Germany	1 014 155	1 014 000	894 500	894 000	-12	867 000	-15	854 000	-16	847 000	-17
Ireland	30 719	30 719	33 931	34 988	14	38 828	26	40 775	33	..	
Netherlands	167 550	[173 000]	183 400	168 000	-3	170 000	-2	170 000	-2	170 000	-2
New Zealand	25 476	25 476	27 367	31 080	22	33 570	32	36 310	43	43 560	71
Norway	35 544	36 000	37 880	44 000	22	47 000	31	48 000	33	46 000	28
Sweden	55 445	[57 600]	58 108	60 100	4	62 100	8	64 300	12	81 000	41
Switzerland	45 070	[47 100]	44 170	43 900	-7	44 700	-5	45 700	-3		
UK	580 237	580 000	551 574	550 000	-5	593 000	2	595 000	3	682 000	18

[a] Belgium, the Netherlands, Sweden, Switzerland have made temperature adjustments for the projection base level, as indicated through square brackets. 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.

[b] All countries reported their last inventory for 1995, with the exception of Belgium and the United Kingdom whose last inventory was reported for 1994.

Notes*

In the following no account is taken of uncertainties, methods used, nor is a thorough discussion of the projections presented here. This will be undertaken in the compilation and synthesis of the second national communications. The purpose of the notes is to give some background information, which may be essential for the understanding of the figures as presented in the table.

Belgium: The projection given in table B.1 is based on a scenario with "implemented measures". In addition, Belgium provided two other projections scenarios, one "without measures" and one with "measures under consideration". The "without measures" scenario projects CO_2 emissions to be 129,300 Gg in the year 2000, while the "measures under consideration" scenario leads to 116,300 Gg CO_2 emissions in the year 2000. Belgium also provided long-term projections for energy sector related emissions.

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_2 emissions, and the other one, the "energy policy scenario" (EPO), which assumes strengthening current control measures. Two different types 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 is built.

Germany: The scenario presented in table B.1 is the "with-measures scenario"/"IWG-measures scenario" where CO_2-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 that counter increases in CO_2 emissions. The latter leads to a reduction of CO_2 emissions by 3% instead of 12 % under the scenario reported in the table.

The Netherlands: The "favourable CO_2 scenario", which is presented in the table, is according to the Dutch second national communication the scenario which is "more-or-less consistent with the present policy goal" (p.75). This scenario is subdivided into two other scenarios, the "favourable-high" and the "favourable-low" scenario, which refer to different levels of resulting energy demand. In addition, a "trend-scenario" was developed that "can be considered as an existing-policy scenario" (p.75). This scenario leads to stabilisation of CO_2 emissions in the year 2000 with respect to the base level used in the projection.

New Zealand: The "with measure" scenario as presented in the table is estimated to reduce the growth in energy-related CO_2 emissions by about 21.5% 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_2 emissions at 1990 levels by means of a global CO_2 tax.

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.

Switzerland: The projection for the year 2000 as given in the table results from a scenario with "implemented measures". Bunker fuel emissions were deducted from the total CO_2 emission level. A second scenario was developed with "measures under consideration". Under this scenario, a 10% reduction of emissions would be reached as compared to the 3% reduction under the "implemented measures" scenario.

The United Kingdom: Land-use change and forestry were deducted from the summary CO_2 figure.

* All references in the parentheses are to the national communications.

Table C.2. CO_2 projections in land-use change and forestry until 2020[a] (Gigagrams)

	Base level (1990)		Last reported inventory[c]	Projection and percentage deviation relative to the projection base level, base year = 100 per cent							
	Inventory	Projection[b]		2000		2005		2010		2020	
	(Gg)	(Gg)	(Gg)	(Gg)	(%)	(Gg)	(%)	(Gg)	(%)	(Gg)	(%)
Finland[d]	(-31 000)-(-19 000)	-24 500	(-13 000)-(-7 000)	(-17 000)-(-12 000)	(31)-(52)			(-15 000)-(-22 000)	(39)-(11)	(-27 000)-(+1 000)	(-10)-(≈100)
Ireland	-5 160	-5 160	-6 230	-7 580	-47	-8 630	67	-9 690	88		
Netherlands	-1 500	-1 500	-1 700	-1 700	-13	-1 700	-13	-1 700	-13	-1 700	-13
New Zealand	-20 569	-20 569	-13 490	-18 944	8	-20 807	-1	-21 208	-3	- 31 654	-54
Norway	-9 400	-9 400	-13 637	-11 000	17	-12 200	30	-13 400	43	-12 800	36
Sweden[e]	-34 368	-34 000	NR	-29 000	15	-26 000	24	-22 000	35		
Switzerland	-4 360	-4 360	-5 100	-5 100	-17	-5 100	-17	-5 100	-17	-5 100	-17
UK	20 240	20 600	12 540	11 100	-46	8 900	-57	8 700	-58		

[a] Negative values in Gg denote removal of CO_2. Positive values denote a net source of emissions. Negative values in percentage denote more removals in 2000 than in 1990, or a decrease in net emissions.
[b] Differences in 1990 levels between inventories and projections are, for example, due to late revisions of inventories, rounding, or the fact that only a subset of the sources was projected.
[e] All parties reported their last inventory for 1995, with the exception of the United Kingdom which last inventory was reported for 1994.
[d] 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.
[e] Deviation relative to the projection base level calculated on the basis of the mean of the range (-30 000)-(-19 000) Gg.

Comments

The emissions for land-use change and forestry in both Finland and the United Kingdom 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. New Zealand reported three different scenarios on the basis of different planting strategies. The “Central estimate of New Planting post 1997" is given in the table.

Table C.3. Projected anthropogenic emissions of CH_4 until 2020

	Base level (1990)		Last reported inventory[a]	Projection and percentage deviation relative to the projection base level, base year = 100 per cent							
	Inventory	Projection		2000		2005		2010		2020	
	(Gg)	(Gg)	(Gg)	(Gg)	(%)	(Gg)	(%)	(Gg)	(%)	(Gg)	(%)
Canada	3 200	3 148	3 732	3 546	13	3 600	14	3 719	18	4 179	33
Finland	246	246	241	226	-8	206	-16	191	-22	179	-27
Germany	5 682	5 682	4 788	3 892	-32	3 004	-47	2 759	-51	2 505	-56
Ireland	811	811	812	837	3	838	3	839	4		
Netherlands	1 103	1 067	1 062	788	-34	700	-34	611	-43	594	-44
New Zealand	1 706	1 706	1 635	1 541	-10	1 552	9	1 573	-8	1 604	-6
Norway	432	432	469	414	-4	377	-13	332	-23	325	-25
Sweden[b]	324	302	296	284	-6	284	-6	211	-30	262	-13
Switzerland	244	244	235	229	-6	211	-13	192	-21		
UK	4 402	4 402	3 843	3 418	-22	3 227	-27	2 852	-35	2 670	-39

[a] All parties reported their last inventory for 1995, with the exception of the United Kingdom which last inventory was reported for 1994.

[b] 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. Projected anthropogenic emissions of N_2O until 2020 (Gigagrams)

	Base level (1990)		Last reported inventory[a]	Projection and percentage deviation relative to the projection base level, base year = 100 per cent							
	Inventory	Projection		2000		2005		2010		2020	
	(Gg)	(Gg)	(Gg)	(Gg)	(%)	(Gg)	(%)	(Gg)	(%)	(Gg)	(%)
Canada	86.0	86.0	107.8	74.0	-14	77.1	-10	81.1	-6	88.3	3
Finland	18.0	18.0	18.0	21.5	19	23 - 25	28 - 38	24 - 25	33 - 39	23 - 26	28 - 44
Germany	226.0	226.0	210.0	162.0	-28	159.0	-30	157.0	-31	156.0	-31
Ireland	29.4	29.4	26.0	26.0	-12	26.0	-12	26.0	-12		
Netherlands	51.2	62.6	58.5	65.2	4	67.0	7	68.1	9	70.1	12
New Zealand	47.5	47.5	46.7	46.0	-3	45.6	-4	45.7	-4	45.7	-4
Norway	15.0	15.3	14.0	16.0	5	16.5	8	16.9	11	17.7	16
Sweden[b]	9.2	9.3	9.2	9.3	1	10.5	13	11.5	24	12.7	37
Switzerland	11.5	11.5	11.8	11.7	2	11.6	1	11.3	2		
UK	112.5	111.7	93.7	42.9	-62	48.3	-57	50.8	-55	53.3	-53

[a] All parties reported their last inventory for 1995, with the exception of the United Kingdom which last inventory was reported for 1994.

[b] 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.5.1. Projected emissions of HFCs until 2020[a] (Gigagrams, CO_2 equivalent)[b]

	Base level (1990)		Last reported inventory[d]	Projection and percentage deviation relative to the projection base level, base year = 100 per cent							
	Inventory	Projection[c]		2000		2005		2010		2020	
	(Gg)	(Gg)	(Gg)	(Gg)	(%)	(Gg)	(%)	(Gg)	(%)	(Gg)	(%)
Canada		500	500	2000	300	4000	700	7000	1 300	14 000	2 700
Finland		79		130	65	156	97	195	145	195	145
Germany	260	260	2 878	6 336	2 337	10 388	3 895	12 609	4 750	12 355	4 652
Netherlands	4 911	4 880	8 453	4 763	-2	5 767	18	8 964	84	16 119	230
New Zealand		183	183	213	16	247	35	287	57	583	219
Norway		200	200	800	300	1 300	550	1 600	700	1 900	850
Sweden		200	200	800	300	900	350	900	350		
UK	1 366	1 366	2 051	2 390	75	(2 095 - 3 771)	(53 - 176)	(2 263 - 4 578)	(66 - 235)		

[a] Finland, Germany, New Zealand and the United Kingdom only reported aggregated data for HFC. The secretariat therefore assumed that all these emissions were HFC-134a. Finland, New Zealand and Sweden used 1995 as base level for the HFC projections.

[b] Australia, Italy and the USA reported emissions based on 1994 GWPs, as given in their first national communications, whilst all other parties presented in the table reported on the basis of 1995 GWPs as given in their second national communications. The assumed time-horizon = 100 years.

[c] The figures are rounded.

[d] All parties reported their last inventory for 1995, with the exception of the United Kingdom which last inventory was reported for 1994.

Comment

With the exception of Canada, the Netherlands and the United Kingdom, parties did not express clearly whether emissions for other greenhouse gases reported included also potential emissions or only actual emissions.

Table C.5.2. Projected emissions of PFCs until 2020 (Gigagrams, CO_2 equivalent)[a,b]

	Base level (1990)		Last reported inventory[d]	Projection and percentage deviation relative to the projection base level, base year = 100 per cent							
				2000		2005		2010		2020	
	Inventory (Gg)	Projection[c] (Gg)	(Gg)	(Gg)	(%)	(Gg)	(%)	(Gg)	(%)	(Gg)	(%)
Canada	5 936	7 144	6 019	7 420	4	7 420	4	7 420	4	7 420	4
Finland		271		339	25	339	150	677	150	677	150
Germany	2 694	2 694	1 665	799	-70	784	-71	784	-71	784	-71
Netherlands	2 459	2 234	2 391	2 512	12	2 640	18	2 776	24	3 033	36
New Zealand	601	601	196	230	-62	237	-61	237	-61	251	-58
Norway	2 545	2 500	1 441	1 300	-48	1 200	-52	1 200	-52	1 200	-52
Sweden	400	400	390	500	25	500	25	600	50		
UK	2 085	2 085	474	575	-72	745	-64	894	-57		

[a] Finland, New Zealand and the United Kingdom reported only aggregated PFC figures. In order to estimate the CO_2 equivalent, the secretariat assumed that approximately 90 per cent was CF_4 and 10 per cent was C_2F_6.
Finland and Sweden used 1995 as base level for the PFC projections.
[c] Australia, Italy and the USA reported emissions based on 1994 GWPs, as given in their first national communications, whilst all other parties presented in the table reported on the basis of 1995 GWPs as given in their second national communications. The assumed time-horizon = 100 years.
[e] The figures are rounded.
[d] All parties reported their last inventory for 1995, with the exception of the United Kingdom which last inventory was reported for 1994.

Table C.5.3. Projected emissions of SF_6 until 2020[a] (Gigagrams CO_2 equivalent)[b]

	Base level (1990)		Last reported inventory[d]	Projection and percentage deviation relative to the projection base level, base year = 100 per cent							
				2000		2005		2010		2020	
	Inventory	Projection[c]									
	(Gg)	(Gg)	(Gg)	(Gg)	(%)	(Gg)	(%)	(Gg)	(%)	(Gg)	(%)
Canada	2 868	2 868	1 888	1 912	-33	1 912	-33	1 912	-33	1 912	-33
Finland		96		120	25	143	49	143	49	143	49
Germany	3 896	3 896	5 999	4 971	28	4 445	14	5 401	39	6 979	79
Netherlands	1 386	1 386	1 458	1 625	17	1 793	29	1 960	41	2 271	64
New Zealand	550	550	4 374	5 067	821	5 879	969	6 812	1 139	9 154	1 564
Norway	2 200	2 200	574	525	-76	525	-76	600	-72	700	-68
Sweden	956	1 000	1 243	1 200	20	1 200	20	1 200	20		
UK	574	574	621	1 028	79	1 028	79	1 052	83		

[a] Finland, New Zealand and Sweden used 1995 as base level for the SF_6 projections.

[b] Australia, Italy and the USA reported emissions based on 1994 GWPs, as given in their first national communications, whilst all other parties presented in the table reported on the basis of 1995 GWPs as given in their second national communications. The assumed time-horizon = 100 years.

[c] The figures are rounded.

[d] All parties reported their last inventory for 1995, with the exception of the United Kingdom which last inventory was reported for 1994.

Table C.6. Projected anthropogenic emissions of all greenhouse gases, excluding land-use change and forestry until 2020[a] (Gigagrams, CO_2 equivalent)[b]

	Base level (1990)		Last reported inventory[d]	Projection and percentage deviation relative to the projection base level, base year = 100 per cent							
	Inventory	Projection[c]		2000		2005		2010		2020	
	(Gg)	(Gg)	(Gg)	(Gg)	(%)	(Gg)	(%)	(Gg)	(%)	(Gg)	(%)
Canada	566 664	566 480	619 723	609 118	8	635 513	12	669 252	8	766 544	35
Finland	64 546	65 546	67 137	70 000	9			68 466 -68 576	6	60 904 -61 824	(-6) - (-4)
Germany	1 210 387	1 210 232	1 070 691	1 038 058	-14	994 991	-18	979 403	-19	968 083	-20
Ireland	56 864	56 864	59 043	60 625	7	64 486	13	66 454	17		
Netherlands	215 341	223 313	236 139	213 660	-4	215 670	-3	217 642	-3	225 628	1
New Zealand	77 184	77 178	80 932	83 211	8	86 661	12	90 784	18	101 399	31
Norway	54 011	54 515	54 284	60 279	11	63 057	16	63 611	17	62 112	14
Sweden[d]	66 457	68 225	69 009	71 447	5	73 919	8	74 996	10	90 439	33
Switzerland	53 759	55 789	53 806	52 336	-6	52 727	-6	53 235	-5		
UK	711 579	711 094	664 470	639 072	-10	679 608	-4	674 849	-5	754 593	6

[a] Figures from tables C.1, C.3, C.4, C.5.1, C.5.2, and C.5.3 have been used as the starting point for these projections. Only gases and sources that were projected are included.
[b] Using 1995 GWPs, time-horizon = 100 years.
[c] 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 (Netherlands, Sweden and Switzerland).
[d] All parties reported their last inventory for 1995, with the exception of the United Kingdom which last inventory was reported for 1994.
[e] 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.