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CONVENTION – CADRE SUR LES CHANGEMENTS CLIMATIQUES - Secrétariat

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**SYNTHESIS AND ASSESSMENT REPORT ON THE GREENHOUSE GAS INVENTORIES
SUBMITTED IN 2004**

Note by the secretariat

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I. MANDATE

1. The Conference of the Parties (COP), by its decision 19/CP.8, adopted the revised guidelines for the technical review of greenhouse gas (GHG) inventories from Parties included in Annex I to the Convention¹ (hereinafter referred to as the review guidelines) to be applied from the year 2003. It also determined that the revised reporting guidelines on annual inventories adopted by decision 18/CP.8 should be used for the inventory due by 15 April 2004.

2. As part of the inventory review process, the COP requested the secretariat to conduct an annual synthesis and assessment of GHG inventories for all Annex I Parties. The purposes of the synthesis and assessment are to facilitate the consideration of inventory data and other information across Parties, and to identify issues for further consideration during the reviews of individual inventories (desk reviews, centralized reviews and in-country reviews). The synthesis and assessment is to be prepared in two parts. Part I is to provide information to allow comparisons across Annex I Parties, as well as descriptions of common methodological issues. Part II is to provide a preliminary analysis of individual Annex I Party inventories, in particular to identify outstanding issues requiring clarification during the individual review stage of the process.

3. In accordance with decision 19/CP.8, Part I of this present synthesis and assessment report has been sent to Parties for comment prior to publication on the UNFCCC web site. Part II will be sent to the respective Party for comments and, together with the comments from the respective Party, will be provided to the corresponding expert review team as input for the individual review; Part II will not be published on the UNFCCC web site.

II. COMPARISON OF GHG INVENTORY INFORMATION

A. Approach

4. This document contains Part I of the synthesis and assessment report, covering the national GHG inventories submitted in 2004 by those Annex I Parties that used the common reporting format (CRF) in accordance with the UNFCCC reporting guidelines (FCCC/CP/1999/7).

5. This document covers only the inventory information submitted in the CRF in 2004. It does not cover information contained in the national inventory reports, or information contained in inventory submissions from previous years. Information in this document is not intended as a judgment of whether inventory problems exist, but as an indication of potential issues that need to be considered further during the third stage of the review process (individual review) by the expert review teams.

6. The completeness of this report is limited by the fact that only 36 out of 40 Annex I Parties submitted their inventory within six weeks after the due date for submissions. Accordingly, this report covers inventories submitted by: Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, Estonia, European Community, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Latvia, Lithuania, Luxembourg, Monaco, Netherlands, New Zealand, Norway, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom, United States.

7. This synthesis and assessment report contains greenhouse gas inventory information from those Parties, compiled in tabular format. The tables provide comparisons of implied emission factors and activity data as reported in the CRF, data from international sources, emissions, information on methods used and emission factors as reported by Parties in Summary table 3 of the CRF, and other information relating to GHG inventory estimates. Where possible, this information is provided for all 36 Parties and for the base year and for the years from 1996 to 2002. For some sectors and categories, however, trend comparisons across all Parties were not possible due to the lack of data for some or all of these years.

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

8. The inventory data were analyzed according to the sectors, subsectors and source categories specified in the CRF, which correspond to those of the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* (hereinafter referred to as the IPCC Guidelines).
9. To facilitate the analysis of the inventory data, the secretariat considers, for each individual Party, those source categories that are *key sources* in terms of their absolute level of emissions and impact on the trend, applying the tier 1 level and trend assessment as described in chapter 7 “Methodological choice and recalculations” of the *IPCC Good Practice Guidance and Uncertainty Management* (hereinafter referred to as the IPCC good practice guidance).² This identification has been performed at the level of detail recommended in that guidance. The land-use change and forestry sector has not been included in the calculation of the key source assessments.³

B. Explanatory notes to the tables

10. Blank cells in a table indicate that a Party did not report information for a given source and gas in the appropriate table of the CRF. Where a Party’s value is very small compared to that of other Parties, it has been rounded to zero for this report.
11. The differences in activity data between the CRF and international data sources were calculated as percentage deviations from the activity data provided in the CRF. A positive number indicates that the data from the international data source are higher than the data reported in the CRF. Similarly, a negative number indicates that data from the international data source are lower than the data reported in the CRF.
12. References to the base year refer to 1990, except for the following Parties with economies in transition which, in accordance with decisions 9/CP.2 and 11/CP.4, use base years other than 1990: Bulgaria (1988), Hungary (average 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986).
13. Key sources identified by the secretariat’s analysis are indicated by “L” for level and “T” for trend assessments in the “key source” columns. The column “Share of national total” indicates the contribution of that key source to the Party’s national total of GHG emissions in terms of CO₂ equivalent, excluding emissions and removals from land-use change and forestry.
14. Tables on energy indicate whether implied emission factors given in the CRF are based on gross calorific value (GCV) or net calorific value (NCV). The difference between the NCV and the GCV for each fuel is the latent heat of vaporization of the water produced during combustion of the fuel. For coal and oil, NCV is 5 per cent less than GCV, and for most forms of natural and manufactured gas the difference is 9 to 10 per cent.
15. Where Parties used notation keys (NO, NE, NA, IE, C) these have been reproduced verbatim from the CRF tables provided by Parties. The notation keys, as described in the UNFCCC reporting guidelines (FCCC/CP/2002/8), are as follows:

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

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

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

³ In accordance with decision 13/CP.9, Annex I Parties should use the IPCC good practice guidance for land use, land–use change and forestry for the inventories due in 2005 and beyond.

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

17. To indicate the methods and emission factors used by Parties the following abbreviations have been used (see also footnotes to Summary table 3 of the CRF) in the synthesis and assessment report:

<u>Methods:</u>		<u>Emission factors:</u>	
D	IPCC default	D	IPCC default
RA	Reference approach	C	CORINAIR
T1	IPCC tier 1	CS	Country specific
T1a, T1b, T1c	IPCC tier 1a, tier 1b, and tier 1c, respectively	PS	Plant specific
T2	IPCC tier 2	M	Model
T3	IPCC tier 3		
C	CORINAIR		
CS	Country specific		
M	Model		

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

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

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

CRF	common reporting format
NIR	national inventory report
A	actual emissions
P	potential emissions
AD	activity data
EF	emission factor
IEF	implied emission factor
GHG	greenhouse gas
GWP	global warming potential
C	carbon
N	nitrogen
NO _x	nitrogen oxides
NH ₃	ammonia
NCV	net calorific value
GCV	gross calorific value
yr	year
dm	dry matter
Frac _{FUEL}	fraction of livestock N excretion in excrements burned for fuel
Frac _{GRAZ}	fraction of livestock N excreted and deposited onto soil during grazing
Frac _{NCRBF}	fraction of N in non-N-fixing crop
Frac _{NCRO}	fraction of N in N-fixing crop
Frac _R	fraction of crop residue removed from the field as crop
Frac _{BURN}	fraction of crop residue burned
Frac _{GASF}	fraction of synthetic fertilizer N applied to soils which volatilizes as NH ₃ and NO _x
Frac _{GASM}	fraction of livestock N excretion that volatilizes as NH ₃ and NO _x
Frac _{LEACH}	fraction of N input to soils which is lost through leaching and run-off
L	level (key source applying the IPCC good practice guidance tier 1 level assessment)
LPG	liquefied petroleum gas
LTO	landing and take off cycle
NMVOC	non-methane volatile organic compounds
T	trend (key source applying the IPCC good practice guidance tier 1 trend assessment)
FAO	Food and Agriculture Organization of the United Nations
IEA	International Energy Agency
NGL	natural gas liquids

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Table number Table name

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	Ratio: kg CH ₄ /capita
	Relative change (%)
	N ₂ O emissions (Gg)
	Relative change (%)
	Ratio: kg N ₂ O /capita
	Relative change (%)

General

Table G.1

Submissions used in the S&A report: Part I

Party	CRF for years:	Initial submission date	NIR	Submission date and version used in the S&A report	Sources of data for the trend tables
Australia	1990-2002	15 April 2004	✓	27 May 2004 (v.2)	1990–2001: S2004
Austria	1990-2002	15 April 2004	✓	7 June 2004 (v.2)	1990–2001: S2004
Belarus	2002	31 March 2004	✓	27 May 2004 (v.2)	1990–2001: T2004
Belgium	1990-2002	15 April 2004	✓	15 April 2004 (v.1)	1990–2001: S2004
Bulgaria	2002 and recalculation tables for 1988, 1990-2000	25 April 2004	✓	25 April 2004 (v.1)	1990–2001: T2004
Canada	1990-2002	15 April 2004	✓	27 May 2004 (v.2)	1990–2001: S2004
Croatia	1990-2002	15 April 2004	✓	28 May 2004 (v.2)	1990–2001: S2004
Czech Republic	1992, 2002	14 April 2004	✓	14 April 2004 (v.1); 1992: 26 May 2004 (v.2)	1990, 1994, 1996–2001: T2004, 1992: S2004
Denmark	1990-2002	15 April 2004	✓	24 May 2004 (v.2)	1990–2001: S2004
Estonia	2002	15 April 2004	✓	15 April 2004 (v.1)	1990–2001: T2004
European Community	1990-2002	07 May 2004	✓	7 May 2004 (v.1)	1990–2001: S2004
Finland	1990-2002	01 April 2004	✓	28 May 2004 (v.2)	1990–2001: S2004
France	1990-2002	26 March 2004	✓	26 March 2004 (v.1)	1990–2001: S2004
Germany	1990-2002	30 April 2004	✓	30 April 2004 (v.1)	1990–2001: S2004
Greece	1990-2002	07 April 2004	✓	7 April 2004 (v.1)	1990–2001: S2004
Hungary	2002	13 May 2004	✓	9 June 2004 (v.2)	1990–2001: S2004
Ireland	1990-2002	26 April 2004	✓	26 April 2004 (v.1)	1990–2001: S2004
Italy	1990-2002	15 April 2004		1 June 2004 (v.2)	1990–2001: S2004
Japan	1990-2002	24 May 2004		24 May 2004 (v.1)	1990–2001: S2004
Latvia	1990-2002	15 April 2004	✓	15 April 2004 (v.1)	1990–2001: S2004
Lithuania	1990, 1998, 2001-2002	14 April 2004		1992-1997: 14 April 2004 (v.1), 1990, 1991, 1998-2002; 1 June 2004 (v.3)	1990, 1998, 2001: S2004, 1992-1997: S2002
Luxembourg	1998, 2000, 2002	28 May 2004		28 May 2004 (v.1)	1998, 2000: S2004, 1999: S2001, 2001: S2003
Monaco	2002	23 April 2004	✓	23 April 2004 (v.1)	1990–2001: T2004
Netherlands	1990-2002	01 April 2004	✓	18 May 2004 (v.2)	1990–2001: S2004
New Zealand	1990-2002	15 April 2004	✓	28 May 2004 (v.3)	1990–2001: S2004
Norway	1990, 1998-2002	15 April 2004	✓	1990, 1998-2002: 18 May 2004 (v.2); 1991-1997: 15 April 2004 (v.1)	1990–2001: S2004
Portugal	1990-2002	14 April 2004		28 April 2004 (v.2)	1990–2001: S2004
Romania	1989, 1990-2002	14 May 2004	✓	14 May 2004 (v.1)	1990–2001: S2004
Slovakia	2001-2002	14 April 2004		25 May 2004 (v.2)	1990–2000: T2004, 2001: S2004
Slovenia	1986, 1990-2002	15 April 2004		27 May 2004 (v.2)	1990–2001: S2004
Spain	1990-2002	15 April 2004	✓	15 April 2004 (v.1)	1990–2001: S2004
Sweden	1990-2002	16 April 2004	✓	16 April 2004 (v.1)	1990–2001: S2004
Switzerland	1990-2002	14 April 2004	✓	14 April 2004 (v.1)	1990–2001: S2004
Ukraine	2001-2002	20 February 2004	✓	20 February 2004 (v.1)	2001: S2004
United Kingdom	1990-2002	15 April 2004	✓	22 May 2004 (v.2)	1990–2001: S2004
United States	1990-2002	12 April 2004	✓	27 May 2004 (v.2)	1990–2001: S2004

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

Table G.2

Key sources: inventory year 2002^a

Source categories	Australia	Austria	Belarus	Belgium	Bulgaria	Canada	Croatia	Czech Republic	Denmark	Estonia	European Community	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Japan	Latvia	Lithuania	Luxembourg	Monaco	Netherlands	New Zealand	Norway	Portugal	Romania	Slovakia	Slovenia	Spain	Sweden	Switzerland	Ukraine	United Kingdom	United States	
Energy																																					
Stationary combustion-coal (CO ₂)	L, T	L, T	L	L, T	L	L, T	L, T	L	L, T	L	L	L, T	L, T	L, T	L, T	L	L, T	L, T	L, T	L, T	L			L, T	L, T	L, T	L, T	L, T	L, T	L	L, T	L, T	L, T	L	L, T	L, T	
Stationary combustion-gas (CO ₂)	L, T	L, T	L	L, T	L	L, T	L, T	L	L, T	L	L	L, T	L, T	L, T	L, T	L	L, T	L, T	L, T	L, T	L		L	L, T	L, T	L, T	L, T	L, T	L, T	L	L, T	L, T	L, T	L	L, T	L, T	
Stationary combustion-oil (CO ₂)	L	L, T	L	L, T	L	L, T	L, T	L	L, T	L	L	L, T	L, T	L, T	L, T	L	L, T	L, T	L, T	L, T	L		L	L, T	L, T	L, T	L, T	L, T	L, T	L	L, T	L, T	L, T	L	L, T	L, T	
Stationnary combustion - Other Fuels (CO ₂)		L		L, T				L		L	L, T	L, T	T					T						L, T					L		T	L, T				T	
Stationary combustion-coal (CH ₄)														T																T							
Stationary combustion-gas (CH ₄)									T																												
Stationary combustion - Biomass (CH ₄)	T												L, T							L, T											T	T					
Stationary combustion-coal (N ₂ O)					L			L							L																		T		T		
Stationary combustion-gas (N ₂ O)																L															T				T		
Stationary combustion-oil (N ₂ O)				L							L				L				L, T												L	L					
Stationary combustion-biomass (N ₂ O)																																T					
Mobile combustion-aircraft (CO ₂)	L, T					L	T				L	T	L, T	T	T				T				L		L, T	L, T				L, T	L	T		L	L, T		
Mobile combustion-Road vehicles (CO2)	L	L, T	L	L, T	L	L, T	L, T	L	L, T	L	L	L, T	L, T	L, T	L, T	L	L, T	L, T	L, T	L, T	L		L	L, T	L, T	L, T	L, T	L, T	L	L, T	L, T	L, T	L, T	L, T	L, T		
Mobile combustion-Road vehicles (CH4)																																					
Mobile combustion-Road vehicles (N ₂ O)	L, T	L, T		T		L	T		T		L	L, T	L, T	L, T	T	L	T	L, T								L, T	L, T			L, T	L, T	L, T	L, T		L, T	L	
Mobile combustion-waterborne navigation (CO ₂)	T							L		L	L, T	L, T		L, T				L	L	T			L				T	T			L	L			T	L	
Railways (CO ₂)					L, T															L, T									T								
Other Transportation (CO ₂)		L, T			L	L						L, T							T				L			L		T						L		L, T	
Fugitive emissions: coal mining&handling (CH ₄)	L, T				L			L		L			T	L, T	L	L									T				L	L	L, T	T			L	L, T	
Fugitive emissions: oil&gas operations (CH ₄)	L, T		L		L	L, T	L, T		L	L			L			L		L, T		L, T	L			L, T		L, T	T	L, T	L		T			L	L, T	L, T	
Fugitive emissions: oil&gas operations (CO ₂)	L				L, T	L, T		T		L		L						T						L, T	L, T	L, T	L, T				L			L, T			
Other (fugitive from solid fuels) (CH ₄)													T																								
Other (fugitive from solid fuels) (CO ₂)												L, T																				L, T					
Solid Fuel Transformation (CO ₂)																																				T	
Industrial processes																																					
Cement production (CO ₂)		L, T	L	L	L	L	L, T	L	L, T	L	L	L, T	L, T	L	L, T	L	L, T	L, T	L, T	L	L				L	L, T	L, T	L	L	L, T	L, T	L, T	L, T		L, T	L, T	
Lime production (CO ₂)		L		L	L						L	L	L	L															L, T	L	T		L, T				
Limestone and Dolomite Use (CO ₂)																		L, T																			
Other (mineral products) (CO ₂)		L, T																											L								
Ammonia production (CO ₂)		L		L, T		L	L, T				L		T				L, T	T			L					L, T	L, T	L, T					L		T		
Carbide Production (CO ₂)																																					
Adipic Acid production (N ₂ O)					T						L		L, T	T				L, T	T							L, T									T	T	
Nitric Acid production (N ₂ O)		L, T		L	L		L, T	L	L, T		L	L, T	L, T		T	L	T	T			L			L, T		L, T	L	L, T	L		L, T	L, T					
Other (Chemical Industry) (CH ₄)																									T												
Other (Chemical Industry) (N2O)													T																								

^a Source: UNFCCC secretariat key source analysis.

Table G.2

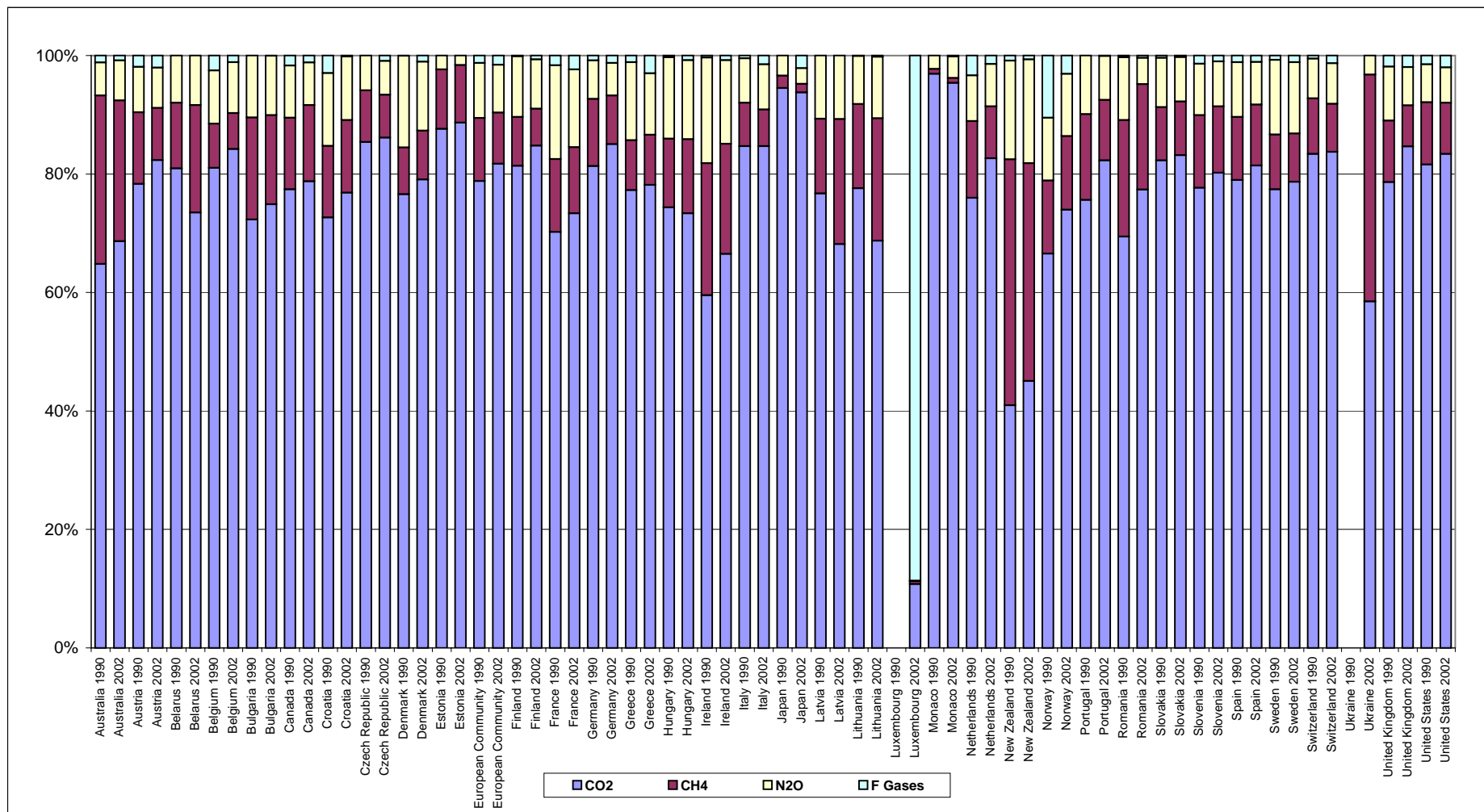
Key sources: inventory year 2002^a (continued)

	Australia	Austria	Belarus	Belgium	Bulgaria	Canada	Croatia	Czech Republic	Denmark	Estonia	European Community	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Japan	Latvia	Lithuania	Luxembourg	Monaco	Netherlands	New Zealand	Norway	Portugal	Romania	Slovakia	Slovenia	Spain	Sweden	Switzerland	Ukraine	United Kingdom	United States
Source categories																																				
Industrial processes																																				
Iron and Steel industry (CO ₂)	L, T	L, T		L	L	L		L			L		L, T												L			L, T	L			L		L	T	L, T
Ferroalloys Production (CO ₂)																										L, T										
Aluminium production (CO ₂)																										L, T				L, T			T			
Aluminium production (PFC)	T					L, T							T		T			T							T	T	L, T				L, T	T	T			T
Magnesium production (SF ₆)																										T				L, T	T		T			
ODS substitutes (HFCs, PFCs)	T	L, T		L, T				L, T		L	T	L, T	L, T	T			T	L, T	L, T						T	T		L, T		T	L, T	T	L, T		L, T	L, T
HCFC production (HFC-23)													T	T	L, T				T						T		L, T				T		L, T			T
Semiconductor Manufacturing (F-gases)		T																	T																	
Fugitive Emissions (prod of Halocarbons and SF6)													T																							
2. Other (Consumption of Halocarbons and SF6)																									T											T
Electrical equipment (SF ₆)																																	T			T
Other sources of SF ₆ (SF ₆)														T																			T			
Other (industrial processes) (CO ₂)				L, T		L																														
Solvents																																				
Solvent and Other Product Use (CO ₂)																				L, T												T				
Agriculture																																				
Enteric Fermentation (CH ₄)	L, T	L, T	L	L, T	L	L	L, T	L	L, T	L	L	L, T	L, T	L	L, T	L	L, T	L, T		L, T	L				L, T	L, T	L, T	L, T	L	L, T	L, T	L, T	L, T	L, T	L, T	L, T
Manure Management (CH ₄)		L, T		L		L		L		L			L					L, T	L						L	L, T		L, T	L, T		L, T	L	L, T		L	T
Manure Management (N ₂ O)		L, T					T		L		L	T	L			L	L	L	L	L	L						L, T			L, T	T	L, T				
Direct N ₂ O emissions from Agricultural soils	L, T	L, T	L	L	L	L, T	L, T	L	L, T		L	L, T	L, T	L	L, T	L	L, T	L, T		L	L				L	L, T	L, T	L, T	L	L, T	L, T	L, T	L, T	L	L	
Indirect N ₂ O from Nitrogen used in Agriculture		L, T				L	L	L	L, T		L	L, T	L, T	L	L, T	L	L, T	L		L, T					L	L	L, T	T		L, T	L, T	L, T	L, T		L, T	L, T
Animal Production (N ₂ O)	L, T				L						L		L		L, T		L, T									L, T		T			L, T	L, T			L, T	T
Agricultural soils (CO ₂)												L, T																								
Savanna Burning (CH ₄)	L, T																																			
Savanna Burning (N2O)	L, T																																			
Other (agricultural soils) (N ₂ O)	L, T			T																				L								L				
Waste																																				
Solid Waste Disposal Sites (CH4)	L, T	L, T	L	L, T	L	L	L, T	L	L	L	L	L, T	L, T	L, T	L, T	L	L	L, T		L, T	L				L, T	L, T	L, T	L, T	L	L, T	L, T	L, T	L	L, T	L, T	
Solid Waste Disposal Sites (CO2)																																				
Wastewater handling (CH ₄)										L				T	T	L				L, T	L						L, T	L, T	L		L			L		
Wastewater handling (N ₂ O)																											L					T				
Waste Incineration (CO ₂)				L, T									T						L													T		L, T		
Other (waste) (CH ₄)				T																																
Other																																				
Other (CO ₂)												L																								
Other (N ₂ O)																								L												

^a Source: UNFCCC secretariat key source analysis.

Figure G.1

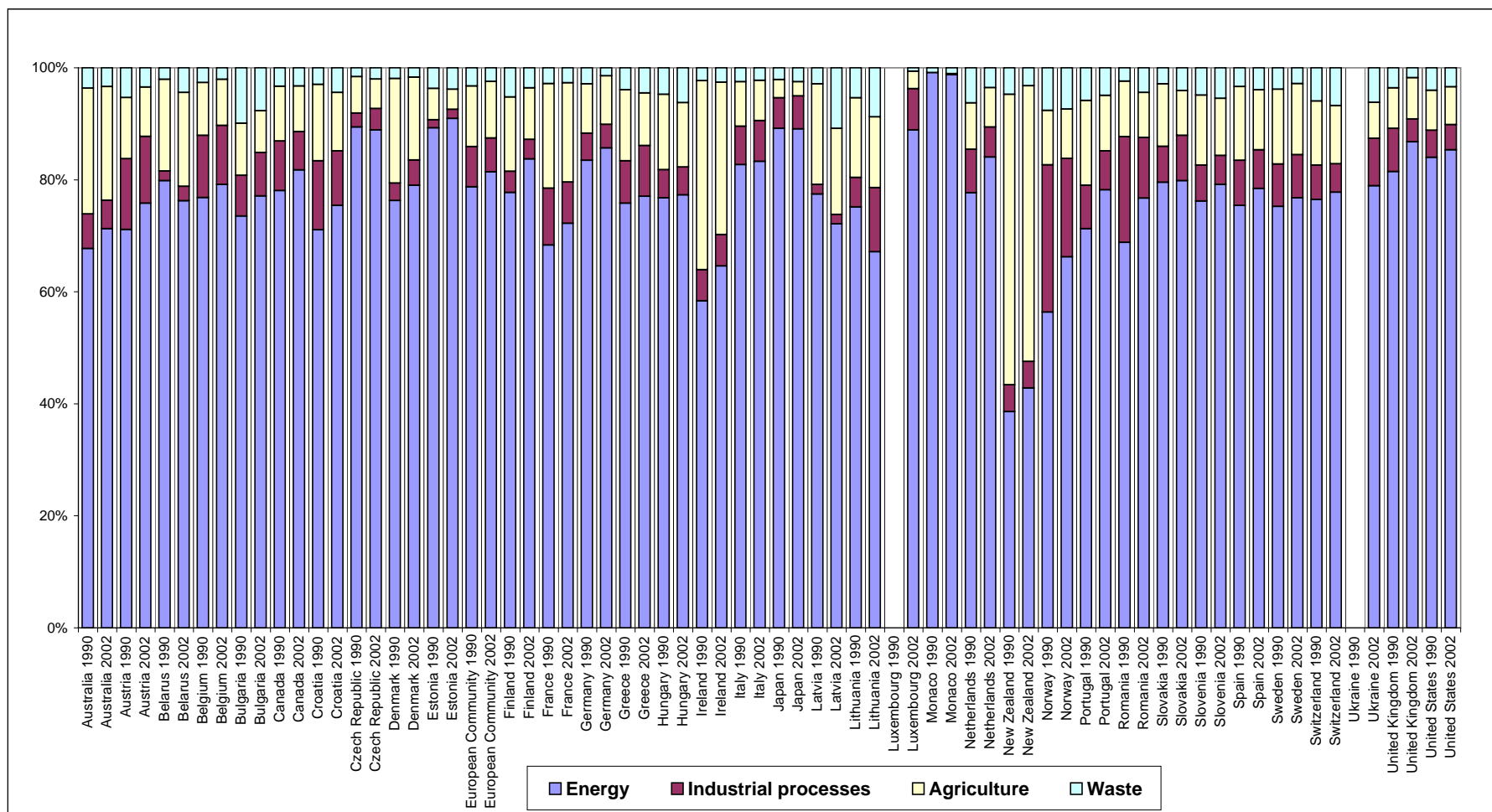
GHG emissions by gas: base year^a and 2002 (%)



^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Figure G.2

GHG emissions by sector (without LUCF): base year^a and 2002 (%)



^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Table G.3**Recalculations for total CO₂ equivalent emissions****without land-use change and forestry: 2004 submission data (%)**

	1990 ^a	1996	1997	1998	1999	2000	2001
Australia	0.01	0.16	0.17	0.18	0.13	0.15	-0.13
Austria	-0.42	-2.18	-2.15	-2.17	-2.48	-1.60	-1.73
Belarus							
Belgium	0.90	3.22	0.47	0.03	-1.44	-0.26	-0.66
Bulgaria		-1.41	-1.34	-1.36	-1.30	-1.37	-1.31
Canada	0.18	0.43	0.10	1.59	-0.20	-0.62	5.04
Croatia							0.12
Czech Republic							
Denmark	-0.67	-0.55	-0.34	-0.18	-0.27	-0.55	-0.14
Estonia							
European Community	0.93	1.08	0.94	0.80	0.72	0.58	0.87
Finland	-0.87	-0.65	-0.57	-0.55	-0.55	-0.55	-0.49
France	0.70	0.43	0.33	0.08	0.04	0.03	0.16
Germany							
Greece	2.16	1.97	2.10	2.05	2.13	2.85	1.82
Hungary							
Ireland	-0.85	0.09	0.33	0.05	0.59	1.87	
Italy							1.64
Japan	0.01	0.60	1.40	0.38	0.35	0.28	0.22
Latvia	-0.90	-2.42	-1.28	-2.55	1.69	3.72	-5.53
Lithuania							
Luxembourg							
Monaco							
Netherlands	0.66	0.56	-1.05	-0.59	-1.74	-1.58	-1.61
New Zealand	-0.18	-0.95	-0.66	-0.26	-0.01	0.10	1.80
Norway	0.24			-0.34	-0.33	-0.40	0.89
Portugal	-5.80	-4.23	-2.93	-3.28	-4.08	-5.29	-6.51
Romania	-0.55	-13.21	-20.15	-20.75	-19.82	-18.23	-11.35
Slovakia							
Slovenia							
Spain	-1.06	-0.52	-0.61	-0.66	-0.18	-0.49	0.18
Sweden	-0.85	-1.92	-1.42	-1.95	-0.66	-2.10	-3.15
Switzerland	0.18					-0.12	-0.19
Ukraine							
United Kingdom	-0.21	-0.19	-0.08	-0.61	0.21	-0.22	1.21
United States	-0.17	-0.29	-0.27	-0.16	0.04	-0.13	-0.75

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Table G.4

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

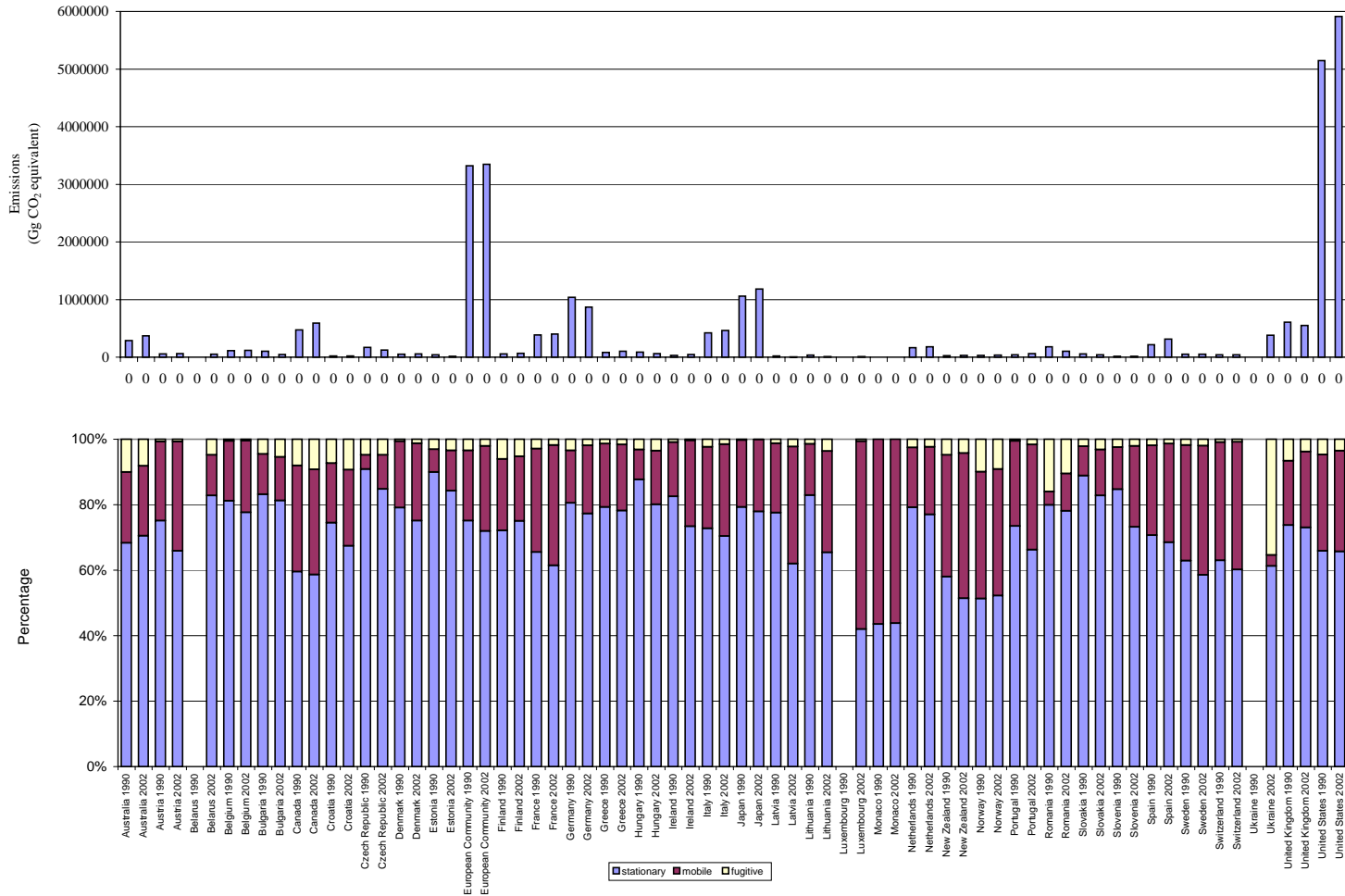
	Energy						Industrial processes						Solvents				Agriculture						LUCF		Waste						
	CO ₂		CH ₄		N ₂ O		CO ₂		CH ₄		N ₂ O		CO ₂		N ₂ O		CO ₂		CH ₄		N ₂ O		CO ₂		CO ₂		CH ₄		N ₂ O		
	1990 ^a	2001	1990 ^a	2001	1990 ^a	2001	1990 ^a	2001	1990 ^a	2001	1990 ^a	2001	1990 ^a	2001	1990 ^a	2001	1990 ^a	2001	1990 ^a	2001	1990 ^a	2001	1990 ^a	2001	1990 ^a	2001	1990 ^a	2001	1990 ^a	2001	
Australia	0.00	-0.28	0.00	0.01	0.00	0.05	-0.02	0.29	15.33	12.59	-0.03	-0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.04	-0.86	0.03	0.56	0.00	0.00	3.11	0.00	0.00	0.00	-0.12	0.00	-0.37
Austria	14.08	9.50	33.94	62.42	2.42	-11.60	-42.91	-40.44	132.52	107.62	0.55	0.00	-45.92	-51.07	0.00	0.00	0.00	0.00	3.81	0.71	3.57	3.77	0.00	0.00	0.00	-0.38	-29.15	-36.77	108.91	186.11	
Belarus																															
Belgium	-0.15	-0.70	-20.27	-42.63	-21.69	10.54	11.79	-0.96	-5.95	-7.50	10.53	8.90	NE	NE	100.00	100.00	0.00	0.00	0.31	0.42	17.78	5.74	18.33	100.00	-15.18	-20.08	-4.59	-25.03	-15.07	-34.37	
Bulgaria	0.00	0.00	-0.84	-0.62	0.00	0.00	-5.91	-4.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-21.48	-21.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Canada	0.00	-0.37	0.00	0.46	0.00	0.02	-2.81	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.18	44.11	116.00	0.00	0.12	0.00	-4.26	0.00	0.09		
Croatia																															
Czech Republic																															
Denmark	-0.08	0.02	1.41	-6.13	1.01	-2.11	4.55	9.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-6.03	5.88	-12.44	-16.34	-9.17	0.23	0.00	0.00	-0.05	1.74	0.00	0.00	
Estonia																															
European Community	0.28	0.40	5.44	6.85	-3.99	-4.55	-1.49	-1.53	0.46	4.28	-2.19	0.23	-4.62	-5.70	-7.61	-6.21	0.00	0.00	15.72	14.28	-3.23	-2.13	-47.35	-30.44	-12.46	-28.27	2.58	-0.87	14.23	52.04	
Finland	0.00	0.00	0.00	0.00	-26.94	-16.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
France	0.08	0.04	8.28	5.97	-0.02	-0.23	0.99	-0.56	0.00	0.00	-0.84	0.85	0.49	-7.21	-87.23	-86.65	0.00	0.00	0.00	0.09	0.86	1.33	-43.19	-24.88	14.19	16.34	6.55	4.78	0.00	0.00	
Germany																															
Greece	0.00	0.15	16.37	0.65	-0.06	2.26	-19.63	-6.42	0.00	0.00	-0.01	-0.16	-3.51	0.18	0.00	0.00	0.00	0.00	-1.63	-1.95	46.97	43.94	2.26	-2.47	0.00	0.00	2.82	2.60	100.00	100.00	
Hungary																															
Ireland	0.67		8.54		0.07						0.00		0.00						-3.32		4.16		-26.03				-34.92				
Italy		1.33		0.98		-1.54		16.55		0.37		-14.05		-0.12					-6.43		-1.73		-1.90		-66.38			0.04		5.20	
Japan	0.02	0.04	0.00	-7.37	0.00	0.02	0.00	-0.19	0.00	-0.38	0.01	0.63	IE,NE,NO	IE,NE,NO	0.00	0.00	NE	NE	0.00	-0.12	0.00	-0.18	0.00	NE	0.00	-1.10	0.00	-0.46	0.00	-5.19	
Latvia	0.01	-4.31	2.09	-0.11	11.36	1.98	-30.13	-33.32	NO,NE	0.00	NO,NE	0.00	0.00	14.72	0.00	0.00	0.00	0.00	0.00	0.00	1.45	0.39	-1.30	3.29	0.00	65.61	-13.41	-18.73	NO	0.00	
Lithuania																															
Luxembourg																															
Monaco																															
Netherlands	0.83	-1.50	-0.01	-1.26	-10.63	-18.77	0.00	20.58	0.00	66.89	0.00	0.58	0.00	0.00	0.00	-6.06	0.00	0.00	0.00	-0.22	-1.31	-2.29	0.00	0.00	0.00	-100.00	1.75	-5.68	0.00	19.96	
New Zealand	-0.13	1.87	-4.69	-14.66	-19.92	-16.25	0.72	2.02	0.00	3,922.27	0.00	0.00	0.00	0.00	100.00	100.00	0.00	0.00	2.01	0.00	1.22	-0.02	0.48	0.00	0.00	0.00	0.15	1.52	0.00	-1.92	
Norway	0.08	1.61	0.00	3.03	0.01	0.50	0.34	0.48	70.33	83.92	0.00	0.00	0.00	0.00	0.00	0.00	-100.00	-100.00	0.00	-1.83	0.60	-0.29	-2.32	-0.72		-0.17	0.00	0.34	0.00	-9.77	
Portugal	1.42	-1.79	10.47	26.34	2.96	-8.40	-4.64	10.92	9.13	13.86	-6.01	-3.94	-18.11	9.39	0.00	0.00	0.00	0.00	-28.98	-28.70	-29.37	-33.52	-202,034.52	-59.07	-0.34	-6.89	-10.25	-29.94	0.00	-1.45	
Romania	-18.61	-16.86	-2.85	-0.10	-92.06	-18.58	239.77	51.91	-87.56	-2.63	129.64	73.45	0.00	0.00	0.00	0.00	0.00	0.00	22.12	-0.06	24.10	-3.39	325.27	105.30	-100.00	0.00	19.01	-36.87	0.00	0.00	
Slovakia																															
Slovenia	0.00	0.00	1.42		5.50		7.06																								
Spain	-1.40	0.24	-1.17	-0.74	-9.13	-5.34	1.29	1.76	0.00	0.00	0.00	0.00	0.00	-0.91	0.00	0.00	0.00	0.00	0.00	0.02	0.00	-0.02	-67.67	7.60	9.63	3.58	0.00	0.00	0.65	0.07	
Sweden	-0.66	-3.39	0.43	-2.82	-1.49	-11.08	-7.00	-7.02	2.33	1.62	0.00	0.00	0.00	-0.04	0.00	94.29	IE	IE	0.74	1.01	0.39	-0.19	0.00	-11.00	IE	IE	0.00	2,000.00	0.00	0.00	
Switzerland	-0.10	-0.15	0.00	0.14	0.02	0.04	0.87	0.00	-0.03	0.01	0.00	0.00	NO	NO	0.00	0.00	IE	IE	0.19	0.22	1.72	0.09	-59.44	-128.14	-0.59	-0.75	0.00	0.00	0.00	0.00	
Ukraine																															
United Kingdom	-0.03	-0.15	-0.05	-0.56	-0.04	0.14	0.00	0.10	-0.03	-6.86	0.01	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.94	7.89	-42.01	-62.08	0.00	0.03	0.01	15.78	
United States	-0.06	-1.13	-0.14	4.11	0.42	0.12	0.94	0.63	110.66	67.45	-11.52	-23.72	0.00	0.00	100.00	100.00	0.00	0.00	-0.15	-0.32	-1.67	-1.84	-10.71	-17.70	0.00	0.00	-0.87	-4.29	0.56	0.71	

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Energy

Figure 1.1

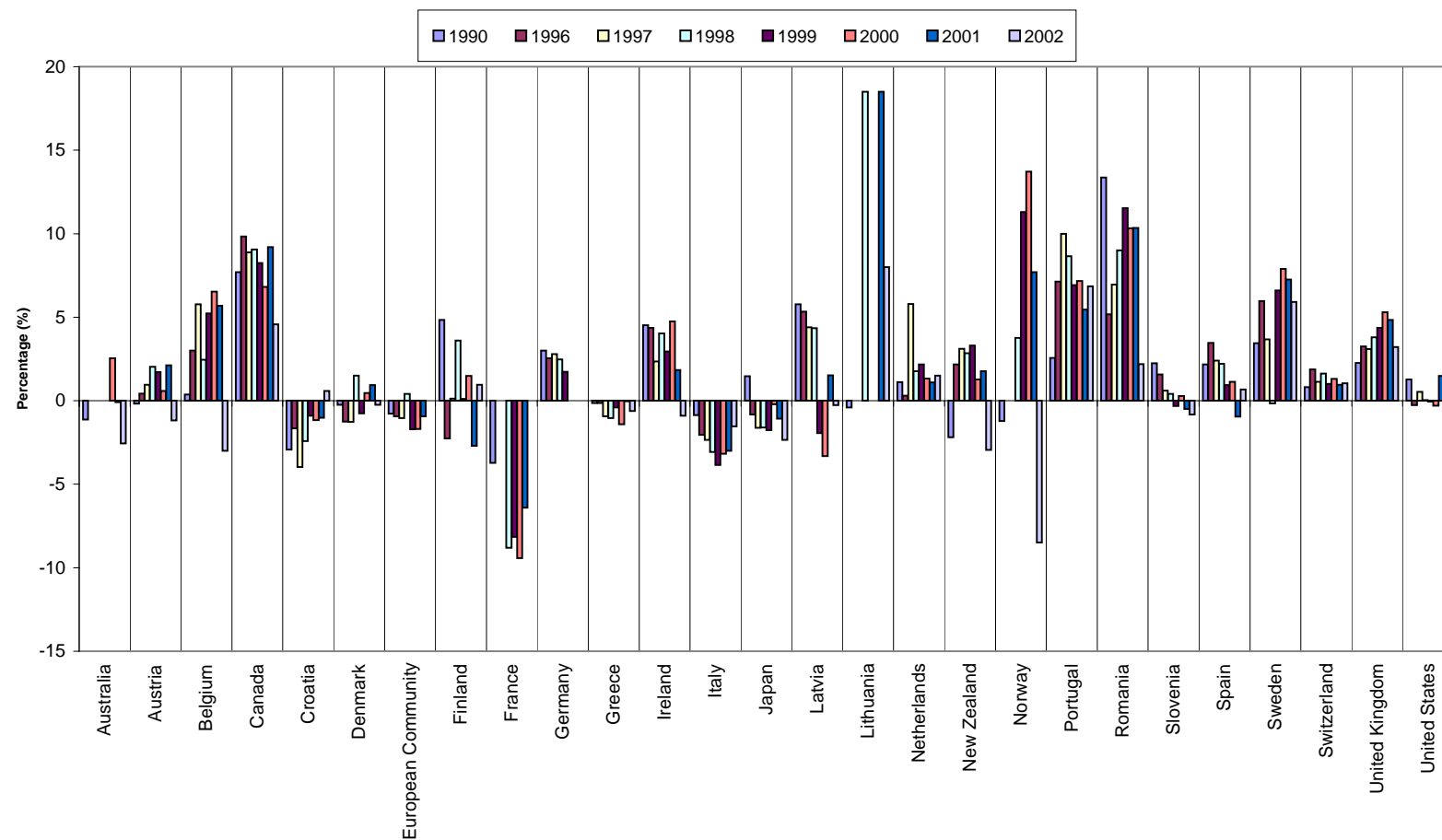
Emissions and contribution of subsectors in energy^a



^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Figure 1.2

Differences in CO₂ emissions from reference and sectoral approach for 1990, 1996–2002 (%)^a



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

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Table 1.1**Total CO₂ emissions from the reference approach and the sectoral approach (2002)**

	Reference approach	Sectoral approach	Difference	Explanation of the differences as reported in table 1.A(c) of the CRF
	(Gg CO ₂)		(%)	
Australia	325,167	333,680	-2.55	Four main reasons there is a difference between the Reference Approach and the National Approach as displayed in the above table and Table 1A(b): 1) Partly an artefact caused by deficiencies in the design of Tables 1.A(b) and 1.A(d). The CRF does not allow for the subtraction of the energy content of the fuels whose carbon is sequestered. It only allows for the subtraction of the sequestered carbon and carbon emitted elsewhere, i.e. in other sectors. Therefore, the energy consumption reported using this method for the Reference Approach includes energy which is netted out of the national approach. The energy consumption for the Reference Approach and the National Approach will therefore never balance using the CRF tables in their current format. This explains why the extent of non-reconciliation is different for energy and for CO ₂ . If the energy consumption calculated by the Reference Approach is adjusted by netting out the energy content of the quantities of fuel that do not undergo combustion for energy, as calculated in the National Approach, the extent of non-reconciliation for energy and CO ₂ is almost the same for all three fuel types. 2) The large discrepancy for liquid fuels is caused by the uncertainty of the 2002 Reference Approach figure for Petroleum, which in turn derives from the crude oil density values used to convert reported indigenous production and imports in volumetric units. 3) The CRF tables assume that all ethane is sourced from oil refineries, derived from crude oil. In Australia, all ethane supplied to the chemical industry is sourced from gas wells, separated from methane at gas processing plants. It is therefore classed as a gas. 4) The defect described under point (1) also leads to slight discrepancies in both emission factors and oxidation factors between the two approaches for a number of individual fuel types.
Austria	61,083	61,815	-1.18	Solid fuels: Energy consumption: National approach doesn't include non-energy use CO ₂ emissions: CO ₂ emissions and fuel consumption from 2 iron & steel plants are reported by plant operators. The reported coke oven coke consumption of is not consistent with the energy balance for the year 2002 Gaseous fuels: Energy consumption: National approach doesn't include losses and non-energy-use. CO ₂ emissions: National approach uses sector specific carbon contents (different from IPCC reference factor). Liquid fuels: Energy consumption: National approach doesn't include non-energy use and energy losses. CO ₂ emissions: Heat values and carbon contents are sector and fuel specific. The energy statistic is mass balanced only. Other fuels: The national approach considers waste as an additional fuel type (e.g. municipal solid waste and industrial fuel waste).
Belarus		50,295		
Belgium	111,735	115,187	-3.00	
Bulgaria	45,012	43,052	4.55	The discrepancy arises from the following sources: (I) The statistical difference between "apparent consumption" used in the reference approach and actual consumption used in the sectoral approach. (II) Not taking into account the losses during fuel transformation and the non-energy use of fuels in the sectoral approach. (III) Different emission factors applied in the sectoral approach for the different combustion technologies. (IV) The reference approach treats the non-energy use of fuels as if they were combusted. A correction is done by the carbon stored from non-energy fuel use, which is estimated from an approximate procedure which does not identify specific processes.
Canada	545,087	521,287	4.57	For a complete discussion and reconciliation of The National and Reference Approaches, please consult the most recent copy of Canada's National Inventory Report (NIR) specifically, the section describing: Energy/Fuel Combustion/Memo Items/Reference Approach.
Croatia	18,964	18,854	0.58	The National approach is based on Sectoral approach recommended by IPCC methodology. The differences between Reference and National approach exists in energy consumption and CO ₂ emission from liquid and solid fuel but it is relatively small and therefore acceptable.
Czech Republic	120,956	117,426	3.01	Regarding Sectoral approach - when CO ₂ from 2C1 is added (2614GgCO ₂), the total value for the Sectoral approach is 120040 Gg CO ₂ (very close to the Reference approach result).
Denmark	51,795	51,922	-0.24	Non-energy use of fuels is not included in the Danish National Approach. Fuel consumption for non-energy is subtracted in Reference Approach to make results comparable. Inclusion of these fuels in future inventories will be considered. CO ₂ emission from plastic part of municipal wastes is included in the Danish National Approach. CO ₂ emission from the plastic part of municipal wastes is added in Reference Approach. (Other fuels of sources 1A1, 1A2 and 1A4)
Estonia	15,577	16,971	-8.21	The activity data for both approaches (Reference and National approach) are taken from the official source: "Energy Balance 2002", Statistical Office of Estonia. Differences between two approaches are caused by big differences of activity data collected from two different sources. The export/imports data of fuels (TPES) are collected from the Estonian Customs Office, but real sectoral consumption data from final consumers (so called bottom-up" method). Unfortunately the data from this two sources have a big statistical difference.
European Community		3,207,564		The reference approach is not available for 2002, because the Eurostat New Cronos database does not have available the relevant data for the previous year but one before 15 April.
Finland	62,801	62,211	0.95	Secondary liquid fuels with notification "IE" are included in Other oil in Table 1.A(b). Anthracite is included in Other bituminous coal. All biomass fuels are included in Solid biomass. The relatively high difference in liquid fuels CO ₂ emissions is due to statistical differences in national oil balance.
France		380,541		Anthracite is included with "other bituminous coal" Energy data relating to 2002 were not yet available with regard to the requested detail when the CRF has been elaborated.
Germany		841,387		
Greece	97,212	97,812	-0.61	
Hungary	55,377	54,583	1.46	
Ireland	42,237	42,621	-0.90	Liquid fuels. Solid fuels. Gaseous fuels.
Italy	434,295	441,110	-1.54	
Japan	1,146,691	1,174,320	-2.35	The reason that the difference between RA and NA is over 2% is not made clear. We recognise it is necessary to examine the reason.
Latvia	6,998	7,017	-0.27	Difference of the Reference approach over the National approach is due to 1) statistical differences; 2) there is inconsistency in data due to difficulties to split domestic and international aviation and navigation. For the time period 1990-2000 is used research made by local expert and detailed information about international aviation is available since 2001. At the moment we have joint project with Danish experts to improve our inventory.
Lithuania	11,992	10,782	11.22	
Luxembourg		9,419		
Monaco	93	92	0.93	Some little differences in the net calorific values and in the carbon emission factors between both methods.

	Reference approach	Sectoral approach	Difference	Explanation of the differences as reported in table 1.A(c) of the CRF
	(Gg CO ₂)		(%)	
Netherlands	175,616	173,025	1.50	The energy consumption in the national approach (NA) is based on the data from the national inventory. These fuel data are not complete due to: 1) Not all CO ₂ emissions (from combustion) submitted by industry are accompanied by fuel data in the inventory; 2) In industry reports some of the CO ₂ emissions from combustion are allocated as process emissions and thus the corresponding fuel data are not incorporated in the totals for the fuel data. 3) Industries may calculate and report actual CO ₂ emissions from energy used as chemical feedstock using different overall CO ₂ emission factors for the amount of energy carriers converted into products than used in the RA for estimating non-reported feedstock emissions. 4) Industry firms report more heavy fuels used as chemical feedstock than the energy statistics used in the RA. The extent of these causes may differ from year to year, which then also causes the fluctuations in the difference between RA and NA. In addition, the RA figures are calculated using preliminary values for the carbon content of crude oil and NGL. For more information see the National Inventory Report.
New Zealand	29,317	30,206	-2.94	
Norway	29,294	32,013	-8.49	Consumption figures used in the reference approach are based on annual (industry, households) and occasional (agriculture, services, construction, transport) surveys. There are systematic deviations between the Reference Approach (RA) and Sectoral Approach (SA). The main reason is probably inaccuracies in the oil and gas production or export statistics. Due to the large production and export, small errors can amount to much CO ₂ compared to national total emissions. Norway has a large non-energy use of coal, coke, natural gas and liquefied petroleum gas (LPG), large oil and gas production and exports (domestic supply is the difference between the two large numbers in each case), and relatively large statistical errors, which makes the use of the reference approach inappropriate. End-user statistics from sales by energy commodity, sector and source that are used in the sectoral approach are considered to be more reliable. The energy balance data used in the CRF are the same data that Statistics Norway has reported to the IEA, but there are differences in the RA estimated by Statistics Norway and the one published by IEA. The main reason for this is that IEA distributes the statistical error between the RA and SA. The IEA estimate is furthermore based on default assumptions about carbon stored, which differs from the actual situation in Norway. IEA and Statistics Norway uses different definitions of domestic and international fuel use with respect to shipping, aviation and offshore gas combustion and flaring (offshore installations are included in the latter while excluded from the former).
Portugal	65,251	61,070	6.85	Differences between Sectoral and Reference approach (CO ₂ from fuel combustion): the sectoral approach CO ₂ estimates depends partially on combustion information from point sources, and the reference approach results from national energy balances. Furthermore, feedstock emissions were estimated differently in the two approaches: in the sectoral approach, emissions were estimated from production activity data; in the reference approach, a global percentage of carbon stored (e.g. lubricants, naphta) was used. In the sectoral approach, emissions from lubricants may not have been totally estimated, because it is uncertain if road traffic emission factors take into account these materials.
Romania	94,662	92,775	2.03	This difference is due to the fact that national approach does not take into account the non energetic consumption of fuels. National approach does not include non energy use of fuels.
Slovakia	38,866	39,689	-2.08	National approach is based on totally independent data collection than Reference approach. The difference in fuel consumption between these two approaches can be caused by: using average NCV in RA and fuel specific NCV in NA, not full coverage of fuel consumption in NA (not appropriate reporting by sources). Slovakia is using RA as national total emission estimate of CO ₂ , while consistent data series since 1990 exist only for RA.
Slovenia	15,289	15,416	-0.82	Difference in Energy consumption occurred due to non-energy use of natural gas.
Spain	302,813	300,765	0.68	
Sweden	52,421	49,491	5.92	The Reference approach includes all fuel consumption in Sweden since it is not possible to separate fuels consumed in CRF 1B and 2 on this level. The large differences between approaches are mainly due to the fact that a lot of fuel in Sweden is consumed and thus reported in CRF 1B and 2. Since this table does not take CRF 1B and 2 into account, it is not fully applicable for swedish conditions. For more information, see chapter 3.3.6 and appendix 14 of the Swedish National Inventory Report.
Switzerland	39,860	39,450	1.04	Differences in energy consumption: allocation problems: Only bitumen production from national refineries is shown in table 1.A(d). It is a refinery product and included in the crude oil amount. In the Swiss inventories bitumen emissions (NMVOC) appear under industrial processes and not under energy use. Gaseous fuels: gas distribution emissions (including emissions from compressor stations) are shown in table 1.B.1 and do not appear in the column "National approach" above. Liquid fuels/Solid fuels: in the national approach, petroleum coke is subsumed under solid fuels (cement industry use; there petroleum coke is treated as coal).
Ukraine	249,592	245,127	1.82	
United Kingdom	535,852	519,159	3.22	A significant proportion of fuel consumption emissions occur in 1B1b Solid Fuel Transformation, 2C Metal Production, 2B1 Ammonia Production Including these sources with 1A in the comparison reduces the discrepancy to 2.4 % This discrepancy arises from three sources: (1) The statistical difference between 'apparent consumption' used in the reference inventory and actual consumption used in the sectoral inventory. This statistical difference results from losses and errors in the estimates. (2) The sectoral inventory includes emissions from the non-energy use of fuel where they can be specifically identified e.g. catalytic crackers, iron & steel, lubricants combustion and ammonia production. The reference approach implicitly treats the non-energy use of fuel as if it were combustion. A correction is then applied by deducting an estimate of carbon stored from non-energy fuel use. The carbon stored is estimated from an approximate procedure which does not identify specific processes. The result is that the reference approach is based on a higher estimate of non-energy use emissions than the sectoral inventory. (3) The reference approach uses data on primary fuels such as crude oil and natural gas liquids which are then corrected for imports, exports and stock changes of secondary fuels. Thus the estimates obtained will be highly dependent on the default carbon contents used for the primary fuels. The sectoral approach is based wholly on the consumption of secondary fuels where the carbon contents are known with greater certainty. In particular the carbon contents and calorific values of the primary liquid fuels are likely to vary more than those of secondary fuels.
United States	5,674,389	5,629,757	0.79	In order to accommodate the differences and limitations between the Reference Approach table of the CRF and that of the U.S. Inventory, the following adaptations were made to table 1.A(b): 1) Orlimulsion values refer to U.S. Inventory's "Other Liquids" which has production. The carbon stored subtracted in column P refers to "Pentanes Plus." 2) Field production of motor gasoline is included in column F with "Gasoline" Imports. 3) Naphtha values refer to "Naphtha for Petrofeed" and "Special Naphtha." 4) Refinery Feedstocks values refer to U.S. Inventory's "Other Oil for Petrofeed" and "Still Gas." 5) Other Oil values refer to U.S. Inventory's "Waxes," "Asphalt/Road Oil," "Misc. Products," and "U.S. Terr. Misc. Products." 6) Other Bit. Coal includes U.S. Inventory's "Bituminous Coal" and "Unspecified Coal." 7) U.S. Territories consumption is included in the Imports column (applies to Natural Gas Liquids, Gasoline, Other Kerosene, Gas/Diesel Oil, Residual Fuel Oil, Lubricants, Other Oil, Other Bit. Coal, and Natural Gas). 8) Other includes waste combustion and geothermal emissions. Additional notes: 9) Table 1.A(b) - The United States Reference Approach is also provided in a separate Excel spreadsheet, which is more detailed than this table allows information to be reported. Specifically, the fuel types provided in the CRF tables differ from the fuel types as defined in the U.S., and no "other" options were offered in the CRF table. The U.S. suggests revising the table to allow for additional fuel types. 10) "Other" reported above includes waste combustion, geothermal consumption, and adjustments to exclude petroleum coke for aluminum, ferroalloy, and titanium dioxide production; coking coal for iron and steel production; and natural gas for ammonia production. These fuels consumed as feedstocks are accounted for in the Industrial Processes section. Also includes CO ₂ exported to Canada, produced as a byproduct of coal gasification. The inclusion of emissions from waste combustion and geothermal in this table gives higher totals for energy consumption and CO ₂ emissions in the CRF Reference Approach than in the U.S. Inventory Reference Approach which does not include waste combustion and geothermal energy.

Table 1.2**Emissions from stationary combustion – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	192,933	219,212	225,383	241,106	248,877	251,639	256,197	259,593
Austria	40,358	42,889	42,850	41,178	40,376	39,705	42,300	41,209
Belarus							45,390	43,766
Belgium	88,805	96,019	89,440	94,649	88,859	90,114	89,629	90,210
Bulgaria	82,034	48235.44638	47,752	41,638	37,893	36,768	38,904	36,735
Canada	275,782	295,895	300,701	306,234	315,990	337,475	332,715	340,510
Croatia	16,497	11,415	11,994	12,842	13,046	12,418	13,232	14,088
Czech Republic	152,805	119,620	122,534	113,707	105,485	113,310	110,185	104,998
Denmark	40,831	60,544	50,742	45,886	42,634	38,456	40,005	39,622
Estonia	34,801	19,010	18,787	16,598	15,221	15,464	14,826	14,797
European Community	2,448,763	2,403,111	2,325,676	2,352,596	2,304,953	2,324,433	2,381,286	2,366,335
Finland	41,418	50,226	48,283	45,105	44,047	42,553	47,923	49,427
France	244,960	250,804	242,427	261,110	246,580	242,762	244,716	238,588
Germany	826,500	723,448	690,966	679,300	646,069	652,663	672,391	665,030
Greece	61,116	64,633	68,491	71,635	70,182	76,499	77,895	77,513
Hungary	72,007	51,562	48,811	46,241	46,922	47,552	47,266	45,313
Ireland	24,617	26,563	28,052	28,939	29,868	31,124	32,285	31,390
Italy	297,819	299,584	301,896	309,977	313,149	313,460	318,155	316,166
Japan	837,669	894,769	898,952	860,435	890,504	903,306	878,678	919,659
Latvia	17,030	6,810	6,341	5,793	5,169	4,494	4,508	4,385
Lithuania	30,926			10,532			7,430	7,281
Luxembourg				3,063		3,257		3,997
Monaco	31	40	35	35	40	39	37	40
Netherlands	128,410	145,501	129,473	135,289	128,763	132,677	138,509	136,774
New Zealand	13,618	13,620	15,423	13,823	15,196	15,127	16,733	16,307
Norway	14,717	17,936	17,890	17,683	17,066	16,979	18,519	18,688
Portugal	29,408	30,940	32,561	35,141	41,387	38,939	38,218	41,239
Romania	143,764	109,003	95,121	82,339	71,816	73,166	76,344	80,885
Slovakia	50,653	37,186	37,196	35,136	34,191	32,628	35,107	34,099
Slovenia	12,959	10,535	10,900	11,240	10,756	10,672	11,563	11,616
Spain	147,118	150,597	168,431	168,766	189,760	198,222	194,991	209,338
Sweden	32,243	36,841	32,610	33,055	30,124	27,925	28,270	29,466
Switzerland	25,413	26,332	25,082	26,049	25,476	24,003	25,194	24,254
Ukraine							229,794	232,462
United Kingdom	440,030	421,425	397,757	401,999	392,248	398,574	412,657	396,367
United States	3,367,371	3,722,497	3,786,992	3,784,568	3,803,561	3,941,908	3,846,916	3,865,385

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

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	2.8	7.0	3.2	1.1	1.8	1.3	34.6
Austria	-0.1	-3.9	-1.9	-1.7	6.5	-2.6	2.1
Belarus						-3.6	
Belgium	-6.9	5.8	-6.1	1.4	-0.5	0.6	1.6
Bulgaria	-1.0	-12.8	-9.0	-3.0	5.8	-5.6	-55.2
Canada	1.6	1.8	3.2	6.8	-1.4	2.3	23.5
Croatia	5.1	7.1	1.6	-4.8	6.6	6.5	-14.6
Czech Republic	2.4	-7.2	-7.2	7.4	-2.8	-4.7	-31.3
Denmark	-16.2	-9.6	-7.1	-9.8	4.0	-1.0	-3.0
Estonia	-1.2	-11.7	-8.3	1.6	-4.1	-0.2	-57.5
European Community	-3.2	1.2	-2.0	0.8	2.4	-0.6	-3.4
Finland	-3.9	-6.6	-2.3	-3.4	12.6	3.1	19.3
France	-3.3	7.7	-5.6	-1.5	0.8	-2.5	-2.6
Germany	-4.5	-1.7	-4.9	1.0	3.0	-1.1	-19.5
Greece	6.0	4.6	-2.0	9.0	1.8	-0.5	26.8
Hungary	-5.3	-5.3	1.5	1.3	-0.6	-4.1	-37.1
Ireland	5.6	3.2	3.2	4.2	3.7	-2.8	27.5
Italy	0.8	2.7	1.0	0.1	1.5	-0.6	6.2
Japan	0.5	-4.3	3.5	1.4	-2.7	4.7	9.8
Latvia	-6.9	-8.7	-10.8	-13.1	0.3	-2.7	-74.3
Lithuania						-2.0	-76.5
Luxembourg							
Monaco	-12.0	-1.3	13.5	-2.4	-3.7	8.0	31.4
Netherlands	-11.0	4.5	-4.8	3.0	4.4	-1.3	6.5
New Zealand	13.2	-10.4	9.9	-0.5	10.6	-2.6	19.7
Norway	-0.3	-1.2	-3.5	-0.5	9.1	0.9	27.0
Portugal	5.2	7.9	17.8	-5.9	-1.9	7.9	40.2
Romania	-12.7	-13.4	-12.8	1.9	4.3	5.9	-43.7
Slovakia	0.0	-5.5	-2.7	-4.6	7.6	-2.9	-32.7
Slovenia	3.5	3.1	-4.3	-0.8	8.3	0.5	-10.4
Spain	11.8	0.2	12.4	4.5	-1.6	7.4	42.3
Sweden	-11.5	1.4	-8.9	-7.3	1.2	4.2	-8.6
Switzerland	-4.7	3.9	-2.2	-5.8	5.0	-3.7	-4.6
Ukraine						1.2	
United Kingdom	-5.6	1.1	-2.4	1.6	3.5	-3.9	-9.9
United States	1.7	-0.1	0.5	3.6	-2.4	0.5	14.8

Table 1.3

Stationary combustion: liquid fuels, CO₂ (2002)

	Key source	Share of national total	IEF in CRF based on	Energy industries					Manufacturing industries and construction			Other sectors						
				Methods and EF used ^a		CO ₂ IEF			Methods and EF used ^b		CO ₂ IEF	Methods and EF used ^c		CO ₂ IEF				
				Methods	EF	Total	Public electricity and heat production	Petroleum refining	Manufacture of solid fuels and other energy industries	Methods	EF	Total	Methods	EF	Total	Commercial / institutional	Residential	Agricultural / forestry / fisheries
Australia	L	6.7	GCV	T2	CS	68.44	69.38	67.91	69.05	T2	CS	67.59	T1, T2	CS	66.37	61.37	62.68	68.84
Austria	L, T	17.3	NCV	C	CS	75.41	79.21	74.04		C	CS	76.61	C	CS	74.52	72.00	74.87	73.99
Belarus	L	12.1	NCV			76.40						73.65			70.41	74.48	62.59	73.27
Belgium	L, T	18.6	NCV	CS	CS	63.39	73.74	62.58	73.30	C	C, CS	79.00	C	C	73.41	73.42	73.23	74.53
Bulgaria	L	5.8	NCV	T3	CS, D	68.89	74.47	NO	66.75	T2	CS, D	75.05	T2	CS, D	72.37	73.64	64.03	73.53
Canada	L, T	9.9	GCV	T2	CS	65.12	71.90	63.21	NA	T2	CS	72.05	T2	CS	62.74	55.42	71.44	66.82
Croatia	L, T	26.4	NCV	T1	D	74.57	76.56	71.68	73.33	T1	D	75.55	T1	D	72.39	73.10	71.66	73.07
Czech Republic	L	6.4	NCV	T1	D	73.71	75.64	72.47	73.33	T1	D	61.00	T1	D	68.44	71.67	62.44	73.33
Denmark	L, T	16.4	NCV	C	CS	73.00	79.12	58.68	74.00	C	CS	79.35	C	CS	74.04	73.99	73.94	74.16
Estonia	L	5.0	NCV	T1/CS	D	75.00	75.00			T1	D	71.76	T1	D	71.27	71.96	71.16	71.16
European Community	L	15.6	NCV	C, CS, D, T1, T2, T3	C, CS, D, PS	72.82	75.71	70.24	72.43	C, CS, D, T1, T2, T3	C, CS, D, PS	75.77	C, CS, D, T1, T2, T3	C, CS, D	72.92	73.48	72.62	73.23
Finland	L, T	17.2	NCV	CS (T2)	CS/PS/D	73.34	75.93	71.91		CS (T2)	CS/PS/D	73.09	CS (T2, T1)	CS/D	73.62	74.16	73.38	73.61
France	L, T	17.9	NCV	C	CS	71.37	78.00	68.73	78.24	C	CS	78.22	C	CS	73.36	74.21	72.92	73.33
Germany	L, T	12.8	NCV	CS	CS	70.65	76.62	69.32	75.69	CS	CS	75.10	CS	CS	73.67	73.72	73.63	73.83
Greece	L, T	20.8	NCV	C	C and CS	74.81	75.82	73.09	NO	C	C	59.32	C	C	73.08	72.74	73.10	73.13
Hungary	L	7.6	NCV	D	D	75.98	75.98			D	D	40.10	D	D	69.40	65.60	62.44	75.99
Ireland	L, T	18.1	NCV	T1	PS, CS	72.78	73.55	67.21		T1	PS, CS	78.63	T1	CS	73.02	73.69	72.47	73.30
Italy	L, T	23.5	NCV	D, T2	CS	76.02	76.09	75.88	76.15	D, T2	CS	81.52	D, T2	CS	71.55	71.80	70.85	72.91
Japan	L, T	27.8	GCV	T1, CS	D, CS	66.24	70.06	54.29	90.29	T1, CS	D, CS	67.96	T1, CS	D, CS	66.80	67.42	64.69	68.76
Latvia	L, T	9.6	NCV	T1	D	76.43	76.43			T1	D	74.40	T1	D	71.80	74.11	68.13	74.32
Lithuania	L	13.7	NCV	C	CS	75.50	75.40	76.00	72.50	C	CS	73.70	C	CS	68.56	73.70	65.00	73.70
Luxembourg			NCV			73.00	73.00					73.98			70.34	70.00	70.01	73.82
Monaco	L	29.0	NCV	T1	D								T1	D	73.33		73.33	
Netherlands	L, T	1.3	NCV	CS/T2	PS, CS	48.75	48.69	IE	73.58	CS/T2	PS, CS	72.93	CS/T2	CS	69.61	67.16	71.11	70.35
New Zealand	L, T	3.3	NCV	T1	CS	73.97	68.36	74.01	NE	T1	CS	68.12	T1	CS	67.84	66.75	59.84	68.85
Norway	L, T	11.7	NCV	T2	CS	63.11	73.55	58.78	73.55	T2	CS	66.36	T2	CS	33.75	73.53	73.04	NO
Portugal	L, T	25.8	NCV	T2	D+C	75.13	77.21	70.18	73.42	T2	D+C	72.49	T2	D+C	69.31	72.50	63.16	73.68
Romania	L, T	11.1	NCV	D	D	75.50	75.50			D	D	73.29	D	D	68.34	72.19	62.77	73.20
Slovakia	L	4.0	NCV	SA	D,CS	75.41	75.98	74.89		SA	D,CS	68.45	SA	D,CS	73.83	73.74		73.91
Slovenia	L, T	15.2	NCV	T1	D,CS	74.23	73.43	76.08	73.30	T1	D	74.04	T1	D,CS	72.23	73.42	71.55	72.88
Spain	L, T	19.9	NCV	CS,C	PS,C	72.79	77.46	67.31	98.28	CS,C	PS,C	78.17	C	C	71.31	72.56	69.44	72.63
Sweden	L, T	27.7	NCV	T2/T3 + T1, CS	CS, PS, D	71.22	74.96	68.68	74.16	T2/T3 + T1	CS	71.24	T2/T3 + T1	CS	73.42	72.52	74.05	72.61
Switzerland	L, T	34.4	NCV	RA, C	RA, CS	62.15	73.46	61.65	NO	C	CS	73.91	C	CS	73.47	73.46	73.46	73.63
Ukraine	L	5.2	NCV	T1	D	66.10	74.14	60.19	56.91	T1	D	50.52	T1	D	69.52	68.56	69.86	69.39
United Kingdom	L, T	9.4	NCV	T2	CS	69.49	75.53	69.05	61.62	T2	CS	72.19	T2	CS	71.88	73.80	71.08	72.54
United States	L, T	9.8	GCV	T1	CS	75.81	75.81	IE	IE	T1	CS	41.92	T1	CS	66.10	67.85	65.25	IE

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

^a Information on methods and emission factors included in this table is as reported by Parties. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.1 Energy Industries.

^b Information on methods and emission factors included in this table is as reported by Parties. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.2 Manufacturing industries and construction.

^c Information on methods and emission factors included in this table is as reported by Parties. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.4 Other sectors.

Table 1.4
Stationary combustion: solid fuels, CO₂ (2002)

	Key source	Share of national total (%)	IEF in CRF based on	Energy industries					Manufacturing industries and construction			Other sectors					
				Methods and EF used ^a		CO ₂ IEF			Methods and EF used ^b		CO ₂ IEF	Methods and EF used ^c		CO ₂ IEF			
				Methods	EF	Total	Public electricity and heat production	Manufacture of solid fuels and other energy industries	Methods	EF	Total	Methods	EF	Total	Commercial / institutional	Residential	Agricultural / forestry / fisheries
Australia	L, T	34.8	GCV	T2	CS	90.87	91.21	57.48	T2	CS	81.07	T1, T2	CS	97.25	97.18	98.63	NA
Austria	L, T	14.0	NCV	C	CS	97.92	97.92		C	CS	113.22	C	CS	93.72	97.28	93.62	93.59
Belarus	L	4.1	NCV			95.49					104.13			92.77	92.77	92.76	93.90
Belgium	L, T	17.7	NCV	CS	CS	106.51	112.40	43.57	C	C, CS	77.93	C	C	92.84	92.70	92.85	92.71
Bulgaria	L	45.9	NCV	T3	CS, D	106.82	107.51	65.43	T2	CS, D	94.74	T2	CS, D	100.24	98.95	100.23	104.02
Canada	L, T	15.1	GCV	T2	CS	88.60	88.63	79.65	T2	CS	73.18	T2	CS	82.06	79.65	85.24	
Croatia	L, T	8.2	NCV	T1	D	92.65	92.65		T1	D	93.19	T1	D	82.07	96.68	75.57	46.71
Czech Republic	L	54.4	NCV	T1	D	96.88	97.70	67.40	T1	D	96.78	T1	D	99.43	102.39	98.72	99.95
Denmark	L, T	24.4	NCV	C	CS	95.00	95.00		C	CS	96.62	C	CS	95.03		95.78	95.00
Estonia	L	63.6	NCV	TI/CS	D	101.24	101.24		TI	D	103.16	TI	D	98.03	100.62	98.00	97.92
European Community	L	20.7	NCV	C, CS, D, T1, T2, T3	C, CS, D, PS	100.56	100.25	106.53	C, CS, D, T1, T2, T3	C, CS, D, PS	99.02	C, CS, D, T1, T2, T3	C, CS, D	93.06	92.71	93.49	95.05
Finland	L, T	21.1	NCV	CS (T2)	CS/PS/D	91.79	92.71	39.68	CS (T2)	CS/PS/D	97.71	CS (T2, T1)	CS/D	92.59		92.71	92.53
France	L, T	9.7	NCV	C	CS	106.99	105.99	106.30	C	CS	137.23	C	CS	95.00	95.00	95.00	95.00
Germany	L, T	36.5	NCV	CS	CS	103.73	104.43	94.13	CS	CS	95.31	CS	CS	100.41	102.47	99.67	98.05
Greece	L, T	33.5	NCV	C	C and CS	122.14	122.14	NO	C	C	93.01	C	C	62.48	NO	92.71	99.18
Hungary	L	18.8	NCV	D	D	98.65	98.65		D	D	105.01	D	D	96.65	99.09	96.38	98.41
Ireland	L, T	15.9	NCV	T1	PS, CS	100.37	100.37		T1	PS, CS	98.67	T1	CS	98.53	98.86	98.53	
Italy	L, T	9.6	NCV	D, T2	CS	104.23	91.60	196.07	D, T2	CS	70.97	D, T2	CS	105.49	105.49	105.49	NO
Japan	L, T	29.3	GCV	T1, CS	D, CS	87.77	90.59	63.59	T1, CS	D, CS	90.13	T1, CS	D, CS	90.46	90.46	90.46	
Latvia	L, T	3.5	NCV	T1	D	100.83	100.83		T1	D	92.10	T1	D	92.71	92.71	92.71	92.71
Lithuania	L	3.4	NCV	C	CS	76.99	99.70	102.00	C	CS	98.50	C	CS	98.22	97.30	99.70	95.00
Luxembourg			NCV								99.46			102.02	102.02	102.02	
Monaco			NCV	T1	D							T1	D				
Netherlands	L, T	10.5	NCV	CS/T2	PS, CS	93.92	93.92	NO	CS/T2	PS, CS	97.89	CS/T2	CS	99.54	94.00	103.00	94.00
New Zealand	L, T	4.5	NCV	T1	CS	89.47	89.47	NE	T1	CS	89.47	T1	CS	89.47	89.47	89.47	89.47
Norway	L, T	4.7	NCV	T2	CS	89.98	89.98	NO	T2	CS	102.47	T2	CS	16,360.44	NO	104.06	NO
Portugal	L, T	16.2	NCV	T2	D+C	92.00	92.00		T2	D+C	101.26	T2	D+C				
Romania	L, T	22.0	NCV	D	D	98.12	98.12		D	D	105.23	D	D	96.18	99.18	95.96	103.00
Slovakia	L	21.7	NCV	SA	D,CS	93.33	93.33		SA	D,CS	93.92	SA	D,CS	95.71	97.11	95.42	95.21
Slovenia	L, T	33.7	NCV	T1	D,CS	102.28	102.28		T1	D	100.35	T1	D,CS	102.99	103.01	102.99	
Spain	L, T	21.2	NCV	CS,C	PS,C	98.86	99.28	69.87	CS,C	PS,C	87.40	C	C	65.96	63.18	67.95	NO
Sweden	L, T	10.4	NCV	T2/T3 + T1, CS	CS, PS, D	135.22	141.67	75.96	T2/T3 + T1	CS	81.19	T2/T3 + T1	CS	90.70			90.70
Switzerland	L, T	1.2	NCV	RA, C	RA, CS	NO	NO	NO	C	CS	94.13	C	CS	94.13	NO	94.13	NO
Ukraine	L	20.3	NCV	T1	D	95.69	96.16	85.83	T1	D	56.78	T1	D	96.78	96.32	97.18	96.66
United Kingdom	L, T	20.4	NCV	T2	CS	86.90	86.99	80.91	T2	CS	126.26	T2	CS	90.17	84.58	90.52	89.33
United States	L, T	28.9	GCV	T1	CS	88.62	88.62	IE	T1	CS	87.24	T1	CS	89.47	89.47	89.47	IE

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

^a Information on methods and emission factors included in this table is as reported by Parties. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.1 Energy industries.

^b Information on methods and emission factors included in this table is as reported by Parties. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.2 Manufacturing industries and construction.

^c Information on methods and emission factors included in this table is as reported by Parties. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.4 Other sectors.

Table 1.5**Stationary combustion: gaseous fuels, CO₂ (2002)**

	Key source	Share of national total (%)	IEF in CRF based on	Energy industries						Manufacturing industries and construction			Other sectors					
				Methods and EF used ^a		CO ₂ IEF				Methods and EF used ^b		CO ₂ IEF	Methods and EF used ^c		CO ₂ IEF			
				Methods	EF	Total	Public electricity and heat production	Petroleum refining	Manufacture of solid fuels and other energy industries	Methods	EF	Total	Methods	EF	Total	Commercial / institutional	Residential	Agricultural / forestry / fisheries
Australia	L, T	9.3	GCV	T2	CS	51.27	51.36	51.15	51.16	T2	CS	51.16	T1, T2	CS	51.20	51.19	51.20	51.15
Austria	L, T	16.8	NCV	C	CS	55.00		55.00	55.00	C	CS	55.00	C	CS	55.00	55.00	55.00	55.00
Belarus	L	46.1	NCV			56.69						57.32			55.82	55.88	55.82	55.82
Belgium	L, T	19.6	NCV	CS	CS	54.90	55.62			C	C, CS	55.55	C	C	55.84	55.85	55.84	55.82
Bulgaria	L	7.2	NCV	T3	CS, D	55.82	55.82	55.82	55.82	T2	CS, D	55.82	T2	CS, D	55.82	55.82	55.82	55.82
Canada	L, T	22.0	GCV	T2	CS	51.22	49.65	49.65	52.10	T2	CS	49.65	T2	CS	49.65	49.65	49.65	49.65
Croatia	L, T	15.9	NCV	T1	D	55.82	55.82	55.82	55.82	T1	D	55.82	T1	D	55.82	55.82	55.82	55.82
Czech Republic	L	12.7	NCV	T1	D	55.82	55.82	55.82		T1	D	55.82	T1	D	55.82	55.82	55.82	55.82
Denmark	L, T	16.2	NCV	C	CS	57.28	57.28		57.28	C	CS	57.28	C	CS	57.28	57.28	57.28	57.28
Estonia	L	7.1	NCV	TI/CS	D	55.82	55.82			TI	D	55.82	TI	D	55.82	55.82	55.82	55.82
European Community	L	18.8	NCV	C, CS, D, T1, T2, T3	C, CS, D, PS	57.28	56.70	55.67	62.33	C, CS, D, T1, T2, T3	C, CS, D, PS	55.86	C, CS, D, T1, T2, T3	C, CS, D	56.56	56.49	56.59	56.16
Finland	L, T	10.5	NCV	CS (T2)	CS/PS/D	55.82	55.82	55.82		CS (T2)	CS/PS/D	54.28	CS (T2, T1)	CS/D	55.82	55.83	55.82	55.82
France	L, T	13.9	NCV	C	CS	58.29	57.00	78.48	57.02	C	CS	56.56	C	CS	57.00	57.00	57.00	57.00
Germany	L, T	16.0	NCV	CS	CS	55.99	56.00	56.00	55.85	CS	CS	56.00	CS	CS	56.00	56.00	56.00	56.00
Greece	L, T	3.1	NCV	C	C and CS	55.82	55.82	NO	55.82	C	C	52.52	C	C	174.47	NO	55.82	NO
Hungary	L	31.7	NCV	D	D	55.82	55.82			D	D	54.09	D	D	55.82	55.82	55.82	55.82
Ireland	L, T	11.5	NCV	T1	PS, CS	59.02	59.02			T1	PS, CS	54.94	T1	CS	54.94	54.94	54.94	
Italy	L, T	23.7	NCV	D, T2	CS	55.46	55.46	55.46	55.46	D, T2	CS	55.46	D, T2	CS	55.46	55.46	55.46	55.46
Japan	L, T	12.0	GCV	T1, CS	D, CS	49.39	49.39	49.38	49.38	T1, CS	D, CS	49.39	T1, CS	D, CS	49.38	49.38	49.38	
Latvia	L, T	28.1	NCV	T1	D	55.82	55.82			T1	D	55.82	T1	D	55.82	55.82	55.82	55.82
Lithuania	L	25.2	NCV	C	CS	56.90	56.90	56.90	56.90	C	CS	56.90	C	CS	56.90	56.90	56.90	56.90
Luxembourg			NCV			56.00	56.00					55.56			55.00	55.00	55.00	
Monaco	L	12.7	NCV	T1	D	55.82	55.82						T1	D	55.82		55.82	
Netherlands	L, T	36.0	NCV	CS/T2	PS, CS	55.61	55.57	IE	56.05	CS/T2	PS, CS	55.97	CS/T2	CS	55.96	56.00	55.92	56.00
New Zealand	L, T	13.9	NCV	T1	CS	53.06	52.02	58.94	55.42	T1	CS	30.75	T1	CS	52.13	52.13	52.13	NE
Norway	L, T	17.1	NCV	T2	CS	57.85	58.50	NO	57.85	T2	CS	58.50	T2	CS	58.50	58.50	58.50	NO
Portugal	L, T	8.5	NCV	T2	D+C	56.10	56.10			T2	D+C	56.10	T2	D+C	56.10	56.10	56.10	56.10
Romania	L, T	26.2	NCV	D	D	59.55	59.55			D	D	60.92	D	D	55.82	55.82	55.82	55.82
Slovakia	L	25.0	NCV	SA	D,CS	58.63	58.63	58.63	58.63	SA	D,CS	58.55	SA	D,CS	58.63	58.63	58.63	58.63
Slovenia	L, T	8.0	NCV	T1	D,CS	55.00	55.00			T1	D	55.00	T1	D,CS	55.00	55.00	55.00	
Spain	L, T	11.1	NCV	CS,C	PS,C	60.72	61.64	56.24	56.00	CS,C	PS,C	53.22	C	C	56.00	56.00	56.00	56.00
Sweden	L, T	2.7	NCV	T2/T3 + T1, CS	CS, PS, D	56.50	56.50	56.50		T2/T3 + T1	CS	56.50	T2/T3 + T1	CS	56.50	56.50	56.50	56.50
Switzerland	L, T	10.9	NCV	RA, C	RA, CS	55.00	55.00	NO	NO	C	CS	55.00	C	CS	55.00	55.00	55.00	55.00
Ukraine	L	22.3	NCV	T1	D	49.17	55.83	31.03	33.05	T1	D	34.40	T1	D	55.65	53.71	55.82	55.82
United Kingdom	L, T	32.4	NCV	T2	CS	59.66	58.13	57.96	64.82	T2	CS	57.96	T2	CS	57.96	57.96	57.96	57.96
United States	L, T	16.7	GCV	T1	CS	50.04	50.04	IE	IE	T1	CS	48.73	T1	CS	50.04	50.04	50.04	IE

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

^a Information on methods and emission factors included in this table is as reported by Parties. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.1 Energy industries.

^b Information on methods and emission factors included in this table is as reported by Parties. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.2 Manufacturing industries and construction.

^c Information on methods and emission factors included in this table is as reported by Parties. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.4 Other sectors.

Table 1.6

Stationary combustion: other fuels, CO₂ (2002)

	Key source	Share of national total (%)	IEF in CRF based on	1.A.1 Energy industries				1.A.2 Manufacturing industries and construction			1.A.4 Other sectors						
				Methods and EF used ^a		CO ₂ IEF		Methods and EF used ^b		CO ₂ IEF	Methods and EF used ^c		CO ₂ IEF				
				Methods	EF	Total	Public electricity and heat production	Methods	EF	Total	Methods	EF	Total	Commercial / institutional	Residential	Agricultural / forestry / fisheries	
																	(t/TJ)
Australia			GCV	T2	CS	NA	NA	T2	CS	NA	T1, T2	CS	NA	NA	NA	NA	
Austria	L	0.61	NCV	C	CS	43.01	43.01	C	CS	41.67	C	CS	10.00	10.00			
Belarus		0.27	NCV			72.60				72.61			79.50	72.66	72.69		
Belgium	L, T	4.33	NCV	CS	CS	48.88	48.88	C	C, CS	68.09	C	C	58.02	56.71	66.00	NO	
Bulgaria			NCV	T3	CS, D		NO	T2	CS, D		T2	CS, D		NO	NO	NO	
Canada			GCV	T2	CS		NA	T2	CS		T2	CS		NA	NA	NA	
Croatia			NCV	T1	D			T1	D		T1	D					
Czech Republic			NCV	T1	D			T1	D		T1	D					
Denmark	L	0.87	NCV	C	CS			C	CS		C	CS					
Estonia		0.05	NCV	TI/CS	D			TI	D		TI	D	62.44	62.44	62.44	62.44	
European Community	L	1.60	NCV	C, CS, D, T1, T2, T3	C, CS, D, PS	122.82	83.05	C, CS, D, T1, T2, T3	C, CS, D, PS	105.90	C, CS, D, T1, T2, T3	C, CS, D	75.96	76.08	68.79	104.96	
Finland	L, T	11.55	NCV	CS (T2)	CS/PS/D	103.26	103.26	CS (T2)	CS/PS/D	81.60	CS (T2, T1)	CS/D	104.91	104.44	104.94	104.96	
France	L, T	1.68	NCV	C	CS	112.23	86.77	C	CS	52.50	C	CS	57.00	56.96	57.00		
Germany	T	0.10	NCV	CS	CS	15.03	15.00	CS	CS	20.00	CS	CS		NE	NE	NE	
Greece			NCV	C	C and CS		NO	C	C		C	C		NO	NO	NO	
Hungary		0.05	NCV	D	D			D	D	3.22	D	D					
Ireland			NCV	T1	PS, CS			T1	PS, CS		T1	CS					
Italy	T	0.31	NCV	D, T2	CS	94.00	94.00	D, T2	CS	94.00	D, T2	CS	89.79	89.79		NO	
Japan			GCV	T1, CS	D, CS		NO	T1, CS	D, CS		T1, CS	D, CS		NO	NO	NO	
Latvia			NCV	T1	D			T1	D		T1	D					
Lithuania			NCV	C	CS	NO	NO	C	CS	NO	C	CS	NO	NO	NO	NO	
Luxembourg			NCV														
Monaco			NCV	T1	D						T1	D					
Netherlands	L, T	16.21	NCV	CS/T2	PS, CS	729.92	282.18	CS/T2	PS, CS	171.72	CS/T2	CS		NO	NO	NO	
New Zealand			NCV	T1	CS		NO	T1	CS		T1	CS		NO	NO	NO	
Norway		0.27	NCV	T2	CS	24.05	24.05	T2	CS		T2	CS		NO	NO	NO	
Portugal		0.08	NCV	T2	D+C			T2	D+C	71.11	T2	D+C					
Romania			NCV	D	D			D	D		D	D					
Slovakia	L	15.03	NCV	SA	D,CS	93.36		SA	D,CS	163.32	SA	D,CS					
Slovenia		0.05	NCV	T1	D,CS			T1	D	70.01	T1	D,CS					
Spain	T	0.15	NCV	CS,C	PS,C	36.88	36.88	CS,C	PS,C	82.69	C	C		NO	NO	NO	
Sweden	L, T	1.52	NCV	T2/T3 + T1, CS	CS, PS, D	35.60	35.60	T2/T3 + T1	CS	58.66	T2/T3 + T1	CS					
Switzerland			NCV	RA, C	RA, CS	NO	NO	C	CS	NO	C	CS	NO	NO	NO	NO	
Ukraine		0.29	NCV	T1	D	61.40	91.37	T1	D	85.09	T1	D	107.51	107.33	108.54	107.82	
United Kingdom		0.15	NCV	T2	CS	30.47	30.47	T2	CS	94.25	T2	CS	30.47	30.47			
United States	T	0.28	GCV	T1	CS	7.12	7.12	T1	CS		T1	CS		NE	NE		

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

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

^a Information on methods and emission factors included in this table is as reported by Parties. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.1 Energy industries.

^b Information on methods and emission factors included in this table is as reported by Parties. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.2 Manufacturing industries and construction.

^c Information on methods and emission factors included in this table is as reported by Parties. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.4 Other sectors.

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

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	2,684,281	3,057,300	3,161,992	3,359,610	3,484,671	3,509,555	3,556,019	3,602,155
Austria	653,723	742,965	741,837	722,927	711,678	691,826	740,690	708,921
Belarus								747,353
Belgium	1,203,765	1,369,897	1,277,722	1,374,243	1,308,014	1,314,017	1,323,502	1,317,193
Bulgaria								437,645
Canada	4,578,041	5,030,078	5,087,974	5,168,746	5,369,335	5,687,848	5,615,076	5,863,046
Croatia	253,907	187,717	196,261	205,213	207,930	199,578	207,829	219,193
Czech Republic								1,293,564
Denmark	541,820	808,568	706,618	653,535	624,371	578,299	603,734	605,576
Estonia								182,791
European Community				33,303,594		33,328,938		33,832,346
Finland	685,933	847,858	858,127	824,918	829,369	817,179	863,274	908,508
France	3,633,449	3,864,108	3,707,961	3,980,405	3,789,051	3,739,512	3,810,719	3,639,428
Germany	9,878,990	9,257,880	8,905,978	8,804,300	8,423,479	8,431,195	8,738,007	8,601,780
Greece	664,772	725,405	760,737	801,676	794,571	869,430	891,249	894,578
Hungary								727,579
Ireland	305,636	345,568	365,466	385,470	399,881	417,047	431,910	424,150
Italy	4,313,446	4,432,486	4,477,582	4,600,358	4,692,047	4,744,847	4,791,376	4,787,206
Japan	12,143,817	13,027,013	13,049,143	12,574,051	12,985,391	13,133,614	12,757,361	13,321,136
Latvia	258,531	141,159	140,542	135,347	129,770	119,164	124,934	125,019
Lithuania	433,850			172,787			163,347	142,773
Luxembourg				48,566		71,033		86,887
Monaco								1,312
Netherlands	1,837,277	2,065,890	1,876,766	1,874,548	1,638,519	1,981,140	1,791,945	1,827,489
New Zealand	291,827	310,691	329,696	302,477	336,634	343,273	362,247	364,209
Norway	274,893			332,609	328,072	334,306	351,967	347,909
Portugal	474,297	492,787	518,799	561,299	658,191	620,113	620,498	667,671
Romania	2,116,801	1,713,454	1,446,254	1,272,423	1,125,623	1,135,430	1,140,839	1,208,300
Slovakia							472,511	440,643
Slovenia	160,040	142,626	146,729	151,734	147,567	145,199	151,808	152,061
Spain	1,941,341	2,064,759	2,288,958	2,315,823	2,562,373	2,692,784	2,734,081	2,923,499
Sweden	544,300	681,498	607,829	619,196	575,228	534,679	566,171	575,059
Switzerland	374,831	404,955	385,481	400,012	393,012	371,498	389,520	376,989
Ukraine							4,067,681	4,104,595
United Kingdom	5,698,307	5,906,505	5,657,289	5,766,379	5,736,369	5,856,164	6,064,750	5,864,401
United States	54,467,524	60,818,877	61,554,483	61,277,154	61,789,038	63,757,963	61,945,864	62,258,648

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

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	3.4	6.2	3.7	0.7	1.3	1.3	34.2
Austria	-0.2	-2.5	-1.6	-2.8	7.1	-4.3	8.4
Belarus							
Belgium	-6.7	7.6	-4.8	0.5	0.7	-0.5	9.4
Bulgaria							
Canada	1.2	1.6	3.9	5.9	-1.3	4.4	28.1
Croatia	4.6	4.6	1.3	-4.0	4.1	5.5	-13.7
Czech Republic							
Denmark	-12.6	-7.5	-4.5	-7.4	4.4	0.3	11.8
Estonia							
European Community							
Finland	1.2	-3.9	0.5	-1.5	5.6	5.2	32.4
France	-4.0	7.3	-4.8	-1.3	1.9	-4.5	0.2
Germany	-3.8	-1.1	-4.3	0.1	3.6	-1.6	-12.9
Greece	4.9	5.4	-0.9	9.4	2.5	0.4	34.6
Hungary							
Ireland	5.8	5.5	3.7	4.3	3.6	-1.8	38.8
Italy	1.0	2.7	2.0	1.1	1.0	-0.1	11.0
Japan	0.2	-3.6	3.3	1.1	-2.9	4.4	9.7
Latvia	-0.4	-3.7	-4.1	-8.2	4.8	0.1	-51.6
Lithuania						-12.6	-67.1
Luxembourg							
Monaco							
Netherlands	-9.2	-0.1	-12.6	20.9	-9.5	2.0	-0.5
New Zealand	6.1	-8.3	11.3	2.0	5.5	0.5	24.8
Norway			-1.4	1.9	5.3	-1.2	26.6
Portugal	5.3	8.2	17.3	-5.8	0.1	7.6	40.8
Romania	-15.6	-12.0	-11.5	0.9	0.5	5.9	-42.9
Slovakia							-6.7
Slovenia	2.9	3.4	-2.7	-1.6	4.6	0.2	-5.0
Spain	10.9	1.2	10.6	5.1	1.5	6.9	50.6
Sweden	-10.8	1.9	-7.1	-7.0	5.9	1.6	5.7
Switzerland	-4.8	3.8	-1.8	-5.5	4.9	-3.2	0.6
Ukraine						0.9	
United Kingdom	-4.2	1.9	-0.5	2.1	3.6	-3.3	2.9
United States	1.2	-0.5	0.8	3.2	-2.8	0.5	14.3

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

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	415,300	501,341	480,456	490,561	481,505	504,500	507,288	521,907
Austria	212,771	231,466	234,020	236,295	218,833	198,902	215,335	194,594
Belarus								113,913
Belgium	408,133	469,443	435,467	440,101	394,691	366,766	403,042	385,999
Bulgaria								49,479
Canada	1,055,630	955,316	976,055	983,092	949,300	962,098	1,044,487	1,102,348
Croatia	131,072	100,267	101,280	111,205	117,581	96,500	100,587	102,881
Czech Republic								142,160
Denmark	162,283	205,461	187,275	174,084	168,957	156,291	156,496	150,257
Estonia								13,321
European Community				9,932,558		8,951,136		8,879,156
Finland	203,062	206,500	196,948	199,528	194,424	186,215	190,402	192,639
France	1,506,119	1,552,355	1,503,601	1,555,060	1,464,946	1,399,777	1,454,921	1,336,765
Germany	2,058,237	2,319,521	2,196,555	2,117,024	1,863,297	1,790,647	1,922,103	1,779,185
Greece	300,689	361,047	363,988	365,705	350,280	381,221	390,623	402,502
Hungary								107,645
Ireland	94,664	126,891	137,453	151,437	173,501	174,003	180,912	168,131
Italy	2,091,866	1,992,307	1,959,888	1,930,549	1,816,381	1,743,170	1,698,112	1,707,350
Japan	6,444,884	6,276,599	5,945,693	5,706,548	5,775,533	5,637,320	5,284,478	5,511,380
Latvia	116,370	50,176	40,058	36,798	32,011	20,016	15,291	13,801
Lithuania	181,850			88,017			50,835	31,765
Luxembourg				19,106		35,741		35,862
Monaco								381
Netherlands	289,412	275,161	228,178	203,158	104,321	111,297	49,500	51,873
New Zealand	37,008	34,267	35,759	36,156	35,902	36,092	34,947	36,472
Norway	133,502			140,206	142,216	127,950	125,803	121,749
Portugal	259,254	252,776	270,072	302,939	301,142	277,671	274,338	289,479
Romania	378,235	325,035	315,472	253,575	207,181	184,685	202,703	204,919
Slovakia							29,248	30,510
Slovenia	36,246	48,890	47,781	47,687	49,379	45,382	45,567	42,721
Spain	843,650	935,456	954,078	982,511	1,052,356	1,049,623	1,095,403	1,074,634
Sweden	305,138	362,257	317,546	319,616	291,158	266,164	260,113	268,230
Switzerland	273,166	276,290	264,730	276,546	266,174	243,987	256,874	246,195
Ukraine							400,378	395,205
United Kingdom	1,264,630	1,154,909	1,023,793	969,628	898,268	847,832	891,073	841,655
United States	12,974,523	13,271,472	13,541,494	13,592,502	13,974,079	13,839,946	14,032,547	13,681,509

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

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	-4.2	2.1	-1.8	4.8	0.6	2.9	25.7
Austria	1.1	1.0	-7.4	-9.1	8.3	-9.6	-8.5
Belarus							
Belgium	-7.2	1.1	-10.3	-7.1	9.9	-4.2	-5.4
Bulgaria							
Canada	2.2	0.7	-3.4	1.3	8.6	5.5	4.4
Croatia	1.0	9.8	5.7	-17.9	4.2	2.3	-21.5
Czech Republic							
Denmark	-8.9	-7.0	-2.9	-7.5	0.1	-4.0	-7.4
Estonia							
European Community							
Finland	-4.6	1.3	-2.6	-4.2	2.2	1.2	-5.1
France	-3.1	3.4	-5.8	-4.4	3.9	-8.1	-11.2
Germany	-5.3	-3.6	-12.0	-3.9	7.3	-7.4	-13.6
Greece	0.8	0.5	-4.2	8.8	2.5	3.0	33.9
Hungary							
Ireland	8.3	10.2	14.6	0.3	4.0	-7.1	77.6
Italy	-1.6	-1.5	-5.9	-4.0	-2.6	0.5	-18.4
Japan	-5.3	-4.0	1.2	-2.4	-6.3	4.3	-14.5
Latvia	-20.2	-8.1	-13.0	-37.5	-23.6	-9.7	-88.1
Lithuania						-37.5	-82.5
Luxembourg							
Monaco							
Netherlands	-17.1	-11.0	-48.7	6.7	-55.5	4.8	-82.1
New Zealand	4.4	1.1	-0.7	0.5	-3.2	4.4	-1.4
Norway			1.4	-10.0	-1.7	-3.2	-8.8
Portugal	6.8	12.2	-0.6	-7.8	-1.2	5.5	11.7
Romania	-2.9	-19.6	-18.3	-10.9	9.8	1.1	-45.8
Slovakia						4.3	
Slovenia	-2.3	-0.2	3.5	-8.1	0.4	-6.2	17.9
Spain	2.0	3.0	7.1	-0.3	4.4	-1.9	27.4
Sweden	-12.3	0.7	-8.9	-8.6	-2.3	3.1	-12.1
Switzerland	-4.2	4.5	-3.8	-8.3	5.3	-4.2	-9.9
Ukraine						-1.3	
United Kingdom	-11.4	-5.3	-7.4	-5.6	5.1	-5.5	-33.4
United States	2.0	0.4	2.8	-1.0	1.4	-2.5	5.4

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

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	1,460,816	1,657,516	1,746,199	1,892,567	1,997,630	1,966,115	1,990,362	2,008,574
Austria	140,800	114,062	119,389	101,368	99,810	114,621	124,602	114,578
Belarus								29,981
Belgium	420,156	350,128	315,659	338,741	287,317	308,763	280,175	294,503
Bulgaria								273,820
Canada	969,984	1,018,462	1,091,744	1,177,288	1,180,558	1,284,192	1,265,159	1,248,437
Croatia	31,938	6,593	10,552	10,290	9,061	19,027	20,189	24,889
Czech Republic								800,533
Denmark	254,836	375,387	280,011	233,355	197,985	165,921	175,451	175,727
Estonia								122,590
European Community				8,636,951		8,294,768		8,628,388
Finland	167,071	220,974	206,643	148,994	149,933	149,177	167,656	184,758
France	646,762	519,333	463,433	555,881	498,314	494,573	425,283	450,044
Germany	5,520,367	3,862,927	3,699,380	3,621,925	3,462,398	3,603,147	3,599,546	3,628,241
Greece	334,655	323,680	351,010	367,729	355,211	379,336	391,546	378,695
Hungary								147,252
Ireland	146,999	125,520	127,404	126,986	110,448	109,317	113,923	109,670
Italy	620,082	473,082	465,470	487,678	489,109	514,721	550,651	569,660
Japan	3,411,531	3,898,603	4,132,243	3,844,723	4,007,101	4,174,723	4,170,989	4,390,900
Latvia	28,758	10,732	9,277	6,773	4,955	5,101	4,901	3,924
Lithuania	77,740			9,835			3,661	6,023
Luxembourg				3,673		5,075		3,379
Monaco								
Netherlands	294,521	273,464	253,873	264,047	229,984	18,597	248,411	237,877
New Zealand	36,097	32,598	38,171	32,140	32,925	30,515	40,135	37,943
Norway	6,911			9,305	8,180	8,206	7,081	6,543
Portugal	108,813	134,386	136,013	122,054	149,438	149,956	133,296	143,075
Romania	445,060	373,076	305,207	252,823	234,715	259,837	281,916	302,993
Slovakia							135,627	120,017
Slovenia	84,360	54,587	58,986	62,889	56,066	56,957	63,744	67,232
Spain	752,579	628,596	710,970	696,406	787,143	836,778	760,890	868,034
Sweden	77,990	78,234	63,840	63,828	54,954	53,559	56,322	60,068
Switzerland	16,835	7,012	4,889	4,301	4,518	6,413	6,606	6,429
Ukraine							1,197,765	1,248,104
United Kingdom	2,512,876	1,684,040	1,485,937	1,500,153	1,319,870	1,387,371	1,521,154	1,410,081
United States	19,049,826	21,260,998	21,778,325	21,960,445	21,971,711	22,979,212	22,250,746	22,653,544

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

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	5.4	8.4	5.6	-1.6	1.2	0.9	37.5
Austria	4.7	-15.1	-1.5	14.8	8.7	-8.0	-18.6
Belarus							
Belgium	-9.8	7.3	-15.2	7.5	-9.3	5.1	-29.9
Bulgaria							
Canada	7.2	7.8	0.3	8.8	-1.5	-1.3	28.7
Croatia	60.0	-2.5	-11.9	110.0	6.1	23.3	-22.1
Czech Republic							
Denmark	-25.4	-16.7	-15.2	-16.2	5.7	0.2	-31.0
Estonia							
European Community							
Finland	-6.5	-27.9	0.6	-0.5	12.4	10.2	10.6
France	-10.8	19.9	-10.4	-0.8	-14.0	5.8	-30.4
Germany	-4.2	-2.1	-4.4	4.1	-0.1	0.8	-34.3
Greece	8.4	4.8	-3.4	6.8	3.2	-3.3	13.2
Hungary							
Ireland	1.5	-0.3	-13.0	-1.0	4.2	-3.7	-25.4
Italy	-1.6	4.8	0.3	5.2	7.0	3.5	-8.1
Japan	6.0	-7.0	4.2	4.2	-0.1	5.3	28.7
Latvia	-13.6	-27.0	-26.8	3.0	-3.9	-19.9	-86.4
Lithuania						64.5	-92.3
Luxembourg							
Monaco							
Netherlands	-7.2	4.0	-12.9	-91.9	1,235.7	-4.2	-19.2
New Zealand	17.1	-15.8	2.4	-7.3	31.5	-5.5	5.1
Norway			-12.1	0.3	-13.7	-7.6	-5.3
Portugal	1.2	-10.3	22.4	0.3	-11.1	7.3	31.5
Romania	-18.2	-17.2	-7.2	10.7	8.5	7.5	-31.9
Slovakia						-11.5	
Slovenia	8.1	6.6	-10.8	1.6	11.9	5.5	-20.3
Spain	13.1	-2.0	13.0	6.3	-9.1	14.1	15.3
Sweden	-18.4	0.0	-13.9	-2.5	5.2	6.7	-23.0
Switzerland	-30.3	-12.0	5.0	41.9	3.0	-2.7	-61.8
Ukraine						4.2	
United Kingdom	-11.8	1.0	-12.0	5.1	9.6	-7.3	-43.9
United States	2.4	0.8	0.1	4.6	-3.2	1.8	18.9

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

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	657,379	760,714	782,645	825,795	861,900	889,116	922,212	945,250
Austria	197,550	271,226	261,454	265,246	266,170	255,735	263,197	258,123
Belarus								569,260
Belgium	322,035	467,640	436,725	495,956	523,752	528,782	532,244	528,550
Bulgaria								80,003
Canada	2,316,119	2,785,576	2,747,867	2,711,398	2,923,310	3,123,128	3,002,649	3,173,089
Croatia	68,282	65,382	68,333	69,578	67,810	68,884	75,422	79,662
Czech Republic								324,646
Denmark	76,099	160,599	169,726	180,202	187,959	183,757	193,450	193,610
Estonia								24,957
European Community				12,519,324		13,018,248		13,871,889
Finland	91,838	124,229	122,778	143,722	141,643	146,263	156,605	154,569
France	975,732	1,241,494	1,223,659	1,328,752	1,276,415	1,303,022	1,390,133	1,349,717
Germany	2,043,699	2,879,226	2,751,820	2,794,437	2,803,532	2,754,240	2,923,226	2,905,195
Greece	6,404	2,668	7,644	30,276	51,021	70,814	69,823	74,124
Hungary								445,498
Ireland	59,411	87,295	94,789	100,232	108,941	126,902	129,540	138,984
Italy	1,537,487	1,871,496	1,940,293	2,092,853	2,275,873	2,370,540	2,413,721	2,364,951
Japan	2,089,056	2,655,302	2,768,692	2,836,709	3,009,273	3,121,765	3,119,503	3,228,745
Latvia	100,320	35,187	43,119	42,211	40,863	44,902	52,073	53,526
Lithuania	168,240			51,215			81,492	76,148
Luxembourg				25,073		29,503		47,209
Monaco								219
Netherlands	1,194,029	1,471,501	1,155,051	1,317,588	1,279,415	970,118	1,324,455	1,376,623
New Zealand	191,302	209,796	226,116	202,972	236,550	246,205	256,655	251,535
Norway	92,650			134,198	126,149	145,905	160,277	163,988
Portugal			3,219	26,918	96,124	80,839	100,724	123,016
Romania	1,269,363	807,947	687,450	641,584	566,471	575,496	567,135	602,111
Slovakia							240,610	220,997
Slovenia	25,591	27,022	27,555	28,538	29,220	29,800	30,512	29,820
Spain	184,242	347,661	460,370	471,403	554,169	636,195	707,013	808,237
Sweden	22,144	30,315	29,302	29,484	29,039	27,550	31,531	33,332
Switzerland	67,700	98,833	95,393	98,176	101,670	101,058	105,160	103,235
Ukraine							2,423,440	2,416,951
United Kingdom	1,886,617	2,996,279	3,074,463	3,217,183	3,433,039	3,533,988	3,560,461	3,515,651
United States	19,719,949	23,285,395	23,379,236	23,079,386	23,160,788	24,204,980	23,183,706	23,421,856

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

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	2.9	5.5	4.4	3.2	3.7	2.5	43.8
Austria	-3.6	1.5	0.3	-3.9	2.9	-1.9	30.7
Belarus							
Belgium	-6.6	13.6	5.6	1.0	0.7	-0.7	64.1
Bulgaria							
Canada	-1.4	-1.3	7.8	6.8	-3.9	5.7	37.0
Croatia	4.5	1.8	-2.5	1.6	9.5	5.6	16.7
Czech Republic							
Denmark	5.7	6.2	4.3	-2.2	5.3	0.1	154.4
Estonia							
European Community							
Finland	-1.2	17.1	-1.4	3.3	7.1	-1.3	68.3
France	-1.4	8.6	-3.9	2.1	6.7	-2.9	38.3
Germany	-4.4	1.5	0.3	-1.8	6.1	-0.6	42.2
Greece	186.5	296.1	68.5	38.8	-1.4	6.2	1,057.4
Hungary							
Ireland	8.6	5.7	8.7	16.5	2.1	7.3	133.9
Italy	3.7	7.9	8.7	4.2	1.8	-2.0	53.8
Japan	4.3	2.5	6.1	3.7	-0.1	3.5	54.6
Latvia	22.5	-2.1	-3.2	9.9	16.0	2.8	-46.6
Lithuania						-6.6	-54.7
Luxembourg							
Monaco							
Netherlands	-21.5	14.1	-2.9	-24.2	36.5	3.9	15.3
New Zealand	7.8	-10.2	16.5	4.1	4.2	-2.0	31.5
Norway			-6.0	15.7	9.9	2.3	77.0
Portugal		736.1	257.1	-15.9	24.6	22.1	
Romania	-14.9	-6.7	-11.7	1.6	-1.5	6.2	-52.6
Slovakia						-8.2	
Slovenia	2.0	3.6	2.4	2.0	2.4	-2.3	16.5
Spain	32.4	2.4	17.6	14.8	11.1	14.3	338.7
Sweden	-3.3	0.6	-1.5	-5.1	14.4	5.7	50.5
Switzerland	-3.5	2.9	3.6	-0.6	4.1	-1.8	52.5
Ukraine						-0.3	
United Kingdom	2.6	4.6	6.7	2.9	0.7	-1.3	86.3
United States	0.4	-1.3	0.4	4.5	-4.2	1.0	18.8

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

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	179,114	199,970	219,380	221,620	217,974	223,654	211,690	203,746
Austria	94,376	115,490	115,709	110,187	114,616	111,659	125,274	129,160
Belarus								31,565
Belgium	12,767	14,906	14,089	13,586	14,575	16,645	10,779	10,366
Bulgaria								34,344
Canada	236,308	270,724	272,308	296,968	316,168	318,430	302,782	339,172
Croatia	22,680	16,140	16,700	14,660	13,927	15,640	12,240	12,394
Czech Republic								26,225
Denmark	48,601	67,121	69,606	65,894	69,470	72,330	78,338	85,982
Estonia								21,770
European Community				1,743,284		1,796,614		1,869,624
Finland	169,787	210,949	244,134	250,617	266,829	268,697	255,535	281,491
France	439,368	472,250	439,371	459,462	454,652	442,393	445,967	408,348
Germany	134,838	138,634	202,113	208,722	214,458	220,536	226,865	224,832
Greece	23,023	38,010	38,094	37,967	38,059	38,059	39,257	39,257
Hungary								14,592
Ireland	4,564	5,862	5,820	5,945	5,652	5,862	7,536	7,365
Italy	59,221	85,107	102,229	80,581	100,134	104,701	115,624	126,419
Japan	198,347	196,509	202,516	186,070	193,485	199,807	182,391	190,112
Latvia	13,083	45,064	48,088	49,565	51,941	49,145	52,669	53,768
Lithuania	6,020			23,720			27,359	28,837
Luxembourg				714		714		438
Monaco								
Netherlands	16,163	17,728	18,248	18,123	18,886	25,125	28,281	33,893
New Zealand	27,420	34,030	29,650	31,209	31,256	30,460	30,510	38,260
Norway	37,657			43,701	45,727	46,129	52,188	49,048
Portugal	104,991	104,258	107,897	107,360	109,160	109,284	110,693	111,148
Romania	24,143	207,396	138,125	124,441	117,256	115,412	89,084	98,277
Slovakia							4,125	5,038
Slovenia	13,703	12,012	12,302	12,482	12,683	12,855	11,834	12,134
Spain	157,767	145,188	152,071	154,137	155,980	157,341	157,753	158,023
Sweden	119,289	186,807	172,345	176,683	175,346	161,147	191,648	185,359
Switzerland	17,130	22,820	20,470	20,990	20,650	20,040	20,880	21,130
Ukraine							22,039	25,717
United Kingdom	27,816	50,376	52,778	53,306	60,168	62,123	64,994	67,542
United States	2,311,176	2,602,597	2,478,854	2,295,187	2,346,157	2,381,002	2,128,342	2,144,077

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

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	9.7	1.0	-1.6	2.6	-5.3	-3.8	13.8
Austria	0.2	-4.8	4.0	-2.6	12.2	3.1	36.9
Belarus							
Belgium	-5.5	-3.6	7.3	14.2	-35.2	-3.8	-18.8
Bulgaria							
Canada	0.6	9.1	6.5	0.7	-4.9	12.0	43.5
Croatia	3.5	-12.2	-5.0	12.3	-21.7	1.3	-45.4
Czech Republic							
Denmark	3.7	-5.3	5.4	4.1	8.3	9.8	76.9
Estonia							
European Community							
Finland	15.7	2.7	6.5	0.7	-4.9	10.2	65.8
France	-7.0	4.6	-1.0	-2.7	0.8	-8.4	-7.1
Germany	45.8	3.3	2.7	2.8	2.9	-0.9	66.7
Greece	0.2	-0.3	0.2	0.0	3.1	0.0	70.5
Hungary							
Ireland	-0.7	2.2	-4.9	3.7	28.6	-2.3	61.4
Italy	20.1	-21.2	24.3	4.6	10.4	9.3	113.5
Japan	3.1	-8.1	4.0	3.3	-8.7	4.2	-4.2
Latvia	6.7	3.1	4.8	-5.4	7.2	2.1	311.0
Lithuania						5.4	379.0
Luxembourg							
Monaco							
Netherlands	2.9	-0.7	4.2	33.0	12.6	19.8	109.7
New Zealand	-12.9	5.3	0.2	-2.5	0.2	25.4	39.5
Norway			4.6	0.9	13.1	-6.0	30.2
Portugal	3.5	-0.5	1.7	0.1	1.3	0.4	5.9
Romania	-33.4	-9.9	-5.8	-1.6	-22.8	10.3	307.1
Slovakia						22.1	
Slovenia	2.4	1.5	1.6	1.4	-7.9	2.5	-11.5
Spain	4.7	1.4	1.2	0.9	0.3	0.2	0.2
Sweden	-7.7	2.5	-0.8	-8.1	18.9	-3.3	55.4
Switzerland	-10.3	2.5	-1.6	-3.0	4.2	1.2	23.4
Ukraine						16.7	
United Kingdom	4.8	1.0	12.9	3.2	4.6	3.9	142.8
United States	-4.8	-7.4	2.2	1.5	-10.6	0.7	-7.2

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

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	0	0	0	0	0	0	0	NA
Austria	8,226	10,721	11,264	9,831	12,249	10,909	12,282	12,465
Belarus								2,634
Belgium	40,675	67,780	75,783	85,859	87,678	93,062	97,262	97,775
Bulgaria								
Canada								
Croatia	0	0	0	0	0	0	0	0
Czech Republic								
Denmark								
Estonia								152
European Community				471,476		1,268,172		583,289
Finland	54,175	85,206	87,624	82,057	76,540	66,827	93,076	95,051
France	65,468	78,675	77,898	81,250	94,723	99,746	94,415	94,554
Germany	121,849	57,572	56,109	62,192	79,795	62,625	66,267	64,328
Greece								
Hungary								12,592
Ireland				871	1,340	963		
Italy	4,790	10,493	9,702	8,697	10,551	11,716	13,268	18,826
Japan								
Latvia								
Lithuania								
Luxembourg								
Monaco								712
Netherlands	43,152	28,036	221,416	71,631	5,913	856,003	141,298	127,224
New Zealand								
Norway	4,174			5,199	5,801	6,116	6,618	6,582
Portugal	1,239	1,369	1,598	2,028	2,328	2,364	1,447	952
Romania								
Slovakia							62,901	64,080
Slovenia	139	114	106	137	219	206	150	153
Spain	3,103	7,857	11,469	11,367	12,724	12,847	13,021	14,571
Sweden	19,739	23,885	24,797	29,585	24,731	26,259	26,557	28,070
Switzerland	NO	NO	NO	NO	NO	NO	NO	NO
Ukraine							24,059	18,618
United Kingdom	6,368	20,902	20,318	26,108	25,024	24,851	27,070	29,472
United States	412,051	398,414	376,575	349,634	336,302	352,824	350,523	357,662

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

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria	5.1	-12.7	24.6	-10.9	12.6	1.5	51.5
Belarus							
Belgium	11.8	13.3	2.1	6.1	4.5	0.5	140.4
Bulgaria							
Canada							
Croatia							
Czech Republic							
Denmark							
Estonia							
European Community							
Finland	2.8	-6.4	-6.7	-12.7	39.3	2.1	75.5
France	-1.0	4.3	16.6	5.3	-5.3	0.1	44.4
Germany	-2.5	10.8	28.3	-21.5	5.8	-2.9	-47.2
Greece							
Hungary							
Ireland			53.8	-28.1			
Italy	-7.5	-10.4	21.3	11.0	13.3	41.9	293.0
Japan							
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands	689.8	-67.6	-91.7	14,376.0	-83.5	-10.0	194.8
New Zealand							
Norway			11.6	5.4	8.2	-0.5	57.7
Portugal	16.8	26.9	14.8	1.6	-38.8	-34.2	-23.2
Romania							
Slovakia						1.9	
Slovenia	-7.1	29.7	59.8	-5.9	-26.9	1.4	9.8
Spain	46.0	-0.9	11.9	1.0	1.4	11.9	369.6
Sweden	3.8	19.3	-16.4	6.2	1.1	5.7	42.2
Switzerland							
Ukraine						-22.6	
United Kingdom	-2.8	28.5	-4.2	-0.7	8.9	8.9	362.8
United States	-5.5	-7.2	-3.8	4.9	-0.7	2.0	-13.2

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

	Liquid fuel		Solid fuel		Gaseous fuel		Biomass		Other fuel	
	1990 ^a	2002	1990 ^a	2002	1990 ^a	2002	1990 ^a	2002	1990 ^a	2002
Australia	15.5	14.5	54.4	55.8	24.5	26.2	6.7	5.7		
Austria	32.5	27.4	21.5	16.2	30.2	36.4	14.4	18.2	1.3	1.8
Belarus		15.2		4.0		76.2		4.2		0.4
Belgium	33.9	29.3	34.9	22.4	26.8	40.1	1.1	0.8	3.4	7.4
Bulgaria		11.3		62.6		18.3		7.8		
Canada	23.1	18.8	21.2	21.3	50.6	54.1	5.2	5.8		
Croatia	51.6	46.9	12.6	11.4	26.9	36.3	8.9	5.7		
Czech Republic		11.0		61.9		25.1		2.0		
Denmark	30.0	24.8	47.0	29.0	14.0	32.0	9.0	14.2		
Estonia		7.3		67.1		13.7		11.9		0.1
European Community		26.2		25.5		41.0		5.5		1.7
Finland	29.6	21.2	24.4	20.3	13.4	17.0	24.8	31.0	7.9	10.5
France	41.5	36.7	17.8	12.4	26.9	37.1	12.1	11.2	1.8	2.6
Germany	20.8	20.7	55.9	42.2	20.7	33.8	1.4	2.6	1.2	0.7
Greece	45.2	45.0	50.3	42.3	1.0	8.3	3.5	4.4		
Hungary		14.8		20.2		61.2		2.0		1.7
Ireland	31.0	39.6	48.1	25.9	19.4	32.8	1.5	1.7		
Italy	48.5	35.7	14.4	11.9	35.6	49.4	1.4	2.6	0.1	0.4
Japan	53.1	41.4	28.1	33.0	17.2	24.2	1.6	1.4		
Latvia	45.0	11.0	11.1	3.1	38.8	42.8	5.1	43.0		
Lithuania	41.9	22.2	17.9	4.2	38.8	53.3	1.4	20.2		
Luxembourg		41.3		3.9		54.3		0.5		
Monaco		29.0				16.7				54.3
Netherlands	15.8	2.8	16.0	13.0	65.0	75.3	0.9	1.9	2.3	7.0
New Zealand	12.7	10.0	12.4	10.4	65.6	69.1	9.4	10.5		
Norway	48.6	35.0	2.5	1.9	33.7	47.1	13.7	14.1	1.5	1.9
Portugal	54.7	43.4	22.9	21.4	0.0	18.4	22.1	16.6	0.3	0.1
Romania	17.9	17.0	21.0	25.1	60.0	49.8	1.1	8.1		
Slovakia		6.9		27.2		50.2		1.1		14.5
Slovenia	22.6	28.1	52.7	44.2	16.0	19.6	8.6	8.0	0.1	0.1
Spain	43.5	36.8	38.8	29.7	9.5	27.6	8.1	5.4	0.2	0.5
Sweden	56.1	46.6	14.3	10.4	4.1	5.8	21.9	32.2	3.6	4.9
Switzerland	72.9	65.3	4.5	1.7	18.1	27.4	4.6	5.6		
Ukraine		9.6		30.4		58.9		0.6		0.5
United Kingdom	22.2	14.4	44.1	24.0	33.1	59.9	0.5	1.2	0.1	0.5
United States	23.8	22.0	35.0	36.4	36.2	37.6	4.2	3.4	0.8	0.6

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

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Table 1.14

Energy industries: all fuels – trend information
CO₂ emissions (Gg)

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	141,806	163,335	169,403	184,779	189,112	192,391	197,224	198,871
Austria	13,475	13,696	13,675	12,847	12,797	12,501	14,512	15,013
Belarus							33,282	33,030
Belgium	28,215	28,328	27,029	28,895	26,329	27,456	25,498	26,513
Bulgaria	37,002	30,726	30,994	27,199	25,913	26,267	29,070	26,496
Canada	144,277	152,221	159,790	177,041	183,245	195,458	198,489	198,632
Croatia	5,897	4,310	4,875	5,531	5,699	5,156	5,650	6,498
Czech Republic	59,171	57,818	59,180	58,706	53,848	60,160	59,538	57,729
Denmark	26,177	44,376	35,395	31,471	28,206	25,070	26,377	26,548
Estonia	29,753	17,127	16,850	14,791	13,478	13,945	13,932	13,911
European Community	1,139,581	1,092,270	1,055,695	1,076,931	1,054,852	1,100,865	1,114,165	1,146,183
Finland	18,517	27,509	24,673	21,395	21,029	19,815	26,762	28,947
France	67,686	62,799	58,890	71,415	64,481	63,646	56,931	59,416
Germany	413,945	360,844	342,847	345,119	331,377	344,171	349,400	356,788
Greece	43,302	44,205	47,668	50,254	50,220	55,058	55,570	55,109
Hungary	24,807	26,610	26,537	24,161	23,614	22,403	21,247	19,680
Ireland	11,057	13,959	14,643	15,047	15,728	16,016	17,145	16,201
Italy	132,812	135,343	136,575	135,774	131,210	150,055	146,748	153,151
Japan	338,572	353,740	347,965	334,364	351,992	362,159	350,601	379,240
Latvia	10,186	4,367	3,795	3,503	3,109	2,678	2,601	2,467
Lithuania	16,352			6,808			5,345	5,086
Luxembourg				69		255		266
Monaco	1.12	0.31	0.08	0.14	0.18	0.06	0.01	0.09
Netherlands	51,305	58,338	57,181	60,185	56,660	61,222	64,649	63,780
New Zealand	6,036	5,259	6,877	5,201	6,530	6,154	7,623	6,725
Norway	6,634	9,171	9,450	9,152	8,583	9,452	10,625	10,882
Portugal	16,187	15,651	16,350	18,847	24,832	21,246	21,403	24,788
Romania	103,345	69,248	58,856	52,413	46,010	46,122	49,251	49,972
Slovakia	50,653	37,186	37,196	35,136	34,191	32,628	12,935	12,797
Slovenia	6,701	5,284	5,680	5,919	5,213	5,487	6,233	6,402
Spain	77,326	73,326	85,384	84,148	99,987	104,522	98,803	113,135
Sweden	10,210	15,402	11,535	12,481	11,164	9,805	10,961	12,326
Switzerland	976	1,295	1,209	1,432	1,188	990	1,070	1,077
Ukraine							86,433	104,089
United Kingdom	228,090	197,758	183,447	188,985	180,729	190,025	199,141	194,202
United States	1,792,382	1,992,192	2,060,469	2,148,453	2,158,748	2,261,926	2,218,175	2,240,057

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	3.7	9.1	2.3	1.7	2.5	0.8	40.2
Austria	-0.2	-6.1	-0.4	-2.3	16.1	3.5	11.4
Belarus						-0.8	
Belgium	-4.6	6.9	-8.9	4.3	-7.1	4.0	-6.0
Bulgaria	0.9	-12.2	-4.7	1.4	10.7	-8.9	-28.4
Canada	5.0	10.8	3.5	6.7	1.6	0.1	37.7
Croatia	13.1	13.5	3.0	-9.5	9.6	15.0	10.2
Czech Republic	2.4	-0.8	-8.3	11.7	-1.0	-3.0	-2.4
Denmark	-20.2	-11.1	-10.4	-11.1	5.2	0.6	1.4
Estonia	-1.6	-12.2	-8.9	3.5	-0.1	-0.1	-53.2
European Community	-3.3	2.0	-2.1	4.4	1.2	2.9	0.6
Finland	-10.3	-13.3	-1.7	-5.8	35.1	8.2	56.3
France	-6.2	21.3	-9.7	-1.3	-10.6	4.4	-12.2
Germany	-5.0	0.7	-4.0	3.9	1.5	2.1	-13.8
Greece	7.8	5.4	-0.1	9.6	0.9	-0.8	27.3
Hungary	-0.3	-9.0	-2.3	-5.1	-5.2	-7.4	-20.7
Ireland	4.9	2.8	4.5	1.8	7.0	-5.5	46.5
Italy	0.9	-0.6	-3.4	14.4	-2.2	4.4	15.3
Japan	-1.6	-3.9	5.3	2.9	-3.2	8.2	12.0
Latvia	-13.1	-7.7	-11.3	-13.8	-2.9	-5.2	-75.8
Lithuania						-4.8	-68.9
Luxembourg							
Monaco	-72.8	60.0	31.8	-65.5	-81.5	722.8	-91.6
Netherlands	-2.0	5.3	-5.9	8.1	5.6	-1.3	24.3
New Zealand	30.8	-24.4	25.6	-5.8	23.9	-11.8	11.4
Norway	3.0	-3.2	-6.2	10.1	12.4	2.4	64.0
Portugal	4.5	15.3	31.8	-14.4	0.7	15.8	53.1
Romania	-15.0	-10.9	-12.2	0.2	6.8	1.5	-51.6
Slovakia	0.0	-5.5	-2.7	-4.6	-60.4	-1.1	-74.7
Slovenia	7.5	4.2	-11.9	5.3	13.6	2.7	-4.5
Spain	16.4	-1.4	18.8	4.5	-5.5	14.5	46.3
Sweden	-25.1	8.2	-10.6	-12.2	11.8	12.4	20.7
Switzerland	-6.7	18.5	-17.0	-16.7	8.0	0.7	10.3
Ukraine						20.4	
United Kingdom	-7.2	3.0	-4.4	5.1	4.8	-2.5	-14.9
United States	3.4	4.3	0.5	4.8	-1.9	1.0	25.0

Table 1.15**Energy industries: liquid fuels – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	8,780	10,021	8,865	9,301	9,006	9,167	9,266	9,778
Austria	3,022	3,680	3,974	4,450	4,056	3,249	3,650	2,996
Belarus								5,710
Belgium	4,950	5,496	5,777	6,535	4,938	4,767	5,336	5,205
Bulgaria								765
Canada	35,451	32,273	33,766	37,679	36,008	35,455	39,290	41,205
Croatia	3,761	2,987	3,105	3,800	4,073	2,423	2,662	2,753
Czech Republic								1,659
Denmark	1,847	5,830	5,239	4,718	4,521	4,210	4,204	3,936
Estonia								650
European Community				228,542		204,882		205,784
Finland	2,607	3,145	2,608	2,844	2,871	2,502	2,934	3,100
France	20,953	21,317	21,922	24,082	22,407	22,071	20,990	20,251
Germany	24,972	25,606	23,472	23,665	21,956	22,223	21,962	23,072
Greece	7,948	9,165	8,979	8,863	8,428	9,731	9,319	9,493
Hungary								1,750
Ireland	1,268	2,181	2,857	3,584	4,602	3,781	4,270	3,276
Italy	77,787	89,697	88,093	84,186	75,224	76,897	73,794	73,749
Japan	153,987	117,481	101,263	89,277	87,931	79,450	60,638	74,013
Latvia	4,768	2,702	1,713	1,654	1,404	671	421	384
Lithuania	8,072			4,554			2,936	1,682
Luxembourg				2		8		8
Monaco								
Netherlands	9,383	9,064	9,146	8,915	435	1,475	1,800	1,764
New Zealand	226	202	153	190	218	168	180	171
Norway	1,177			1,666	1,611	1,360	1,659	1,547
Portugal	8,345	5,265	5,584	8,147	8,303	6,898	7,635	9,086
Romania	17,098	14,954	15,016	11,018	9,533	6,557	8,594	7,940
Slovakia							70	52
Slovenia	309	105	105	89	38	60	106	63
Spain	17,080	19,026	18,243	20,088	23,976	23,910	25,037	26,455
Sweden	3,444	7,853	4,919	5,403	4,567	3,687	4,149	4,745
Switzerland	691	932	826	1,058	818	669	722	743
Ukraine							2,334	2,666
United Kingdom	38,940	30,067	24,357	23,060	21,666	19,472	19,924	18,646
United States	100,111	64,709	73,740	103,502	95,946	90,383	100,136	72,212

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	-11.5	4.9	-3.2	1.8	1.1	5.5	11.4
Austria	8.0	12.0	-8.8	-19.9	12.3	-17.9	-0.9
Belarus							
Belgium	5.1	13.1	-24.4	-3.5	11.9	-2.5	5.1
Bulgaria							
Canada	4.6	11.6	-4.4	-1.5	10.8	4.9	16.2
Croatia	4.0	22.4	7.2	-40.5	9.9	3.4	-26.8
Czech Republic							
Denmark	-10.1	-9.9	-4.2	-6.9	-0.1	-6.4	113.1
Estonia							
European Community							
Finland	-17.1	9.0	1.0	-12.9	17.3	5.7	18.9
France	2.8	9.9	-7.0	-1.5	-4.9	-3.5	-3.3
Germany	-8.3	0.8	-7.2	1.2	-1.2	5.1	-7.6
Greece	-2.0	-1.3	-4.9	15.5	-4.2	1.9	19.4
Hungary							
Ireland	31.0	25.5	28.4	-17.8	13.0	-23.3	158.5
Italy	-1.8	-4.4	-10.6	2.2	-4.0	-0.1	-5.2
Japan	-13.8	-11.8	-1.5	-9.6	-23.7	22.1	-51.9
Latvia	-36.6	-3.4	-15.1	-52.2	-37.2	-8.8	-91.9
Lithuania						-42.7	-79.2
Luxembourg							
Monaco							
Netherlands	0.9	-2.5	-95.1	239.1	22.0	-2.0	-81.2
New Zealand	-24.4	24.0	14.9	-22.9	7.2	-5.3	-24.4
Norway			-3.3	-15.6	22.0	-6.7	31.5
Portugal	6.1	45.9	1.9	-16.9	10.7	19.0	8.9
Romania	0.4	-26.6	-13.5	-31.2	31.1	-7.6	-53.6
Slovakia						-25.3	
Slovenia	-0.8	-14.8	-57.7	60.1	75.7	-40.4	-79.6
Spain	-4.1	10.1	19.4	-0.3	4.7	5.7	54.9
Sweden	-37.4	9.8	-15.5	-19.3	12.5	14.4	37.8
Switzerland	-11.4	28.1	-22.7	-18.2	7.9	3.0	7.5
Ukraine						14.2	
United Kingdom	-19.0	-5.3	-6.0	-10.1	2.3	-6.4	-52.1
United States	14.0	40.4	-7.3	-5.8	10.8	-27.9	-27.9

Table 1.16
Energy industries: solid fuels – trend information
CO₂ emissions (Gg)

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	119,872	137,985	144,820	158,566	161,584	163,592	167,444	168,432
Austria	6,255	4,714	5,003	3,514	3,806	4,981	5,989	5,855
Belarus								923
Belgium	20,354	17,895	16,275	15,337	12,708	14,187	12,133	12,746
Bulgaria								23,169
Canada	78,674	84,800	91,329	97,337	96,700	104,694	103,643	101,902
Croatia	702	138	544	551	501	1,381	1,500	1,901
Czech Republic								53,718
Denmark	22,462	33,931	24,983	20,863	17,567	14,552	15,579	15,798
Estonia								12,074
European Community				665,702		643,875		690,640
Finland	9,279	13,895	12,044	8,171	8,309	8,034	10,211	11,960
France	38,426	31,726	27,829	37,972	32,360	31,647	24,749	27,866
Germany	365,195	307,752	293,093	293,961	281,224	294,836	298,492	304,959
Greece	35,257	34,941	38,466	40,501	39,764	42,259	43,220	42,444
Hungary								10,613
Ireland	7,909	8,856	8,606	8,145	7,454	8,084	8,689	8,398
Italy	39,100	28,659	28,125	31,522	30,360	31,436	36,204	40,397
Japan	108,096	144,683	151,744	147,362	160,299	176,277	184,189	198,001
Latvia	1,312	567	459	299	175	266	177	138
Lithuania	295			78			48	40
Luxembourg								
Monaco								
Netherlands	25,437	26,414	23,963	26,615	22,040	2,009	24,648	21,813
New Zealand	472	591	1,154	738	1,096	844	1,284	1,271
Norway	54			65	66	60	66	63
Portugal	7,841	10,386	10,702	9,834	12,544	12,157	11,243	12,448
Romania	39,906	30,729	24,673	20,645	19,908	22,696	24,916	25,337
Slovakia							5,945	5,847
Slovenia	6,195	4,946	5,415	5,663	5,011	5,268	5,951	6,171
Spain	59,443	52,812	61,984	61,022	72,586	76,292	69,061	79,211
Sweden	5,737	6,124	5,231	5,594	5,170	4,775	5,334	5,890
Switzerland	50	NO	NO	NO	NO	NO	NO	NO
Ukraine							55,125	57,915
United Kingdom	180,801	117,122	99,703	102,650	87,366	98,626	107,887	100,855
United States	1,515,918	1,722,178	1,767,446	1,796,584	1,802,498	1,890,453	1,828,574	1,868,432

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	5.0	9.5	1.9	1.2	2.4	0.6	40.5
Austria	6.1	-29.8	8.3	30.9	20.2	-2.2	-6.4
Belarus							
Belgium	-9.1	-5.8	-17.1	11.6	-14.5	5.0	-37.4
Bulgaria							
Canada	7.7	6.6	-0.7	8.3	-1.0	-1.7	29.5
Croatia	292.7	1.3	-9.1	175.9	8.6	26.7	171.0
Czech Republic							
Denmark	-26.4	-16.5	-15.8	-17.2	7.1	1.4	-29.7
Estonia							
European Community							
Finland	-13.3	-32.2	1.7	-3.3	27.1	17.1	28.9
France	-12.3	36.4	-14.8	-2.2	-21.8	12.6	-27.5
Germany	-4.8	0.3	-4.3	4.8	1.2	2.2	-16.5
Greece	10.1	5.3	-1.8	6.3	2.3	-1.8	20.4
Hungary							
Ireland	-2.8	-5.4	-8.5	8.5	7.5	-3.4	6.2
Italy	-1.9	12.1	-3.7	3.5	15.2	11.6	3.3
Japan	4.9	-2.9	8.8	10.0	4.5	7.5	83.2
Latvia	-18.9	-35.0	-41.4	51.9	-33.4	-22.2	-89.5
Lithuania						-16.8	-86.5
Luxembourg							
Monaco							
Netherlands	-9.3	11.1	-17.2	-90.9	1,127.1	-11.5	-14.2
New Zealand	95.2	-36.0	48.4	-23.0	52.1	-0.9	169.2
Norway			0.9	-8.5	10.0	-4.7	17.6
Portugal	3.1	-8.1	27.5	-3.1	-7.5	10.7	58.8
Romania	-19.7	-16.3	-3.6	14.0	9.8	1.7	-36.5
Slovakia						-1.6	
Slovenia	9.5	4.6	-11.5	5.1	13.0	3.7	-0.4
Spain	17.4	-1.6	19.0	5.1	-9.5	14.7	33.3
Sweden	-14.6	6.9	-7.6	-7.6	11.7	10.4	2.7
Switzerland							
Ukraine						5.1	
United Kingdom	-14.9	3.0	-14.9	12.9	9.4	-6.5	-44.2
United States	2.6	1.6	0.3	4.9	-3.3	2.2	23.3

Table 1.17**Energy industries: gaseous fuels – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	13,154	15,328	15,718	16,913	18,522	19,631	20,513	20,662
Austria	4,049	4,974	4,353	4,550	4,644	3,956	4,532	5,766
Belarus								26,237
Belgium	2,780	4,802	4,831	6,832	8,360	8,148	7,632	8,165
Bulgaria								2,562
Canada	30,152	35,148	34,695	42,025	50,537	55,308	55,557	55,526
Croatia	1,434	1,184	1,226	1,180	1,125	1,352	1,488	1,844
Czech Republic								2,351
Denmark	1,520	4,177	4,703	5,424	5,631	5,786	6,029	6,248
Estonia								1,188
European Community				163,550		189,534		212,087
Finland	2,659	3,920	4,000	4,738	4,756	5,017	5,882	5,844
France	1,554	3,271	2,697	2,636	2,438	2,646	2,731	3,189
Germany	22,194	26,911	25,662	26,857	27,191	26,466	28,249	28,079
Greece	97	99	224	890	2,028	3,067	3,032	3,172
Hungary								7,317
Ireland	1,881	2,923	3,181	3,270	3,598	4,098	4,186	4,527
Italy	15,836	16,822	20,233	20,016	25,551	41,663	36,684	38,459
Japan	76,489	91,576	94,958	97,725	103,761	106,432	105,774	107,226
Latvia	4,107	1,098	1,622	1,550	1,529	1,742	2,003	1,945
Lithuania	7,985			2,176			2,965	3,365
Luxembourg				66		247		258
Monaco								0
Netherlands	15,513	21,120	22,128	21,702	22,666	10,536	23,094	23,474
New Zealand	5,338	4,465	5,570	4,272	5,216	5,141	6,160	5,283
Norway	5,306			7,303	6,778	7,886	8,752	9,124
Portugal			63	866	3,986	2,190	2,526	3,253
Romania	46,341	23,565	19,166	20,751	16,569	16,870	15,741	16,696
Slovakia							3,697	3,338
Slovenia	196	233	160	167	164	159	176	167
Spain	683	1,200	4,744	2,640	3,003	3,896	4,256	6,984
Sweden	452	685	690	663	670	580	700	782
Switzerland	235	363	383	375	370	321	348	334
Ukraine							28,154	42,933
United Kingdom	8,215	49,863	58,635	62,401	70,898	71,237	70,579	73,886
United States	175,955	204,927	218,903	247,988	259,921	280,728	289,112	299,070

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	2.5	7.6	9.5	6.0	4.5	0.7	57.1
Austria	-12.5	4.5	2.1	-14.8	14.6	27.2	42.4
Belarus							
Belgium	0.6	41.4	22.4	-2.5	-6.3	7.0	193.7
Bulgaria							
Canada	-1.3	21.1	20.3	9.4	0.4	-0.1	84.2
Croatia	3.5	-3.7	-4.7	20.2	10.1	23.9	28.6
Czech Republic							
Denmark	12.6	15.3	3.8	2.8	4.2	3.6	311.1
Estonia							
European Community							
Finland	2.0	18.5	0.4	5.5	17.2	-0.6	119.8
France	-17.6	-2.3	-7.5	8.5	3.2	16.8	105.3
Germany	-4.6	4.7	1.2	-2.7	6.7	-0.6	26.5
Greece	126.4	298.3	127.8	51.2	-1.2	4.6	3,172.0
Hungary							
Ireland	8.8	2.8	10.0	13.9	2.1	8.2	140.7
Italy	20.3	-1.1	27.7	63.1	-12.0	4.8	142.9
Japan	3.7	2.9	6.2	2.6	-0.6	1.4	40.2
Latvia	47.7	-4.4	-1.3	13.9	15.0	-2.9	-52.6
Lithuania						13.5	-57.9
Luxembourg							
Monaco							
Netherlands	4.8	-1.9	4.4	-53.5	119.2	1.6	51.3
New Zealand	24.7	-23.3	22.1	-1.4	19.8	-14.2	-1.0
Norway			-7.2	16.3	11.0	4.3	71.9
Portugal		1,270.8	360.5	-45.1	15.3	28.8	
Romania	-18.7	8.3	-20.2	1.8	-6.7	6.1	-64.0
Slovakia						-9.7	
Slovenia	-31.2	3.9	-1.3	-3.2	10.7	-5.0	-14.8
Spain	295.2	-44.4	13.8	29.7	9.3	64.1	923.2
Sweden	0.8	-4.0	1.2	-13.5	20.7	11.7	73.1
Switzerland	5.4	-2.2	-1.2	-13.4	8.4	-3.9	42.3
Ukraine						52.5	
United Kingdom	17.6	6.4	13.6	0.5	-0.9	4.7	799.5
United States	6.8	13.3	4.8	8.0	3.0	3.4	70.0

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

	Liquid fuels		Solid fuels		Gaseous fuels	
	1990 ^a	2002	1990 ^a	2002	1990 ^a	2002
Australia	6.2	4.9	84.5	84.7	9.3	10.4
Austria	22.4	20.0	46.4	39.0	30.0	38.4
Belarus		17.3		2.8		79.4
Belgium	17.5	19.6	72.1	48.1	9.9	30.8
Bulgaria		2.9		87.4		9.7
Canada	24.6	20.7	54.5	51.3	20.9	28.0
Croatia	63.8	42.4	11.9	29.3	24.3	28.4
Czech Republic		2.9		93.1		4.1
Denmark	7.1	14.8	85.8	59.5	5.8	23.5
Estonia		4.7		86.8		8.5
European Community		18.0		60.3		18.5
Finland	14.1	10.7	50.1	41.3	14.4	20.2
France	31.0	34.1	56.8	46.9	2.3	5.4
Germany	6.0	6.5	88.2	85.5	5.4	7.9
Greece	18.4	17.2	81.4	77.0	0.2	5.8
Hungary		8.9		53.9		37.2
Ireland	11.5	20.2	71.5	51.8	17.0	27.9
Italy	58.6	48.2	29.4	26.4	11.9	25.1
Japan	45.5	19.5	31.9	52.2	22.6	28.3
Latvia	46.8	15.6	12.9	5.6	40.3	78.8
Lithuania	49.4	33.1	1.8	0.8	48.8	66.2
Luxembourg		3.1				96.9
Monaco						100.0
Netherlands	18.3	2.8	49.6	34.2	30.2	36.8
New Zealand	3.7	2.5	7.8	18.9	88.4	78.6
Norway	17.7	14.2	0.8	0.6	80.0	83.8
Portugal	51.6	36.7	48.4	50.2		13.1
Romania	16.5	15.9	38.6	50.7	44.8	33.4
Slovakia		0.4		45.7		26.1
Slovenia	4.6	1.0	92.5	96.4	2.9	2.6
Spain	22.1	23.4	76.9	70.0	0.9	6.2
Sweden	33.7	38.5	56.2	47.8	4.4	6.3
Switzerland	70.8	69.0	5.1		24.1	31.0
Ukraine		2.6		55.6		41.2
United Kingdom	17.1	9.6	79.3	51.9	3.6	38.0
United States	5.6	3.2	84.6	83.4	9.8	13.4

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Table 1.19**Manufacturing industries and construction: all fuels – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	37,385	40,315	39,856	40,223	43,601	42,589	42,035	43,249
Austria	13,033	13,524	15,012	14,162	13,319	13,707	12,920	12,504
Belarus							3,790	3,468
Belgium	33,194	32,048	31,007	34,044	31,817	33,385	32,994	33,976
Bulgaria	35,755	14,010	13,968	11,401	9,488	8,605	8,196	8,165
Canada	62,090	64,199	64,334	61,109	60,918	63,951	59,609	62,418
Croatia	6,546	3,763	3,714	4,008	3,729	3,805	3,903	3,836
Czech Republic	59,457	43,867	43,341	35,376	34,156	36,130	34,879	30,968
Denmark	5,383	6,650	6,550	5,952	5,981	5,740	5,760	5,557
Estonia	2,655	730	655	666	660	483	588	422
European Community	651,908	600,646	607,208	612,676	604,009	593,411	595,042	583,070
Finland	14,358	13,534	15,194	15,282	15,844	15,956	13,855	13,228
France	82,893	83,221	84,741	87,269	80,866	82,610	81,706	81,366
Germany	196,315	144,167	144,166	138,562	135,441	135,612	132,869	132,033
Greece	9,792	10,412	10,570	10,772	9,552	10,415	10,436	10,143
Hungary	22,867	6,199	4,905	8,629	9,924	10,826	10,640	10,128
Ireland	3,833	3,512	3,988	3,917	4,238	4,743	4,726	4,892
Italy	87,846	85,721	89,077	95,107	98,686	84,514	89,865	84,943
Japan	335,047	359,469	371,613	339,634	348,765	349,059	336,765	346,153
Latvia	1,663	1,196	1,447	1,290	1,125	998	872	914
Lithuania	5,379			2,287			1,733	1,086
Luxembourg				1,417		1,734		2,341
Monaco								
Netherlands	42,192	43,026	35,485	39,178	38,175	36,278	36,444	35,791
New Zealand	4,727	5,843	5,892	5,872	5,854	6,147	6,255	6,375
Norway	3,497	4,166	4,265	4,443	4,283	4,143	4,111	3,735
Portugal	9,158	10,211	11,040	10,689	10,412	11,178	10,562	9,971
Romania	30,234	31,406	26,310	20,047	17,777	18,752	19,264	22,638
Slovakia							14,796	14,233
Slovenia	4,119	2,361	2,257	2,328	2,334	2,300	2,358	2,384
Spain	43,839	46,972	52,639	53,504	57,094	59,661	61,332	61,903
Sweden	10,677	11,482	11,962	11,653	10,580	10,119	10,117	10,380
Switzerland	5,112	4,544	4,419	4,554	5,430	5,089	5,387	5,099
Ukraine							77,133	71,695
United Kingdom	94,138	92,757	93,402	91,169	90,219	87,762	89,805	84,044
United States	966,608	1,045,925	1,058,427	1,018,063	1,001,933	999,699	970,769	955,773

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	-1.1	0.9	8.4	-2.3	-1.3	2.9	15.7
Austria	11.0	-5.7	-6.0	2.9	-5.7	-3.2	-4.1
Belarus						-8.5	
Belgium	-3.2	9.8	-6.5	4.9	-1.2	3.0	2.4
Bulgaria	-0.3	-18.4	-16.8	-9.3	-4.8	-0.4	-77.2
Canada	0.2	-5.0	-0.3	5.0	-6.8	4.7	0.5
Croatia	-1.3	7.9	-7.0	2.0	2.6	-1.7	-41.4
Czech Republic	-1.2	-18.4	-3.4	5.8	-3.5	-11.2	-47.9
Denmark	-1.5	-9.1	0.5	-4.0	0.3	-3.5	3.2
Estonia	-10.2	1.7	-1.0	-26.8	21.8	-28.3	-84.1
European Community	1.1	0.9	-1.4	-1.8	0.3	-2.0	-10.6
Finland	12.3	0.6	3.7	0.7	-13.2	-4.5	-7.9
France	1.8	3.0	-7.3	2.2	-1.1	-0.4	-1.8
Germany	0.0	-3.9	-2.3	0.1	-2.0	-0.6	-32.7
Greece	1.5	1.9	-11.3	9.0	0.2	-2.8	3.6
Hungary	-20.9	75.9	15.0	9.1	-1.7	-4.8	-55.7
Ireland	13.5	-1.8	8.2	11.9	-0.4	3.5	27.6
Italy	3.9	6.8	3.8	-14.4	6.3	-5.5	-3.3
Japan	3.4	-8.6	2.7	0.1	-3.5	2.8	3.3
Latvia	21.0	-10.9	-12.8	-11.3	-12.6	4.9	-45.0
Lithuania						4.3	-79.8
Luxembourg							
Monaco							
Netherlands	-17.5	10.4	-2.6	-5.0	0.5	-1.8	-15.2
New Zealand	0.8	-0.3	-0.3	5.0	1.7	1.9	34.9
Norway	2.4	4.2	-3.6	-3.3	-0.8	-9.1	6.8
Portugal	8.1	-3.2	-2.6	7.4	-5.5	-5.6	8.9
Romania	-16.2	-23.8	-11.3	5.5	2.7	17.5	-25.1
Slovakia						-4	
Slovenia	-4.4	3.1	0.3	-1.5	2.5	1.1	-42.1
Spain	12.1	1.6	6.7	4.5	2.8	0.9	41.2
Sweden	4.2	-2.6	-9.2	-4.4	0.0	2.6	-2.8
Switzerland	-2.7	3.1	19.2	-6.3	5.9	-5.3	-0.2
Ukraine						-7.0	
United Kingdom	0.7	-2.4	-1.0	-2.7	2.3	-6.4	-10.7
United States	1.2	-3.8	-1.6	-0.2	-2.9	-1.5	-1.1

Table 1.20**Manufacturing industries and construction: liquid fuels – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	10,908	12,178	11,401	11,738	10,595	12,366	12,217	12,377
Austria	3,349	3,041	3,896	3,743	2,986	3,070	2,877	2,961
Belarus								314
Belgium	7,494	6,258	5,978	6,149	4,479	4,589	5,626	5,535
Bulgaria								2,349
Canada	15,451	12,735	12,367	11,793	11,290	11,621	12,837	11,326
Croatia	3,023	2,057	1,932	2,195	2,150	2,151	2,220	2,215
Czech Republic								5,701
Denmark	2,621	2,833	2,665	2,397	2,352	2,347	2,322	2,359
Estonia								132
European Community				183,715		163,185		162,944
Finland	4,294	3,580	4,018	4,101	4,790	4,775	4,494	4,463
France	30,274	30,192	29,728	30,645	26,960	26,196	26,121	24,791
Germany	28,392	26,484	25,313	24,285	22,173	19,292	18,873	20,506
Greece	5,479	6,558	6,860	6,576	6,028	6,311	6,269	6,561
Hungary								2,355
Ireland	2,007	2,288	2,761	2,382	2,540	3,132	3,189	3,016
Italy	36,585	28,047	29,193	30,982	29,914	25,712	27,367	28,309
Japan	137,614	147,128	143,370	132,744	136,767	135,991	129,627	130,249
Latvia	674	662	916	744	632	489	256	231
Lithuania	2,919			1,539			466	310
Luxembourg				436		355		212
Monaco								
Netherlands	7,658	7,646	4,628	3,062	4,726	3,535	350	520
New Zealand	728	678	681	570	537	696	659	686
Norway	2,833			3,155	3,018	2,823	2,975	2,801
Portugal	6,411	7,729	8,578	8,235	7,490	6,942	6,494	6,105
Romania	5,759	6,534	4,689	4,244	3,709	4,681	4,603	4,900
Slovakia							1,852	1,987
Slovenia	1,557	931	739	715	746	702	611	544
Spain	22,962	24,827	27,998	28,301	29,006	28,137	28,683	27,201
Sweden	7,814	8,854	9,317	9,134	8,489	7,781	7,729	8,131
Switzerland	2,294	1,882	1,907	2,042	3,332	2,769	3,003	2,787
Ukraine							6,116	5,636
United Kingdom	27,534	27,390	25,399	23,288	21,281	21,009	23,722	22,274
United States	394,725	406,709	416,571	396,243	403,505	392,059	407,655	406,100

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	-6.4	3.0	-9.7	16.7	-1.2	1.3	13.5
Austria	28.1	-3.9	-20.2	2.8	-6.3	2.9	-11.6
Belarus							
Belgium	-4.5	2.9	-27.2	2.5	22.6	-1.6	-26.1
Bulgaria							
Canada	-2.9	-4.6	-4.3	2.9	10.5	-11.8	-26.7
Croatia	-6.1	13.7	-2.0	0.0	3.2	-0.2	-26.7
Czech Republic							
Denmark	-5.9	-10.1	-1.9	-0.2	-1.1	1.6	-10.0
Estonia							
European Community							
Finland	12.2	2.1	16.8	-0.3	-5.9	-0.7	3.9
France	-1.5	3.1	-12.0	-2.8	-0.3	-5.1	-18.1
Germany	-4.4	-4.1	-8.7	-13.0	-2.2	8.7	-27.8
Greece	4.6	-4.1	-8.3	4.7	-0.7	4.7	19.7
Hungary							
Ireland	20.7	-13.7	6.7	23.3	1.8	-5.4	50.3
Italy	4.1	6.1	-3.4	-14.0	6.4	3.4	-22.6
Japan	-2.6	-7.4	3.0	-0.6	-4.7	0.5	-5.4
Latvia	38.4	-18.8	-15.0	-22.7	-47.6	-9.8	-65.6
Lithuania						-33.5	-89.4
Luxembourg							
Monaco							
Netherlands	-39.5	-33.8	54.4	-25.2	-90.1	48.4	-93.2
New Zealand	0.5	-16.3	-5.8	29.7	-5.3	4.1	-5.7
Norway			-4.3	-6.5	5.4	-5.9	-1.1
Portugal	11.0	-4.0	-9.0	-7.3	-6.5	-6.0	-4.8
Romania	-28.2	-9.5	-12.6	26.2	-1.7	6.5	-14.9
Slovakia						7.3	
Slovenia	-20.6	-3.2	4.2	-5.9	-13.0	-10.9	-65.1
Spain	12.8	1.1	2.5	-3.0	1.9	-5.2	18.5
Sweden	5.2	-2.0	-7.1	-8.3	-0.7	5.2	4.1
Switzerland	1.3	7.1	63.2	-16.9	8.5	-7.2	21.5
Ukraine						-7.8	
United Kingdom	-7.3	-8.3	-8.6	-1.3	12.9	-6.1	-19.1
United States	2.4	-4.9	1.8	-2.8	4.0	-0.4	2.9

Table 1.21**Manufacturing industries and construction: solid fuels – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	12,296	12,183	12,105	11,800	15,800	12,944	12,026	12,264
Austria	4,848	4,430	4,845	4,303	4,250	4,611	4,361	5,156
Belarus								288
Belgium	15,986	12,361	11,368	12,647	12,054	12,829	12,134	12,995
Bulgaria								3,994
Canada	7,175	6,773	6,940	6,663	6,817	7,379	7,085	6,748
Croatia	1,904	408	377	317	256	318	325	342
Czech Republic								18,583
Denmark	1,429	1,573	1,481	1,207	1,157	1,104	967	825
Estonia								229
European Community				174,428		170,225		156,457
Finland	6,410	5,399	5,875	5,780	5,734	5,965	5,476	5,295
France	29,057	25,161	26,197	25,154	24,679	25,221	24,090	24,762
Germany	120,250	68,820	70,205	65,080	62,807	66,115	63,500	61,517
Greece	4,144	3,826	3,557	3,585	2,852	3,347	3,387	2,692
Hungary								2,722
Ireland	970	511	368	625	763	319	311	292
Italy	18,519	16,657	17,726	16,503	18,601	17,697	17,665	12,873
Japan	188,263	196,513	210,831	189,665	193,358	192,902	186,189	192,031
Latvia	82	33	34	37	36	24	23	23
Lithuania	1,756			369			46	226
Luxembourg				317		480		328
Monaco								
Netherlands	5,018	1,230	663	789	1,564	673	499	520
New Zealand	1,936	1,799	1,746	1,646	1,425	1,463	1,837	1,684
Norway	663			909	794	848	670	586
Portugal	2,661	2,390	2,240	1,730	1,535	2,060	1,346	786
Romania	1,759	5,746	5,174	4,415	3,141	2,805	2,851	4,544
Slovakia							5,316	4,562
Slovenia	1,372	326	372	438	438	395	573	660
Spain	12,778	7,477	7,560	5,882	5,226	5,393	5,609	5,252
Sweden	2,059	1,702	1,706	1,517	1,269	1,437	1,386	1,336
Switzerland	1,471	634	438	391	412	583	609	593
Ukraine							31,301	31,355
United Kingdom	37,517	30,585	31,116	29,309	27,913	22,974	24,242	21,827
United States	150,260	144,523	145,753	137,638	132,179	133,804	128,953	125,941

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	-0.6	-2.5	33.9	-18.1	-7.1	2.0	-0.3
Austria	9.4	-11.2	-1.2	8.5	-5.4	18.2	6.3
Belarus							
Belgium	-8.0	11.3	-4.7	6.4	-5.4	7.1	-18.7
Bulgaria							
Canada	2.5	-4.0	2.3	8.2	-4.0	-4.8	-5.9
Croatia	-7.5	-16.0	-19.3	24.4	2.1	5.4	-82.0
Czech Republic							
Denmark	-5.9	-18.4	-4.2	-4.6	-12.4	-14.7	-42.3
Estonia							
European Community							
Finland	8.8	-1.6	-0.8	4.0	-8.2	-3.3	-17.4
France	4.1	-4.0	-1.9	2.2	-4.5	2.8	-14.8
Germany	2.0	-7.3	-3.5	5.3	-4.0	-3.1	-48.8
Greece	-7.0	0.8	-20.4	17.3	1.2	-20.5	-35.0
Hungary							
Ireland	-27.9	69.6	22.2	-58.2	-2.5	-6.2	-69.9
Italy	6.4	-6.9	12.7	-4.9	-0.2	-27.1	-30.5
Japan	7.3	-10.0	1.9	-0.2	-3.5	3.1	2.0
Latvia	4.8	7.9	-2.8	-33.8	-1.8	0.4	-71.4
Lithuania						397.6	-87.1
Luxembourg							
Monaco							
Netherlands	-46.1	19.0	98.2	-57.0	-25.8	4.3	-89.6
New Zealand	-3.0	-5.7	-13.4	2.7	25.6	-8.3	-13.0
Norway			-12.6	6.8	-21.0	-12.5	-11.6
Portugal	-6.3	-22.8	-11.3	34.2	-34.7	-41.5	-70.4
Romania	-9.9	-14.7	-28.9	-10.7	1.6	59.4	158.4
Slovakia						-14.2	
Slovenia	13.9	17.8	0.0	-9.7	44.9	15.2	-51.9
Spain	1.1	-22.2	-11.2	3.2	4.0	-6.4	-58.9
Sweden	0.2	-11.1	-16.3	13.2	-3.5	-3.6	-35.1
Switzerland	-30.8	-10.7	5.2	41.7	4.5	-2.7	-59.7
Ukraine						0.2	
United Kingdom	1.7	-5.8	-4.8	-17.7	5.5	-10.0	-41.8
United States	0.9	-5.6	-4.0	1.2	-3.6	-2.3	-16.2

Table 1.22**Manufacturing industries and construction: gaseous fuels – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	14,181	15,954	16,349	16,685	17,205	17,278	17,792	18,608
Austria	4,570	5,860	6,095	6,016	5,855	5,841	5,435	4,269
Belarus								2,845
Belgium	7,384	9,221	8,923	9,908	9,891	10,339	9,214	9,425
Bulgaria								1,822
Canada	39,465	44,691	45,027	42,652	42,811	44,952	39,687	44,344
Croatia	1,619	1,298	1,405	1,496	1,323	1,336	1,359	1,279
Czech Republic								6,684
Denmark	1,333	2,244	2,405	2,347	2,472	2,279	2,457	2,341
Estonia								61
European Community				227,142		226,712		236,151
Finland	2,094	2,419	2,379	2,672	2,724	2,783	2,224	2,155
France	23,561	27,295	28,286	30,923	28,400	30,173	30,625	30,724
Germany	45,751	48,471	48,347	48,799	50,206	49,812	50,099	49,595
Greece	169	28	152	611	672	756	780	889
Hungary								5,010
Ireland	856	713	858	911	934	1,293	1,226	1,585
Italy	32,707	40,735	41,922	47,458	49,946	40,876	44,605	43,532
Japan	9,170	15,829	17,412	17,226	18,640	20,167	20,949	23,874
Latvia	908	502	497	509	457	485	592	660
Lithuania	704			378			1,222	550
Luxembourg				664		899		1,800
Monaco								
Netherlands	18,119	18,243	6,565	17,731	15,831	9,200	13,870	16,840
New Zealand	2,063	3,366	3,465	3,656	3,893	3,988	3,758	4,005
Norway				370	459	467	463	348
Portugal			115	590	1,233	2,019	2,624	3,011
Romania	22,716	19,126	16,447	11,387	10,927	11,266	11,810	13,193
Slovakia							3,659	3,446
Slovenia	1,177	1,096	1,140	1,165	1,135	1,187	1,164	1,169
Spain	8,099	14,653	17,063	19,291	22,783	26,042	26,956	29,332
Sweden	617	728	684	699	656	676	762	765
Switzerland	1,348	2,028	2,074	2,121	1,686	1,737	1,775	1,720
Ukraine							39,113	34,065
United Kingdom	29,087	34,697	36,817	38,521	40,969	43,724	41,786	39,887
United States	421,623	494,693	496,103	484,182	466,248	473,836	434,161	423,732

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	2.5	2.1	3.1	0.4	3.0	4.6	31.2
Austria	4.0	-1.3	-2.7	-0.2	-7.0	-21.4	-6.6
Belarus							
Belgium	-3.2	11.0	-0.2	4.5	-10.9	2.3	27.6
Bulgaria							
Canada	0.8	-5.3	0.4	5.0	-11.7	11.7	12.4
Croatia	8.3	6.5	-11.5	1.0	1.7	-5.9	-21.0
Czech Republic							
Denmark	7.2	-2.4	5.3	-7.8	7.8	-4.7	75.6
Estonia							
European Community							
Finland	-1.6	12.3	1.9	2.2	-20.1	-3.1	2.9
France	3.6	9.3	-8.2	6.2	1.5	0.3	30.4
Germany	-0.3	0.9	2.9	-0.8	0.6	-1.0	8.4
Greece	435.9	300.9	10.0	12.5	3.1	14.1	426.2
Hungary							
Ireland	20.3	6.2	2.5	38.4	-5.2	29.3	85.2
Italy	2.9	13.2	5.2	-18.2	9.1	-2.4	33.1
Japan	10.0	-1.1	8.2	8.2	3.9	14.0	160.3
Latvia	-1.0	2.5	-10.3	6.2	22.1	11.4	-27.3
Lithuania						-55.0	-21.9
Luxembourg							
Monaco							
Netherlands	-64.0	170.1	-10.7	-41.9	50.8	21.4	-7.1
New Zealand	2.9	5.5	6.5	2.5	-5.8	6.5	94.1
Norway			24.0	1.8	-0.9	-24.8	
Portugal		415.2	108.8	63.8	30.0	14.7	
Romania	-14.0	-30.8	-4.0	3.1	4.8	11.7	-41.9
Slovakia						-5.8	
Slovenia	3.9	2.2	-2.6	4.7	-2.0	0.5	-0.7
Spain	16.4	13.1	18.1	14.3	3.5	8.8	262.2
Sweden	-5.9	2.2	-6.2	3.1	12.8	0.3	24.1
Switzerland	2.3	2.3	-20.5	3.1	2.2	-3.1	27.6
Ukraine						-12.9	
United Kingdom	6.1	4.6	6.4	6.7	-4.4	-4.5	37.1
United States	0.3	-2.4	-3.7	1.6	-8.4	-2.4	0.5

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

	Liquid fuels		Solid fuels		Gaseous fuels	
	1990 ^a	2002	1990 ^a	2002	1990 ^a	2002
Australia	29.2	28.6	32.9	28.4	37.9	43.0
Austria	25.7	23.7	37.2	41.2	35.1	34.1
Belarus		9.1		8.3		82.0
Belgium	22.6	16.3	48.2	38.2	22.2	27.7
Bulgaria		28.8		48.9		22.3
Canada	24.9	18.1	11.6	10.8	63.6	71.0
Croatia	46.2	57.7	29.1	8.9	24.7	33.3
Czech Republic		18.4		60.0		21.6
Denmark	48.7	42.4	26.5	14.8	24.8	42.1
Estonia		31.2		54.4		14.3
European Community		27.9		26.8		40.5
Finland	29.9	33.7	44.6	40.0	14.6	16.3
France	36.5	30.5	35.1	30.4	28.4	37.8
Germany	14.5	15.5	61.3	46.6	23.3	37.6
Greece	56.0	64.7	42.3	26.5	1.7	8.8
Hungary		23.3		26.9		49.5
Ireland	52.4	61.6	25.3	6.0	22.3	32.4
Italy	41.6	33.3	21.1	15.2	37.2	51.2
Japan	41.1	37.6	56.2	55.5	2.7	6.9
Latvia	40.5	25.3	4.9	2.6	54.6	72.1
Lithuania	54.3	28.5	32.6	20.8	13.1	50.6
Luxembourg		9.1		14.0		76.9
Monaco						
Netherlands	18.2	1.5	11.9	1.5	42.9	47.1
New Zealand	15.4	10.8	41.0	26.4	43.7	62.8
Norway	81.0	75.0	19.0	15.7		9.3
Portugal	70.0	61.2	29.1	7.9		30.2
Romania	19.0	21.6	5.8	20.1	75.1	58.3
Slovakia		14.0		32.1		24.2
Slovenia	37.8	22.8	33.3	27.7	28.6	49.1
Spain	52.4	43.9	29.1	8.5	18.5	47.4
Sweden	73.2	78.3	19.3	12.9	5.8	7.4
Switzerland	44.9	54.6	28.8	11.6	26.4	33.7
Ukraine		7.9		43.7		47.5
United Kingdom	29.2	26.5	39.9	26.0	30.9	47.5
United States	40.8	42.5	15.5	13.2	43.6	44.3

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Table 1.24**Other sectors (commercial / institutional, residential, agriculture / forestry / fisheries): all fuels – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	12,486	14,045	14,586	14,785	14,932	15,384	15,586	16,043
Austria	13,815	15,630	14,126	14,127	14,219	13,452	14,825	13,651
Belarus							6,932	6,657
Belgium	27,230	35,552	31,306	31,615	30,617	29,178	31,040	29,624
Bulgaria	7,612	3,238	2,678	2,989	2,491	1,896	1,638	2,074
Canada	69,415	79,476	76,576	68,085	71,827	78,066	74,616	79,460
Croatia	3,616	3,136	3,180	3,107	3,513	3,359	3,576	3,655
Czech Republic	34,177	17,936	20,013	19,624	17,481	17,019	15,769	15,108
Denmark	9,152	9,342	8,626	8,259	8,265	7,535	7,771	7,428
Estonia	2,392	1,153	1,281	1,140	1,083	1,036	306	464
European Community	636,997	698,327	651,872	653,112	637,697	622,455	665,103	630,058
Finland	7,571	6,483	6,598	6,659	6,369	5,796	6,022	6,078
France	94,381	104,784	98,795	102,426	101,234	96,506	106,079	97,806
Germany	204,414	215,267	200,905	192,551	176,631	170,512	188,199	174,262
Greece	8,021	10,016	10,252	10,608	10,410	11,026	11,889	12,261
Hungary	23,782	18,091	16,221	13,451	13,385	13,996	15,147	15,506
Ireland	9,726	9,092	9,421	9,974	9,903	10,364	10,414	10,296
Italy	76,121	77,342	74,712	78,060	82,146	78,085	81,188	77,759
Japan	164,050	181,559	179,374	186,437	189,746	192,087	191,312	194,266
Latvia	5,181	1,247	1,100	1,000	935	818	1,036	1,004
Lithuania	6,313			1,438			1,045	1,108
Luxembourg				1,578		1,268		1,390
Monaco	29	40	35	35	39	39	37	40
Netherlands	34,912	44,129	36,806	35,915	33,927	35,177	37,415	37,203
New Zealand	2,855	2,519	2,655	2,751	2,812	2,826	2,855	3,206
Norway	4,131	4,192	3,751	3,728	3,809	3,206	3,488	3,617
Portugal	4,055	5,078	5,172	5,606	6,143	6,516	6,253	6,481
Romania	10,185	8,349	9,955	9,879	8,030	8,291	7,829	8,275
Slovakia							5,913	5,830
Slovenia	2,139	2,890	2,963	2,994	3,209	2,885	2,972	2,830
Spain	25,953	30,300	30,408	31,113	32,678	34,040	34,856	34,300
Sweden	10,512	9,316	8,531	8,452	7,974	7,611	6,924	6,444
Switzerland	18,616	19,812	18,782	19,398	18,202	17,276	18,087	17,425
Ukraine							66,229	56,678
United Kingdom	112,538	127,121	117,296	118,664	118,164	117,885	120,802	115,076
United States	563,740	625,914	607,739	558,339	581,568	616,372	594,155	604,289

Relative change (%)

	1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	3.8	1.4	1.0	3.0	1.3	2.9	28.5
Austria	-9.6	0.0	0.6	-5.4	10.2	-7.9	-1.2
Belarus						-4.0	
Belgium	-11.9	1.0	-3.2	-4.7	6.4	-4.6	8.8
Bulgaria	-17.3	11.6	-16.6	-23.9	-13.6	26.6	-72.8
Canada	-3.6	-11.1	5.5	8.7	-4.4	6.5	14.5
Croatia	1.4	-2.3	13.1	-4.4	6.5	2.2	1.1
Czech Republic	11.6	-1.9	-10.9	-2.6	-7.3	-4.2	-55.8
Denmark	-7.7	-4.3	0.1	-8.8	3.1	-4.4	-18.8
Estonia	11.1	-11.0	-5.0	-4.3	-70.4	51.3	-80.6
European Community	-6.7	0.2	-2.4	-2.4	6.9	-5.3	-1.1
Finland	1.8	0.9	-4.4	-9.0	3.9	0.9	-19.7
France	-5.7	3.7	-1.2	-4.7	9.9	-7.8	3.6
Germany	-6.7	-4.2	-8.3	-3.5	10.4	-7.4	-14.8
Greece	2.4	3.5	-1.9	5.9	7.8	3.1	52.9
Hungary	-10.3	-17.1	-0.5	4.6	8.2	2.4	-34.8
Ireland	3.6	5.9	-0.7	4.7	0.5	-1.1	5.9
Italy	-3.4	4.5	5.2	-4.9	4.0	-4.2	2.2
Japan	-1.2	3.9	1.8	1.2	-0.4	1.5	18.4
Latvia	-11.8	-9.1	-6.5	-12.5	26.5	-3.1	-80.6
Lithuania						6.1	-82.4
Luxembourg							
Monaco	-11.5	-1.5	13.4	-2.1	-3.6	7.8	36.1
Netherlands	-16.6	-2.4	-5.5	3.7	6.4	-0.6	6.6
New Zealand	5.4	3.6	2.2	0.5	1.0	12.3	12.3
Norway	-10.5	-0.6	2.2	-15.8	8.8	3.7	-12.4
Portugal	1.8	8.4	9.6	6.1	-4.0	3.6	59.8
Romania	19.2	-0.8	-18.7	3.3	-5.6	5.7	-18.8
Slovakia						-1.4	
Slovenia	2.5	1.0	7.2	-10.1	3.0	-4.8	32.3
Spain	0.4	2.3	5.0	4.2	2.4	-1.6	32.2
Sweden	-8.4	-0.9	-5.7	-4.5	-9.0	-6.9	-38.7
Switzerland	-5.2	3.3	-6.2	-5.1	4.7	-3.7	-6.4
Ukraine						-14.4	
United Kingdom	-7.7	1.2	-0.4	-0.2	2.5	-4.7	2.3
United States	-2.9	-8.1	4.2	6.0	-3.6	1.7	7.2

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Table 1.25**Other sectors (commercial / institutional, residential, agriculture / forestry / fisheries): liquid fuels – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	5,500	5,959	6,075	6,130	6,254	6,405	6,396	6,534
Austria	8,619	9,788	8,789	8,876	8,939	8,196	9,255	8,618
Belarus								2,339
Belgium	17,386	22,172	19,589	19,658	18,836	17,327	18,110	17,067
Bulgaria								512
Canada	22,239	21,012	20,486	17,721	18,257	19,418	19,230	19,597
Croatia	2,402	1,901	1,938	1,817	2,100	2,134	2,170	2,275
Czech Republic								650
Denmark	7,335	6,445	5,918	5,679	5,562	5,000	5,057	4,841
Estonia								201
European Community				307,039		279,592		276,907
Finland	7,274	5,989	6,090	6,265	5,972	5,490	5,663	5,728
France	59,853	62,004	58,643	59,302	58,438	54,085	59,328	53,996
Germany	91,532	116,046	110,317	105,196	90,921	88,022	98,826	85,584
Greece	7,885	9,794	10,042	10,410	10,271	10,865	11,725	12,058
Hungary								1,796
Ireland	3,670	4,829	5,000	5,235	5,840	6,247	6,274	6,189
Italy	38,550	29,707	28,196	28,611	30,454	28,085	27,408	27,573
Japan	144,544	156,608	153,988	160,468	162,588	163,021	163,522	165,507
Latvia	3,310	443	404	381	376	331	456	407
Lithuania	2,663			585			327	364
Luxembourg				894		759		821
Monaco								28
Netherlands	1,352	898	666	710	685	582	559	596
New Zealand	1,593	1,482	1,607	1,715	1,703	1,607	1,548	1,634
Norway	4,091			3,712	3,793	3,191	3,460	1,648
Portugal	4,055	5,078	5,169	5,552	5,969	6,190	5,753	5,844
Romania	4,782	2,541	3,865	3,571	2,155	2,443	1,897	2,249
Slovakia							35	33
Slovenia	814	2,561	2,647	2,674	2,815	2,541	2,594	2,494
Spain	22,285	25,365	25,086	25,183	26,130	27,144	27,294	25,901
Sweden	10,172	9,011	8,235	8,140	7,659	7,306	6,600	6,102
Switzerland	16,411	16,740	15,970	16,479	14,652	13,755	14,414	13,788
Ukraine							16,668	16,915
United Kingdom	20,156	21,917	20,037	19,824	17,912	16,791	16,721	15,989
United States	167,793	157,405	149,548	138,397	148,827	162,022	159,370	157,468

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	1.9	0.9	2.0	2.4	-0.1	2.2	18.8
Austria	-10.2	1.0	0.7	-8.3	12.9	-6.9	0.0
Belarus							
Belgium	-11.6	0.4	-4.2	-8.0	4.5	-5.8	-1.8
Bulgaria							
Canada	-2.5	-13.5	3.0	6.4	-1.0	1.9	-11.9
Croatia	2.0	-6.3	15.6	1.6	1.7	4.8	-5.3
Czech Republic							
Denmark	-8.2	-4.0	-2.1	-10.1	1.1	-4.3	-34.0
Estonia							
European Community							
Finland	1.7	2.9	-4.7	-8.1	3.1	1.1	-21.3
France	-5.4	1.1	-1.5	-7.4	9.7	-9.0	-9.8
Germany	-4.9	-4.6	-13.6	-3.2	12.3	-13.4	-6.5
Greece	2.5	3.7	-1.3	5.8	7.9	2.8	52.9
Hungary							
Ireland	3.5	4.7	11.5	7.0	0.4	-1.4	68.6
Italy	-5.1	1.5	6.4	-7.8	-2.4	0.6	-28.5
Japan	-1.7	4.2	1.3	0.3	0.3	1.2	14.5
Latvia	-8.9	-5.5	-1.4	-12.0	37.6	-10.7	-87.7
Lithuania						11.1	-86.3
Luxembourg							
Monaco							
Netherlands	-25.9	6.6	-3.5	-15.1	-3.9	6.7	-55.9
New Zealand	8.4	6.7	-0.7	-5.6	-3.6	5.5	2.6
Norway			2.2	-15.9	8.4	-52.4	-59.7
Portugal	1.8	7.4	7.5	3.7	-7.1	1.6	44.1
Romania	52.1	-7.6	-39.7	13.4	-22.3	18.5	-53.0
Slovakia						-7.1	
Slovenia	3.4	1.0	5.3	-9.7	2.1	-3.9	206.4
Spain	-1.1	0.4	3.8	3.9	0.6	-5.1	16.2
Sweden	-8.6	-1.2	-5.9	-4.6	-9.7	-7.5	-40.0
Switzerland	-4.6	3.2	-11.1	-6.1	4.8	-4.3	-16.0
Ukraine						1.5	
United Kingdom	-8.6	-1.1	-9.6	-6.3	-0.4	-4.4	-20.7
United States	-5.0	-7.5	7.5	8.9	-1.6	-1.2	-6.2

Table 1.26**Other sectors (commercial / institutional, residential, agriculture / forestry / fisheries): solid fuels – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	583	337	309	233	202	298	301	368
Austria	2,947	1,753	1,400	1,223	1,134	981	1,052	867
Belarus								1,584
Belgium	1,976	1,313	1,121	937	849	724	771	749
Bulgaria								1,480
Canada	191	193	179	158	151	148	144	499
Croatia	536	68	59	83	77	67	43	57
Czech Republic								5,371
Denmark	318	158	138	98	85	107	122	85
Estonia								109
European Community				25,274		19,231		16,732
Finland	57	25	9	26	24	24	20	24
France	4,401	2,500	1,502	1,181	1,245	1,061	1,005	870
Germany	67,078	14,121	11,150	7,149	6,724	5,120	4,629	4,256
Greece	120	203	191	167	112	131	123	140
Hungary								1,329
Ireland	5,587	3,103	3,287	3,439	2,607	2,433	2,309	2,271
Italy	920	971	571	317	307	298	301	73
Japan	1,941	1,128	953	782	877	1,456	410	390
Latvia	1,286	439	408	322	264	207	268	214
Lithuania	2,778			493			267	327
Luxembourg				31		24		8
Monaco								
Netherlands	81	32	26	35	27	28	33	31
New Zealand	821	526	516	491	426	423	470	439
Norway	36			14	12	11	8	1,949
Portugal								
Romania	2,198	546	475	70	187	165	41	153
Slovakia							879	823
Slovenia	1,291	172	100	82	86	51	40	33
Spain	2,300	1,371	1,350	1,258	906	545	384	442
Sweden	157	5	16	8	NO	5	5	5
Switzerland	64	27	23	14	14	21	12	12
Ukraine							8,236	8,767
United Kingdom	19,445	11,642	10,520	9,406	9,498	7,750	8,579	6,911
United States	14,582	13,077	13,687	9,911	11,044	9,723	10,289	10,289

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	-8.3	-24.4	-13.5	47.9	0.9	22.4	-36.9
Austria	-20.2	-12.6	-7.3	-13.5	7.3	-17.6	-70.6
Belarus							
Belgium	-14.6	-16.5	-9.4	-14.7	6.5	-2.8	-62.1
Bulgaria							
Canada	-7.3	-12.0	-4.2	-2.0	-2.5	246.4	160.6
Croatia	-13.3	41.8	-7.7	-12.1	-35.8	32.4	-89.3
Czech Republic							
Denmark	-13.0	-28.7	-13.8	26.2	14.1	-30.3	-73.3
Estonia							
European Community							
Finland	-62.8	175.3	-5.1	-2.3	-16.1	22.8	-56.9
France	-39.9	-21.3	5.4	-14.7	-5.3	-13.5	-80.2
Germany	-21.0	-35.9	-5.9	-23.9	-9.6	-8.1	-93.7
Greece	-6.1	-12.5	-32.8	16.8	-5.8	13.2	16.6
Hungary							
Ireland	5.9	4.6	-24.2	-6.7	-5.1	-1.6	-59.4
Italy	-41.2	-44.5	-2.9	-3.0	1.1	-75.8	-92.1
Japan	-15.5	-18.0	12.1	66.1	-71.9	-4.8	-79.9
Latvia	-7.2	-21.1	-18.0	-21.4	29.3	-20.3	-83.4
Lithuania						22.2	-88.2
Luxembourg							
Monaco							
Netherlands	-17.1	33.5	-24.2	3.5	18.9	-5.0	-61.9
New Zealand	-2.0	-4.7	-13.4	-0.6	11.1	-6.7	-46.6
Norway			-16.6	-7.0	-22.2	23,127.5	5,346.5
Portugal							
Romania	-12.9	-85.3	168.7	-12.1	-74.9	269.7	-93.0
Slovakia						-6.4	
Slovenia	-41.6	-18.3	4.7	-40.3	-23.0	-16.3	-97.4
Spain	-1.5	-6.8	-28.0	-39.8	-29.7	15.4	-80.8
Sweden	217.1	-50.0			0.0	6.3	-96.7
Switzerland	-17.2	-37.5	0.0	46.6	-41.0	0.0	-80.9
Ukraine						6.4	
United Kingdom	-9.6	-10.6	1.0	-18.4	10.7	-19.4	-64.5
United States	4.7	-27.6	11.4	-12.0	5.8	0.0	-29.4

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Table 1.27**Other sectors (commercial / institutional, residential, agriculture / forestry / fisheries): gaseous fuels – trend information****CO2 emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	6,402	7,749	8,202	8,423	8,476	8,681	8,889	9,141
Austria	2,247	4,084	3,932	4,022	4,140	4,268	4,509	4,162
Belarus								2,728
Belgium	7,817	11,969	10,498	10,930	10,841	11,036	12,069	11,736
Bulgaria								82
Canada	46,985	58,271	55,911	50,207	53,419	58,500	55,242	59,364
Croatia	678	1,167	1,183	1,207	1,337	1,157	1,363	1,323
Czech Republic								9,087
Denmark	1,478	2,717	2,550	2,482	2,592	2,427	2,590	2,501
Estonia								145
European Community				319,855		322,533		335,128
Finland	99	297	322	241	260	181	215	216
France	30,057	40,227	38,579	41,848	41,497	41,290	45,682	42,853
Germany	45,804	85,100	79,438	80,205	78,985	77,370	84,743	84,422
Greece	17	19	20	31	26	30	41	62
Hungary								12,380
Ireland	469	1,159	1,134	1,300	1,456	1,684	1,831	1,837
Italy	36,339	46,149	45,417	48,557	50,723	48,924	52,569	49,162
Japan	17,565	23,824	24,433	25,187	26,282	27,611	27,379	28,369
Latvia	586	364	288	297	295	280	312	383
Lithuania	872			360			450	418
Luxembourg				652		485		561
Monaco								12
Netherlands	33,188	43,059	36,086	35,151	33,215	34,567	36,763	36,575
New Zealand	441	511	532	545	684	796	837	1,133
Norway				1	3	3	17	19
Portugal			3	54	174	326	501	637
Romania	3,206	4,977	5,615	6,238	5,688	5,684	5,890	5,873
Slovakia							4,999	4,975
Slovenia	34	157	216	238	308	292	338	304
Spain	1,367	3,564	3,972	4,672	5,642	6,350	7,179	7,956
Sweden	184	301	281	304	314	301	319	336
Switzerland	2,141	3,045	2,790	2,905	3,536	3,500	3,661	3,624
Ukraine							41,236	30,807
United Kingdom	72,878	93,501	86,721	89,406	90,715	93,295	95,445	92,111
United States	381,365	455,431	444,503	410,031	421,698	444,627	424,496	436,532

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	5.8	2.7	0.6	2.4	2.4	2.8	42.8
Austria	-3.7	2.3	2.9	3.1	5.6	-7.7	85.3
Belarus							
Belgium	-12.3	4.1	-0.8	1.8	9.4	-2.8	50.1
Bulgaria							
Canada	-4.0	-10.2	6.4	9.5	-5.6	7.5	26.3
Croatia	1.4	2.0	10.7	-13.4	17.8	-2.9	95.0
Czech Republic							
Denmark	-6.1	-2.7	4.4	-6.4	6.7	-3.4	69.3
Estonia							
European Community							
Finland	8.5	-25.3	7.9	-30.4	18.9	0.6	119.7
France	-4.1	8.5	-0.8	-0.5	10.6	-6.2	42.6
Germany	-6.7	1.0	-1.5	-2.0	9.5	-0.4	84.3
Greece	4.4	56.6	-14.7	15.0	33.8	53.5	268.1
Hungary							
Ireland	-2.2	14.6	12.0	15.6	8.7	0.3	291.5
Italy	-1.6	6.9	4.5	-3.5	7.4	-6.5	35.3
Japan	2.6	3.1	4.3	5.1	-0.8	3.6	61.5
Latvia	-20.9	3.0	-0.7	-5.1	11.4	22.9	-34.5
Lithuania						-7.2	-52.1
Luxembourg							
Monaco							
Netherlands	-16.2	-2.6	-5.5	4.1	6.4	-0.5	10.2
New Zealand	4.2	2.3	25.6	16.4	5.1	35.4	156.9
Norway			106.4	6.2	439.8	10.3	
Portugal		1,784.3	221.3	87.4	53.7	27.2	
Romania	12.8	11.1	-8.8	-0.1	3.6	-0.3	83.2
Slovakia						-0.5	
Slovenia	37.5	10.4	29.3	-5.1	15.7	-10.3	795.5
Spain	11.4	17.6	20.8	12.5	13.0	10.8	482.0
Sweden	-6.6	8.3	3.4	-4.3	6.1	5.4	82.8
Switzerland	-8.4	4.1	21.7	-1.0	4.6	-1.0	69.3
Ukraine						-25.3	
United Kingdom	-7.3	3.1	1.5	2.8	2.3	-3.5	26.4
United States	-2.4	-7.8	2.8	5.4	-4.5	2.8	14.5

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

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

	Liquid fuels		Solid fuels		Gaseous fuels	
	1990 ^a	2002	1990 ^a	2002	1990 ^a	2002
Australia	44.1	40.7	4.7	2.3	51.3	57.0
Austria	62.4	63.1	21.3	6.3	16.3	30.5
Belarus		35.1		23.8		41.0
Belgium	63.8	57.6	7.3	2.5	28.7	39.6
Bulgaria		24.7		71.4		4.0
Canada	32.0	24.7	0.3	0.6	67.7	74.7
Croatia	66.4	62.2	14.8	1.6	18.8	36.2
Czech Republic		4.3		35.6		60.1
Denmark	80.1	65.2	3.5	1.1	16.1	33.7
Estonia		43.3		23.4		31.2
European Community		43.9		2.7		53.2
Finland	96.1	94.2	0.7	0.4	1.3	3.6
France	63.4	55.2	4.7	0.9	31.8	43.8
Germany	44.8	49.1	32.8	2.4	22.4	48.4
Greece	98.3	98.3	1.5	1.1	0.2	0.5
Hungary		11.6		8.6		79.8
Ireland	37.7	60.1	57.4	22.1	4.8	17.8
Italy	50.6	35.5	1.2	0.1	47.7	63.2
Japan	88.1	85.2	1.2	0.2	10.7	14.6
Latvia	63.9	40.5	24.8	21.3	11.3	38.2
Lithuania	42.2	32.8	44.0	29.5	13.8	37.7
Luxembourg		59.0		0.6		40.4
Monaco		69.7		0.0		30.3
Netherlands	3.9	1.6	0.2	0.1	95.1	98.3
New Zealand	55.8	51.0	28.8	13.7	15.4	35.3
Norway	99.0	45.6	0.9	53.9	0.0	0.5
Portugal	100.0	90.2	0.0	0.0	0.0	9.8
Romania	46.9	27.2	21.6	1.8	31.5	71.0
Slovakia		0.6		14.1		85.3
Slovenia	38.0	88.1	60.4	1.2	1.6	10.7
Spain	85.9	75.5	8.9	1.3	5.3	23.2
Sweden	96.8	94.7	1.5	0.1	1.7	5.2
Switzerland	88.2	79.1	0.3	0.1	11.5	20.8
Ukraine		29.8		15.5		54.4
United Kingdom	17.9	13.9	17.3	6.0	64.8	80.0
United States	29.8	26.1	2.6	1.7	67.6	72.2

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Table 1.29**Transport: all fuels – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	59,727	67,711	69,060	69,123	69,970	72,095	72,260	74,087
Austria	12,759	16,064	15,013	17,094	16,552	17,437	18,706	20,606
Belarus							5,472	6,529
Belgium	19,941	22,272	22,499	23,221	23,524	23,990	24,651	24,977
Bulgaria	12,639	6,306	5,315	6,475	6,212	5,881	6,014	6,317
Canada	146,123	163,962	170,373	174,291	179,053	180,627	177,886	180,777
Croatia	4,046	3,668	4,013	4,163	4,394	4,396	4,459	4,766
Czech Republic	7,275	9,896	11,392	10,779	12,016	11,110	12,061	12,428
Denmark	10,415	12,029	12,160	12,191	12,253	12,120	12,149	12,300
Estonia	2,693	1,047	1,212	1,352	1,203	1,030	1,921	2,175
European Community	696,951	770,609	779,213	803,925	823,756	824,558	833,216	841,230
Finland	12,475	10,994	11,531	12,299	12,734	12,379	12,569	12,784
France	119,123	130,737	132,960	135,128	138,215	137,727	140,963	141,953
Germany	162,360	176,661	177,159	180,427	186,067	182,349	178,224	176,388
Greece	15,355	17,424	18,025	19,651	20,408	19,303	19,967	20,299
Hungary	7,564	6,612	7,741	8,381	9,568	8,517	8,844	9,270
Ireland	5,020	7,128	7,753	8,848	9,819	10,211	11,063	11,231
Italy	101,857	113,230	114,909	118,726	119,879	120,409	122,821	124,944
Japan	210,663	258,603	262,061	258,464	262,053	258,060	260,345	254,661
Latvia	4,546	2,111	2,116	2,082	2,016	2,235	2,628	2,632
Lithuania	5,791			3,846			3,377	3,502
Luxembourg				3,985		4,975		5,422
Monaco	40	48	48	46	49	51	54	52
Netherlands	29,399	32,626	33,062	34,154	34,996	35,212	35,506	36,251
New Zealand	8,617	11,002	11,255	11,449	11,726	12,351	12,756	13,899
Norway	11,099	12,717	12,963	13,305	13,902	13,028	13,336	13,326
Portugal	10,460	14,174	14,749	16,170	17,010	18,555	19,381	19,831
Romania	7,276	11,350	11,493	10,784	8,510	9,287	10,799	11,891
Slovakia	5,071	4,442	4,607	4,953	4,819	4,319	4,893	5,590
Slovenia	1,971	4,199	4,268	3,687	3,507	3,653	3,786	3,800
Spain	57,497	70,181	70,803	77,831	82,668	85,108	89,341	91,427
Sweden	18,302	18,544	18,750	19,014	19,392	19,258	19,506	20,025
Switzerland	14,187	13,865	14,452	14,680	15,292	15,587	15,298	15,195
Ukraine							11,935	12,665
United Kingdom	116,581	122,491	123,555	122,688	123,397	123,148	123,146	122,792
United States	1,458,209	1,604,763	1,614,773	1,644,920	1,702,900	1,749,645	1,730,649	1,764,372

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	2.0	0.1	1.2	3.0	0.2	2.5	24.0
Austria	-6.5	13.9	-3.2	5.4	7.3	10.2	61.5
Belarus						19.3	
Belgium	1.0	3.2	1.3	2.0	2.8	1.3	25.3
Bulgaria	-15.7	21.8	-4.1	-5.3	2.2	5.0	-50.0
Canada	3.9	2.3	2.7	0.9	-1.5	1.6	23.7
Croatia	9.4	3.7	5.6	0.0	1.4	6.9	17.8
Czech Republic	15.1	-5.4	11.5	-7.5	8.6	3.0	70.8
Denmark	1.1	0.3	0.5	-1.1	0.2	1.2	18.1
Estonia	15.7	11.6	-11.0	-14.4	86.5	13.2	-19.2
European Community	1.1	3.2	2.5	0.1	1.1	1.0	20.7
Finland	4.9	6.7	3.5	-2.8	1.5	1.7	2.5
France	1.7	1.6	2.3	-0.4	2.3	0.7	19.2
Germany	0.3	1.8	3.1	-2.0	-2.3	-1.0	8.6
Greece	3.5	9.0	3.9	-5.4	3.4	1.7	32.2
Hungary	17.1	8.3	14.2	-11.0	3.8	4.8	22.6
Ireland	8.8	14.1	11.0	4.0	8.3	1.5	123.7
Italy	1.5	3.3	1.0	0.4	2.0	1.7	22.7
Japan	1.3	-1.4	1.4	-1.5	0.9	-2.2	20.9
Latvia	0.3	-1.6	-3.2	10.9	17.6	0.1	-42.1
Lithuania						3.7	-39.5
Luxembourg							
Monaco	-0.3	-2.7	5.9	3.5	6.9	-4.9	28.2
Netherlands	1.3	3.3	2.5	0.6	0.8	2.1	23.3
New Zealand	2.3	1.7	2.4	5.3	3.3	9.0	61.3
Norway	1.9	2.6	4.5	-6.3	2.4	-0.1	20.1
Portugal	4.1	9.6	5.2	9.1	4.4	2.3	89.6
Romania	1.3	-6.2	-21.1	9.1	16.3	10.1	63.4
Slovakia	3.7	7.5	-2.7	-10.4	13.3	14.2	10.2
Slovenia	1.6	-13.6	-4.9	4.2	3.6	0.4	92.8
Spain	0.9	9.9	6.2	3.0	5.0	2.3	59.0
Sweden	1.1	1.4	2.0	-0.7	1.3	2.7	9.4
Switzerland	4.2	1.6	4.2	1.9	-1.9	-0.7	7.1
Ukraine						6.1	
United Kingdom	0.9	-0.7	0.6	-0.2	0.0	-0.3	5.3
United States	0.6	1.9	3.5	2.7	-1.1	1.9	21.0

Table 1.29 (continued)**Transport: all fuels – trend information****N₂O emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	5.49	10.49	11.16	11.90	12.77	13.69	14.07	14.41
Austria	1.57	2.59	2.40	2.48	2.24	2.14	2.08	2.24
Belarus							0.04	0.07
Belgium	1.16	1.91	2.01	2.11	2.40	2.65	2.78	2.86
Bulgaria	0.23	0.13	0.12	0.13	0.12	0.11	0.11	0.11
Canada	20.71	28.37	29.00	28.84	29.32	29.08	28.65	28.80
Croatia	0.04	0.07	0.11	0.16	0.22	0.29	0.35	0.41
Czech Republic	0.26	1.77	1.94	1.41	1.58	1.66	1.75	1.92
Denmark	0.47	0.94	1.05	1.12	1.18	1.23	1.27	1.31
Estonia	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.02
European Community	36.55	62.01	65.51	70.29	73.84	75.32	77.17	80.00
Finland	1.19	1.29	1.39	1.77	1.65	1.60	1.79	1.90
France	5.24	9.10	9.83	10.53	11.35	11.83	12.84	13.38
Germany	9.93	17.93	18.13	17.98	17.65	16.57	15.65	14.80
Greece	0.63	0.99	1.08	1.17	1.20	1.23	1.41	1.54
Hungary	1.25	NE	NE	0.12	0.13	1.55	1.63	1.75
Ireland	0.28	0.71	0.86	1.03	1.26	1.21	1.33	1.28
Italy	5.55	7.57	8.09	9.14	9.92	10.28	10.73	11.79
Japan	16.20	19.73	19.76	19.76	20.64	20.98	21.50	21.58
Latvia	0.49	0.20	0.21	0.19	0.18	0.19	0.23	0.24
Lithuania	0.19			0.15			0.14	0.15
Luxembourg				0.14		0.16		0.18
Monaco	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Netherlands	1.00	1.70	1.71	1.73	1.72	1.65	1.63	1.63
New Zealand	0.24	0.34	0.36	0.37	0.39	0.41	0.43	0.47
Norway	0.53	1.19	1.37	1.57	1.79	1.92	2.20	2.40
Portugal	0.48	0.99	1.10	1.28	1.41	1.60	1.72	1.82
Romania	0.06	0.09	0.10	0.09	0.07	0.08	0.09	0.10
Slovakia	0.25	0.40	0.44	0.50	0.50	0.46	0.61	0.67
Slovenia	0.08	0.29	0.30	0.31	0.38	0.40	0.45	0.49
Spain	2.51	4.28	4.67	5.40	6.02	6.42	6.98	7.49
Sweden	1.13	1.66	1.74	1.88	2.02	2.17	2.27	2.37
Switzerland	1.13	1.86	1.97	2.02	2.09	2.06	1.95	1.85
Ukraine							0.06	0.06
United Kingdom	4.34	9.29	10.37	11.59	12.72	13.63	14.50	15.41
United States	163.39	195.71	194.49	192.23	189.09	185.12	177.47	170.66

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	6.4	6.6	7.3	7.2	2.8	2.4	162.5
Austria	-7.5	3.5	-9.7	-4.5	-2.6	7.5	42.9
Belarus						75.0	
Belgium	5.1	5.1	13.7	10.4	4.8	2.7	147.0
Bulgaria	-11.8	9.4	-2.7	-9.9	-0.1	3.2	-49.9
Canada	2.2	-0.6	1.7	-0.8	-1.5	0.5	39.1
Croatia	60.5	45.9	34.4	33.7	21.2	16.1	918.0
Czech Republic	9.5	-27.6	12.4	5.1	5.7	9.5	640.1
Denmark	11.5	6.2	5.8	3.5	3.7	3.4	177.6
Estonia	17.0	6.7	-7.0	-13.9	74.4	14.1	-20.0
European Community	5.6	7.3	5.0	2.0	2.5	3.7	118.9
Finland	7.8	27.7	-6.9	-2.8	11.9	6.1	60.2
France	8.1	7.1	7.8	4.2	8.5	4.2	155.1
Germany	1.1	-0.8	-1.8	-6.1	-5.5	-5.4	49.1
Greece	9.0	7.7	2.9	2.0	15.1	8.9	145.0
Hungary			9.3	1,085.2	4.9	7.0	39.1
Ireland	20.5	20.2	22.0	-4.1	10.7	-4.4	355.8
Italy	6.9	13.0	8.6	3.6	4.4	9.9	112.5
Japan	0.1	0.0	4.4	1.7	2.5	0.4	33.2
Latvia	7.0	-7.7	-7.0	5.0	22.5	4.0	-50.4
Lithuania						4.3	-23.1
Luxembourg							
Monaco	9.3	7.0	12.8	3.3	5.5	2.4	313.1
Netherlands	0.9	0.9	0.0	-4.2	-1.4	-0.1	63.1
New Zealand	6.0	2.5	3.6	7.0	3.2	9.7	96.8
Norway	14.9	14.6	14.0	7.1	15.0	8.9	355.3
Portugal	11.2	16.3	10.3	13.8	7.6	5.9	277.2
Romania	11.3	-6.1	-20.3	8.8	16.1	9.7	60.1
Slovakia	8.9	15.3	0.3	-8.1	31.1	10.2	171.8
Slovenia	2.1	3.1	22.4	6.6	12.5	8.5	485.0
Spain	9.3	15.7	11.3	6.8	8.7	7.3	198.5
Sweden	4.5	8.2	7.5	7.3	4.8	4.1	108.7
Switzerland	5.6	2.3	3.8	-1.4	-5.4	-5.3	63.8
Ukraine						3.4	
United Kingdom	11.6	11.7	9.8	7.1	6.4	6.3	255.1
United States	-0.6	-1.2	-1.6	-2.1	-4.1	-3.8	4.4

Table 1.30
Road transportation, CO₂, N₂O (2002)

	CO ₂ emissions							N ₂ O emissions						
	Key source	Share of national total (%)	Methods and EF used ^a		CO ₂ IEF			Key source	Share of national total (%)	Methods and EF used ^a		N ₂ O IEF		
			Methods	EF	IEF in CRF based on	Gasoline	Diesel oil			Methods	EF	IEF in CRF based on	Gasoline	Diesel oil
						(t/TJ)							(kg/TJ)	
IPCC default EF ^b					NCV	72.1 (US) 73.0 (Europe)	72.1 (US) 74.0 (Europe)					NCV	3-43 (US) 1-20 (Europe)	1-14 (US) 3-4 (Europe)
Australia	L	12.5	T1, T2	CS	GCV	65.34	69.00	L, T	0.84	T1, T2	D, CS	GCV	21.53	1.98
Austria	L, T	23.6	M, CS	CS	NCV	74.01	73.67	L, T	0.81	M, T1	CS	NCV	18.67	2.96
Belarus	L	7.8			NCV	68.61	73.33		0.02			NCV	0.60	0.60
Belgium	L, T	16.2	C,M	C,M	NCV	68.61	73.33	T	0.54	C,M	C,M	NCV	9.65	7.11
Bulgaria	L	8.8	T2	C, CS, D	NCV	72.16	76.14		0.05	T2	C, CS, D	NCV	1.10	1.91
Canada	L, T	18.1	CS	CS	GCV	67.43	71.28	L	0.82	CS	CS	GCV	13.43	2.20
Croatia	L, T	15.9	T1	D	NCV	68.61	73.33	T	0.45	T1	D	NCV	11.75	0.60
Czech Republic	L	8.2	T1	D	NCV	68.61	73.33		0.41	T2	D, PS	NCV	19.44	3.00
Denmark	L, T	16.6	M/C	CS	NCV	73.00	74.00	T	0.57	M/C	M/C	NCV	10.80	5.23
Estonia	L	9.4	TI	D	NCV	68.61	73.33		0.02	TI	D	NCV	0.60	0.63
European Community	L	18.8	C, CS, D, M, T1, T2	C, CS, D, M	NCV	71.05	72.92	L	0.57	C, CS, D, M, T1, T2, T3	C, CS, D, M	NCV	0.01	0.01
Finland	L, T	13.6	CS (M)	CS	NCV	72.70	73.00	L, T	0.59	CS (M)	CS/M	NCV	17.70	3.26
France	L, T	24.0	C/CS	C/M/CS	NCV	72.35	75.01	L, T	0.74	C/CS	C/M/CS	NCV	8.93	6.59
Germany	L, T	16.3	CS	CS	NCV	72.00	74.00	L, T	0.44	CS	CS	NCV	9.40	3.09
Greece	L, T	12.6	C	C	NCV	68.61	73.80	T	0.32	C	C	NCV	6.84	3.87
Hungary	L	11.6	D	D	NCV	68.61	73.33	L	0.69	D	CS	NCV	8.00	18.00
Ireland	L, T	15.7	T1	CS	NCV	69.96	73.30	T	0.54	T1	C	NCV	10.54	5.57
Italy	L, T	20.8	D, T2	CS	NCV	71.15	73.15	L, T	0.64	D, T3	D, C	NCV	8.28	6.32
Japan	L, T	18.9	T1, CS	D, CS	GCV	67.08	68.66		0.48	T1, T3, CS	D, CS	GCV	7.16	3.03
Latvia	L, T	21.7	T1	D	NCV	68.60	74.00		0.35	T1	D	NCV	4.20	3.58
Lithuania	L	19.0	C	CS	NCV	73.00	74.00		0.25	C	CS	NCV	2.00	4.00
Luxembourg					NCV							NCV		
Monaco	L	36.6	D, T1	D	NCV	74.62	72.25		1.46	D, T1	D	NCV	11.99	3.81
Netherlands	L, T	15.3	CS/T2(Box 2)	CS	NCV	72.30	73.30		0.22	CS/T3(road);T1(rest)	CS(road)/D(rest)	NCV	4.67	2.19
New Zealand	L, T	16.4	T1	CS	NCV	65.71	68.81		0.17	T1	D	NCV	1.42	3.70
Norway	L, T	17.1	M, T1, CS/T2	CS	NCV	71.30	73.55	L, T	1.19	CS, T2, CS/T2	CS, D, C	NCV	27.36	3.38
Portugal	L, T	23.4	M	D+C	NCV	74.34	72.43	L, T	0.68	M	D+C+CS	NCV	8.24	6.10
Romania	L, T	7.1	D	D	NCV	68.61	73.33		0.02	T1	T1	NCV	0.60	0.60
Slovakia	L	10.2	M	M	NCV	73.01	73.83		0.29	M	M	NCV	8.70	5.15
Slovenia	L, T	18.4	T1, C	D, CS	NCV	73.00	73.67	L, T	0.72	T1, C	D, CS	NCV	10.58	6.86
Spain	L, T	20.9	C	C	NCV	71.09	72.63	L, T	0.55	C	C	NCV	6.55	5.93
Sweden	L, T	26.4	T1, T2	CS	NCV	72.60	70.87	L, T	0.92	T1, T2	CS, C	NCV	10.59	3.48
Switzerland	L, T	28.4	CS	CS	NCV	73.90	73.60	L, T	1.09	CS	CS, D	NCV	10.94	2.78
Ukraine		0.3	T1	D	NCV	68.60	73.33		0.00	T1	D	NCV	0.60	0.60
United Kingdom	L, T	18.4	T2	CS	NCV	70.06	72.54	L, T	0.72	T2/T3	D	NCV	12.73	4.76
United States	L, T	20.3	T1, T2	CS	GCV	66.54	67.72	L	0.72	T1, T2, M	D, CS, M	GCV	8.91	2.44

^a Information on methods and emission factors included in this table is as reported by Parties. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.3 Transport.

^b Source of default emission factors: IPCC Guidelines, volume 3, pages 1.70–1.83. For updates on the default emission factors for N₂O for US gasoline vehicles, see table 2.7, page 2.47 in the IPCC good practice guidance.

Table 1.31**Road transportation – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	52,763	58,684	59,814	60,766	62,147	63,656	63,329	64,887
Austria	12,278	15,565	14,502	16,459	15,701	16,581	17,893	19,939
Belarus								5,468
Belgium	19,270	21,646	21,916	22,593	22,924	23,321	23,963	24,279
Bulgaria								5,484
Canada	102,868	114,246	119,533	120,502	124,619	125,582	127,471	131,072
Croatia	3,480	3,313	3,689	3,847	4,084	4,114	4,169	4,453
Czech Republic								11,685
Denmark	9,351	10,821	11,026	11,215	11,350	11,230	11,273	11,389
Estonia								1,834
European Community	638,887	713,047	721,954	743,607	760,892	762,688	774,965	784,554
Finland	11,111	10,192	10,701	10,807	10,880	10,648	10,905	11,133
France	111,403	121,884	124,078	126,008	128,833	128,462	131,969	132,672
Germany	150,262	165,025	165,942	169,374	174,878	171,161	167,712	166,002
Greece	11,873	14,509	14,851	15,561	15,845	16,031	16,421	17,071
Hungary								9,061
Ireland	4,680	6,609	7,205	8,264	9,121	9,544	10,300	10,833
Italy	93,994	104,545	106,103	109,395	110,270	110,316	113,022	115,125
Japan	191,862	241,372	243,591	243,568	249,362	249,250	252,579	251,389
Latvia	2,668	1,753	1,732	1,751	1,733	1,938	2,319	2,306
Lithuania	NE			3,594			3,170	3,278
Luxembourg				3,961		4,951		5,396
Monaco								35
Netherlands	25,374	29,158	29,518	30,236	31,111	31,468	31,984	32,747
New Zealand	7,534	9,751	10,090	10,324	10,591	10,910	11,141	12,293
Norway	7,850			9,065	9,283	8,749	9,293	9,468
Portugal	9,562	13,406	14,049	15,489	16,246	17,786	18,652	19,117
Romania	4,420	8,898	8,656	8,315	6,500	7,317	8,757	9,645
Slovakia							4,593	5,292
Slovenia	1,902	4,157	4,226	3,646	3,467	3,613	3,747	3,759
Spain	51,390	64,251	64,879	71,387	75,304	77,315	81,072	83,418
Sweden	16,592	17,132	17,225	17,390	17,673	17,588	17,855	18,406
Switzerland	13,762	13,550	14,127	14,356	14,980	15,247	14,960	14,850
Ukraine							1,473	1,500
United Kingdom	109,039	114,770	116,198	115,468	116,438	116,286	116,747	117,026
United States	1,111,653	1,246,385	1,268,715	1,310,514	1,353,128	1,369,628	1,376,297	1,404,737

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	1.9	1.6	2.3	2.4	-0.5	2.5	23.0
Austria	-6.8	13.5	-4.6	5.6	7.9	11.4	62.4
Belarus							
Belgium	1.2	3.1	1.5	1.7	2.8	1.3	26.0
Bulgaria							
Canada	4.6	0.8	3.4	0.8	1.5	2.8	27.4
Croatia	11.4	4.3	6.1	0.7	1.3	6.8	27.9
Czech Republic							
Denmark	1.9	1.7	1.2	-1.1	0.4	1.0	21.8
Estonia							
European Community	1.2	3.0	2.3	0.2	1.6	1.2	22.8
Finland	5.0	1.0	0.7	-2.1	2.4	2.1	0.2
France	1.8	1.6	2.2	-0.3	2.7	0.5	19.1
Germany	0.6	2.1	3.2	-2.1	-2.0	-1.0	10.5
Greece	2.4	4.8	1.8	1.2	2.4	4.0	43.8
Hungary							
Ireland	9.0	14.7	10.4	4.6	7.9	5.2	131.5
Italy	1.5	3.1	0.8	0.0	2.5	1.9	22.5
Japan	0.9	0.0	2.4	0.0	1.3	-0.5	31.0
Latvia	-1.2	1.1	-1.1	11.9	19.7	-0.6	-13.6
Lithuania						3.4	
Luxembourg							
Monaco							
Netherlands	1.2	2.4	2.9	1.1	1.6	2.4	29.1
New Zealand	3.5	2.3	2.6	3.0	2.1	10.3	63.2
Norway			2.4	-5.8	6.2	1.9	20.6
Portugal	4.8	10.2	4.9	9.5	4.9	2.5	99.9
Romania	-2.7	-3.9	-21.8	12.6	19.7	10.1	118.2
Slovakia						15.2	
Slovenia	1.7	-13.7	-4.9	4.2	3.7	0.3	97.6
Spain	1.0	10.0	5.5	2.7	4.9	2.9	62.3
Sweden	0.5	1.0	1.6	-0.5	1.5	3.1	10.9
Switzerland	4.3	1.6	4.3	1.8	-1.9	-0.7	7.9
Ukraine						1.8	
United Kingdom	1.2	-0.6	0.8	-0.1	0.4	0.2	7.3
United States	1.8	3.3	3.3	1.2	0.5	2.1	26.4

Table 1.31**Road transportation – trend information (continued)****N₂O emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	5.30	10.23	10.90	11.66	12.55	13.44	13.82	14.15
Austria	1.53	2.56	2.36	2.45	2.20	2.10	2.05	2.20
Belarus								0.05
Belgium	0.95	1.73	1.82	1.92	2.20	2.42	2.55	2.62
Bulgaria								0.09
Canada	11.76	18.86	19.10	18.69	18.84	18.05	18.48	19.12
Croatia	0.03	0.06	0.11	0.16	0.21	0.29	0.35	0.41
Czech Republic								1.91
Denmark	0.42	0.89	1.00	1.07	1.14	1.18	1.23	1.27
Estonia								0.02
European Community	31.57	57.48	61.10	65.53	69.24	70.83	73.68	76.77
Finland	0.59	0.94	1.03	1.12	1.21	1.25	1.44	1.55
France	5.14	8.99	9.72	10.42	11.23	11.72	12.72	13.25
Germany	9.46	17.50	17.73	17.59	17.26	16.19	15.29	14.45
Greece	0.46	0.86	0.95	1.00	1.03	1.09	1.27	1.40
Hungary								1.73
Ireland	0.18	0.55	0.68	0.85	1.05	1.00	1.10	1.19
Italy	5.19	7.20	7.72	8.76	9.54	9.88	10.34	11.40
Japan	15.23	18.68	18.67	18.71	19.61	19.95	20.49	20.58
Latvia	0.07	0.06	0.07	0.07	0.08	0.09	0.12	0.12
Lithuania	NE			0.14			0.13	0.14
Luxembourg				0.13		0.16		0.17
Monaco								0.005
Netherlands	0.89	1.60	1.61	1.62	1.62	1.55	1.54	1.54
New Zealand	0.21	0.31	0.33	0.34	0.35	0.37	0.38	0.42
Norway	0.30			1.29	1.50	1.64	1.93	2.13
Portugal	0.43	0.94	1.05	1.23	1.36	1.56	1.68	1.79
Romania	0.04	0.07	0.07	0.07	0.06	0.06	0.07	0.08
Slovakia							0.43	0.49
Slovenia	0.06	0.27	0.28	0.29	0.36	0.38	0.44	0.47
Spain	2.17	3.96	4.35	5.08	5.66	6.05	6.58	7.09
Sweden	0.82	1.36	1.44	1.56	1.71	1.85	1.97	2.06
Switzerland	1.11	1.86	1.96	2.01	2.08	2.05	1.94	1.84
Ukraine							0.01	0.01
United Kingdom	3.32	8.30	9.50	10.72	11.90	12.83	13.76	14.79
United States	153.70	185.78	184.93	182.84	179.34	174.55	167.33	160.39

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	6.5	7.0	7.6	7.1	2.8	2.4	167.0
Austria	-7.7	3.5	-10.0	-4.6	-2.6	7.7	43.9
Belarus							
Belgium	5.5	5.2	14.7	10.0	5.3	2.9	177.0
Bulgaria							
Canada	1.2	-2.2	0.8	-4.2	2.4	3.5	62.6
Croatia	65.6	47.7	35.5	34.8	21.5	16.3	1,267.7
Czech Republic							
Denmark	12.9	7.4	6.4	3.7	3.8	3.3	200.2
Estonia							
European Community	6.3	7.3	5.7	2.3	4.0	4.2	143.2
Finland	9.2	8.4	8.1	3.4	15.6	7.8	164.4
France	8.2	7.2	7.8	4.4	8.5	4.1	158.0
Germany	1.3	-0.8	-1.9	-6.2	-5.5	-5.5	52.8
Greece	10.1	5.8	2.7	5.6	16.6	10.7	206.6
Hungary							
Ireland	24.3	24.6	23.6	-5.0	10.8	8.0	558.0
Italy	7.4	13.5	8.9	3.6	4.6	10.2	119.8
Japan	-0.1	0.2	4.8	1.7	2.7	0.4	35.1
Latvia	5.4	6.0	6.6	24.8	27.5	-0.7	77.6
Lithuania						5.4	
Luxembourg							
Monaco							
Netherlands	0.8	0.3	0.2	-4.2	-1.0	-0.1	72.3
New Zealand	5.7	3.4	3.7	5.0	2.6	11.3	104.6
Norway			16.0	9.5	17.6	10.6	617.5
Portugal	12.1	17.2	10.5	14.3	8.0	6.1	315.8
Romania	-2.4	-3.8	-21.6	12.2	19.9	10.1	120.8
Slovakia						14.6	
Slovenia	2.5	3.5	23.7	6.8	13.1	8.6	750.2
Spain	9.8	16.8	11.5	6.9	8.7	7.8	226.5
Sweden	6.1	8.4	9.1	8.5	6.4	4.8	152.9
Switzerland	5.6	2.3	3.8	-1.5	-5.4	-5.3	64.8
Ukraine						6.9	
United Kingdom	14.4	12.9	10.9	7.8	7.2	7.5	346.0
United States	-0.5	-1.1	-1.9	-2.7	-4.1	-4.1	4.4

Table 1.31**Road transportation – trend information (continued)****N₂O implied emission factors for gasoline (kg/TJ)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	8.49	16.21	17.22	18.43	19.57	20.60	21.53	21.53
Austria	12.49	23.57	22.99	22.18	21.12	20.16	18.87	18.67
Belarus								0.60
Belgium	1.70	5.51	6.10	6.50	6.76	8.40	9.08	9.65
Bulgaria								1.10
Canada	9.89	15.31	15.00	14.34	13.97	13.34	13.38	13.43
Croatia	0.60	1.96	3.18	4.50	5.89	8.03	10.20	11.75
Czech Republic								19.44
Denmark	2.24	7.09	8.22	8.86	9.51	10.05	10.60	10.80
Estonia								0.60
European Community	NE			0.01		0.01	NE	0.01
Finland	3.90	9.00	10.51	11.70	12.62	13.97	16.62	17.70
France	1.77	4.44	5.24	5.94	6.68	7.47	8.22	8.93
Germany	5.40	11.20	11.37	11.14	10.71	10.32	9.89	9.40
Greece	1.79	4.09	4.46	4.61	4.70	5.04	6.33	6.84
Hungary								8.00
Ireland	1.92	7.44	9.10	10.50	12.44	9.50	9.95	10.54
Italy	1.83	4.33	4.92	5.89	6.58	7.10	7.58	8.28
Japan	7.00	7.08	6.97	6.93	7.05	7.15	7.16	7.16
Latvia	1.60	2.33	2.47	2.67	3.00	3.74	4.20	4.20
Lithuania	NE			2.00			2.00	2.00
Luxembourg								
Monaco								11.99
Netherlands	3.35	5.81	5.79	5.62	5.43	5.10	4.82	4.67
New Zealand	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
Norway	2.56			15.52	18.43	21.38	24.42	27.36
Portugal	1.75	5.13	5.71	6.31	6.88	7.37	7.86	8.24
Romania	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Slovakia							8.37	8.70
Slovenia	1.90	5.80	5.62	6.71	8.88	8.88	9.73	10.58
Spain	1.76	3.83	4.30	4.75	5.24	5.68	6.10	6.55
Sweden	3.67	6.72	7.28	8.10	8.79	9.71	10.29	10.59
Switzerland	6.71	11.61	11.80	11.96	11.98	11.75	11.39	10.94
Ukraine							0.60	0.60
United Kingdom	1.71	5.85	6.91	8.15	9.16	10.10	11.23	12.73
United States	10.51	11.61	11.43	10.93	10.40	10.04	9.56	8.91

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	6.3	7.0	6.2	5.3	4.5	0.0	153.7
Austria	-2.5	-3.5	-4.8	-4.5	-6.4	-1.1	49.5
Belarus							
Belgium	10.9	6.5	4.0	24.2	8.2	6.3	468.4
Bulgaria							
Canada	-2.0	-4.4	-2.6	-4.5	0.3	0.4	35.8
Croatia	62.2	41.6	30.9	36.3	27.1	15.2	1,858.9
Czech Republic							
Denmark	15.9	7.8	7.3	5.7	5.5	1.8	382.3
Estonia							
European Community							
Finland	16.8	11.4	7.8	10.7	19.0	6.5	354.4
France	17.9	13.4	12.3	12.0	10.0	8.6	405.0
Germany	1.4	-2.0	-3.9	-3.7	-4.1	-5.0	74.0
Greece	9.1	3.2	2.0	7.4	25.5	8.0	282.6
Hungary							
Ireland	22.3	15.4	18.5	-23.6	4.7	5.9	447.6
Italy	13.5	19.8	11.7	7.8	6.8	9.2	353.2
Japan	-1.5	-0.6	1.8	1.4	0.1	0.1	2.2
Latvia	6.0	8.1	12.1	25.0	12.1	0.0	162.3
Lithuania						0.0	
Luxembourg							
Monaco							
Netherlands	-0.3	-3.0	-3.3	-6.2	-5.5	-3.0	39.5
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Norway			18.8	16.0	14.2	12.1	968.7
Portugal	11.4	10.5	8.9	7.2	6.6	4.8	371.9
Romania	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slovakia						4.0	
Slovenia	-3.1	19.3	32.5	0.0	9.5	8.7	457.8
Spain	12.3	10.6	10.2	8.3	7.5	7.4	271.6
Sweden	8.4	11.2	8.6	10.5	6.0	2.8	188.6
Switzerland	1.6	1.4	0.1	-1.9	-3.1	-4.0	63.2
Ukraine						0.0	
United Kingdom	18.2	18.0	12.3	10.3	11.1	13.4	642.8
United States	-1.6	-4.4	-4.8	-3.5	-4.8	-6.9	-15.2

Table 1.31**Road transportation – trend information (continued)****N₂O implied emission factors for diesel (kg/TJ)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	1.78	1.97	2.03	1.93	1.93	1.95	1.98	1.98
Austria	3.66	3.13	3.13	3.07	3.10	3.06	2.98	2.96
Belarus								0.60
Belgium	4.94	5.88	5.91	5.92	7.00	7.08	7.12	7.11
Bulgaria								1.91
Canada	2.22	2.16	2.16	2.18	2.18	2.19	2.19	2.20
Croatia	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Czech Republic								3.00
Denmark	4.54	4.67	4.69	4.71	4.81	4.96	5.00	5.23
Estonia								0.63
European Community	NE			0.00		0.00	NE	0.01
Finland	3.90	4.00	3.00	3.01	3.70	3.59	3.22	3.26
France	5.25	6.09	6.09	6.17	6.26	6.29	6.52	6.59
Germany	3.09	3.04	3.03	3.01	3.02	3.04	3.06	3.09
Greece	4.15	4.25	4.45	4.36	4.31	4.25	3.77	3.87
Hungary								18.00
Ireland	4.04	4.21	4.22	4.15	4.11	5.50	5.65	5.57
Italy	5.70	5.63	5.57	5.67	5.91	5.89	5.78	6.32
Japan	3.16	2.93	2.90	2.90	2.92	2.99	3.01	3.03
Latvia	3.42	3.37	3.48	3.53	3.53	3.54	3.58	3.58
Lithuania	NE			4.00			4.00	4.00
Luxembourg								
Monaco								3.81
Netherlands	1.45	1.58	1.70	1.82	1.92	2.05	2.16	2.19
New Zealand	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70
Norway	3.08			3.44	3.40	3.38	3.38	3.38
Portugal	4.75	5.21	5.35	5.52	5.67	5.84	5.97	6.10
Romania	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Slovakia							5.28	5.15
Slovenia	2.64	2.66	3.34	4.02	4.71	5.39	6.08	6.86
Spain	4.37	4.96	5.26	5.39	5.54	5.63	5.73	5.93
Sweden	3.39	3.21	3.15	3.15	3.31	3.52	3.52	3.48
Switzerland	2.73	2.82	2.84	2.85	2.87	2.76	2.77	2.78
Ukraine							0.60	0.60
United Kingdom	3.20	4.04	4.16	4.34	4.53	4.68	4.69	4.76
United States	2.45	2.49	2.47	2.41	2.40	2.37	2.39	2.44

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	3.2	-5.1	0.0	1.1	1.6	0.0	11.1
Austria	-0.1	-1.8	0.8	-1.3	-2.5	-0.8	-19.3
Belarus							
Belgium	0.5	0.1	18.4	1.1	0.5	-0.2	43.9
Bulgaria							
Canada	0.0	0.8	0.0	0.4	0.3	0.3	-1.0
Croatia	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Czech Republic							
Denmark	0.5	0.5	2.1	3.2	0.8	4.6	15.2
Estonia							
European Community							
Finland	-25.0	0.1	23.0	-2.9	-10.4	1.4	-16.4
France	0.0	1.3	1.5	0.5	3.6	1.1	25.5
Germany	-0.4	-0.5	0.1	0.7	0.8	0.7	-0.2
Greece	4.9	-2.0	-1.3	-1.4	-11.3	2.7	-6.7
Hungary							
Ireland	0.2	-1.7	-0.9	33.7	2.7	-1.4	37.7
Italy	-1.0	1.8	4.2	-0.5	-1.7	9.3	11.0
Japan	-1.1	-0.2	0.8	2.3	0.9	0.7	-3.9
Latvia	3.3	1.4	0.0	0.3	1.1	0.0	4.5
Lithuania						0.0	
Luxembourg							
Monaco							
Netherlands	7.4	6.8	5.9	6.5	5.6	1.3	51.3
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Norway			-1.3	-0.3	-0.1	0.0	9.6
Portugal	2.8	3.1	2.7	3.0	2.1	2.2	28.5
Romania	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slovakia						-2.4	
Slovenia	25.7	20.5	17.0	14.5	12.7	12.9	160.4
Spain	6.1	2.5	2.8	1.7	1.7	3.6	35.8
Sweden	-1.9	0.2	5.1	6.2	0.0	-1.0	2.8
Switzerland	0.5	0.6	0.5	-3.8	0.3	0.6	2.1
Ukraine						0.0	
United Kingdom	3.1	4.2	4.5	3.2	0.3	1.5	48.8
United States	-0.7	-2.2	-0.7	-1.1	0.9	2.2	-0.3

Table 1.32**Civil aviation and navigation (domestic), CO₂ (2002)**

	Methods and EF used ^a		IEF in CRF based on	Civil aviation (domestic)			International aviation		Navigation (domestic)				International marine		
	Methods	EF		Key source	Share of national total (%)	CO ₂ IEF		CO ₂ IEF		Key source	Share of national total (%)	CO ₂ IEF		CO ₂ IEF	
						Jet kerosene	Aviation gasoline	Jet kerosene	Aviation gasoline			Residual oil	Gas/diesel oil	Residual oil	Gas/diesel oil
IPCC default EF ^b			NCV			72.80	72.10	72.80	72.10			77.60	73.00	77.60	75.0-77.6
Australia	T1, T2	CS	GCV	L, T	1.11	69.00	67.32	69.00	NA	T	0.30	72.86	69.00	72.86	69.00
Austria	M, CS	CS	NCV		0.09	72.74	74.14	72.74			0.08		73.67		
Belarus			NCV		0.01	71.22	68.48	71.15							
Belgium	C,M	C,M	NCV		0.01		70.94	70.79	73.00		0.31	73.30	73.36	76.59	73.33
Bulgaria	T2	C, CS, D	NCV		0.08	70.60	70.80	70.60	NO			NO	NO	NO	76.14
Canada	CS	CS	GCV	L	1.77	68.18	69.51	68.18		L	0.71	72.71	71.28	72.71	71.28
Croatia	T1	D	NCV	T	0.41	70.79	68.61	70.79			0.40	76.59	73.33	76.59	82.56
Czech Republic	T1	D	NCV		0.08	70.78	68.61	70.78			0.02		73.33		
Denmark	M/C	CS	NCV		0.21	72.00	73.00	72.00	73.00	L	0.81	78.00	74.00	78.00	74.00
Estonia	TI	D	NCV		0.29	70.79	105.10				0.17	75.82	73.33	75.82	75.56
European Community	C, CS, D, M, T1, T2	C, CS, D, M	NCV	L	0.56	72.03	71.09	NE	NE	L	0.45	77.51	74.06	NE	NE
Finland	CS (M)	CS	NCV	T	0.38	70.79	71.68	70.78		L, T	0.61	76.63	73.36	76.61	73.32
France	C /CS	C /M /CS	NCV	L, T	1.00	71.59		71.59		L, T	0.44	78.00	75.00	78.00	75.00
Germany	CS	CS	NCV	T	0.42	74.00	IE	NE	NE		0.07	NO	74.00	78.00	74.00
Greece	C	C	NCV	T	0.86	67.34	IE	70.64	IE	L, T	1.44	76.59	72.12	76.59	73.33
Hungary	D	D	NCV					70.79			0.01		68.61		
Ireland	T1	CS	NCV		0.15	71.40		71.40	69.92		0.09	76.00	73.29	76.00	73.30
Italy	D, T2	CS	NCV	T	0.48	70.74	70.74	70.74	NO	L	1.10	77.36	75.84	77.36	73.81
Japan	T1, CS	D, CS	GCV		0.82	67.14	67.08	70.67	NO	L	1.05	IE	68.66	NE	NE
Latvia	T1	D	NCV		0.06	70.80		69.46	NO	T	0.47	76.59	74.00	76.59	74.00
Lithuania	C	CS	NCV		0.01	NO	72.00	74.00	72.00		0.07	NO	74.00	78.00	74.00
Luxembourg			NCV										70.00		
Monaco	D, T1	D	NCV	L	3.59	70.79				L	13.62		74.84		
Netherlands	CS/T2(Box 2)	CS	NCV		0.11	73.00	IE	73.00	NO		0.43	NO	73.00	77.00	73.00
New Zealand	T1	CS	NCV	L, T	1.45	73.19	73.19	67.42	NE		0.48	IE		72.73	68.81
Norway	M, T1, CS/T2	CS	NCV	L, T	1.65	73.09	71.30	73.09	NO	L, T	4.05	78.82	73.55	78.82	73.55
Portugal	M	D+C	NCV		0.46	70.37	70.33	70.59	70.74	T	0.28	77.84	75.80	77.84	74.51
Romania	D	D	NCV		0.09	70.79	68.61			T	0.23	76.59	72.60		
Slovakia	M	M	NCV		0.06	47.23	47.93	73.05	73.60		0.24		75.01	NO	75.01
Slovenia	T1, C	D, CS	NCV		0.01		71.50	71.50				IE	IE	NA	NA
Spain	C	C	NCV	L, T	1.27	72.92	72.92	72.69		L	0.58	78.89	73.38	78.89	73.38
Sweden	T1, T2	CS	NCV	L	0.86	73.10	72.30	73.10		L	0.94	76.20	73.81	76.20	73.29
Switzerland	CS	CS	NCV	T	0.41	73.20	IE	73.20	IE		0.21	IE	73.79	NO	NO
Ukraine	T1	D	NCV		0.04	71.15	70.79				0.09	76.59	73.33		
United Kingdom	T2	CS	NCV	L	0.46	71.76	70.58	71.76		T	0.28	75.59	72.54	75.59	72.54
United States	T1, T2	CS	GCV	L, T	2.56	66.51	64.92	66.51	NE	L	0.76	73.94	83.99	73.94	68.64

^a Information on methods and emission factors included in this table is as reported by Parties. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.3 Transport.

^b Source of default emission factors: IPCC Guidelines, volume 3, pages 1.89, 1.91 (for gas/diesel oil: single value for internal waterways and range for sea-going ships, boats).

Table 1.33**Domestic and international aviation, activity data (2002)**

	Activity data in CRF based on	Civil aviation (domestic)						International aviation			Total jet kerosene and aviation gasoline		
		Jet kerosene			Aviation gasoline			Jet kerosene					
		CRF	IEA ^a	Difference	CRF	IEA ^a	Difference	CRF	IEA ^a	Difference	CRF	IEA ^a	Difference
		(TJ)		(%)	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)
Australia	GCV	80,168	75,089	-6.3	3,684	1,971	-46.5	124,158	89,045	-28.3	208,011	166,105	-20.1
Austria	NCV	939	1,516	61.4	87			20,789	21,581	3.8	21,815	23,097	5.9
Belarus	NCV	45			11			3,448			3,504	0	
Belgium	NCV		535		175	134	-23.1	55,200	54,176	-1.9	55,375	54,846	-1.0
Bulgaria	NCV	628	1,115	77.5	49	45	-8.8	5,654	5,395	-4.6	6,331	6,555	3.5
Canada	GCV	184,675	165,650	-10.3	3,472	3,270	-5.8	39,916	39,194	-1.8	228,063	208,114	-8.7
Croatia	NCV	1,631	2,229	36.7	4	45	904.7	1,389	847	-39.0	3,025	3,121	3.2
Czech Republic	NCV	1,524	1,427	-6.4	110	134	22.2	7,017	7,268	3.6	8,651	8,829	2.1
Denmark	NCV	1,927	1,382	-28.3	98	90	-8.9	28,511	29,830	4.6	30,536	31,302	2.5
Estonia	NCV	797			2			0	847		799	847	6.0
European Community	NCV	322,053			3,830			NE			325,883	0	
Finland	NCV	4,361	6,243	43.1	53	134	153.6	14,721	15,160	3.0	19,135	21,537	12.6
France ^b	NCV	77,138	74,776	-3.1		1,210		204,876	207,653	1.4	282,014	283,639	0.6
Germany	NCV	57,400			IE			NE			57,400	0	
Greece	NCV	17,260	16,453	-4.7	IE			32,863	32,862	0.0	50,123	49,316	-1.6
Hungary		NO			IE			8,150	8,918	9.4	8,150	8,918	9.4
Ireland	NCV	1,469	1,694	15.4	NE	45		31,380	32,238	2.7	32,848	33,977	3.4
Italy	NCV	37,318	3,478	-90.7	527	538	2.0	97,570	138,227	41.7	135,415	142,243	5.0
Japan	GCV	162,440	154,592	-4.8	420	403	-4.1	299,268	301,960	0.9	462,128	456,954	-1.1
Latvia	NCV	91			NO			1,075	1,204	12.0	1,166	1,204	3.3
Lithuania	NCV	NO	134		22	45	103.6	626	535	-14.5	648	714	10.1
Luxembourg		0			0						0	0	
Monaco ^b	NCV	49			NO			NO			49	0	
Netherlands	NCV	3,089	3,032	-1.8	IE	90		140,827	144,291	2.5	143,916	147,413	2.4
New Zealand	NCV	14,248	14,447	1.4	633	627	-1.0	27,617	26,575	-3.8	42,499	41,649	-2.0
Norway	NCV	12,322	10,479	-15.0	176			10,122	17,256	70.5	22,619	27,735	22.6
Portugal	NCV	5,331	6,332	18.8	27	90	233.8	28,946	25,862	-10.7	34,304	32,283	-5.9
Romania	NCV	935			758	90	-88.2	0	4,191		1,693	4,281	152.9
Slovakia	NCV	667			10			500	2,096	319.1	1,176	2,096	78.2
Slovenia	NCV	0			33	45	36.9	1,156	1,204	4.2	1,189	1,249	5.1
Spain	NCV	69,246	71,165	2.8	477	582	22.1	111,326	115,264	3.5	181,049	187,011	3.3
Sweden	NCV	8,168	9,408	15.2	50	179	258.8	22,045	25,148	14.1	30,263	34,736	14.8
Switzerland	NCV	2,898	3,835	32.3	IE	224		56,442	57,476	1.8	59,340	61,534	3.7
Ukraine	NCV	2,389			10	224	2,053.4	NA	13,065		2,399	13,289	453.8
United Kingdom	NCV	38,408	147,636	284.4	2,337	2,285	-2.2	375,216	303,431	-19.1	415,960	453,351	9.0
United States	GCV	2,634,988	2,645,089	0.4	35,588	41,260	15.9	889,234	715,883	-19.5	3,559,810	3,402,232	-4.4

^a Source: IEA [unpublished].^b IEA data for Monaco are included in the French data.

Table 1.34**Domestic and international navigation, activity data (2002)**

	Activity data in CRF based on	Navigation (domestic)						International marine transport						Total					
		Residual oil			Gas / diesel oil			Residual oil			Gas / diesel oil			Residual oil			Gas / diesel oil		
		CRF	IEA ^a	Difference	CRF	IEA ^a	Difference	CRF	IEA ^a	Difference	CRF	IEA ^a	Difference	CRF	IEA ^a	Difference	CRF	IEA ^a	Difference
		(TJ)		(%)	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)
Australia	GCV	6,119			3,596	4,117	14.49	31,233	26,487	-15.20	3,734	3,423	-8.32	37,353	26,487	-29.09	7,330	7,540	2.87
Austria	NCV	0			750	347	-53.78	0			0			0			750	347	-53.78
Belarus																			
Belgium	NCV	1,528	3,939	157.80	4,724	5,027	6.40	260,350	253,780	-2.52	32,656	33,150	1.51	261,878	257,719	-1.59	37,380	38,177	2.13
Bulgaria		NO			NO			NO			4,416	4,550	3.03				4,416	4,550	3.03
Canada	GCV	33,294	30,547	-8.25	38,350	36,963	-3.62	31,463	40,073	27.37	7,399	7,280	-1.61	64,757	70,620	9.05	45,750	44,243	-3.29
Croatia	NCV	293	281	-4.10	1,192	1,213	1.82	506	523	3.18	470	477	1.46	800	804	0.51	1,661	1,690	1.72
Czech Republic	NCV	0			361	130	-63.99	NO			NO			0			361	130	-63.99
Denmark	NCV	2,064	2,050	-0.70	4,325	3,467	-19.84	17,547	17,363	-1.04	21,579	21,883	1.41	19,611	19,413	-1.01	25,904	25,350	-2.14
Estonia	NCV	4			298	173	-41.84	2,836	2,854	0.61	2,027	2,123	4.75	2,840	2,854	0.47	2,325	2,297	-1.22
European Community	NCV	79,817			146,971			NE			NE								
Finland	NCV	2,098	2,090	-0.38	2,510	4,420	76.10	22,518	22,347	-0.76	4,337	4,420	1.91	24,616	24,438	-0.73	6,847	8,840	29.11
France ^b	NCV	1,832			23,257	21,667	-6.84	85,930	86,335	0.47	16,651	22,057	32.47	87,762	86,335	-1.63	39,908	43,723	9.56
Germany	NCV	NO			9,967			77,818			20,578			77,818			30,545		
Greece	NCV	11,374	11,375	0.01	14,781	14,300	-3.26	105,459	105,467	0.01	23,788	23,790	0.01	116,832	116,842	0.01	38,569	38,090	-1.24
Hungary	NCV	NO			84	87	3.17	NA			NA						84	87	3.17
Ireland	NCV	728	723	-0.68	53	43	-18.38	221	2,090	845.45	4,232	4,203	-0.68	949	2,814	196.32	4,285	4,247	-0.90
Italy	NCV	34,583			35,980	10,053	-72.06	60,196	93,570	55.44	2,127	29,640	1,293.74	94,779	93,570	-1.28	38,107	39,693	4.16
Japan	GCV	IE	116,681		8,670	57,503	563.23	NE	184,085		NE	5,113			300,766			62,617	
Latvia	NCV	81	80	-0.76	595	607	1.96	5,010	4,944	-1.32	3,017	3,077	1.98	5,091	5,024	-1.31	3,612	3,683	1.98
Lithuania	NCV	NO			163	173	6.34	3,607	3,617	0.29	935	953	1.96	3,607	3,617	0.29	1,098	1,127	2.61
Luxembourg	NCV	0			80												80		
Monaco ^b	NCV	NO			160			NO			NO			NO			160		
Netherlands	NCV	NO			12,639	12,827	1.48	523,072	512,786	-1.97	88,888	90,220	1.50	523,072	512,786	-1.97	101,527	103,047	1.50
New Zealand	NCV	IE			0	5,113		11,352	8,722	-23.17	3,278	4,983	52.02		8,722		3,278	10,097	208.01
Norway	NCV	127	121	-5.05	30,274	27,690	-8.53	11,037	9,968	-9.68	17,997	18,113	0.65	11,164	10,089	-9.63	48,270	45,803	-5.11
Portugal	NCV	1,045	40	-96.15	1,896	3,727	96.58	12,856	14,671	14.11	2,892	5,503	90.27	13,901	14,711	5.83	4,788	9,230	92.77
Romania	NCV	204	3,014	1,376.25	4,058	1,300	-67.96	0			0			204	3,014	1,376.25	4,058	1,300	-67.96
Slovakia	NCV	0			1,638			NO			307			0			1,945		
Slovenia	NCV	IE			IE			NA			NA								
Spain	NCV	20,848	9,968	-52.19	9,448	49,010	418.73	245,138	245,219	0.03	40,954	41,080	0.31	265,986	255,187	-4.06	50,402	90,090	78.74
Sweden	NCV	1,899	1,769	-6.89	4,375	4,463	2.01	46,037	43,650	-5.19	6,276	6,327	0.81	47,937	45,418	-5.25	10,651	10,790	1.30
Switzerland	NCV	IE			1,456	347	-76.19	NO			NO	347					1,456	693	-52.38
Ukraine	NCV	1,083			4,592			NA			NA			1,083			4,592		
United Kingdom	NCV	1,818	1,447	-20.41	22,185	24,527	10.56	40,859	39,832	-2.51	53,355	61,880	15.98	42,677	41,278	-3.28	75,540	86,407	14.39
United States	GCV	369,526	603	-99.84	298,393			305,870	682,080	123.00	74,096	286,217	286.28	675,396	682,683	1.08	372,490	286,217	-23.16

^a Source: IEA [unpublished].^b IEA data for Monaco are included in the French data.

Table 1.35**Civil aviation (domestic) – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	2,902	5,336	5,554	4,958	4,691	4,980	5,480	5,780
Austria	32	63	71	77	81	82	79	75
Belarus								4
Belgium	12	9	8	9	12	12	12	12
Bulgaria								48
Canada	10,407	11,558	12,054	12,582	13,168	13,306	11,751	12,833
Croatia	296	107	110	127	131	110	111	116
Czech Republic								115
Denmark	216	206	213	194	174	155	167	146
Estonia								57
European Community	18,921	20,814	21,572	22,915	24,612	25,043	24,321	23,468
Finland	403	380	413	447	465	367	360	313
France	4,541	5,726	5,778	6,080	6,053	6,173	5,673	5,522
Germany	2,897	3,634	3,774	3,881	4,164	4,396	4,292	4,248
Greece	1,455	1,276	1,225	1,147	1,676	1,566	1,273	1,162
Hungary								IE
Ireland	59	64	69	80	84	96	109	105
Italy	1,596	1,933	2,039	2,219	2,470	2,709	2,604	2,677
Japan	7,163	10,087	10,745	10,710	10,532	10,678	10,725	10,934
Latvia	5	3	3	4	2	4	5	6
Lithuania	NE			88			106	2
Luxembourg								
Monaco								3
Netherlands	492	298	321	362	420	282	197	225
New Zealand	773	820	802	831	748	830	1,102	1,089
Norway	679			1,005	1,155	1,057	1,063	913
Portugal	246	299	306	339	370	382	375	377
Romania	205	50	131	115	123	124	123	118
Slovakia							27	32
Slovenia	1	2	2	3	3	3	2	2
Spain	4,135	3,831	4,128	4,722	5,188	5,497	5,618	5,084
Sweden	673	604	654	667	699	644	625	601
Switzerland	293	195	203	200	186	213	208	212
Ukraine							174	171
United Kingdom	2,158	2,487	2,572	2,689	2,753	2,801	2,938	2,921
United States	176,877	180,151	178,931	180,790	186,736	193,178	183,410	177,564

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	4.1	-10.7	-5.4	6.2	10.0	5.5	99.1
Austria	11.0	9.6	5.0	1.2	-3.3	-5.8	133.6
Belarus							
Belgium	-10.4	10.9	30.6	0.9	1.6	0.0	1.1
Bulgaria							
Canada	4.3	4.4	4.7	1.0	-11.7	9.2	23.3
Croatia	3.2	15.3	2.9	-15.4	0.3	4.5	-60.8
Czech Republic							
Denmark	3.4	-8.6	-10.7	-10.5	7.3	-12.5	-32.6
Estonia							
European Community	3.6	6.2	7.4	1.8	-2.9	-3.5	24.0
Finland	8.6	8.3	4.0	-21.0	-2.0	-13.2	-22.4
France	0.9	5.2	-0.4	2.0	-8.1	-2.6	21.6
Germany	3.9	2.8	7.3	5.6	-2.4	-1.0	46.6
Greece	-4.0	-6.4	46.2	-6.6	-18.7	-8.7	-20.1
Hungary							
Ireland	7.4	15.1	6.2	13.7	13.5	-3.8	77.5
Italy	5.5	8.8	11.3	9.7	-3.9	2.8	67.7
Japan	6.5	-0.3	-1.7	1.4	0.4	2.0	52.7
Latvia	4.2	14.8	-39.7	73.1	18.7	33.4	41.7
Lithuania						-98.5	
Luxembourg							
Monaco							
Netherlands	7.4	12.9	15.9	-32.7	-30.3	14.5	-54.2
New Zealand	-2.3	3.7	-10.0	11.0	32.7	-1.1	40.9
Norway			14.9	-8.6	0.6	-14.1	34.4
Portugal	2.2	11.0	9.3	3.2	-2.0	0.6	53.3
Romania	162.6	-12.4	7.7	0.8	-1.3	-3.8	-42.4
Slovakia						17.6	
Slovenia	6.8	23.8	-3.1	0.1	-18.2	-0.5	276.3
Spain	7.7	14.4	9.9	6.0	2.2	-9.5	22.9
Sweden	8.3	2.0	4.7	-7.9	-2.9	-4.0	-10.8
Switzerland	4.2	-1.3	-7.0	14.6	-2.7	2.2	-27.6
Ukraine						-1.8	
United Kingdom	3.4	4.5	2.4	1.8	4.9	-0.6	35.3
United States	-0.7	1.0	3.3	3.4	-5.1	-3.2	0.4

Table 1.36**International bunkers: aviation – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	4,345	6,312	6,501	7,233	7,268	7,331	8,151	8,567
Austria	886	1,466	1,526	1,578	1,542	1,675	1,615	1,512
Belarus								245
Belgium	3,096	3,340	3,601	4,068	4,534	4,661	4,219	4,219
Bulgaria	1,037	472	428	280	319	270	393	399
Canada	2,729	3,073	2,992	2,879	3,032	3,026	3,162	2,722
Croatia	202	174	145	148	137	115	115	98
Czech Republic	617	459	407	225	539	343	439	497
Denmark	1,762	1,970	2,010	2,158	2,290	2,348	2,380	2,053
Estonia								
European Community	60,971	82,122	86,809	93,456	100,894	107,014	104,023	102,051
Finland	974	957	965	990	1,058	1,027	1,054	1,042
France	8,618	11,240	11,634	12,255	13,761	14,361	14,587	14,667
Germany	11,589	14,537	15,097	15,523	16,656	17,582	17,168	16,990
Greece	2,448	2,498	2,416	2,536	2,262	2,498	2,322	2,322
Hungary	431	560	531	556	596	634	538	577
Ireland	1,059	1,206	1,258	1,296	1,542	1,566	1,986	2,246
Italy	4,049	5,932	6,103	6,635	7,367	7,786	7,665	6,902
Japan	13,183	18,433	19,125	19,992	18,377	16,504	18,643	21,150
Latvia	151	95	95	85	86	75	75	75
Lithuania	NE			84			104	92
Luxembourg				903		971		1,138
Monaco								
Netherlands	4,497	8,249	8,906	9,709	10,070	10,067	9,855	10,280
New Zealand	1,341	1,635	1,709	1,701	1,942	1,757	1,880	1,862
Norway	619	691	771	821	942	913	835	740
Portugal	1,644	1,741	1,790	1,901	2,065	2,177	2,147	2,049
Romania	NE	NE	NE	NE	NE	NE	NE	NE
Slovakia	NE	44	39	36	37	37	35	37
Slovenia	97	53	56	52	62	71	80	83
Spain	3,432	6,554	7,071	7,478	7,737	8,314	8,492	8,092
Sweden	1,335	1,476	1,560	1,673	1,879	1,926	1,871	1,611
Switzerland	3,226	3,960	4,100	4,285	4,589	4,766	4,489	4,132
Ukraine								
United Kingdom	14,791	20,301	21,622	24,198	26,494	29,412	27,613	26,927
United States	46,594	52,168	55,929	57,194	58,868	60,548	59,391	59,143

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	3.0	11.3	0.5	0.9	11.2	5.1	97.2
Austria	4.0	3.5	-2.3	8.6	-3.6	-6.3	70.7
Belarus							
Belgium	7.8	13.0	11.4	2.8	-9.5	0.0	36.3
Bulgaria	-9.4	-34.5	14.1	-15.5	45.8	1.5	-61.5
Canada	-2.6	-3.8	5.3	-0.2	4.5	-13.9	-0.3
Croatia	-16.6	2.4	-7.5	-16.3	-0.3	-14.1	-51.4
Czech Republic	-11.3	-44.8	139.7	-36.3	28.0	13.2	-19.5
Denmark	2.0	7.4	6.1	2.5	1.3	-13.7	16.5
Estonia							
European Community	5.7	7.7	8.0	6.1	-2.8	-1.9	67.4
Finland	0.8	2.6	6.9	-2.9	2.6	-1.1	7.0
France	3.5	5.3	12.3	4.4	1.6	0.6	70.2
Germany	3.9	2.8	7.3	5.6	-2.4	-1.0	46.6
Greece	-3.3	5.0	-10.8	10.4	-7.1	0.0	-5.1
Hungary	-5.1	4.6	7.3	6.3	-15.1	7.2	33.7
Ireland	4.3	3.0	19.0	1.6	26.9	13.1	112.1
Italy	2.9	8.7	11.0	5.7	-1.6	-10.0	70.5
Japan	3.8	4.5	-8.1	-10.2	13.0	13.4	60.4
Latvia	-0.1	-10.3	1.8	-12.6	-1.0	0.0	-50.4
Lithuania						-11.6	
Luxembourg							
Monaco							
Netherlands	8.0	9.0	3.7	0.0	-2.1	4.3	128.6
New Zealand	4.5	-0.5	14.2	-9.5	7.0	-1.0	38.8
Norway	11.5	6.6	14.6	-3.1	-8.5	-11.5	19.4
Portugal	2.8	6.2	8.6	5.4	-1.4	-4.6	24.6
Romania							
Slovakia	-11.4	-7.8	0.9	1.7	-5.9	4.9	
Slovenia	5.5	-8.0	19.4	15.0	12.9	2.9	-15.2
Spain	7.9	5.7	3.5	7.5	2.1	-4.7	135.8
Sweden	5.7	7.2	12.3	2.5	-2.9	-13.9	20.7
Switzerland	3.5	4.5	7.1	3.9	-5.8	-8.0	28.1
Ukraine							
United Kingdom	6.5	11.9	9.5	11.0	-6.1	-2.5	82.1
United States	7.2	2.3	2.9	2.9	-1.9	-0.4	26.9

Table 1.37**Navigation (domestic) – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	2,300	2,115	2,105	1,812	1,532	1,618	1,587	1,560
Austria	52	54	62	62	63	63	64	64
Belarus								
Belgium	340	312	324	335	367	438	450	459
Bulgaria								
Canada	4,733	4,158	4,216	4,827	4,646	4,776	5,177	5,154
Croatia	133	149	118	90	88	86	92	111
Czech Republic								26
Denmark	551	702	629	534	497	507	498	554
Estonia								33
European Community	19,444	18,750	18,485	19,306	19,639	18,560	19,060	18,758
Finland	227	258	249	257	501	481	464	503
France	1,896	1,856	1,894	1,871	2,045	1,844	2,149	2,433
Germany	2,050	1,602	1,267	1,161	946	877	846	738
Greece	1,825	1,493	1,812	2,793	2,761	1,580	2,145	1,937
Hungary								6
Ireland	85	104	110	116	132	122	125	59
Italy	5,419	5,744	5,956	6,240	6,092	6,223	6,215	6,117
Japan	13,354	15,232	16,216	14,433	14,359	14,777	14,313	13,945
Latvia	449	79	76	54	45	41	53	50
Lithuania	NE			14			11	12
Luxembourg				6		6		6
Monaco								13
Netherlands	877	800	848	817	807	1,004	969	923
New Zealand	233	281	208	143	215	374	325	360
Norway	1,929			2,534	2,766	2,524	2,270	2,240
Portugal	477	313	246	204	258	254	235	225
Romania	1,676	594	1,016	765	680	429	270	312
Slovakia							119	123
Slovenia	IE	IE	IE	IE	IE	IE	IE	IE
Spain	1,536	1,652	1,317	1,322	1,770	1,850	2,098	2,338
Sweden	643	440	504	584	652	664	664	657
Switzerland	101	94	96	97	99	101	104	107
Ukraine							654	423
United Kingdom	3,461	3,415	3,262	3,005	2,741	2,648	2,133	1,747
United States	47,950	47,756	33,351	27,086	38,058	59,136	37,196	52,384

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	-0.5	-13.9	-15.5	5.6	-1.9	-1.7	-32.2
Austria	14.5	1.0	0.7	0.7	0.7	0.7	23.4
Belarus							
Belgium	3.9	3.5	9.5	19.2	2.7	2.0	34.9
Bulgaria							
Canada	1.4	14.5	-3.7	2.8	8.4	-0.4	8.9
Croatia	-20.7	-23.5	-3.1	-2.1	7.2	20.6	-16.7
Czech Republic							
Denmark	-10.4	-15.0	-7.0	2.0	-1.8	11.3	0.6
Estonia							
European Community	-1.4	4.4	1.7	-5.5	2.7	-1.6	-3.5
Finland	-3.4	3.0	95.4	-4.1	-3.6	8.4	121.6
France	2.0	-1.2	9.3	-9.8	16.5	13.2	28.3
Germany	-20.9	-8.4	-18.5	-7.3	-3.6	-12.8	-64.0
Greece	21.4	54.1	-1.2	-42.8	35.8	-9.7	6.2
Hungary							
Ireland	6.0	5.6	13.3	-7.2	2.4	-52.6	-30.4
Italy	3.7	4.8	-2.4	2.1	-0.1	-1.6	12.9
Japan	6.5	-11.0	-0.5	2.9	-3.1	-2.6	4.4
Latvia	-3.4	-29.5	-15.6	-8.5	28.5	-5.7	-88.8
Lithuania						13.9	
Luxembourg							
Monaco							
Netherlands	5.9	-3.7	-1.1	24.3	-3.4	-4.8	5.2
New Zealand	-25.9	-31.3	50.5	73.6	-13.0	10.8	54.5
Norway			9.2	-8.8	-10.1	-1.3	16.1
Portugal	-21.6	-17.1	26.6	-1.7	-7.2	-4.3	-52.8
Romania	70.9	-24.7	-11.1	-36.9	-37.1	15.7	-81.4
Slovakia						2.9	
Slovenia							
Spain	-20.3	0.3	33.9	4.5	13.4	11.5	52.2
Sweden	14.6	15.8	11.8	1.8	-0.1	-1.1	2.1
Switzerland	1.9	1.9	1.9	1.8	3.2	3.1	6.0
Ukraine						-35.4	
United Kingdom	-4.5	-7.9	-8.8	-3.4	-19.4	-18.1	-49.5
United States	-30.2	-18.8	40.5	55.4	-37.1	40.8	9.2

Table 1.38**International bunkers: marine – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	2,056	2,719	2,519	2,240	2,485	2,769	2,474	2,533
Austria	NO	NO	NO	NO	NO	NO	NO	NO
Belarus								
Belgium	13,303	15,890	17,609	18,402	14,845	16,052	16,201	22,341
Bulgaria	1,016	732	1,092	1,233	26	205	306	336
Canada	2,995	3,085	3,046	3,776	3,368	3,446	3,712	2,815
Croatia	109	115	74	81	66	57	89	73
Czech Republic								
Denmark	3,087	4,803	4,403	4,414	4,155	4,279	3,605	2,966
Estonia	0	289	319	339	362	329	313	368
European Community	103,753	113,281	123,573	129,092	123,048	129,402	134,142	139,719
Finland	1,800	1,181	1,286	1,658	1,764	2,032	1,815	2,043
France	8,137	7,568	8,379	9,166	9,311	9,624	8,203	7,951
Germany	7,980	6,472	6,922	6,565	6,685	6,966	7,097	7,593
Greece	8,028	9,901	9,927	11,058	9,838	11,359	11,030	9,893
Hungary	NO	NO	NO	NO	NO	NO	NO	NO
Ireland	56	497	484	503	543	477	390	327
Italy	4,404	2,870	3,072	3,094	3,093	3,855	4,371	4,993
Japan	17,518	12,456	16,238	17,132	15,802	16,998	14,700	15,551
Latvia	89	104	148	178	156	185	616	607
Lithuania	0			0			312	351
Luxembourg								
Monaco								
Netherlands	35,267	37,196	39,530	39,822	41,143	43,429	47,721	47,124
New Zealand	1,033	1,061	1,110	1,072	915	746	790	1,051
Norway	1,478	2,480	3,000	2,899	2,733	2,712	2,624	2,194
Portugal	1,194	1,112	1,158	1,225	1,492	1,624	1,128	1,216
Romania	NE	NE	NE	NE	NE	NE	NE	NE
Slovakia	NE	39	23	33	7	0	21	23
Slovenia	NA	NA	NA	NA	NA	NA	NA	NA
Spain	11,780	15,029	18,532	19,546	19,074	19,496	21,797	22,345
Sweden	2,159	3,586	4,206	4,851	4,748	4,613	4,501	3,968
Switzerland	NO	NO	NO	NO	NO	NO	NO	NO
Ukraine								
United Kingdom	6,559	7,213	8,064	8,788	6,357	5,597	6,284	6,959
United States	67,272	50,109	53,960	57,900	46,429	40,859	38,478	27,701

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	-7.3	-11.1	10.9	11.4	-10.6	2.4	23.2
Austria							
Belarus							
Belgium	10.8	4.5	-19.3	8.1	0.9	37.9	67.9
Bulgaria	49.3	12.9	-97.9	704.1	49.0	9.9	-66.9
Canada	-1.3	24.0	-10.8	2.3	7.7	-24.2	-6.0
Croatia	-35.9	10.0	-18.9	-13.2	56.7	-18.0	-32.5
Czech Republic							
Denmark	-8.3	0.2	-5.9	3.0	-15.8	-17.7	-3.9
Estonia	10.7	6.2	6.7	-9.3	-4.8	17.7	
European Community	9.1	4.5	-4.7	5.2	3.7	4.2	34.7
Finland	8.9	28.9	6.4	15.2	-10.7	12.6	13.5
France	10.7	9.4	1.6	3.4	-14.8	-3.1	-2.3
Germany	6.9	-5.1	1.8	4.2	1.9	7.0	-4.9
Greece	0.3	11.4	-11.0	15.5	-2.9	-10.3	23.2
Hungary							
Ireland	-2.7	3.8	8.0	-12.2	-18.2	-16.1	481.2
Italy	7.0	0.7	0.0	24.6	13.4	14.2	13.4
Japan	30.4	5.5	-7.8	7.6	-13.5	5.8	-11.2
Latvia	42.1	19.9	-12.1	18.2	233.5	-1.5	579.1
Lithuania						12.3	
Luxembourg							
Monaco							
Netherlands	6.3	0.7	3.3	5.6	9.9	-1.3	33.6
New Zealand	4.6	-3.4	-14.7	-18.5	6.0	33.0	1.8
Norway	21.0	-3.4	-5.7	-0.8	-3.2	-16.4	48.4
Portugal	4.2	5.8	21.8	8.9	-30.6	7.8	1.9
Romania							
Slovakia	-40.4	39.8	-78.9			7.9	
Slovenia							
Spain	23.3	5.5	-2.4	2.2	11.8	2.5	89.7
Sweden	17.3	15.3	-2.1	-2.8	-2.4	-11.8	83.8
Switzerland							
Ukraine							
United Kingdom	11.8	9.0	-27.7	-11.9	12.3	10.7	6.1
United States	7.7	7.3	-19.8	-12.0	-5.8	-28.0	-58.8

Table 1.39

Fugitive emissions from fuels: coal mining and handling, CH₄ (2002)

	Key source	Share of national total	Methods and EF used ^a		Activity data					CH ₄ IEF			
			Methods	EF	CRF			IEA ^c	Difference	Underground mines		Surface mines	
					Underground mines	Surface mines	Total	Total		Mining activities	Post-mining activities	Mining activities	Post-mining activities
IPCC default EF ^b		(%)								4.50 - 16.75	0.60 - 2.68	0.20 - 1.34	0 - 0.13
Australia	L, T	3.35	T2	CS	91.9	244.0	335.8	341.8	1.79	5.22	0.30	1.33	NA
Austria		0.01	T1	D	NO	1.2	1.2					0.21	
Belarus													
Belgium			C	C	NO	NO				NO	NO	NO	NO
Bulgaria	L	1.97	T1	D	2.9	23.2	26.0	25.9	-0.36	11.73	1.68	0.80	0.07
Canada		0.14	CS	CS	1.4	84.5	85.9			10.52	IE	0.38	IE
Croatia			T1	D	NO	NO							
Czech Republic	L	3.49	T3	CS	14.5	45.5	60.0	63.4	5.68	12.16	1.62	0.77	0.07
Denmark			D	D	NO	NO							
Estonia	L	1.14	TI	D	6.1	6.3	12.4	12.4	0.00	1.34	0.13	0.20	0.07
European Community	L	0.39	C, CS, D, T1, T2, T3	C, CS, D	NE	NE				NE	NE	NE	NE
Finland			CS	CS	NO	NO							
France ^d	T	0.24	C	CS	1.6	1.0	2.6	1.6	-38.02	38.55		0.04	
Germany	L, T	0.71	CS	CS	26.4	177.7	204.1			12.05	0.58	0.07	NE
Greece	L	1.10	T1	D	NO	70.5	70.5	70.5	0.00	NO	NO	1.01	IE
Hungary	L	0.66	D	CS	5.5	7.6	13.0			3.64	0.54	0.21	0.01
Ireland			NA	NA									
Italy		0.00	D, C	D, CS	0.2	0.0	0.2	0.2	0.00	6.70			
Japan		0.01	T2	CS	0.7	0.6	1.3			5.41	1.64	0.77	0.07
Latvia			NO	NO	NO	NO				NO	NO	NO	NO
Lithuania					NO	NO				NO	NO	NO	NO
Luxembourg													
Monaco ^d					NO	NO							
Netherlands			IE		NO	NO				NO	NO	NO	NO
New Zealand	T	0.47	T1	CS/D	0.9	3.6	4.5	4.5	0.00	13.74	1.60	0.77	0.07
Norway		0.04	T1	CS	2.1		2.1	2.1	0.01	0.47	IE	NO	NO
Portugal			T2	D+C	NO	NO							
Romania	L	2.24	T1	T1	9.6	22.3	31.9	30.4	-4.72	11.73	1.56	0.77	0.06
Slovakia	L	0.96	T2	CS	3.4	NO	3.4	3.4	0.86	6.70	0.30	NO	NO
Slovenia	L, T	1.29	D	CS	4.7	NO	4.7	4.7	-0.01	1.83	0.85	NO	NO
Spain	T	0.25	T1	CS	11.5	14.4	25.9	18.5	-28.66	2.95	0.91	0.18	0.03
Sweden			T2/T3	CS	NO	NO							
Switzerland					NO	NO				NO	NO	NO	NO
Ukraine	L	6.89	D	D	81.6	0.9	82.5			18.09	1.34	0.94	0.13
United Kingdom	L, T	0.81	T2	CS	16.4	13.1	29.5	29.5	0.00	13.47	1.16	0.34	
United States	L, T	0.75	T2, T3	CS	324.2	667.6	991.8	991.8	0.00	5.23	0.94	0.63	0.10

^a Information on methods and emission factors included in this table is as reported by Parties. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.B.1 Solid fuels.

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

^c Source: IEA [unpublished].

^d IEA data for Monaco are included in the French data.

Table 1.40**Fugitive emissions from fuels: coal mining and handling – trend information****CH₄ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	753	847	866	955	903	935	878	831
Austria	1	0	0	0	0	0	0	0
Belarus								
Belgium	NE	NE	NE	NE	NO	NO	NO	NO
Bulgaria								58
Canada	91	84	78	65	51	45	47	47
Croatia	2	1	1	1	0	NO	NO	NO
Czech Republic								237
Denmark								
Estonia								11
European Community	2,344	1,468	1,371	1,234	1,126	971	795	773
Finland								
France	170	137	117	116	111	111	71	63
Germany	1,221	738	691	627	596	483	365	346
Greece	52	60	59	61	62	64	67	71
Hungary								24
Ireland	NO	NO	NO	NO	NO	NO	NO	NO
Italy	2	0	0	0	0	1	1	1
Japan	134	62	48	42	41	37	27	6
Latvia	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	NO			NE			NE	NO
Luxembourg								
Monaco								
Netherlands	NO	NO	NO	NO	NO	NO	NO	NO
New Zealand	10	20	14	17	17	16	17	17
Norway	0			0	0	0	1	1
Portugal	3							
Romania	303	204	165	128	112	141	159	146
Slovakia							24	24
Slovenia	17	12	13	13	12	12	11	13
Spain	84	69	67	61	56	56	49	48
Sweden	NO	NO	NO	NO	NO	NO	NO	NO
Switzerland	NO	NO	NO	NO	NO	NO	NO	NO
Ukraine							1,612	1,586
United Kingdom	818	473	445	378	310	264	243	244
United States	3,900	3,008	2,983	2,989	2,805	2,677	2,648	2,487

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	2.2	10.3	-5.4	3.5	-6.1	-5.4	10.4
Austria	2.0	0.9	-0.2	10.3	-2.0	0.0	-49.7
Belarus							
Belgium							
Bulgaria							
Canada	-7.2	-16.8	-20.7	-12.2	4.3	0.0	-48.3
Croatia	-26.8	4.7	-69.9				
Czech Republic							
Denmark							
Estonia							
European Community	-6.6	-10.0	-8.7	-13.8	-18.1	-2.9	-67.0
Finland							
France	-14.6	-0.6	-4.3	0.0	-36.5	-11.1	-63.0
Germany	-6.4	-9.3	-4.9	-18.9	-24.6	-5.2	-71.7
Greece	-1.6	3.5	1.9	3.0	3.8	6.2	35.8
Hungary							
Ireland							
Italy	-39.5	-86.6	-20.8	3,052.6	16.0	17.3	-54.5
Japan	-22.4	-13.3	-0.8	-11.2	-25.9	-79.2	-95.8
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands							
New Zealand	-31.8	22.8	0.6	-3.0	3.9	-0.7	68.6
Norway			23.1	56.4	182.9	3.8	513.2
Portugal							
Romania	-19.1	-22.5	-12.6	26.2	12.4	-8.0	-51.8
Slovakia						-1.4	
Slovenia	7.2	-1.2	-6.7	-1.8	-7.7	13.4	-26.5
Spain	-1.8	-10.1	-7.7	0.8	-12.2	-3.6	-43.4
Sweden							
Switzerland							
Ukraine						-1.6	
United Kingdom	-5.9	-15.0	-17.9	-14.8	-8.2	0.5	-70.2
United States	-0.8	0.2	-6.2	-4.5	-1.1	-6.1	-36.2

Table 1.41

Fugitive emissions from fuels: oil and natural gas, CH₄, CO₂ (2002)

	Key source	CH ₄			Key source	CO ₂			Oil							Refining (R) / Storage (S)				
		Share of national total (%)	Methods and EF used ^a			Share of national total (%)	Methods and EF used ^a		Production			Transport			Refining (R) / Storage (S)					
			Methods	EF			Methods	EF	CH ₄ IEF ^b	CO ₂ IEF	Activity data	CH ₄ IEF ^b	CO ₂ IEF	Activity data	CH ₄ IEF ^b	CO ₂ IEF	Activity data			
																		Value	Unit	Description
IPCC default EF ^c									300 - 5,000		PJ	Oil produced	745		PJ	Oil tankered	20 - 250 (S) 90 - 1,400 (R)		PJ	Oil refined
Australia	L, T	1.20	T2	CS	L	1.24	T2	CS	1,026	NA	PJ	Crude oil and ORF produced	745	NA	PJ	Quantity shipped	1,211	128,314	PJ	Oil refined
Austria		0.35	T1, CS	D		0.20	T1, CS	D, CS, PS	4,444,208	89,266,738	Mt	Oil throughput					31,663		Mt	Oil refined (SNAP 0401)
Belarus	L	3.67							2,711			(e.g. PJ of oil produced)					740			(e.g. PJ oil refined)
Belgium		0.27	CS	CS		0.10	CS	CS	NO	NO		NO	NO				NO			
Bulgaria	L	2.24	T1	D					2,650	NE	PJ	(e.g. PJ of oil produced)	745	NE	PJ	(e.g. PJ oil loaded in tankers)	745	NE	PJ	(e.g. PJ oil refined)
Canada	L, T	5.24	CS	CS	L, T	2.15	CS	CS	6,258	760	10 ³ m ³	Conventional Oil, Heavy Oil and Crude Oil Production	NA	NA	NA	Liquid Product Transport	NE	NE	NA	NA
Croatia	L, T	4.62	T1	D	L, T	2.38	CS	CS	2,650		PJ	(e.g. PJ of oil produced)	745		PJ	(e.g. PJ oil loaded in tankers)	135		PJ	(e.g. PJ oil refined)
Czech Republic		0.34	T1, T3	D, CS			NE		5,287		PJ	(e.g. PJ of oil produced)				(e.g. PJ oil loaded in tankers)	1,150		PJ	(e.g. PJ oil refined)
Denmark		0.10	C	C	T	0.78	C	C				(e.g. PJ of oil produced)				(e.g. PJ oil loaded in tankers)				(e.g. PJ oil refined)
Estonia	L	1.98	T1	D					4,000			(e.g. PJ of oil produced)	745			(e.g. PJ oil loaded in tankers)				(e.g. PJ oil refined)
European Community	L	0.66	C, CS, D, T1, T2, T3	C, CS, D, PS	L	0.40	C, CS, MB ^d , T1, T3	C, CS, D, PS	NE	NE		(e.g. PJ of oil produced)	NE	NE		(e.g. PJ oil loaded in tankers)	NE	NE		(e.g. PJ oil refined)
Finland		0.01	CS	PS		0.03	CS	PS				(e.g. PJ of oil produced)			kt	kt oil loaded in tankers			kt	kt oil refined
France		0.34	C	CS	L	0.71	C	CS			PJ Produced	PJ Produced			PJ Loaded	PJ Loaded	48	914,455	PJ Refined	PJ Refined
Germany	L	0.72	CS	CS			NE	NE	NE	NE		(e.g. PJ of oil produced)	NE	NE		(e.g. PJ oil loaded in tankers)	0	NE	t	(crude oil & products)
Greece		0.14	T1, C	D, C					2,650	NE	PJ	Crude oil and NGL production	745	NE	PJ	Crude oil imports	880	NA	PJ	Refinery input (crude oil and NGL)
Hungary	L	2.06	T1	M, CS					54,826		PJ	oil produced	6	10 ⁶ m ³		pipeline and tankers	835		PJ	oil refined
Ireland		0.12	T1	CS		0.09	T1	CS				(e.g. PJ of oil produced)				(e.g. PJ oil loaded in tankers)				(e.g. PJ oil refined)
Italy	L, T	0.92	C, CS	CS	T	0.35	C, CS	CS	236		Gg	(Gg of oil produced)					24	17,303	Gg	(Gg oil refined)
Japan		0.04	T1	D		0.00	T1	D	1	0	10 ³ l	oil produced	0	0	10 ³ l	oil produced	91	NE	PJ	oil refined
Latvia	L, T	1.58	CS	PS			NE	NE				(e.g. PJ of oil produced)				(e.g. PJ oil loaded in tankers)				(e.g. PJ oil refined)
Lithuania	L	2.45	C	C		0.01	C	C	NE	NE		(e.g. PJ of oil produced)	0	NO	Mg	(e.g. PJ oil loaded in tankers)	NE	NE		
Luxembourg																(e.g. PJ oil loaded in tankers)				
Monaco												(e.g. PJ of oil produced)				(e.g. PJ oil loaded in tankers)				(e.g. PJ oil refined)
Netherlands	L, T	1.18	CS/T1	CS	L, T	0.77	T1	CS	IE	IE	10 ⁶ m ³	m3 oil produced	NE	NE		(e.g. PJ oil loaded in tankers)	0	603,379	PJ	Refinery input: Crude oil, NGL, Other input
New Zealand		0.54	T1	CS/D	L, T	0.81	T1	CS	NE	NE		(e.g. PJ of oil produced)	1	NE	TJ	(e.g. PJ oil loaded in tankers)	1	NE	TJ	(e.g. PJ oil refined)
Norway	L, T	1.15	CS	CS	L, T	4.83	CS	CS	IE	IE		(e.g. PJ of oil produced)			PJ	Oil loaded		1,349,804	PJ	Oil refined
Portugal	T	0.37	C+T2	D+C	L, T	0.87	MB ^d	C+PS					60,000	1,100,000	Mton crude processed	Consumption of crude	93,088	30,487,809	Mton material input	Production (crude and other materials)
Romania	L, T	5.78	T1	T1			NE	NE	300		PJ	(e.g. PJ of oil produced)	745		PJ	(e.g. PJ oil loaded in tankers)	45		PJ	(e.g. PJ oil refined)
Slovakia	L	1.54	T1	D,CS			NA	NA	2,650	NO	PJ	production	745	NO	PJ	transport of crude oil (transfer)	745	NO	PJ	refining
Slovenia		0.07	T1	D					3	NE	TJ	(e.g. PJ of oil produced)	NO	NE	TJ	(e.g. PJ oil loaded in tankers)		NE	TJ	(e.g. PJ oil refined)
Spain	T	0.29	CS,C	PS,C	L	0.54			9		Mg	Crude oil produced	27		Gg	Transport of crude oil	1	33,344	Gg	Oil refined
Sweden		0.00	T2, CS	CS		0.00	CS	CS								(e.g. PJ oil loaded in tankers)				(e.g. PJ oil refined)
Switzerland		0.48	C	CS		0.18	C	CS	NO	NO		NO	NO	NO		NO	1,042	NO	PJ	Crude oil used
Ukraine	L	21.01	D	D			D	D	4,500		PJ	oil produced	745		PJ	oil	1,000		PJ	oil
United Kingdom	L, T	1.29	T3	CS	L, T	0.87	T3	CS	532	89,087	PJ	Oil and gas produced	115		Gg	Offshore loading of oil only	27		PJ	Oil refinery throughput
United States	L, T	2.09	M	M		0.08	T2	CS	511,195	NE	10 ⁶ bbl_per_year	(e.g. PJ of oil produced)	954	NE	10 ⁶ bbl_per_year	(e.g. PJ oil loaded in tankers)	4,930	NE	10 ⁶ bbl_per_year	(e.g. PJ oil refined)

^a Information on methods and emission factors included in this table is as reported by Parties. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.B.2 Oil and natural gas.^b The units of the implied emission factors (IEF) vary from Party to Party depending on the unit of the activity data used. The unit of the IEF is kg/unit of activity data.^c Source of emissions factors: IPCC Guidelines, vol. 3, pages 1.119–1.121. For updated detailed emission factors on CH₄ and implied emissions factors on CO₂ and N₂O see the IPCC good practice guidance, table 2.16, pages 2.86–2.87.^d Mass balance is indicated by MB.

Table 1.41
Fugitive emissions from fuels: oil and natural gas, CH₄, CO₂ (2002) (continued)

	Natural Gas																
	Production/processing				Transmission				Distribution				Other leakage				
	CH ₄ IEF ^b	CO ₂ IEF	Value	Activity data	CH ₄ IEF ^b	CO ₂ IEF	Value	Activity data	CH ₄ IEF ^b	CO ₂ IEF	Value	Activity data	CH ₄ IEF ^b	CO ₂ IEF	Value	Activity data	
	Value		Unit	Description			Unit	Description			Unit	Description			Unit	Description	
IPCC default EF ^c	46,000 - 314,000			PJ	Gas produced	57,000 - 628,000		PJ	Gas consumed/produced	57,000 - 288,000		PJ	Gas consumed/produced	0 - 384,000		PJ	Gas consumed
Australia	1,088	NA		PJ	Gas produced	11,026	632	PJ	Gas transmitted	368,537	21,349	PJ	Utility sales	NE	NE		NE
Austria		46,919	10 ⁶ m ³		Gas throughput (a)	2,900	25	km	Pipelines length (km)	741		10 ⁶ m ³	Gas Consumption				
Belarus	294,253				(e.g. PJ gas produced)	118,007			(e.g. PJ gas consumed)								
Belgium	NE	NE				NA	NA			33,788	NA	PJ	consumption				
Bulgaria	227,000	NE		PJ	(e.g. PJ gas produced)	500,000	NE	PJ	(e.g. PJ gas consumed)					275,871		PJ	(e.g. PJ gas consumed)
					Gross New Production of Natural Gas (also includes oil and Gas Well Drilling and Servicing)												
Canada	2,823	116	10 ⁶ m ³			3,230	24	km	Pipeline Distance	744	NE	km	Pipeline Distance - leakage				
Croatia	458,000			PJ	(e.g. PJ gas produced)			PJ	(e.g. PJ gas consumed)				(e.g. PJ gas consumed)				(e.g. PJ gas consumed)
Czech Republic	49,748			PJ	(e.g. PJ gas produced)	3,179		PJ	(e.g. PJ gas consumed)	103,842		PJ	(e.g. PJ gas consumed)	49,748		PJ	(e.g. PJ gas consumed)
Denmark	1		10 ³ m ³		(e.g. PJ gas produced)	20		10 ⁶ m ³	Gas produced and stock change	11		10 ⁶ m ³	Gas distributed				Incl. in transmission
Estonia	458,000				(e.g. PJ gas produced)	458,000			(e.g. PJ gas consumed)								
European Community	NE	NE			(e.g. PJ gas produced)	NE	NE		(e.g. PJ gas consumed)	NE	NE		(e.g. PJ gas consumed)				(e.g. PJ gas consumed)
													PJ gas distributed via local networks				t of natural gas released from pipelines
Finland					(e.g. PJ gas produced)			PJ	PJ gas consumed			PJ		1,000		t	
France	672	2,675,848		PJ Production	PJ Production (natural gas from crude oil extraction)	57,109		PJ Consumed	PJ Consumed (total amount of gas consumed)				(e.g. PJ gas consumed)				(e.g. PJ gas consumed)
Germany	62	NE		TJ		9	NE	TJ		465	NE	km	(distribution net)	42	NO	TJ	(gas consumed)
Greece	21,000	NE		PJ	Natural gas production	IE	NE	PJ	Natural gas consumption	102,500	NE	PJ	(e.g. PJ gas consumed)	NO	NO	NO	NO
Hungary	133,233			PJ	gas produced	129,411		PJ	gas consumed				(e.g. PJ gas consumed)				(e.g. PJ gas consumed)
Ireland	10,659	2,300,689		PJ	PJ of Gas produced				(e.g. PJ gas consumed)	64,489		PJ	PJ of gas consumed				(e.g. PJ gas consumed)
Italy	176		10 ⁶ m ³		(Mm3 gas produced)	357		10 ⁶ m ³	(Mm3 gas transported)	7,731		10 ⁶ m ³	(Mm3 gas transported)				
													LNG & NG Consumption with Town Gas Production				
Japan	4	0	10 ³ m ³		gas produced	3,500	25	km	Pipelines length	905		PJ		NE	NE		
Latvia					(e.g. PJ gas produced)				(e.g. PJ gas consumed)				(e.g. PJ gas consumed)				
Lithuania	NE	NE			(e.g. PJ gas produced)	NE	NE		(e.g. PJ gas consumed)	218	14	TJ	(e.g. PJ gas consumed)	NE	NE		(e.g. PJ gas consumed)
Luxembourg																	
Monaco					(e.g. PJ gas produced)				(e.g. PJ gas consumed)				(e.g. PJ gas consumed)				(e.g. PJ gas consumed)
Netherlands	25,787	132,669		PJ	gas produced	1,474	66	PJ	gas transported	81,049	2,844	PJ	gas distributed	NE	NE	NE	
New Zealand	NE	NE			(e.g. PJ gas produced)	216	22	TJ	(e.g. PJ gas consumed)	NE	NE		(e.g. PJ gas consumed)	NE	NE		(e.g. PJ gas consumed)
Norway	IE	IE			(e.g. PJ gas produced)	IE	IE		(e.g. PJ gas consumed)	IE	IE		(e.g. PJ gas consumed)				(e.g. PJ gas consumed)
Portugal						100		TJ	Gas consumed								
Romania	288,000			PJ	(e.g. PJ gas produced)	364,300		PJ	(e.g. PJ gas consumed)				(e.g. PJ gas consumed)				(e.g. PJ gas consumed)
Slovakia	67,000	NO		PJ	production	2,000	NO	PJ	transfer	2,000	NO	PJ	distribution	120,001		PJ	consumed
Slovenia	227	NE		TJ	(e.g. PJ gas produced)	273	NE	km	(e.g. PJ gas consumed)	230	NE	km	(e.g. PJ gas consumed)		NE		(e.g. PJ gas consumed)
													PJ gas consumed (NCV)				(e.g. PJ gas consumed)
Spain	70,889			PJ	PJ gas produced (NCV)	28,246	396	PJ	PJ gas (NCV)	36,962	525	PJ					(e.g. PJ gas consumed)
Sweden						1	56,500	TJ	Transfer loss				(e.g. PJ gas consumed)				(e.g. PJ gas consumed)
Switzerland	NO	NO			NO	NA	NA		See documentation box	IE	IE		IE	IE	IE		IE
Ukraine	450,000			PJ	gas produced	600,000		PJ	gas								
United Kingdom				IE	(e.g. PJ gas produced)			IE	(e.g. PJ gas consumed)	100,946		PJ	Gas consumed			NE	(e.g. PJ gas consumed)
United States	131,956	NE	bill. ft ³ yr		(e.g. PJ gas produced)	84,148	IE	bill. ft ³ yr	(e.g. PJ gas consumed)	62,247	NE	bill. ft ³ yr	(e.g. PJ gas consumed)	IE	IE	NA	(e.g. PJ gas consumed)

^a Information on methods and emission factors included in this table is as reported by Parties. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.B.2 Oil and natural gas.

^b The units of the implied emission factors (IEF) vary from Party to Party depending on the unit of the activity data used. The unit of the IEF is kg/unit of activity data.

^c Source of emissions factors: IPCC Guidelines, vol. 3, pages 1.119–1.121. For updated detailed emission factors on CH₄ and implied emissions factors on CO₂ and N₂O see the IPCC good practice guidance, table 2.16, pages 2.86–2.87.

Table 1.41

Fugitive emissions from fuels: oil and natural gas, CH₄, CO₂ (2002) (continued)

	Venting and flaring														
	Oil			Gas									Combined		
	Venting ^a			Venting ^a			Flaring ^a			Venting ^a			Flaring ^a		
	CH ₄ IEF ^b	Activity data		CH ₄ IEF ^b	Activity data		CH ₄ IEF ^b	CO ₂ IEF	Activity data	CH ₄ IEF ^b	Activity data		CH ₄ IEF ^b	CO ₂ IEF	Activity data
	value	unit	Description	value	unit	Description	value			value	unit	Description	value		
IPCC default EF ^c	1,000 - 3,000	PJ	Oil produced	6,000 - 209,000	PJ	Gas produced	6,000 - 209,000		PJ	Gas produced	3,000 - 14,000	PJ	Oil produced	3,000 - 14,000	Oil and gas produced
Australia	NA		NA	63,859	PJ	PJ gas produced	NA	NA	IE	NA		NA	10,614	862,804	PJ gas and oil produced
Austria															
Belarus															
Belgium	NA			NA			NE	IE		NA			NE		
Bulgaria	2,000	PJ	(e.g. PJ oil produced)	18,000	PJ	(e.g. PJ gas produced)	NE	NE	(e.g. PJ gas consumption)	NE	PJ		NE	NE	
Canada	NE	NA	NA	NE	NA	NA	IE	IE	NA	NE	10*6 m³	Net Withdrawls of Natural Gas	142	33,576	10*6 m³
Croatia		PJ	(e.g. PJ oil produced)	18,000	PJ	(e.g. PJ gas produced)			(e.g. PJ gas consumption)						
Czech Republic			(e.g. PJ oil produced)			(e.g. PJ gas produced)			(e.g. PJ gas consumption)						
Denmark			(e.g. PJ oil produced)			Incl. in transmission	0.2	57	GJ						Gross New Production of Natural Gas
Estonia	4,000		(e.g. PJ oil produced)	18,000		(e.g. PJ gas produced)									
European Community	NE		(e.g. PJ oil produced)	NE		(e.g. PJ gas produced)	NE	NE	(e.g. PJ gas consumption)	NE			NE	NE	
Finland		kt	kt oil refined			(e.g. PJ gas produced)			(e.g. PJ gas consumption)						
France			(e.g. PJ oil produced)			(e.g. PJ oil produced)							700,441	56,387,665	PJ Consumed
Germany	NE		(e.g. PJ oil produced)	NE		(e.g. PJ gas produced)	NE	NE	10*3 m³	(natural gas)	NE		NE	NE	PJ Consumed
Greece	2,000	PJ	Crude oil and NGL production	NE	PJ	Natural gas production	NE	NE	PJ	Natural gas production	NO	NO	NO	NO	NO
Hungary	2,000		(e.g. PJ oil produced)	25,247		(e.g. PJ gas produced)			(e.g. PJ gas consumption)						
Ireland			(e.g. PJ oil produced)			(e.g. PJ gas consumed)			kt	quantity of gas flared					
Italy				IE											
Japan	1	10*3 l	oil produced	NE	10*3 m³	gas produced	NE	NE	10*3 m³	gas produced	IE		NE	NE	
Latvia			(e.g. PJ oil produced)			(e.g. PJ gas produced)			(e.g. PJ gas consumption)						
Lithuania	NE		(e.g. PJ oil produced)	NE		(e.g. PJ gas produced)	NE	NE	(e.g. PJ gas consumption)	NE			NE	NE	
Luxembourg															
Monaco			(e.g. PJ oil produced)			(e.g. PJ gas produced)			(e.g. PJ gas consumption)						
Netherlands	IE		(e.g. PJ oil produced)	IE		(e.g. PJ gas produced)	IE	IE	(e.g. PJ gas consumption)	IE	NE		IE	IE	NE
New Zealand	IE		(e.g. PJ oil produced)	IE		(e.g. PJ gas produced)	IE	IE	(e.g. PJ gas consumption)	IE			88	35,142	TJ
Norway	IE		(e.g. PJ oil produced)	IE		(e.g. PJ gas produced)	7,084	58,060,449	PJ	Gas flared	1,322	PJ	Oil and gas produced	IE	IE
Portugal	7	Mton material input	Oil refined												
Romania		PJ	(e.g. PJ oil produced)	6,000	PJ	(e.g. PJ gas produced)			(e.g. PJ gas consumption)						
Slovakia	998	PJ	production	9,996	PJ	production	10,000	NO	PJ	consumption	NO		NO	NO	
Slovenia	NE		(e.g. PJ oil produced)	NE		(e.g. PJ gas produced)	NE	NE	(e.g. PJ gas consumption)	NE			NE	NE	
Spain	NE		(e.g. PJ oil produced)	NE		(e.g. PJ gas produced)	5	55,821	PJ	(e.g. PJ gas consumption)					
Sweden			(e.g. PJ oil produced)			(e.g. PJ gas produced)			(e.g. PJ gas consumption)						
Switzerland	IE		IE	IE		IE	NO	NO	NO	NO		NO	NO	NO	NO
Ukraine															
United Kingdom		IE	(e.g. PJ oil produced)		IE	(e.g. PJ gas produced)			IE	(e.g. PJ gas consumption)	NE		281,849	76,553,285	PJ
United States	IE	NA	(e.g. PJ oil produced)	IE	NA	(e.g. PJ gas produced)	IE	IE	NA	(e.g. PJ gas consumption)	IE	NA	IE	54,706,667	TBtu

^a Information on methods and emission factors included in this table is as reported by Parties. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.B.2 Oil and natural gas.^b The units of the implied emission factors (IEF) vary from Party to Party depending on the unit of the activity data used. The unit of the IEF is kg/unit of activity data.^c Source of emissions factors: IPCC Guidelines, vol. 3, pages 1.119–1.121. For updated detailed emission factors on CH₄ and implied emissions factors on CO₂ and N₂O also look at good practice guidance, table 2.16, pages 2.86–2.87.

Table 1.42**Fugitive emissions from fuels: oil and natural gas – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	5,963	5,251	5,049	5,289	5,734	6,488	6,924	6,462
Austria	102	71	121	142	171	165	183	167
Belarus								
Belgium	84	92	93	99	109	163	144	145
Bulgaria	NE	NE	NE	NE	NE	NE	NE	NE
Canada	9,833	13,485	13,632	13,787	14,395	14,802	15,307	15,574
Croatia	416	644	600	589	525	633	688	665
Czech Republic								
Denmark	240	400	565	422	903	593	633	535
Estonia								
European Community	19,289	18,223	17,964	18,174	17,338	17,242	17,618	16,791
Finland	42	24	26	24	24	25	23	23
France	4,306	4,005	4,237	4,145	3,997	4,077	4,208	3,912
Germany	NE	NE	NE	NE	NE	NE	NE	NE
Greece	0	0	0	0	0	0	0	0
Hungary	NO	NO	NO	NO	NO	NO	NO	NO
Ireland	139	161	141	108	117	71	134	65
Italy	3,048	2,692	2,875	2,768	2,091	2,298	2,182	1,924
Japan	1	1	1	1	1	1	1	1
Latvia	NO/NE	NO/NE	NO/NE	NE/NO	NE/NO	NE/NO	NE/NO	NE/NO
Lithuania	NE			NE			NE	1
Luxembourg								
Monaco	0	0	0	0	0	0	0	0
Netherlands	308	1,003	1,018	1,554	1,516	1,591	1,693	1,640
New Zealand	615	632	670	651	615	579	618	610
Norway	2,625	2,918	2,748	2,680	3,361	3,565	3,195	2,673
Portugal	118	509	628	603	567	552	676	708
Romania								
Slovakia								
Slovenia	0	0	0	0	0	0	0	0
Spain	1,743	1,869	1,922	2,014	1,953	2,197	2,067	2,149
Sweden	22	26	27	19	NO	3	16	3
Switzerland	75	92	89	91	93	89	93	92
Ukraine								
United Kingdom	9,138	7,372	6,312	6,277	5,891	5,509	5,658	5,519
United States	5,810	8,529	7,874	6,566	6,943	5,769	5,412	5,299

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	-3.8	4.8	8.4	13.2	6.7	-6.7	8.4
Austria	69.7	17.7	20.2	-3.5	11.1	-8.6	63.7
Belarus							
Belgium	1.1	6.5	10.1	49.5	-11.7	0.7	72.6
Bulgaria							
Canada	1.1	1.1	4.4	2.8	3.4	1.7	58.4
Croatia	-6.9	-1.8	-10.8	20.5	8.6	-3.2	60.0
Czech Republic							
Denmark	41.1	-25.3	113.8	-34.3	6.8	-15.5	123.1
Estonia							
European Community	-1.4	1.2	-4.6	-0.6	2.2	-4.7	-13.0
Finland	11.3	-7.9	0.0	3.0	-9.8	0.0	-46.0
France	5.8	-2.2	-3.6	2.0	3.2	-7.0	-9.1
Germany							
Greece							
Hungary							
Ireland	-12.3	-23.5	8.5	-39.5	89.2	-51.2	-52.9
Italy	6.8	-3.7	-24.4	9.9	-5.0	-11.8	-36.9
Japan	4.8	-5.8	-0.5	5.0	-2.0	6.9	24.6
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands	1.5	52.7	-2.5	5.0	6.4	-3.2	432.1
New Zealand	5.9	-2.8	-5.6	-5.8	6.8	-1.4	-0.8
Norway	-5.8	-2.5	25.4	6.1	-10.4	-16.3	1.8
Portugal	23.4	-4.0	-6.0	-2.6	22.5	4.7	502.6
Romania							
Slovakia							
Slovenia							
Spain	2.8	4.8	-3.0	12.5	-5.9	4.0	23.3
Sweden	5.3	-29.6			510.4	-80.7	-86.1
Switzerland	-3.2	2.4	1.9	-4.5	4.7	-1.2	22.8
Ukraine							
United Kingdom	-14.4	-0.5	-6.2	-6.5	2.7	-2.5	-39.6
United States	-7.7	-16.6	5.7	-16.9	-6.2	-2.1	-8.8

Table 1.42**Fugitive emissions from fuels: oil and natural gas – trend information (continued)****CH₄ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	331	318	340	339	287	321	324	298
Austria	13	15	15	15	15	14	15	14
Belarus								122
Belgium	23	22	22	21	21	20	19	19
Bulgaria	133	124	99	88	73	83	76	66
Canada	1,247	1,785	1,787	1,774	1,776	1,822	1,842	1,809
Croatia	56	55	58	50	51	53	59	62
Czech Republic	32	32	35	28	29	29	23	23
Denmark	1	3	4	3	4	4	4	3
Estonia	38	20	19	18	18	20	22	18
European Community	1,605	1,472	1,410	1,394	1,361	1,324	1,347	1,313
Finland	0	1	0	1	0	0	1	0
France	118	92	92	92	91	91	91	90
Germany	403	374	362	360	355	350	357	348
Greece	2	2	2	4	6	9	9	9
Hungary	56	317	300	305	289	77	76	77
Ireland	7	6	6	5	5	5	5	4
Italy	317	268	266	266	262	260	247	243
Japan	18	20	21	20	21	21	22	23
Latvia	13	10	9	9	9	8	8	8
Lithuania	26			NE			NE	20
Luxembourg				2		2		3
Monaco	0	0	0	0	0	0	0	0
Netherlands	179	188	156	147	144	131	134	120
New Zealand	15	14	16	17	18	18	18	19
Norway	14	25	28	26	25	29	34	30
Portugal	2	2	2	5	12	10	12	14
Romania	1,078	536	425	425	397	392	378	376
Slovakia	35	36	37	35	36	35	40	38
Slovenia	1	1	1	1	1	1	1	1
Spain	28	36	42	45	35	40	47	56
Sweden	0	0	0	0	0	0	0	0
Switzerland	15	13	13	12	12	12	12	12
Ukraine							4,746	4,838
United Kingdom	513	464	441	433	413	396	405	389
United States	7,186	7,284	7,220	7,118	6,886	7,104	7,064	6,905

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

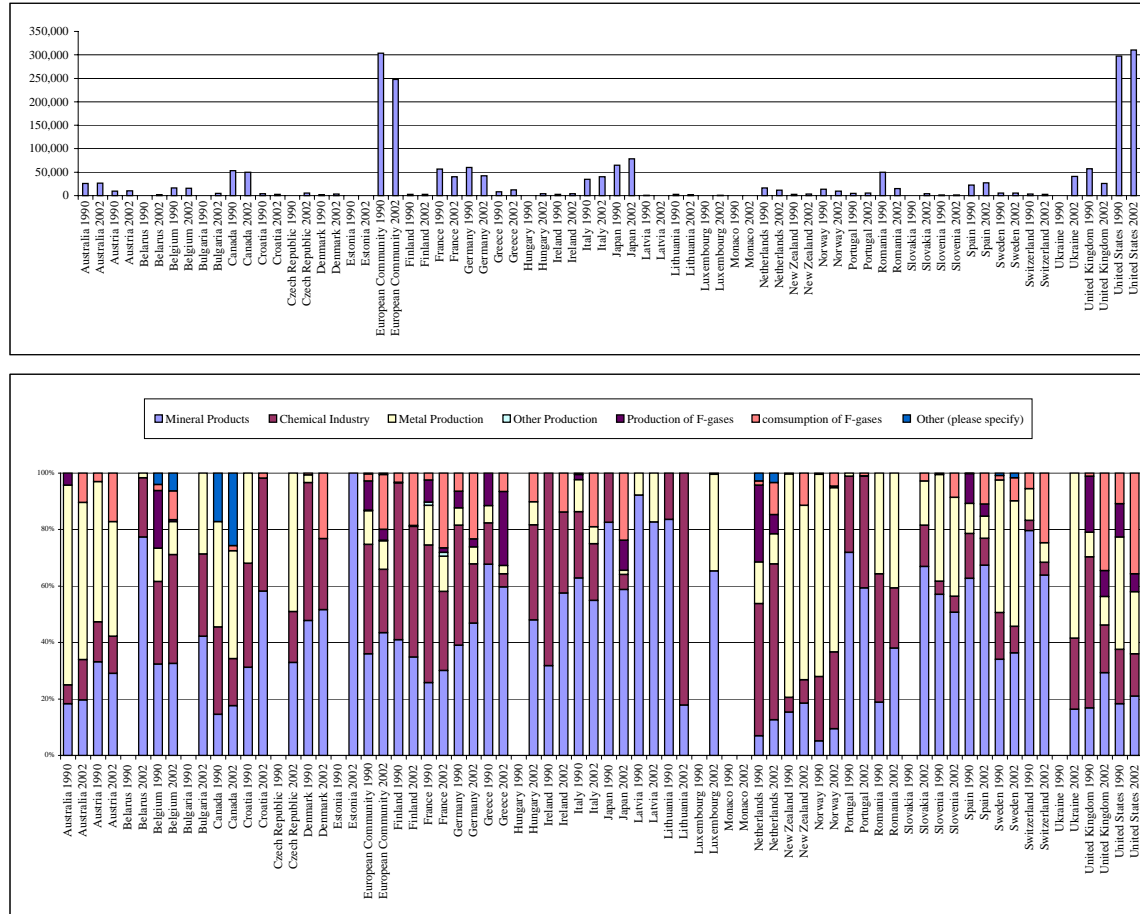
Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	7.0	-0.3	-15.4	11.8	1.1	-8.2	-10.1
Austria	-0.7	-0.1	1.4	-3.0	1.2	-2.2	11.7
Belarus							
Belgium	-2.2	-1.9	-1.0	-5.5	-1.5	-1.5	-15.9
Bulgaria	-19.9	-11.6	-17.1	13.5	-7.6	-12.9	-50.2
Canada	0.1	-0.7	0.1	2.6	1.1	-1.8	45.1
Croatia	6.0	-13.0	0.3	4.7	11.7	4.1	9.0
Czech Republic	8.4	-19.4	2.1	0.0	-19.1	-0.5	-28.1
Denmark	16.7	-14.0	46.3	-20.3	5.4	-11.0	236.5
Estonia	-2.6	-5.5	-2.6	14.8	7.5	-16.1	-51.4
European Community	-4.2	-1.2	-2.4	-2.7	1.7	-2.6	-18.2
Finland	-30.3	47.1	-41.6	5.4	144.7	-60.6	110.6
France	0.0	-0.1	-0.5	0.1	-0.7	-0.5	-23.4
Germany	-3.0	-0.8	-1.2	-1.5	1.9	-2.5	-13.7
Greece	33.7	111.9	41.0	37.8	-1.4	5.7	382.6
Hungary	-5.6	1.8	-5.2	-73.3	-1.8	0.9	36.4
Ireland	-3.4	-11.1	-2.4	-3.6	1.3	-20.3	-45.3
Italy	-0.7	-0.2	-1.5	-0.8	-4.9	-1.7	-23.5
Japan	3.0	-0.4	1.4	3.7	0.8	5.5	29.9
Latvia	-6.7	-4.1	-4.7	-7.5	-3.0	4.3	-38.5
Lithuania							-23.2
Luxembourg							
Monaco							
Netherlands	-16.9	-6.3	-1.5	-9.3	2.4	-10.4	-32.8
New Zealand	16.3	6.5	8.7	-3.3	2.8	5.0	28.0
Norway	12.9	-6.9	-4.5	18.2	16.2	-11.1	119.9
Portugal	21.4	111.8	141.0	-13.8	20.6	17.5	749.1
Romania	-20.6	0.0	-6.7	-1.3	-3.6	-0.4	-65.1
Slovakia	0.9	-4.6	3.2	-2.4	12.9	-4.7	7.9
Slovenia	6.2	-5.3	2.2	0.4	3.2	-3.7	-46.6
Spain	17.6	7.2	-23.5	14.5	19.5	17.6	99.8
Sweden	8.7	-35.4			699.2	-84.6	-85.5
Switzerland	-0.9	-0.8	-0.8	-1.0	-0.7	-0.8	-17.5
Ukraine						1.9	
United Kingdom	-5.0	-1.8	-4.5	-4.1	2.1	-3.9	-24.2
United States	-0.9	-1.4	-3.3	3.2	-0.6	-2.3	-3.9

Industrial processes

Figure 2.1

Emissions and contribution of subsectors in industrial processes^a



^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Table 2.1
Mineral products, CO₂ (2002)

	Methods and EF used ^a		Cement production						Lime production			
	Methods	EF	Key source	Share of national total	Activity data (production)				CO ₂ IEF	Key source	Share of national total	CO ₂ IEF
					Description ^b	CRF	UN ^c	Difference ^d				
						(kt)		(%)				
IPCC default EF ^e				(%)					0.499 (cement)			
IPCC default EF ^f									0.51 (clinker)			0.59-0.86
Australia	T2	CS		0.6	Clinker production	6,354	7,236	13.9	0.52		0.21	0.68
Austria	D, CS	D, CS	L, T	1.9	Clinker Production [kt]	2,853	3,800	33.2	0.56	L	0.65	0.76
Belarus			L	1.4	(e.g. cement or clinker production)	1,889	2,171	15.0	0.51		0.63	0.79
Belgium	CS	CS	L	1.9	(e.g. cement or clinker production)	5,539	8,000	44.4	0.52	L	1.41	0.82
Bulgaria	D	D	L	1.7	Clinker production	2,031	2,173	7.0	0.52	L	1.37	0.79
Canada	T1 - T2	CS	L	0.9	Clinker Production Data	13,036	13,081	0.3	0.52		0.23	0.76
Croatia	T2	D	L, T	5.0	(e.g. cement or clinker production)	2,753	3,378	22.7	0.51		0.59	0.85
Czech Republic	T1	D	L	1.1	(e.g. cement production)	3,217	3,249	1.0	0.50		0.00	
Denmark	CS	CS	L, T	2.1	Production of Cement	2,698	2,698	0.0	0.54		0.18	0.26
Estonia	T1	D	L	1.2	(e.g. cement or clinker production)	466	466	0.0	0.50		0.44	0.51
European Community	C, CS, D, T2	C, CS, D, PS, T2	L	1.9					NE	L	0.39	NE
Finland	D	PS/D	L, T	0.7	cement production	1,198	1,198	0.0	0.47	L	0.52	0.79
France	C	CS	L, T	1.6	kt of Clinker	16,479	20,244	22.8	0.53	L	0.44	0.77
Germany	CS	CS	L	1.2	(clinker production)	23,306	32,012	37.4	0.53	L	0.55	0.76
Greece	T1, T2	D	L, T	5.1	clinker production	13,297	15,500	16.6	0.52		0.26	0.75
Hungary	T2	CS	L	1.8	clinker production	2,687	3,510	30.6	0.53		0.37	0.79
Ireland	D	D	L, T	2.9	Clinker production	4,043	2,500	-38.2	0.50		0.26	0.75
Italy	D	D	L, T	3.0	(clinker production)	32,235	42,050	30.4	0.51		0.34	0.90
Japan	D, CS	D, CS	L, T	2.4	Consumption of limestone for cement production.	76,153	71,828	-5.7	0.41		0.32	0.43
Latvia	D/T1/T2/C	D/PS/C	L	1.2	Clinker production	C					0.03	
Lithuania	T1	D	L	1.8	(cement production)	606	606	0.0	0.50		0.25	0.79
Luxembourg							729					
Monaco					(e.g. cement or clinker production)	NO						
Netherlands	CS/T2 (clinker)	PS, CS		0.2	(e.g. cement or clinker production)	901	3,400	277.2	0.54			IE
New Zealand	T1	CS	L	0.7	Cement production	1,177	950	-19.3	0.46		0.15	0.73
Norway	D	CS	L, T	1.6	Production quantity	1,634	1,850	13.2	0.53		0.06	
Portugal	D	D+C	L, T	3.7	Total cement production	5,983	9,761	63.1	0.51			
Romania	D	D	L	2.1	(cement production)	5,680	5,680	0.0	0.50	L, T	1.66	0.83
Slovakia	T1	D	L	2.2	Clinker Production	2,260	3,141	39.0	0.51	L	1.22	0.76
Slovenia	T1	D	L, T	2.1	Clinker produced	841	1,250	48.6	0.51	T	0.44	0.79
Spain	CS,C,D,T2	CS,C,D,T2	L, T	4.0	Clinker production	29,358	42,500	44.8	0.54		0.36	0.72
Sweden	T2, D	CS, D	L, T	1.8	Produced amount of clinker	2,375	2,669	12.4	0.53	L, T	0.79	0.52
Switzerland	C	CS	L, T	3.2	clinker production	3,150	4,000	27.0	0.53		0.07	0.37
Ukraine	T1	D		0.7	clinker production	5,316	7,157	34.6	0.66		0.62	0.77
United Kingdom	T2	D	L, T	0.9	clinker production kt	10,834	12,000	10.8	0.50		0.13	0.44
United States	D,CS	D,CS	L, T	0.6	clinker production	81,294	89,732	10.4	0.53		0.18	0.69

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

^b The CRF requests Parties to specify the activity data used (e.g. cement or clinker) for estimating the emissions from cement production. The descriptions included in this column are as reported in the CRF by Parties.

^c Cement production from the United Nations Industrial Commodity Production Statistics Database (as of 17 May 2004), United Nations, Department of Economic and Social Affairs, Statistics Division, United Nations, New York. Data are for the year 2002.

^d As the United Nations data given in this table are for cement production, they are likely to differ from the CRF data specified as clinker.

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

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

Table 2.2**Mineral products – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	4,763	5,076	5,009	5,433	5,356	5,151	5,157	5,180
Austria	3,243	2,738	2,938	2,766	2,751	2,804	2,814	2,911
Belarus	1,856	985	1,248	1,438	1,406	1,278	1,240	1,398
Belgium	5,234	5,314	5,161	5,258	5,218	5,621	5,142	5,142
Bulgaria	4,114	2,037	1,705	1,138	1,734	1,988	2,068	2,052
Canada	7,771	8,126	8,412	9,891	9,286	9,000	8,514	8,734
Croatia	1,213	733	872	937	1,194	1,386	1,585	1,581
Czech Republic	3,380	2,479	2,498	2,661	2,362	2,251	2,000	1,793
Denmark	1,021	1,402	1,569	1,571	1,490	1,526	1,551	1,592
Estonia	614	207	226	368	347	354	356	319
European Community	109,174	101,067	104,216	106,653	107,860	109,903	107,670	107,570
Finland	1,175	863	878	921	1,002	1,072	1,042	990
France	14,667	12,005	11,721	12,367	11,924	12,121	12,129	12,177
Germany	23,511	21,105	21,733	22,152	22,554	22,546	20,944	19,961
Greece	5,471	6,462	6,608	6,439	6,592	7,224	7,232	7,277
Hungary	2,672	1,374	1,406	1,971	2,053	1,913	1,957	1,871
Ireland	941	1,080	1,190	1,192	1,279	1,761	1,833	2,203
Italy	21,713	19,488	19,768	19,938	20,718	21,612	22,184	22,077
Japan	53,465	55,365	54,003	49,082	48,381	49,403	47,333	46,127
Latvia	460	127	129	130	166	113	133	146
Lithuania	2,203			447			308	347
Luxembourg				497		547		516
Monaco								
Netherlands	1,124	899	1,084	1,025	975	857	959	1,431
New Zealand	448	581	599	574	638	630	628	652
Norway	697	937	999	945	933	941	898	914
Portugal	3,220	3,531	3,710	3,719	4,019	4,024	3,859	3,347
Romania	9,343	6,104	5,871	5,784	4,982	5,173	5,406	5,627
Slovakia	3,354	2,572	2,676	3,382	3,459	2,998	3,009	2,822
Slovenia	746	542	560	573	574	576	604	532
Spain	14,287	14,450	15,151	16,291	16,994	17,350	17,808	18,477
Sweden	1,840	1,809	1,691	1,751	1,702	1,938	1,976	1,945
Switzerland	2,568	1,787	1,607	1,607	1,606	1,722	1,754	1,689
Ukraine							5,892	6,707
United Kingdom	9,629	8,804	9,623	9,639	9,097	8,498	7,714	7,524
United States	54,191	62,630	63,605	64,906	65,731	64,645	64,060	65,177

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	-1.3	8.5	-1.4	-3.8	0.1	0.4	8.7
Austria	7.3	-5.9	-0.5	1.9	0.4	3.4	-10.2
Belarus	26.7	15.2	-2.3	-9.1	-3.0	12.8	-24.7
Belgium	-2.9	1.9	-0.8	7.7	-8.5		-1.8
Bulgaria	-16.3	-33.2	52.4	14.6	4.0	-0.8	-50.1
Canada	3.5	17.6	-6.1	-3.1	-5.4	2.6	12.4
Croatia	19.0	7.5	27.4	16.1	14.3	-0.2	30.4
Czech Republic	0.8	6.5	-11.2	-4.7	-11.1	-10.4	-47.0
Denmark	11.9	0.1	-5.1	2.4	1.6	2.6	55.9
Estonia	9.2	62.7	-5.7	2.2	0.4	-10.3	-48.0
European Community	3.1	2.3	1.1	1.9	-2.0	-0.1	-1.5
Finland	1.8	4.9	8.7	7.0	-2.8	-5.0	-15.8
France	-2.4	5.5	-3.6	1.7	0.1	0.4	-17.0
Germany	3.0	1.9	1.8	0.0	-7.1	-4.7	-15.1
Greece	2.3	-2.6	2.4	9.6	0.1	0.6	33.0
Hungary	2.3	40.3	4.1	-6.8	2.3	-4.4	-30.0
Ireland	10.2	0.2	7.3	37.7	4.1	20.2	134.0
Italy	1.4	0.9	3.9	4.3	2.6	-0.5	1.7
Japan	-2.5	-9.1	-1.4	2.1	-4.2	-2.5	-13.7
Latvia	1.7	0.5	27.4	-31.6	17.7	9.5	-68.2
Lithuania						12.5	-84.3
Luxembourg							
Monaco							
Netherlands	20.5	-5.4	-4.9	-12.1	11.9	49.3	27.3
New Zealand	3.1	-4.1	11.2	-1.3	-0.3	3.9	45.5
Norway	6.7	-5.4	-1.3	0.8	-4.5	1.7	31.0
Portugal	5.1	0.2	8.1	0.1	-4.1	-13.3	4.0
Romania	-3.8	-1.5	-13.9	3.8	4.5	4.1	-39.8
Slovakia	4.0	26.4	2.3	-13.3	0.4	-6.2	-15.9
Slovenia	3.2	2.3	0.2	0.4	4.9	-11.8	-28.6
Spain	4.9	7.5	4.3	2.1	2.6	3.8	29.3
Sweden	-6.5	3.5	-2.8	13.9	2.0	-1.6	5.7
Switzerland	-10.1	0.0	-0.1	7.3	1.9	-3.7	-34.2
Ukraine						13.8	
United Kingdom	9.3	0.2	-5.6	-6.6	-9.2	-2.5	-21.9
United States	1.6	2.0	1.3	-1.7	-0.9	1.7	20.3

Table 2.3

Cement production – trend information
CO₂ emissions (Gg)

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	3,214	3,002	2,944	3,228	3,299	3,397	3,328	3,291
Austria	2,033	1,634	1,761	1,580	1,588	1,588	1,588	1,588
Belarus								958
Belgium	2,824	3,009	3,162	3,175	3,113	3,270	2,908	2,908
Bulgaria								1,057
Canada	5,583	6,008	6,206	6,369	6,636	6,734	6,543	6,741
Croatia	1,023	634	753	811	1,073	1,242	1,420	1,396
Czech Republic								1,604
Denmark	882	1,282	1,441	1,452	1,365	1,406	1,432	1,452
Estonia								232
European Community	80,657	73,909	76,089	78,785	80,106	81,746	79,574	79,359
Finland	777	460	543	581	618	670	625	565
France	10,948	8,444	8,120	8,695	8,395	8,570	8,664	8,651
Germany	15,146	13,668	14,041	14,586	14,702	14,670	12,997	12,352
Greece	5,189	6,139	6,158	6,136	6,200	6,854	6,876	6,920
Hungary								1,423
Ireland	750	900	1,000	1,000	1,125	1,575	1,650	2,021
Italy	16,052	14,132	14,325	14,594	15,328	15,896	16,401	16,347
Japan	37,006	40,858	38,355	33,994	33,677	33,921	32,479	31,577
Latvia	346	112	114	111	146	93	116	124
Lithuania	2,069			394			265	303
Luxembourg				457		507		460
Monaco								0
Netherlands	400	316	376	432	517	469	478	489
New Zealand	367	503	503	479	521	520	524	542
Norway	653			882	876	889	838	860
Portugal	3,107	3,313	3,483	3,458	3,742	3,723	3,545	3,033
Romania	6,094	3,468	3,267	3,279	2,782	3,020	2,825	2,831
Slovakia							1,188	1,144
Slovenia	482	419	424	442	446	471	491	426
Spain	12,534	12,367	13,017	14,096	14,732	15,034	15,327	15,853
Sweden	1,245	1,199	1,082	1,109	1,115	1,261	1,303	1,253
Switzerland	2,524	1,752	1,572	1,572	1,571	1,687	1,720	1,654
Ukraine							2,775	3,524
United Kingdom	6,659	5,857	6,126	6,242	5,962	5,780	5,334	5,466
United States	33,278	37,079	38,323	39,218	39,991	41,190	41,357	42,898

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	-1.9	9.6	2.2	2.9	-2.0	-1.1	2.4
Austria	7.8	-10.3	0.5	0.0			-21.9
Belarus							
Belgium	5.1	0.4	-1.9	5.0	-11.1		3.0
Bulgaria							
Canada	3.3	2.6	4.2	1.5	-2.8	3.0	20.7
Croatia	18.8	7.7	32.2	15.8	14.3	-1.7	36.4
Czech Republic							
Denmark	12.4	0.8	-6.0	3.0	1.8	1.4	64.5
Estonia							
European Community	2.9	3.5	1.7	2.0	-2.7	-0.3	-1.6
Finland	18.1	7.0	6.3	8.6	-6.8	-9.5	-27.3
France	-3.8	7.1	-3.5	2.1	1.1	-0.1	-21.0
Germany	2.7	3.9	0.8	-0.2	-11.4	-5.0	-18.4
Greece	0.3	-0.4	1.0	10.6	0.3	0.6	33.4
Hungary							
Ireland	11.1	0.0	12.5	40.0	4.8	22.5	169.5
Italy	1.4	1.9	5.0	3.7	3.2	-0.3	1.8
Japan	-6.1	-11.4	-0.9	0.7	-4.3	-2.8	-14.7
Latvia	1.7	-2.8	32.0	-36.3	25.0	6.4	-64.2
Lithuania						14.5	-85.4
Luxembourg							
Monaco							
Netherlands	19.0	14.9	19.7	-9.3	1.9	2.3	22.3
New Zealand	0.1	-4.9	8.8	-0.2	0.8	3.4	47.7
Norway			-0.7	1.5	-5.8	2.6	31.7
Portugal	5.1	-0.7	8.2	-0.5	-4.8	-14.4	-2.4
Romania	-5.8	0.4	-15.2	8.6	-6.4	0.2	-53.5
Slovakia						-3.7	
Slovenia	1.2	4.2	0.9	5.6	4.3	-13.2	-11.6
Spain	5.3	8.3	4.5	2.1	1.9	3.4	26.5
Sweden	-9.8	2.5	0.5	13.0	3.4	-3.8	0.6
Switzerland	-10.3	0.0	-0.1	7.4	1.9	-3.8	-34.5
Ukraine						27.0	
United Kingdom	4.6	1.9	-4.5	-3.0	-7.7	2.5	-17.9
United States	3.4	2.3	2.0	3.0	0.4	3.7	28.9

Table 2.3

Cement production – trend information (continued)
CO₂ implied emission factors (t/t)

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Austria	0.55	0.56	0.57	0.56	0.56	0.56	0.56	0.56
Belarus								0.51
Belgium	0.53	0.54	0.54	0.54	0.54	0.54	0.52	0.52
Bulgaria								0.52
Canada	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Croatia	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
Czech Republic								0.50
Denmark	0.54	0.53	0.53	0.53	0.53	0.54	0.54	0.54
Estonia								0.50
European Community						NE	NE	NE
Finland	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
France	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Germany	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Greece	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Hungary								0.53
Ireland	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Italy	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
Japan	0.41	0.42	0.42	0.42	0.42	0.42	0.41	0.41
Latvia	0.53	0.53	0.53	0.53				
Lithuania	0.60			0.50			0.50	0.50
Luxembourg								
Monaco								
Netherlands	0.43	0.54	0.54	0.54	0.54	0.54	0.54	0.54
New Zealand	0.51	0.51	0.49	0.49	0.49	0.49	0.48	0.46
Norway	0.52			0.53	0.53	0.54	0.53	0.53
Portugal	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
Romania	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Slovakia							0.50	0.51
Slovenia	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
Spain	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Sweden	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Switzerland	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Ukraine							0.66	0.66
United Kingdom	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
United States	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.53

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria	1.2	-1.7	-0.2				1.1
Belarus							
Belgium	0.1	0.0	-0.1	0.1	-2.3		-1.6
Bulgaria							
Canada							
Croatia							
Czech Republic							
Denmark		-0.5	1.1	0.9			-1.2
Estonia							
European Community							
Finland							
France				0.0	0.0	0.0	0.0
Germany							
Greece	0.0	0.0	0.0	0.0		0.0	0.0
Hungary							
Ireland							
Italy							
Japan	0.1	0.1	0.1	0.1	-0.5		0.1
Latvia							
Lithuania							-16.7
Luxembourg							
Monaco							
Netherlands	0.2	0.0	0.0	-0.1	0.0	0.5	27.4
New Zealand	-3.0	-1.2	0.2	-0.2	-1.4	-4.4	-9.7
Norway			0.0	3.3	-3.3	0.0	0.3
Portugal			0.0	0.0			0.0
Romania							
Slovakia						0.9	
Slovenia							
Spain	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sweden	-0.6	-0.3	0.0	0.4	-0.3	0.0	-0.5
Switzerland	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ukraine							
United Kingdom							
United States						2.0	2.0

Table 2.4
Chemical industry, CO₂ and N₂O (2002)

	Methods and EF used ^a		CO ₂							Methods and EF used ^a		N ₂ O									
			2.B.1 Ammonia production						CO ₂ IEF			2.B.2 Nitric acid production				2.B.3 Adipic acid production					
	Key source	Share of national total	Activity data (production)				CRF (2002) ^b	CRF (2001) ^b		UN ^{b,c}	Difference	Key source	Share of national total	Activity data (production)			N ₂ O IEF	Key source	Share of national total	N ₂ O IEF	
			CRF (2002) ^b	CRF (2001) ^b	UN ^{b,c}	Difference								CRF (2002) ^b	CRF (2001) ^b	UN ^{b,c}					Difference
	Methods	EF		(%)	(kt)			(%)	(t/t)		EF		(%)	(kt)			(%)	(t/t)		(%)	(t/t)
IPCC default EF ^d									1.5 - 1.6									0.002 - 0.019			0.3
Australia	T1	CS,D			C	C	686		C	T1	D			C	C			C			N
Austria	PS	PS	L	0.5	464	448	440	-5.2	0.96	PS	PS	L, T	1.0	522	511			0.005			
Belarus							928						0.5	242		1,177	386.2	0.010			
Belgium	CS	CS	L, T	1.2	C	C	860		C	CS	CS	L	2.6	1,674	1,722			0.008			N
Bulgaria	T1b	D		0.5	369		372	0.9	0.86	D	D	L	1.7	C				C			N
Canada	T1	CS	L	0.9	4,501	4,297	4,501	0.0	1.39	T2-T3	CS		0.1	1,143	1,054	1,143	0.0	0.002	T	0.2	
Croatia	CS	D	L, T	1.4	286	315	286	0.0	1.34	T1	D	L, T	2.5	250	258	250	0.0	0.009			
Czech Republic	IE				225		222	-1.4		T2	PS	L	0.6	437		100	-77.1	0.007			
Denmark					NO	NO	2					L, T	1.1	334	382			0.007			
Estonia							13							0							
European Community	C, CS, D, MB, PS, T1, T1a	C, CS, D, PS	L	0.3					NE	C, CS, D, PS, T2	C, CS, D, PS	L	0.7					NE	L	0.4	N
Finland	NO	NO			NO	NO	87			D	PS	L, T	1.6	448	430	9	-98.0	0.009			
France	C	CS/PS	T	0.4	1,429	1,680	1,187	-17.0	1.54	C	CS/PS	L, T	0.8	2,436	2,671			0.006	L, T	0.7	
Germany	CS	CS		0.2	2,653	2,603	1,028	-61.3	0.69	CS	CS		0.4	2,350	2,139			0.006	T	0.3	
Greece					NE	NE	58		NE	T1	D	T	0.4	406	406			0.005			N
Hungary	D	D		0.6	302		241	-20.1	1.50	D	D	L	1.1	C							
Ireland	D,T1a	D	L, T	1.2	352	451	400	13.6	2.30	D	CS	T	0.4	130	260			0.007			
Italy	D	D, C, CS	T	0.1	334	430	391	17.0	1.50	D	D, CS	T	0.1	492	527			0.004	L, T	1.2	0.3
Japan	D	CS		0.2	1,415	1,550	1,450	2.5	1.92	D	CS, PS		0.1	637	603	612	-3.9	0.004	T	0.0	
Latvia	NO	NO			NO	NO				NO	NO			NO	NO						
Lithuania	T1	D	L	4.1	469	659	469	0.1	1.50			L	5.2	288	266			0.010			N
Luxembourg																					
Monaco				0.0	NO									NO							
Netherlands	CS/IE	PS, CS			C	C	1,970		IE	CS/T2	PS	L, T	2.6	C	C			C			N
New Zealand	T1	CS			366	163	109	-70.3	IE					NO	NO			NO			N
Norway	D	CS,D	L, T	0.7	407	393	330	-18.9	0.91	CS3)	PS	L, T	3.5								N
Portugal ^e	MB+D	D+C	L, T	1.9	476	448	190	-60.1	3.21	D	D+C	L	0.7	253	250			0.008			
Romania	D	D	L, T	1.2	1,137	1,155	1,137	0.0	1.50	D	D	L, T	1.0	235	215			0.019			
Slovakia	NO	NO			IE	IE	326		IE	T1	PS	L	1.2	359	464	144	-59.9	0.006			N
Slovenia	T1	D			NO	NO			NO	T1	D		0.0	0	0			0.007			N
Spain	C,D	C,D		0.1	521	539	415	-20.3	0.92	C	CS,C	L, T	0.5	896	942	481	-46.3	0.007			N
Sweden	D	PS			NE	NE	4			T2, CS	PS	L, T	0.6	263	282	0	-100.0	0.005			
Switzerland	C	CS					33		NO	C	CS		0.2	65	65			0.005			N
Ukraine	T1	D	L	1.4	4,489	4,500	4,489	0.0	1.50	T1	D		0.1	4,468	5,765	4	-99.9	0.000		0.2	0.08
United Kingdom	T1	CS		0.2	35	36	837	2,323.3	35.71	PS	CS		0.4	1,566	1,651			0.005	T		0.0
United States	D	D	T	0.3	12,336	11,092	10,800	-12.5	1.43	D	CS,PS		0.2	6,752	6,416	7,074	9.7	0.008	T	0.1	0.0

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

^b As United Nations data for the year 2002 were not available for all Parties at the time of preparation of this synthesis and assessment report, for the comparisons of United Nations and CRF data in this table, data for the years 2002 and 2001 from the CRF are provided together with the respective United Nations data for 2002 or 2001.

^c Source of data: Industrial Commodity Production Statistics Database (as of 17 May 2004), Department of Economic and Social Affairs, Statistics Division, United Nations, New York. Data are for 2002, except for nitric acid data are for 2001 for the United States.

^d Source of default emission factors: ammonia; IPCC Guidelines, volume 3, page 2.16. nitric acid and adipic acid; IPCC good practice guidance, pages 3.34 and 3.44.

^e Mass balance is indicated by MB.

Table 2.5**Chemical industry – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	C	C	C	C	C	C	C	C
Austria	461	517	508	556	525	532	509	510
Belarus								
Belgium	815	1,682	1,689	1,618	1,856	1,781	1,874	1,874
Bulgaria	1,246	1,063	878	474	338	570	507	325
Canada	5,008	6,524	6,675	6,610	6,847	6,845	5,923	6,242
Croatia	492	503	546	410	519	525	426	384
Czech Republic								
Denmark	2	2	2	1	2	3	3	3
Estonia								
European Community	13,434	11,856	11,996	12,499	11,211	11,629	12,111	11,394
Finland								
France	3,537	3,005	2,958	2,948	2,859	2,933	2,618	2,288
Germany	2,190	1,791	1,778	1,785	1,721	1,835	1,811	1,846
Greece	470	165	151	181				
Hungary	1,421	NE	NE	10	497	666	614	452
Ireland	989	922	1,074	1,058	943	883	1,037	810
Italy	2,237	639	719	666	588	673	694	551
Japan	3,544	3,656	3,571	3,191	3,504	3,394	3,162	2,921
Latvia	NO	NO	NO		NO	NO	NO	NO
Lithuania	NE			751			672	703
Luxembourg								
Monaco								
Netherlands								
New Zealand	152	167	158	176	177	183	187	197
Norway	1,029	1,091	1,007	791	513	733	716	708
Portugal	633	1,056	1,510	1,892	943	1,038	1,540	1,638
Romania	5,142	2,842	1,496	757	1,292	1,924	1,773	1,746
Slovakia								
Slovenia	57	39	38	41	40	53	62	55
Spain	673	640	660	629	607	603	604	590
Sweden	69	59	58	54	54	48	47	50
Switzerland	13	13	13	13	13	13	13	13
Ukraine							6,765	6,745
United Kingdom	1,358	1,379	888	1,111	1,113	1,301	1,373	1,233
United States	23,035	24,273	24,868	26,291	24,888	23,880	20,220	22,260

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria	-1.8	9.4	-5.5	1.4	-4.4	0.2	10.6
Belarus							
Belgium	0.5	-4.2	14.7	-4.0	5.2		129.8
Bulgaria	-17.4	-46.0	-28.7	68.4	-11.1	-35.8	-73.9
Canada	2.3	-1.0	3.6	0.0	-13.5	5.4	24.6
Croatia	8.7	-25.0	26.7	1.2	-18.9	-9.9	-21.9
Czech Republic							
Denmark	7.4	-23.8	23.6	52.4	15.5	0.8	79.5
Estonia							
European Community	1.2	4.2	-10.3	3.7	4.1	-5.9	-15.2
Finland							
France	-1.6	-0.3	-3.0	2.6	-10.7	-12.6	-35.3
Germany	-0.7	0.4	-3.6	6.6	-1.3	1.9	-15.7
Greece	-8.8	20.3					
Hungary			5,092.5	33.9	-7.8	-26.3	-68.2
Ireland	16.5	-1.5	-10.9	-6.3	17.4	-22.0	-18.1
Italy	12.6	-7.4	-11.7	14.3	3.2	-20.6	-75.4
Japan	-2.3	-10.6	9.8	-3.1	-6.8	-7.6	-17.6
Latvia							
Lithuania						4.6	
Luxembourg							
Monaco							
Netherlands							
New Zealand	-4.8	11.3	0.5	3.2	2.3	5.5	29.7
Norway	-7.7	-21.4	-35.2	43.0	-2.3	-1.2	-31.2
Portugal	43.0	25.3	-50.1	10.0	48.4	6.4	158.9
Romania	-47.4	-49.4	70.6	48.9	-7.9	-1.5	-66.1
Slovakia							
Slovenia	-2.1	6.9	-1.6	32.6	17.4	-12.0	-3.9
Spain	3.2	-4.8	-3.4	-0.7	0.2	-2.2	-12.3
Sweden	-0.9	-7.5	-0.7	-11.0	-2.1	7.0	-27.3
Switzerland		-2.1					-2.1
Ukraine						-0.3	
United Kingdom	-35.6	25.0	0.2	16.9	5.6	-10.2	-9.2
United States	2.5	5.7	-5.3	-4.0	-15.3	10.1	-3.4

Table 2.5**Chemical industry – trend information (continued)****N₂O emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	C	C	C	C	C	C	C	C
Austria	2.9	2.8	2.8	2.9	3.0	3.1	2.5	2.6
Belarus	1.1	0.9	0.9	1.0	1.0	1.0	1.0	1.2
Belgium	12.7	16.2	15.4	15.9	15.1	14.7	14.2	13.5
Bulgaria	7.8	6.3	5.2	3.1	2.4	4.2	4.2	3.5
Canada	37.1	39.6	34.4	18.8	8.2	5.5	5.2	6.7
Croatia	3.0	2.5	2.6	2.0	2.3	2.8	2.3	2.2
Czech Republic	3.9	3.3	3.6	3.9	3.2	3.6	3.6	3.1
Denmark	3.4	2.7	2.7	2.6	3.1	3.2	2.9	2.5
Estonia								
European Community	334.7	318.0	311.5	235.9	163.7	160.7	158.8	141.4
Finland	5.1	4.5	4.5	4.3	4.3	4.3	4.1	4.2
France	77.9	84.8	83.9	60.1	41.6	37.0	36.9	29.1
Germany	75.7	79.7	74.1	29.9	16.6	16.4	21.4	22.8
Greece	2.3	2.1	1.8	1.8	1.8	1.8	1.8	1.8
Hungary	3.2	0.0	0.0	NE	IE	IE	2.7	2.7
Ireland	3.3	2.6	2.6	2.6	2.6	2.6	1.9	0.9
Italy	18.7	20.7	20.8	21.4	22.2	23.6	24.6	24.1
Japan	23.9	26.6	28.1	24.8	5.0	13.6	4.4	3.8
Latvia	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	1.4			4.9			2.7	2.9
Luxembourg								
Monaco								
Netherlands	24.4	24.2	24.2	24.1	23.2	23.0	21.2	20.2
New Zealand								
Norway	6.7	5.2	4.8	5.4	6.1	5.6	5.5	6.2
Portugal	1.8	2.0	2.1	1.4	2.4	1.4	1.9	1.9
Romania	56.1	10.7	7.4	2.5	3.8	6.5	5.7	4.5
Slovakia	1.6	2.4	2.5	2.3	2.5	2.3	2.6	2.0
Slovenia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spain	9.3	7.9	7.5	7.0	7.6	7.4	6.6	6.3
Sweden	2.7	2.2	2.2	2.5	2.2	2.1	1.6	1.5
Switzerland	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Ukraine							6.0	5.1
United Kingdom	94.4	65.5	67.0	59.4	18.1	20.2	17.4	9.9
United States	106.6	121.8	101.7	86.7	82.6	82.7	67.2	73.0

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria	-1.3	4.0	3.0	3.0	-17.4	2.6	-11.5
Belarus	4.5	3.3	4.2	2.0	3.0	16.3	8.0
Belgium	-5.2	3.3	-4.9	-2.7	-3.8	-4.3	6.7
Bulgaria	-17.7	-40.0	-24.4	79.5	-1.5	-15.9	-55.0
Canada	-13.0	-45.3	-56.6	-33.0	-6.0	29.1	-82.1
Croatia	5.1	-24.7	18.0	17.7	-15.9	-2.9	-24.8
Czech Republic	8.3	7.1	-16.5	12.6	-1.1	-12.4	-19.5
Denmark	1.7	-4.9	17.8	5.6	-11.8	-12.6	-25.8
Estonia							
European Community	-2.0	-24.3	-30.6	-1.8	-1.2	-11.0	-57.8
Finland	0.6	-5.8	0.3	-0.3	-4.7	4.0	-17.9
France	-1.1	-28.3	-30.8	-11.1	-0.2	-21.1	-62.6
Germany	-7.1	-59.7	-44.6	-1.0	30.5	6.8	-69.8
Greece	-12.2						-20.6
Hungary	-4.9					0.2	-15.9
Ireland		0.0		0.0	-28.1	-50.0	-71.8
Italy	0.6	2.8	3.8	6.2	4.5	-2.1	28.5
Japan	5.6	-11.8	-79.7	169.9	-67.9	-12.6	-84.0
Latvia							
Lithuania						8.3	105.7
Luxembourg							
Monaco							
Netherlands	-0.2	-0.2	-3.8	-1.0	-7.8	-4.7	-17.2
New Zealand							
Norway	-8.6	14.0	11.2	-7.7	-2.3	12.9	-7.2
Portugal	1.4	-30.0	66.6	-41.8	33.8	1.3	4.1
Romania	-30.9	-66.2	52.8	71.6	-13.0	-21.5	-92.0
Slovakia	3.6	-6.4	4.9	-7.5	13.7	-22.8	21.7
Slovenia		26.4	-11.8	69.6			
Spain	-5.4	-6.1	8.3	-1.7	-11.4	-4.8	-32.6
Sweden	-1.2	12.3	-11.3	-4.9	-23.9	-8.0	-45.1
Switzerland							
Ukraine						-15.3	
United Kingdom	2.3	-11.3	-69.5	11.3	-13.9	-43.2	-89.5
United States	-16.5	-14.8	-4.7	0.1	-18.7	8.7	-31.5

Table 2.6**Chemical industry: ammonia production – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	C	C	C	C	C	C	C	C
Austria	396	465	457	501	472	463	442	445
Belarus								
Belgium	776	1,558	1,566	1,494	1,795	1,726	1,819	1,819
Bulgaria								318
Canada	5,008	6,524	6,675	6,610	6,847	6,845	5,923	6,242
Croatia	492	503	546	410	519	525	426	384
Czech Republic								IE
Denmark	NO	NO	NO	NO	NO	NO	NO	NO
Estonia								0
European Community	12,395	11,214	11,367	11,844	10,640	11,057	11,545	10,842
Finland	NO	NO	NO	NO	NO	NO	NO	NO
France	3,357	2,863	2,825	2,818	2,732	2,811	2,504	2,198
Germany	1,747	1,770	1,757	1,765	1,704	1,817	1,796	1,831
Greece	470	165	151	181	NE	NE	NE	NE
Hungary								452
Ireland	989	922	1,074	1,058	943	883	1,037	810
Italy	2,183	596	669	614	551	621	645	501
Japan	3,377	3,453	3,366	2,989	3,288	3,182	2,960	2,721
Latvia	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	NE			751			988	703
Luxembourg								
Monaco								0
Netherlands	IE	IE	IE	IE	IE	IE	IE	IE
New Zealand	IE	IE	IE	IE	IE	IE	IE	IE
Norway	579			407	180	400	367	372
Portugal	569	975	1,433	1,789	843	935	1,434	1,528
Romania	5,006	2,762	1,427	702	1,251	1,883	1,733	1,706
Slovakia							IE	IE
Slovenia	NO	NO	NO	NO	NO	NO	NO	NO
Spain	550	519	546	512	487	499	494	477
Sweden	NE	NE	NE	NE	NE	NE	NE	NE
Switzerland	NO	NO	NO	NO	NO	NO	NO	NO
Ukraine							6,750	6,734
United Kingdom	1,358	1,379	888	1,111	1,113	1,301	1,373	1,233
United States	19,306	20,282	20,650	21,934	20,615	19,587	16,250	17,652

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria	-1.8	9.7	-5.8	-1.9	-4.5	0.7	12.4
Belarus							
Belgium	0.5	-4.6	20.1	-3.8	5.4		134.5
Bulgaria							
Canada	2.3	-1.0	3.6	0.0	-13.5	5.4	24.6
Croatia	8.7	-25.0	26.7	1.2	-18.9	-9.9	-21.9
Czech Republic							
Denmark							
Estonia							
European Community	1.4	4.2	-10.2	3.9	4.4	-6.1	-12.5
Finland							
France	-1.3	-0.3	-3.0	2.9	-10.9	-12.2	-34.5
Germany	-0.7	0.4	-3.4	6.6	-1.2	1.9	4.8
Greece	-8.8	20.3					
Hungary							
Ireland	16.5	-1.5	-10.9	-6.3	17.4	-22.0	-18.1
Italy	12.2	-8.3	-10.3	12.7	4.0	-22.3	-77.0
Japan	-2.5	-11.2	10.0	-3.2	-7.0	-8.1	-19.4
Latvia							
Lithuania						-28.9	
Luxembourg							
Monaco							
Netherlands							
New Zealand							
Norway			-55.7	121.9	-8.2	1.3	-35.8
Portugal	46.9	24.9	-52.9	10.9	53.4	6.5	168.4
Romania	-48.3	-50.8	78.2	50.5	-8.0	-1.6	-65.9
Slovakia							
Slovenia							
Spain	5.2	-6.2	-5.0	2.6	-1.1	-3.5	-13.3
Sweden							
Switzerland							
Ukraine						-0.2	
United Kingdom	-35.6	25.0	0.2	16.9	5.6	-10.2	-9.2
United States	1.8	6.2	-6.0	-5.0	-17.0	8.6	-8.6

Table 2.6

Chemical industry: ammonia production – trend information (continued)
CO₂ implied emission factors (t/t)

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia								C
Austria	0.86	0.96	0.95	1.03	0.96	0.96	0.99	0.96
Belarus								
Belgium	C	C	C	C	C	C	C	C
Bulgaria								0.86
Canada	1.35	1.39	1.40	1.35	1.40	1.40	1.38	1.39
Croatia	1.43	1.35	1.36	1.36	1.34	1.33	1.35	1.34
Czech Republic								
Denmark								
Estonia								
European Community						NE	NE	NE
Finland								
France	1.74	1.51	1.53	1.55	1.57	1.51	1.49	1.54
Germany	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Greece	1.50	1.50	1.50	1.50	NE	NE	NE	NE
Hungary								1.50
Ireland	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30
Italy	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Japan	1.84	1.91	1.87	1.79	1.92	1.88	1.91	1.92
Latvia								
Lithuania	NE			1.50			1.50	1.50
Luxembourg								
Monaco								
Netherlands	IE	IE	IE	IE	IE	IE	IE	IE
New Zealand	IE	IE	IE	IE	IE	IE	IE	IE
Norway	NA			1.68	1.21	0.98	0.93	0.91
Portugal	3.08	3.14	3.20	3.23	3.10	3.13	3.20	3.21
Romania	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Slovakia							IE	IE
Slovenia	NO	NO	NO	NO	NO	NO	NO	NO
Spain	0.91	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Sweden								
Switzerland		NO	NO	NO	NO	NO		NO
Ukraine							1.50	1.50
United Kingdom	30.87	30.61	24.28	27.75	25.74	28.28	37.66	35.71
United States	1.25	1.25	1.27	1.31	1.31	1.37	1.46	1.43

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria	-0.7	8.6	-7.0	-0.3	2.7	-2.7	11.7
Belarus							
Belgium							
Bulgaria							
Canada	0.2	-3.2	3.6	0.0	-1.6	0.6	2.7
Croatia	0.9	0.0	-1.2	-0.8	1.5	-0.6	-5.8
Czech Republic							
Denmark							
Estonia							
European Community							
Finland							
France	1.3	1.3	1.3	-3.6	-1.3	3.2	-11.7
Germany							
Greece							
Hungary							
Ireland	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Italy							
Japan	-1.7	-4.6	7.5	-2.4	1.7	0.7	4.3
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands							
New Zealand							
Norway			-27.7	-19.0	-5.1	-2.2	
Portugal	2.0	0.9	-3.8	0.7	2.3	0.3	4.3
Romania							
Slovakia							
Slovenia							
Spain	-0.2	0.1	-0.2	0.0	0.1	-0.2	0.1
Sweden							
Switzerland							
Ukraine							
United Kingdom	-20.7	14.3	-7.2	9.9	33.2	-5.2	15.7
United States	2.0	2.9	0.2	4.2	7.3	-2.3	14.3

Table 2.7**Chemical industry: nitric acid production – trend information****N₂O emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	C	C	C	C	C	C	C	C
Austria	2.9	2.8	2.8	2.9	3.0	3.1	2.5	2.6
Belarus								1.2
Belgium	11.5	15.0	14.5	15.1	14.4	13.6	13.0	12.6
Bulgaria								3.5
Canada	2.5	2.6	2.5	2.5	2.5	2.6	2.6	2.6
Croatia	3.0	2.5	2.6	2.0	2.3	2.8	2.3	2.2
Czech Republic								2.9
Denmark	3.4	2.7	2.7	2.6	3.1	3.2	2.9	2.5
Estonia								0.0
European Community	116.3	105.3	104.1	104.5	109.1	108.0	94.8	88.8
Finland	5.1	4.5	4.5	4.3	4.3	4.3	4.1	4.2
France	21.2	18.8	19.3	19.2	18.5	19.1	16.0	14.2
Germany	15.1	12.1	12.1	12.0	12.5	13.4	11.8	12.9
Greece	2.3	2.1	1.8	1.8	1.8	1.8	1.8	1.8
Hungary								2.7
Ireland	3.3	2.6	2.6	2.6	2.6	2.6	1.9	0.9
Italy	4.0	2.1	2.1	1.8	1.7	2.1	2.0	1.9
Japan	2.5	2.4	2.3	2.6	2.5	2.6	2.4	2.4
Latvia	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	1.4			4.9			2.7	2.9
Luxembourg								
Monaco								
Netherlands	20.4	20.2	20.2	20.1	19.1	19.0	17.2	17.7
New Zealand	NO	NE	NO	NO	NO	NO	NO	NO
Norway	6.7			5.4	6.1	5.6	5.5	6.2
Portugal	1.8	2.0	2.1	1.4	2.4	1.4	1.9	1.9
Romania	53.9	8.8	4.7	2.5	3.8	6.5	4.1	4.5
Slovakia							2.6	2.0
Slovenia	NO	NO	0.0	0.0	0.0	0.0	0.0	0.0
Spain	9.3	7.9	7.5	7.0	7.6	7.4	6.6	6.3
Sweden	2.6	2.2	2.2	2.4	2.1	2.1	1.5	1.4
Switzerland	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Ukraine							1.9	1.5
United Kingdom	13.3	10.2	9.7	11.1	16.0	14.9	11.6	7.8
United States	57.6	66.8	68.4	67.4	64.9	63.2	51.3	54.0

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria	-1.3	4.0	3.0	3.0	-17.4	2.6	-11.5
Belarus							
Belgium	-3.7	4.2	-4.7	-5.6	-4.3	-3.0	9.8
Bulgaria							
Canada	-0.8	-1.9	1.9	1.8	-0.5	2.3	4.7
Croatia	5.1	-24.7	18.0	17.7	-15.9	-2.9	-24.8
Czech Republic							
Denmark	1.7	-4.9	17.8	5.6	-11.8	-12.6	-25.8
Estonia							
European Community	-1.1	0.4	4.4	-1.0	-12.2	-6.3	-23.6
Finland	0.6	-5.8	0.3	-0.3	-4.7	4.0	-17.9
France	2.7	-0.5	-3.5	3.0	-16.1	-11.4	-33.0
Germany	0.3	-0.6	4.1	6.9	-12.2	9.9	-14.3
Greece	-12.2						-20.6
Hungary							
Ireland		0.0		0.0	-28.1	-50.0	-71.8
Italy	2.7	-14.3	-10.0	28.9	-5.4	-6.6	-52.5
Japan	-3.3	9.9	-3.1	4.1	-8.2	2.9	-1.7
Latvia							
Lithuania						8.3	105.7
Luxembourg							
Monaco							
Netherlands	-0.3	-0.3	-4.9	-0.8	-9.5	3.3	-12.9
New Zealand							
Norway			11.2	-7.7	-2.3	12.9	-7.2
Portugal	1.4	-30.0	66.6	-41.8	33.8	1.3	4.1
Romania	-46.4	-46.9	52.8	71.6	-37.4	9.1	-91.7
Slovakia						-22.8	
Slovenia		26.4	-11.8	69.6			
Spain	-5.4	-6.1	8.3	-1.7	-11.4	-4.8	-32.6
Sweden	-1.2	12.7	-12.3	-3.7	-25.0	-8.0	-45.8
Switzerland							
Ukraine						-22.5	
United Kingdom	-5.4	15.2	43.5	-7.0	-21.9	-33.3	-41.8
United States	2.5	-1.6	-3.7	-2.7	-18.8	5.2	-6.2

Table 2.7**Chemical industry: nitric acid production – trend information (continued)****N₂O implied emission factors (t/t)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia								C
Austria	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005
Belarus								0.010
Belgium	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
Bulgaria								C
Canada	0.003	0.002	0.003	0.003	0.003	0.002	0.002	0.002
Croatia	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Czech Republic								0.007
Denmark	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
Estonia								
European Community						NE	NE	NE
Finland	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
France	0.007	0.006	0.006	0.007	0.006	0.006	0.006	0.006
Germany	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Greece	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Hungary								
Ireland	0.010	0.010	0.010	0.010	0.010	0.010	0.007	0.007
Italy	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Japan	0.004	0.004	0.003	0.004	0.004	0.004	0.004	0.004
Latvia								
Lithuania	0.002			0.010			0.010	0.010
Luxembourg								
Monaco								
Netherlands	C	C	C	C	C	C	C	C
New Zealand	NO	NE	NO	NO	NO	NO	NO	NO
Norway								
Portugal	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
Romania	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019
Slovakia							0.006	0.006
Slovenia	NO	NO	0.006	0.006	0.006	0.006	0.006	0.007
Spain	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
Sweden	0.007	0.005	0.006	0.006	0.006	0.005	0.005	0.005
Switzerland	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Ukraine							0.000	0.000
United Kingdom	0.006	0.004	0.004	0.004	0.007	0.007	0.007	0.005
United States	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria	0.0	0.7	1.4	-1.0	-13.6	0.4	-10.2
Belarus							
Belgium	0.1	0.1	-2.9	0.5	-1.7	-0.2	-5.8
Bulgaria							
Canada	2.3	5.7	-5.3	-4.6	1.4	-5.7	-11.6
Croatia							
Czech Republic							
Denmark						0.0	0.0
Estonia							
European Community							
Finland	0.0	0.0	0.0	0.1	0.1	-0.1	0.7
France	8.8	2.0	-2.6	-2.4	-3.7	-2.8	-12.0
Germany							
Greece							
Hungary							
Ireland		0.0		0.0	-28.1		-26.5
Italy							
Japan	-4.2	18.1	-4.9	1.9	-0.3	-2.6	8.8
Latvia							
Lithuania							426.3
Luxembourg							
Monaco							
Netherlands							
New Zealand							
Norway							
Portugal	0.0	0.0		0.0	0.0		0.0
Romania							
Slovakia						-0.2	
Slovenia		0.0	0.0	2.8	6.7	15.4	
Spain	0.0	0.0	0.0	0.0			
Sweden	1.4	9.9	-8.5	-13.1	12.9	-1.3	-22.9
Switzerland							
Ukraine						0.0	
United Kingdom	-1.7	3.8	53.6	11.8	-4.0	-29.6	-10.6
United States							

Table 2.8**Chemical industry: adipic acid production – trend information****N₂O emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	NO	NO	NO	NO	NO	NO	NO	NO
Austria	NO	NO	NO	NO	NO	NO	NO	NO
Belarus								
Belgium	NE	NO	NO	NO	NO	NO	NO	NO
Bulgaria								NO
Canada	34.6	37.0	31.9	16.3	5.6	2.9	2.6	4.0
Croatia	NO	NO	NO	NO	NO	NO	NO	NO
Czech Republic								NO
Denmark	NO	NO	NO	NO	NO	NO	NO	NO
Estonia								0.0
European Community	204.3	198.2	194.1	117.0	41.4	40.0	53.6	47.1
Finland	NO	NO	NO	NO	NO	NO	NO	NO
France	47.8	56.7	56.2	31.4	14.7	10.3	15.6	12.8
Germany	60.7	67.6	62.0	17.8	4.0	3.0	9.6	9.9
Greece	NO	NO	NO	NO	NO	NO	NO	NO
Hungary								NO
Ireland	NO	0.0	NO	NO	NO	0.0	0.0	0.0
Italy	14.8	18.6	18.6	19.5	20.5	21.4	22.6	22.2
Japan	21.5	24.2	25.8	22.3	2.6	11.0	2.0	1.4
Latvia	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	NE			NE			NE	NE
Luxembourg								
Monaco								
Netherlands	NO	NO	NO	NO	NO	NO	NO	NO
New Zealand	NO	NE	NO	NO	NO	NO	NO	NO
Norway	NO			NO	NO	NO	NO	NO
Portugal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Romania	2.2	1.9	2.7	0.0	0.0	0.0	1.6	0.0
Slovakia							NO	NO
Slovenia	NO	NO	NO	NO	NO	NO	NO	NO
Spain								
Sweden	NO	NO	NO	NO	NO	NO	NO	NO
Switzerland	NO	NO	NO	NO	NO	NO	NO	NO
Ukraine							4.1	3.6
United Kingdom	81.1	55.2	57.3	48.3	2.1	5.3	5.8	2.1
United States	49.0	55.0	33.3	19.3	17.7	19.5	15.9	19.0

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria							
Belarus							
Belgium							
Bulgaria							
Canada	-13.8	-48.8	-65.5	-48.6	-10.8	55.7	-88.3
Croatia							
Czech Republic							
Denmark							
Estonia							
European Community	-2.0	-39.7	-64.6	-3.2	33.8	-12.2	-77.0
Finland							
France	-0.9	-44.2	-53.2	-29.6	51.0	-17.8	-73.1
Germany	-8.4	-71.2	-77.4	-25.6	221.2	2.9	-83.7
Greece							
Hungary							
Ireland							
Italy	0.3	4.8	5.1	4.4	5.4	-1.7	50.3
Japan	6.5	-13.7	-88.5	329.6	-81.8	-30.8	-93.5
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands							
New Zealand							
Norway							
Portugal							
Romania	39.7						
Slovakia							
Slovenia							
Spain							
Sweden							
Switzerland							
Ukraine						-12.0	
United Kingdom	3.8	-15.8	-95.6	148.0	8.8	-63.2	-97.4
United States	-39.5	-41.9	-8.5	10.2	-18.5	19.9	-61.2

Table 2.8**Chemical industry: adipic acid production – trend information (continued)****N₂O implied emission factors (t/t)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia								NO
Austria								
Belarus								
Belgium	NE	NO	NO	NO	NO	NO	NO	NO
Bulgaria								NO
Canada	C	C	C	C	C	C	C	C
Croatia								
Czech Republic								
Denmark								
Estonia								
European Community						NE	NE	NE
Finland								
France								
Germany	C	C	C	C	C	C	C	C
Greece	NO	NO	NO	NO	NO	NO	NO	NO
Hungary								
Ireland								
Italy	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Japan	0.25	0.25	0.25	0.25	0.03	0.10	0.02	0.01
Latvia								
Lithuania	NE			NE			NE	NE
Luxembourg								
Monaco								
Netherlands	NO	NO	NO	NO	NO	NO	NO	NO
New Zealand	NO	NE	NO	NO	NO	NO	NO	NO
Norway	NO			NO	NO	NO	NO	NO
Portugal								
Romania	0.30	0.30	0.30				0.30	
Slovakia							NO	NO
Slovenia	NO	NO	NO	NO	NO	NO	NO	NO
Spain	NO	NO	NO	NO	NO	NO	NO	NO
Sweden								
Switzerland	NO	NO	NO	NO	NO	NO		NO
Ukraine							0.08	0.08
United Kingdom	0.31	0.36	0.37	0.29	0.01	0.03	0.04	0.01
United States	0.07	0.07	0.04	0.02	0.02	0.02	0.02	0.02

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria							
Belarus							
Belgium							
Bulgaria							
Canada							
Croatia							
Czech Republic							
Denmark							
Estonia							
European Community							
Finland							
France							
Germany							
Greece							
Hungary							
Ireland							
Italy							
Japan			-89.9	301.0	-81.5	-26.7	-94.5
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands							
New Zealand							
Norway							
Portugal							
Romania							
Slovakia							
Slovenia							
Spain							
Sweden							
Switzerland							
Ukraine						0.0	
United Kingdom	0.9	-20.5	-94.9	111.4	23.8	-71.6	-96.4
United States	-41.7	-41.3	-13.0	8.1	-9.7	8.7	-69.0

Table 2.9
Metal production, CO₂ (2002)

	Methods and EF used ^a		Iron & steel ^b													Aluminium production						
			Key source	Share of national total	CO ₂ IEF	Steel				CO ₂ IEF	Pig iron				CO ₂ IEF	Key source	Share of national total	Activity data (production)				CO ₂ IEF
	Activity data (production)					Activity data (production)					Activity data (production)											
	Methods	EF				CRF (2001) ^c	CRF (2002)	UN ^d	Difference		CRF (2001) ^c	CRF (2002)	UN ^d	Difference				CRF (2001) ^c	CRF (2002)	UN ^d	Difference	
			(%)	(t/t)	(kt)	(%)	(t/t)	(kt)	(%)	(t/t)	(kt)	(%)	(t/t)	(%)	(%)	(kt)	(%)	(t/t)				
IPCC default EF ^e					1.5 - 1.6														1.5 - 1.8			
Australia	T2	CS	L, T	2.0	NA	6,027	C	7,527		NA	NA	C	6,106				0.5	1,788	1,809	1,809	0.0	1.48
Austria	T2	CS, PS	L, T	4.8		5,892	6,193	6,208	0.2	0.12	4,380	4,712	4,607	-2.2	0.71			NO	NO	158		
Belarus								1,484														
Belgium	CS	CS	L	1.2		7,623	7,626	11,316	48.4	0.12	7,669	8,510	7,992	-6.1	0.07							NO
Bulgaria	D	D	L	2.1	0.91		C	1,860				C	1,072		NA		0.0		2	2,709	131,272.9	1.65
Canada	T1-T2	CS	L	1.0	NA	15,179	15,907	16,300	2.5	0.04	8,302	8,670	8,670	0.0	0.75		0.6	2,583	2,709			1.61
Croatia	T1	D						0												15		
Czech Republic	T1	D	L	1.8			6,534	2,333	-64.3			4,693	4,819	2.7	0.56				NO			
Denmark						721.5	NO/NE	5			NO	NO						NO	NO	31		
Estonia								1									0.0		0			
European Community	C, CS, D, T1, T2	C, CS, D, PS	L	0.3						NE					NE		0.1					NE
Finland	NO	NO				NA	NA	4,004			NA	NA	8,178					NO	NO	30		
France	C	CS	L, T	0.5		19,614	20,468	20,258	-1.0	0.05	11,880	13,104	12,600	-3.8	0.10		0.1	458	463	463	0.0	1.46
Germany	CS	CS			NE	44,803	45,015	10,289	-76.7	NE	29,184	29,427	29,427	0.0	NE		0.1	1,275	1,319	650	-50.7	0.68
Greece	T1	D		0.0		1281	1,281	1,835	43.2	0.01	NO	NO			NO		0.2	C	C	164		C
Hungary	T1b	D					2,052	2,138	4.2	0.04		1,335	1,335	0.0			0.1		35	35		1.80
Ireland	NA	NA						100										0	0			
Italy	D, C	D, C, CS		0.2		26,526	26,301	26,302	0.0	0.05	10,562	9,746	9,775	0.3	IE		0.1	188	190	190	0.0	1.55
Japan	-	-			IE,NA,NO	NE	NE	107,376		IE	NE	NE	80,513		IE			NE	NE	40		IE
Latvia	T1	D		0.3		NE	NE	520			NE	NE			NE			NO	NO			
Lithuania					NE	NO	NO			NO	NE	NE			NE			NO	NO			NO
Luxembourg							2,719						0									
Monaco						NO						NO							NO			
Netherlands	CS/IE	PS, CS				6,000	6155.523	6,119	-0.6	IE	NE	NE	5,367		IE			293	284	300	5.5	IE
New Zealand	T1	CS	L	2.1		801	778	765	-1.7	2.01	0	0	617		IE		0.7	324	334	335	0.4	1.62
Norway	D, CS3)	D, PS		0.5				689		NO	105	101	108	7.4	2.94	L, T	3.1	1,241	1,215	1,095	-9.9	1.42
Portugal	D	D+C		0.0	0.15	IE	IE	800			NO	NO	100					0	0	18		
Romania	D	D	L, T	3.8	3.10			5,490			3,243	3,979	3,964	-0.4			0.2	183	190	187	-1.6	1.50
Slovakia	IE		L	0.9		3,752	4,103	11	-99.7	0.12	3,255	3,533	3,533	0.0	IE		0.3	110	110	112	2.0	1.50
Slovenia	T1	D		0.1		2	1.9966	481	23,991.0	3.60	NO	NO			NO	L, T	0.9	36	52	88	67.7	3.56
Spain	C	C		0.2		16,631	16,530	16,410	-0.7	0.05	C	C	4,021		C		0.1	C	C	380		C
Sweden	CS, D, T1	CS, PS	L	2.2		47	40	4,155	10,368.1	2.89	5,161	4,667	1,452	-68.9	0.30		0.2	102	102	101	-1.2	1.43
Switzerland	C	CS		0.1	0.08	950	960	1,100	14.6	0.08	IE	IE			IE	T	0.1	36	40	36	-10.4	1.60
Ukraine	T1	D	L	4.5		33,500	34,500	34,543	0.1		26,400	27,600	27,633	0.1			0.0	121	126	112	-11.1	1.50
United Kingdom	T2	CS	T	0.1		3,184	2,623	11,670	344.9	0.01	9,870	8,560	8,561	0.0	-0.15		0.1	341	344	340	-1.3	1.54
United States	D	D,CS	L, T	0.8	NA	42,743	46,124	94,600	105.1	0.00	5,433	3,037	40,200	1223.6	0.15		0.1	2,637	2,707	2,707	0.0	1.56

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

^b CO₂ emission estimates from sinter (2.C.1.3) were reported by only Belgium; CO₂ emission estimates from coke (2.C.1.4) were reported by only Australia, Latvia, Slovenia, Ukraine, the United Kingdom and the United States.

^c As UN data for 2002 were not available for all Parties at the time of preparation of this synthesis and assessment report, for the comparisons of UN and CRF data in this table, data for the years 2002 and 2001 from the CRF are provided along with the respective UN data for 2002 or 2001.

^d Source of data for crude steel: UN Industrial Commodity Production Statistics Database (as of 17 May 2004), Department of Economic and Social Affairs, Statistics Division, United Nations, New York. Data are for 2002, except for 2001 for Germany and Ireland.

^e Source of data for pig iron: UN Industrial Commodity Production Statistics Database (as of 17 May 2004), Department of Economic and Social Affairs, Statistics Division, United Nations, New York. Data are for 2002, except for 2001 for Luxembourg.

^f Source of data for aluminium: UN Industrial Commodity Production Statistics Database (as of 17 May of 2004), Department of Economic and Social Affairs, Statistics Division, United Nations, New York. Data are for 2002, except for 2001 for Austria and Portugal. Data are for primary production, except for Austria, Denmark, Finland, Hungary and Portugal where only total production data were available.

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

Table 2.10
Metal production: CO₂ – trend information
CO₂ emissions (Gg)

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	14,471	13,592	13,650	13,507	14,193	13,591	13,108	13,118
Austria	3,673	3,685	4,083	3,889	3,793	4,229	4,321	4,064
Belarus								
Belgium	1,873	1,782	1,757	1,878	1,994	1,815	1,682	1,816
Bulgaria	2,485	2,101	2,260	1,877	1,711	1,483	1,422	1,326
Canada	9,686	11,471	11,343	11,556	11,775	11,717	11,442	11,477
Croatia	306	14	32	15		20		
Czech Republic	IE	IE	IE	IE	IE	IE	2,524	2,614
Denmark	28	35	35	42	43	41	47	
Estonia								
European Community	21,327	19,190	19,105	18,449	19,137	19,342	19,065	18,034
Finland								
France	4,559	3,415	3,946	3,824	3,402	3,008	2,923	3,335
Germany	1,012	787	782	837	867	880	891	893
Greece	237	207	211	232	253	257	258	260
Hungary	172	174	182	171	159	111	108	116
Ireland	NE	NO	NO	NO	NE	NO	NO	NO
Italy	2,205	2,042	2,056	2,032	1,859	2,016	1,916	1,777
Japan	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO
Latvia	39	25	37	34	37	50	34	31
Lithuania	NE			NE			NE	NE
Luxembourg				137		131		270
Monaco								
Netherlands		0	3					172
New Zealand	1,803	2,017	1,875	2,011	2,068	2,041	2,119	2,104
Norway	4,320	4,789	4,726	5,175	5,300	5,303	5,144	4,380
Portugal	51	67	74	75	78	81	35	8
Romania	16,921	9,356	9,884	9,342	5,199	5,027	4,438	5,493
Slovakia	542	512	528	528	567	580	608	649
Slovenia	219	208	199	150	161	171	177	252
Spain	1,579	1,584	1,706	1,778	1,796	1,860	1,947	1,948
Sweden	2,103	2,227	2,120	2,121	1,962	1,969	2,169	2,037
Switzerland	260	117	118	127	131	134	136	143
Ukraine							22,587	23,989
United Kingdom	3,161	3,132	2,073	1,610	2,950	3,060	2,738	1,456
United States	93,708	75,857	79,523	75,249	72,268	73,135	64,516	59,871

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	0.4	-1.0	5.1	-4.2	-3.6	0.1	-9.4
Austria	10.8	-4.7	-2.5	11.5	2.2	-5.9	10.6
Belarus							
Belgium	-1.4	6.9	6.2	-9.0	-7.3	8.0	-3.1
Bulgaria	7.5	-16.9	-8.9	-13.3	-4.1	-6.7	-46.6
Canada	-1.1	1.9	1.9	-0.5	-2.4	0.3	18.5
Croatia	129.5	-51.1			-97.7		
Czech Republic						3.6	
Denmark	-0.5	20.5	2.0	-5.4	14.6		
Estonia							
European Community	-0.4	-3.4	3.7	1.1	-1.4	-5.4	-15.4
Finland							
France	15.5	-3.1	-11.0	-11.6	-2.8	14.1	-26.8
Germany	-0.7	7.0	3.6	1.6	1.2	0.2	-11.8
Greece	1.7	10.1	8.9	1.9	0.0	1.1	9.9
Hungary	4.5	-6.1	-6.6	-30.2	-3.2	7.5	-32.6
Ireland							
Italy	0.7	-1.2	-8.5	8.4	-5.0	-7.3	-19.4
Japan							
Latvia	49.8	-8.2	9.1	33.3	-31.3	-9.8	-21.7
Lithuania							
Luxembourg							
Monaco							
Netherlands	9,270.3						
New Zealand	-7.0	7.2	2.8	-1.3	3.8	-0.7	16.7
Norway	-1.3	9.5	2.4	0.1	-3.0	-14.9	1.4
Portugal	10.1	1.2	4.1	4.4	-57.1	-78.4	-85.2
Romania	5.6	-5.5	-44.3	-3.3	-11.7	23.8	-67.5
Slovakia	3.2	0.0	7.5	2.2	4.8	6.8	19.8
Slovenia	-4.4	-24.8	7.7	6.0	3.5	42.0	15.1
Spain	7.7	4.2	1.0	3.6	4.7	0.0	23.3
Sweden	-4.8	0.1	-7.5	0.4	10.2	-6.1	-3.2
Switzerland	0.4	8.2	2.7	2.1	1.7	5.3	-45.0
Ukraine						6.2	
United Kingdom	-33.8	-22.3	83.2	3.7	-10.5	-46.8	-54.0
United States	4.8	-5.4	-4.0	1.2	-11.8	-7.2	-36.1

Table 2.11**Metal production: iron and steel – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	12,645	11,629	11,589	11,154	11,696	11,012	10,463	10,443
Austria	3,514	3,685	4,083	3,889	3,793	4,229	4,321	4,064
Belarus								
Belgium	1,873	1,782	1,757	1,878	1,994	1,815	1,682	1,816
Bulgaria								1,305
Canada	7,058	7,745	7,549	7,685	7,890	7,893	7,279	7,117
Croatia	335							
Czech Republic								2,614
Denmark	28	35	35	42	43	41	47	
Estonia								
European Community	16,722	14,967	14,986	14,173	14,875	14,881	14,608	13,460
Finland	IE	IE	IE	IE	IE	IE	IE	IE
France	4,047	2,818	3,330	3,186	2,730	2,369	2,254	2,659
Germany		NE	NE	NE	NE	NE	NE	NE
Greece	5	4	5	6	5	5	6	6
Hungary								
Ireland	NE		NO	NO	NE	NO		
Italy	1,346	1,313	1,393	1,380	1,345	1,415	1,379	1,353
Japan	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO	IE,NA,NO
Latvia	39	25	37	34	37	50	34	31
Lithuania	NE			NE			NE	NE
Luxembourg				137		131		270
Monaco								
Netherlands								
New Zealand	1,345	1,525	1,372	1,470	1,533	1,521	1,614	1,564
Norway	201			241	251	257	309	296
Portugal	48	64	71	72	75	78	32	5
Romania	16,498	9,139	9,638	9,080	4,938	4,755	4,163	5,208
Slovakia							443	484
Slovenia	40	5	6	6	7	7	7	19
Spain	690	604	716	776	777	826	858	852
Sweden	1,613	1,675	1,645	1,603	1,443	1,386	1,678	1,510
Switzerland	111	74	74	75	75	76	77	78
Ukraine							20,266	21,573
United Kingdom	2,711	2,759	1,689	1,209	2,528	2,590	2,213	925
United States	85,414	68,324	71,864	67,429	64,376	65,693	59,074	54,411

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	-0.3	-3.8	4.9	-5.8	-5.0	-0.2	-17.4
Austria	10.8	-4.7	-2.5	11.5	2.2	-5.9	15.6
Belarus							
Belgium	-1.4	6.9	6.2	-9.0	-7.3	8.0	-3.1
Bulgaria							
Canada	-2.5	1.8	2.7	0.0	-7.8	-2.2	0.8
Croatia							
Czech Republic							
Denmark	-0.5	20.5	2.0	-5.4	14.6		
Estonia							
European Community	0.1	-5.4	4.9	0.0	-1.8	-7.9	-19.5
Finland							
France	18.2	-4.3	-14.3	-13.2	-4.8	18.0	-34.3
Germany							
Greece	19.8	9.2	-14.2	14.4	17.7		28.2
Hungary							
Ireland							
Italy	6.1	-1.0	-2.5	5.2	-2.6	-1.9	0.5
Japan							
Latvia	49.8	-8.2	9.1	33.3	-31.3	-9.8	-21.7
Lithuania							
Luxembourg							
Monaco							
Netherlands							
New Zealand	-10.0	7.2	4.3	-0.8	6.1	-3.1	16.3
Norway			4.1	2.6	20.1	-4.2	47.1
Portugal	10.5	1.2	4.3	4.5	-59.0	-84.9	-90.0
Romania	5.5	-5.8	-45.6	-3.7	-12.5	25.1	-68.4
Slovakia						9.4	
Slovenia	15.9	0.0	17.6			159.4	-52.2
Spain	18.7	8.3	0.1	6.4	3.8	-0.7	23.6
Sweden	-1.8	-2.5	-10.0	-3.9	21.0	-10.0	-6.4
Switzerland	0.0	1.4		1.3	1.3	1.3	-29.7
Ukraine						6.5	
United Kingdom	-38.8	-28.4	109.1	2.4	-14.6	-58.2	-65.9
United States	5.2	-6.2	-4.5	2.0	-10.1	-7.9	-36.3

Table 2.11**Metal production: iron and steel – trend information (continued)****CO₂ implied emission factors steel (t/t)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	NA	NA	NA	NA	NA	NA	NA	NA
Austria	0.12	0.12	0.12	0.12	0.11	0.12	0.11	0.12
Belarus								
Belgium	0.12	1.70	0.12	0.12	0.12	0.12	0.12	0.12
Bulgaria								C
Canada	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04
Croatia								
Czech Republic								
Denmark	0.05	0.05	0.04	0.06	0.05	0.06	0.06	
Estonia								
European Community						NE	NE	NE
Finland								
France	0.08	0.06	0.06	0.06	0.06	0.04	0.05	0.05
Germany	NE	NE	NE	NE	NE	NE	NE	NE
Greece	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Hungary								0.04
Ireland								
Italy	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Japan	IE	IE	IE	IE	IE	IE	IE	IE
Latvia								
Lithuania	NO			NO			NO	NO
Luxembourg								
Monaco								
Netherlands	IE	IE	IE	IE	IE	IE	IE	IE
New Zealand	1.94	1.91	1.87	1.99	2.02	2.08	2.02	2.01
Norway	NO			NO	NO	NO	NO	NO
Portugal								
Romania								
Slovakia							0.12	0.12
Slovenia	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60
Spain	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Sweden	2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89
Switzerland	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Ukraine								
United Kingdom	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
United States	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria	-1.1	-0.3	-1.3	0.6	-1.6	1.9	-4.9
Belarus							
Belgium	-92.8	1.1	0.3	-1.5	0.5	0.0	-0.7
Bulgaria							
Canada	-5.7	-6.2	-2.5	-2.3	-8.7	3.0	-13.4
Croatia							
Czech Republic							
Denmark	-12.3	31.4	-4.3	19.6	0.2		
Estonia							
European Community							
Finland							
France	-2.9	0.0	-2.0	-25.1	20.2	1.1	-32.9
Germany							
Greece							
Hungary							
Ireland							
Italy		-1.0	1.4	-2.1	-2.2	-1.0	-2.7
Japan							
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands							
New Zealand	-2.1	6.0	1.7	3.2	-3.3	-0.3	3.7
Norway							
Portugal							
Romania							
Slovakia						0.0	
Slovenia							
Spain	-0.2	-0.1	-0.1	-0.2	-0.1	-0.1	-2.1
Sweden							
Switzerland	-0.8	0.5	-1.0	0.8	0.0	0.2	-5.7
Ukraine							
United Kingdom		0.0	0.0	0.0	0.0	0.0	
United States							

Table 2.12**Metal production: aluminium – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	1,827	1,963	2,060	2,353	2,497	2,579	2,644	2,675
Austria	158	NO	NO	NO	NO	NO	NO	NO
Belarus								
Belgium	NO	NO	NO	NO	NO	NO	NO	NO
Bulgaria								3
Canada	2,628	3,726	3,794	3,871	3,885	3,825	4,163	4,360
Croatia	111	0	0	0	0	0		
Czech Republic								NO
Denmark	NO	NO	NO	NO	NO	NO	NO	NO
Estonia								0
European Community	3,407	2,942	2,972	3,088	3,202	3,297	3,348	3,383
Finland	NO	NO	NO	NO	NO	NO	NO	NO
France	512	597	616	637	672	639	668	676
Germany	1,012	787	782	837	867	880	891	893
Greece	232	203	206	226	248	252	251	254
Hungary								64
Ireland	NE	0	NO	NO	NE	NO	0	0
Italy	359	286	291	290	290	294	291	295
Japan	IE	IE	IE	IE	IE	IE	IE	IE
Latvia	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	NO			NO			NO	NO
Luxembourg								
Monaco								0
Netherlands	IE	IE	IE	IE	IE	IE	IE	IE
New Zealand	458	493	504	541	535	520	504	540
Norway	1,431			1,645	1,700	1,734	1,752	1,726
Portugal	0	0	0	0	0	0	0	0
Romania	423	218	246	263	261	272	275	285
Slovakia							165	165
Slovenia	89	127	127	126	126	127	127	187
Spain	551	560	558	558	564	567	583	589
Sweden	133	137	136	139	140	195	139	146
Switzerland	139	43	43	52	55	57	58	64
Ukraine							182	189
United Kingdom	450	372	384	401	421	470	525	530
United States	6,315	5,580	5,621	5,792	5,895	5,723	4,114	4,223

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	4.9	14.2	6.1	3.3	2.5	1.2	46.4
Austria							
Belarus							
Belgium							
Bulgaria							
Canada	1.8	2.0	0.4	-1.6	8.8	4.8	65.9
Croatia							
Czech Republic							
Denmark							
Estonia							
European Community	1.0	3.9	3.7	3.0	1.6	1.0	-0.7
Finland							
France	3.2	3.5	5.5	-4.9	4.6	1.2	32.1
Germany	-0.7	7.0	3.6	1.6	1.2	0.2	-11.8
Greece	1.3	10.1	9.5	1.7	-0.3	1.2	9.5
Hungary							
Ireland							
Italy	1.8	-0.4	0.1	1.4	-1.2	1.5	-17.9
Japan							
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands							
New Zealand	2.2	7.4	-1.2	-2.8	-3.0	7.1	18.0
Norway			3.3	2.0	1.0	-1.5	20.6
Portugal							
Romania	13.1	6.7	-0.6	4.0	1.1	3.8	-32.6
Slovakia						-0.2	
Slovenia	-0.3	-0.3	-0.3	1.1	-0.2	47.3	108.9
Spain	-0.5	0.2	1.0	0.5	3.0	1.0	7.0
Sweden	-0.5	2.1	0.6	39.4	-28.8	5.1	9.7
Switzerland	1.1	20.2	6.6	3.2	2.1	10.7	-53.8
Ukraine						4.1	
United Kingdom	3.2	4.3	5.2	11.5	11.7	1.0	17.7
United States	0.7	3.1	1.8	-2.9	-28.1	2.7	-33.1

Table 2.12**Metal production: aluminium – trend information (continued)****CO₂ implied emission factors (t/t)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	1.48	1.47	1.48	1.48	1.48	1.48	1.48	1.48
Austria	1.80							
Belarus								
Belgium	NO		NO	NO	NO	NO	NO	NO
Bulgaria								1.65
Canada	1.68	1.63	1.63	1.63	1.63	1.61	1.61	1.61
Croatia	1.50							
Czech Republic								
Denmark								
Estonia								
European Community						NE	NE	NE
Finland								
France	1.57	1.57	1.54	1.52	1.49	1.46	1.46	1.46
Germany	0.79	0.79	0.78	0.76	0.75	0.72	0.70	0.68
Greece	C	C	C	C	C	C	C	C
Hungary								1.80
Ireland								
Italy	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55
Japan	IE	IE	IE	IE	IE	IE	IE	IE
Latvia								
Lithuania	NO			NO			NO	NO
Luxembourg								
Monaco								
Netherlands	IE	IE	IE	IE	IE	IE	IE	IE
New Zealand	1.73	1.73	1.62	1.70	1.63	1.58	1.56	1.62
Norway	1.65			1.58	1.45	1.37	1.41	1.42
Portugal								
Romania	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Slovakia							1.50	1.50
Slovenia	3.60	3.57	3.57	3.57	3.57	3.57	3.57	3.56
Spain	C	C	C	C	C	1.55	C	C
Sweden	1.38	1.39	1.38	1.44	1.41	1.93	1.36	1.43
Switzerland	1.60	1.60	1.57	1.60	1.60	1.60	1.60	1.60
Ukraine							1.50	1.50
United Kingdom	1.55	1.55	1.55	1.55	1.55	1.54	1.54	1.54
United States	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	0.1	0.2	0.0	-0.1	-0.1	0.0	0.0
Austria							
Belarus							
Belgium							
Bulgaria							
Canada	-0.1		-0.3	-0.9	0.0	-0.1	-4.0
Croatia							
Czech Republic							
Denmark							
Estonia							
European Community							
Finland							
France	-1.8	-1.8	-1.8	-1.8	0.0	0.0	-7.0
Germany	-1.8	-3.0	-0.2	-4.0	-3.4	-3.2	-14.4
Greece							
Hungary							
Ireland							
Italy							
Japan							
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands							
New Zealand	-6.3	5.1	-4.3	-3.1	-1.5	4.1	-6.6
Norway			-8.0	-6.1	3.4	0.6	-14.0
Portugal							
Romania							
Slovakia						0.0	
Slovenia	0.0	0.0	0.0	0.0	0.0	-0.3	-1.1
Spain							
Sweden	-0.6	4.8	-2.5	36.8	-29.2	5.1	3.7
Switzerland	-1.6	1.7					
Ukraine							
United Kingdom	-0.1	0.0	-0.1	-0.5			-0.9
United States							

Table 2.13
Metal production, PFCs and SF₆ (2002)

	PFCs											SF ₆										
	Methods and EF used ^a		2.C.3 Aluminium production - PFCs									Methods and EF used ^b		2.C.4.2 SF ₆ used in magnesium foundries								
	Methods	EF	Key source	Share of national total	Activity data (Aluminium production)				IEF		Ratio ^f IEF CF ₄ / IEF C ₂ F ₆	Methods	EF	Key source	Share of national total	Activity data		SF ₆ -IEF	Actual emissions SF ₆ ^h			
					CRF (2001) ^c	CRF (2002) ^{c,d}	UN ^e	Difference	CF ₄	C ₂ F ₆						Description	Value					
																				(kt)	(%)	(kg/t)
IPCC default EF ^f				(%)										(%)								
									0.31-1.7	0.04-0.17								1 ^g				
Australia	T1c	CS	T	0.29	1,788	1,809	1,809	0.0	0.1083	0.0141	7.7	T2	CS			SF6 consumption	NE	NE	NE			
Austria	NA	NA			NO	NO	158					NA	NA			cast Magnesium [t]	3,600		NA			
Belarus																						
Belgium																						
Bulgaria	D	D		0.03	0	2	2,709	131,272.9	0.0014	0.0001	10.0						NO	NO	NO			
Canada	T2	CS	L, T	0.67	2,583	2,709			0.0003	0.0000	14.9	T3	PS		0.37	Primary Magnesium Production (3)	70,000	0.0	112.0			
Croatia							15															
Czech Republic						NO											NO					
Denmark					NO	NO	31										NO		NO			
Estonia																						
European Community	C, CS, D, PS, T1, T2, T3a, T3b	C, CS, D, PS, T3a		0.08					NE	NE		NE	NE					NE	IE			
Finland	NO	NO			NO	NO	30					T2, T1a	NA			SF6 consumption	C		C			
France	C	PS	T	0.18	458	463	463	0.0	0.2832	0.0283	10.0	C	CS		0.13	SF6 consumption	31	1,000.0	30.9			
Germany	T3a	T3a		0.04	653	655	650	-0.7	0.0001	0.0000	10.0	T1	T1		0.04	Mg-Production	20,000	0.0	15.9			
Greece			T	0.07	C	C	164		C	C							NO	NO	NO			
Hungary	T2	D, CS		0.26	0	35	35		0.7703	0.0773	10.0						NO		NO			
Ireland	NA	NA			NO							NA	NA						NO			
Italy	D, T1, T2	CS	T	0.04	188	191	190	-0.1	0.0001	0.0000	7.8				0.07	SF6 consumption	17	1.0	16.7			
Japan	-	-		0.00	7	6	40	542.0	0.3173	0.0317	10.0	-	-		0.08	SF6 consumption	47	1.0	47.0			
Latvia	NO	NO			NO	NO						NO	NO				NO		NO			
Lithuania					NO	NO			NO	NO							NO	NO	NO			
Luxembourg																						
Monaco						NO											NO		0.0			
Netherlands	CS/T2&T3b	PS	T	0.49	293	284	300	5.5	0.0005	0.0000	9.9	NO					NO	NO	NO			
New Zealand	T2	D	T	0.11	324	334	335	0.3	0.0200	0.0000	6,680.0							NO	NO			
Norway			L, T	2.02	1,039	1,047	1,095	4.6	0.0002	0.0000	24.9			T	0.26	SF6 consumption	6	1.0	5.9			
Portugal					NO	NO	18															
Romania	T1c	T1c		0.38	183	190	187	-1.6	0.3730	0.0368	10.1	NE	NE				NE					
Slovakia				0.02	110	110	112	2.0	0.0000	0.0000	10.0						NO	NO	NO			
Slovenia	T1	D	L, T	0.57	75	107	88	-17.5	0.1452	0.0161	9.0						NO	NO	NO			
Spain	NO		T	0.05	C	C	380		C	C		NO					NO	NO				
Sweden	T2	CS	T	0.41	102	102	101	-1.2	0.3695	0.0411	9.0	D	D	T	0.09	SF6 consumption	3	1,000.0	2.6			
Switzerland			T	0.02	36	40	36	-10.4	0.0000	0.0000	9.0	T2	M		0.05				1.2			
Ukraine	D	D		0.00	C	C	112					NA	NA				C					
United Kingdom	T2/PS	CS		0.03	341	344	340	-1.3	0.0897			T2/PS	CS	T	0.15	SF6 consumption	39	1,000.0	39.0			
United States	T2, T3	PS	T	0.08	2,637	2,707	2,707	0.0	0.0003	0.0000	9.4	T2	CS		0.03	Magnesium Production and Processing	C	C	100.6			

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

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

^c As United Nations data for 2002 were not available for all Parties for the comparisons of United Nations and CRF data in this table, data for the years 2001 from the CRF are provided together with the respective United Nations data for 2001.

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

^e Source of data for aluminium: United Nations Industrial Commodity Production Statistics Database (as of 17 May 2004), Department of Economic and Social Affairs, Statistics Division, United Nations, New York. Data are for 2002, except for 2001 for Austria and Portugal. Data are for primary production, except for Austria, Denmark, Finland, Hungary and Portugal where only total production data were available.

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

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

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

Table 2.14**Metal production: aluminium – trend information****CF₄ emissions (t)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	511.8	156.7	136.5	181.5	127.6	143.4	202.2	195.9
Austria	129.5	NO	NO	NO	NO	NO	NO	NO
Belarus								
Belgium	NE							
Bulgaria								2.9
Canada	988.0	982.7	895.5	810.7	700.5	608.8	664.0	680.9
Croatia	126.0							
Czech Republic								
Denmark	NO	NO	NO	NO	NO	NO	NO	NO
Estonia								0.0
European Community						NE	NE	NE
Finland	NO	NO	NO	NO	NO	NO	NO	NO
France	308.6	87.4	92.7	120.8	157.3	115.1	78.7	131.1
Germany	NE	198.0	145.0	157.0	116.0	48.0	50.1	58.1
Greece	34.7	9.7	22.3	27.5	17.8	20.0	12.3	12.0
Hungary								27.2
Ireland	NO	NO	NO	NO	NO	NO	0.0	NO
Italy	198.3	18.4	18.8	18.9	18.8	25.9	30.5	25.9
Japan	NE	8.9	8.0	6.7	3.9	2.4	2.1	2.0
Latvia	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	NO			NO			NO	NO
Luxembourg								
Monaco								0.0
Netherlands	301.0	247.0	261.0	195.2	153.9	160.4	154.8	140.2
New Zealand	68.0	30.0	21.0	10.0	10.0	7.7	7.7	11.0
Norway	479.1			184.8	163.9	131.1	151.7	163.0
Portugal	NO	NO	NO	NO	NO	NO	NO	NO
Romania	105.2	54.1	61.2	65.3	64.9	67.5	68.3	70.9
Slovakia							1.5	1.5
Slovenia	37.2	32.3	26.2	20.1	14.0	14.0	14.0	15.5
Spain	114.3	103.0	105.7	99.7	91.2	50.0	24.7	26.5
Sweden	58.5	43.9	40.1	38.9	42.8	35.1	34.5	37.6
Switzerland	13.3	2.0	1.9	2.0	1.9	1.3	1.3	1.4
Ukraine							0.2	0.2
United Kingdom	196.0	41.6	32.5	32.0	28.1	37.9	32.8	30.9
United States	2,437.1	1,709.3	1,510.4	1,243.1	1,231.0	1,231.8	532.3	696.7

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	-12.8	33.0	-29.7	12.3	41.0	-3.1	-61.7
Austria							
Belarus							
Belgium							
Bulgaria							
Canada	-8.9	-9.5	-13.6	-13.1	9.1	2.5	-31.1
Croatia							
Czech Republic							
Denmark							
Estonia							
European Community							
Finland							
France	6.0	30.3	30.2	-26.8	-31.6	66.6	-57.5
Germany	-26.8	8.3	-26.1	-58.6	4.3	16.0	
Greece	130.2	23.4	-35.4	12.6	-38.4	-2.8	-65.5
Hungary							
Ireland							
Italy	1.8	0.6	-0.7	37.8	17.8	-15.2	-87.0
Japan	-9.8	-16.9	-41.1	-38.9	-11.8	-5.6	
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands	5.7	-25.2	-21.1	4.2	-3.5	-9.4	-53.4
New Zealand	-30.0	-52.4		-23.0		42.9	-83.8
Norway			-11.3	-20.0	15.7	7.4	-66.0
Portugal							
Romania	13.1	6.7	-0.6	4.0	1.1	3.8	-32.6
Slovakia						-0.2	
Slovenia	-18.8	-23.2	-30.2			10.3	-58.4
Spain	2.6	-5.7	-8.5	-45.2	-50.7	7.6	-76.8
Sweden	-8.6	-3.1	10.0	-17.9	-1.8	9.1	-35.7
Switzerland	-6.3	6.8	-8.7	-31.2	2.1	10.7	-89.1
Ukraine						4.1	
United Kingdom	-21.8	-1.4	-12.3	34.9	-13.5	-5.8	-84.2
United States	-11.6	-17.7	-1.0	0.1	-56.8	30.9	-71.4

Table 2.15

Production of halocarbons and SF₆ (2002)

	HFCs						PFCs		SF ₆		
	Methods and EF used ^a		By-product emissions, production of HCFC-22				Methods and EF used ^a		Methods and EF used ^a		
	Methods	EF	Key source	Share of national total	Activity data (HCFC-22 production)		IEF	Method	EF	Method	EF
					CRF	International ^b	HFC 23				
							(t)				
IPCC default EF ^c				(%)			40				
Australia	NA	NA			NO		NO	NA	NA	NA	NA
Austria	NA	NA			NO			NA	NA	NA	NA
Belarus											
Belgium											
Bulgaria					NO		NO				
Canada	NA	NA			NA	X	NO	NA	NA	NA	NA
Croatia											
Czech Republic	NO							NO		NO	
Denmark	NO							NO		NO	
Estonia											
European Community	CS, D, PS, T1, T2	C, CS, D, PS, T1, T2		0.2			NE	CS, PS, T2, T3	CS, PS, T3	CS, T1, T2, T3b	CS, D, PS, T1
Finland	NO	NO						NO	NO	NO	NO
France	CS	CS/ PS	T	0.1		X		CS	CS/ PS		
Germany	T1	T1	T		30,000	X	0.00	NO	NO	T1	T1
Greece	CS	CS	L, T	2.4	C	X	C	CS	CS		
Hungary											
Ireland	NA	NA						NA	NA	NA	NA
Italy	CS	CS				X		CS	CS	CS	CS
Japan	CS	CS	T	0.5	72,787		7.16	CS	CS	CS	CS
Latvia	NO	NO			NO			NO	NO	NO	NO
Lithuania					NO		NO				
Luxembourg											
Monaco											
Netherlands	CS/T2	PS	T	0.3	C	X	C	NO		NO	
New Zealand					NO		NO				
Norway											
Portugal											
Romania	NE	NE						NE	NE	NE	NE
Slovakia	NO	NO			NO		NO	NO	NO	NO	NO
Slovenia					NO		NO				
Spain	D,CS,T2	D,PS,T2	T	0.3	C		C	CS,T3	PS,T3	NO	NO
Sweden	NO	NO			NO			NO	NO	NO	NO
Switzerland											
Ukraine	NE	NE						NE	NE	NE	NE
United Kingdom ^d	T2/PS	CS		0.4		X		T2/PS	CS	NO	NO
United States	M, T2a	M, CS	T	0.3	144,219	X	0.01	M, T2a	M, CS	NE	NE

^a Information on methods and emission factors is included in this table as reported by Parties. It may not reflect the actual method or type of emission factor used for HFCs, PFCs and SF₆ for all subcategories within the category 2.E. Production of halocarbons and SF₆.

^b An 'X' in this column indicates that an estimate of aggregated production of HCFCs for 2002 is available from the Secretariat of the Montreal Protocol. Usually HFC-23 occurs only during the production of HCFC-22.

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

^d The United Kingdom reported aggregated HFC emissions from 2.E.1 Production and 2.E.2 Fugitive. Under that category, the activity data value was 34,851 t for 2002 and the implied emission factor was 6.64.

Table 2.16

Production of halocarbons and SF₆, HFC-23 – trend information
HFC-23 emissions (t)

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	96	NO	NO	NO	NO	NO	NO	NO
Austria	NO	NO	NO	NO	NO	NO	NO	NO
Belarus								
Belgium								
Bulgaria								NO
Canada	NO	NO	NO	NO	NO	NO	NO	NO
Croatia								
Czech Republic								
Denmark	NO	NO	NO	NO	NO	NO	NO	NO
Estonia								
European Community						NE	NE	NE
Finland	NO	NO	NO	NO	NO	NO	NO	NO
France	140	32	30	18	37	29	31	35
Germany	NE	260	250	240	226	100	90	100
Greece	80	320	338	320	320	320	272	273
Hungary								
Ireland	NE	NO	NO	NO	NO	NO		NO
Italy	30	0	0	0	0	0	0	0
Japan	NE	1,333	1,256	1,178	1,205	1,060	798	521
Latvia	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	NO			NO			NO	NO
Luxembourg								
Monaco								0
Netherlands	379	589	573	666	294	207	38	59
New Zealand	NO	NO	NO	NO	NO	NO	NO	NO
Norway								
Portugal	NO	NO	NO	NO	NO	NO	NO	NO
Romania								
Slovakia							NO	NO
Slovenia	NO	NO	NO	NO	NO	NO	NO	NO
Spain	205	432	495	434	504	540	248	88
Sweden	NO	NO	NO	NO	NO	NO	NO	NO
Switzerland								
Ukraine								
United Kingdom	IE	IE	IE	IE	IE	IE	IE	IE
United States	2,990	2,660	2,563	3,432	2,599	2,546	1,694	1,691

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria							
Belarus							
Belgium							
Bulgaria							
Canada							
Croatia							
Czech Republic							
Denmark							
Estonia							
European Community							
Finland							
France	-6.7	-37.9	98.7	-19.5	4.4	13.4	-75.2
Germany	-3.8	-4.0	-5.8	-55.8	-10.0	11.1	
Greece	5.7	-5.5			-15.0	0.4	241.6
Hungary							
Ireland							
Italy							
Japan	-5.8	-6.2	2.3	-12.0	-24.7	-34.7	
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands	-2.6	16.1	-55.8	-29.6	-81.4	52.2	-84.6
New Zealand							
Norway							
Portugal							
Romania							
Slovakia							
Slovenia							
Spain	14.4	-12.2	16.0	7.3	-54.1	-64.6	-57.2
Sweden							
Switzerland							
Ukraine							
United Kingdom							
United States	-3.6	33.9	-24.3	-2.0	-33.5	-0.2	-43.4

Table 2.17
Consumption of halocarbons and SF₆, HFCs (2002)

	Methods and EF ^a		HFC-23		Ratio P/A	HFC-32		Ratio P/A	HFC-41		Ratio P/A	HFC-431-dmee			HFC-125			Ratio P/A	HFC-134		Ratio P/A	HFC-134a			Ratio P/A
			P ^b 2.F(p)	A ^a 2.F(a)		P 2.F(p)	A 2.F(a)		P 2.F(p)	A 2.F(a)		P 2.F(p)	A 2.F(a)	P 2.F(p)	A 2.F(a)	P 2.F(p)	A 2.F(a)		P 2.F(p)	A 2.F(a)					
	Method	EF	(Gg CO ₂ equ.)		(Gg CO ₂ equ.)		(Gg CO ₂ equ.)		(Gg CO ₂ equ.)		(Gg CO ₂ equ.)		(Gg CO ₂ equ.)		(Gg CO ₂ equ.)		(Gg CO ₂ equ.)		(Gg CO ₂ equ.)						
Australia	T2	CS	NE	NE		NE	NE		NE	NE		NE	NE		NE	292.34		NE	NE		NE	2,094.24			
Austria	CS	CS	71.96	6.44	11.18	8.15	1.14	7.18	NO	NO		NO	NO		206.75	61.33	3.37	NO	NO		2,168.49	848.99	2.55		
Belarus																									
Belgium			134.55	3.74	35.94	12.74	4.91	2.59				562.52	297.39	1.89							1,440.66	707.98	2.03		
Bulgaria	T1a	D	0.75			0.47						18.72									38.42				
Canada	T2	D	1.65	1.64	1.01	0.42	1.04	2.96				39.19	118.00	0.33							1,720.42	679.53	2.53		
Croatia	T1	D				0.06						13.29									14.32				
Czech Republic	T1		3.57			4.03						189.28									639.86				
Denmark	MCS	CS				15.77	5.48	2.88				325.55	135.82	2.40							556.81	364.80	1.53		
Estonia																									
European Community	C, CS, D, M, T1a, T1b, T2, T2a	C, CS, D, PS, T2	IE	IE		IE	IE		IE	IE		IE	IE		IE	IE		IE	IE		IE	IE			
Finland	T2, T1a & T1b	D	1.05			7.86									321.64	92.40	3.48				471.63	166.40	2.83		
France	CS, T2	CS		25.71			16.39					196.63				1,320.19					4,967.83				
Germany	T2	D	280.80	C		79.42	10.30	7.71	NO	NO		C	C		1,574.10	964.80	1.63	NO	NO		4,781.36		0.00		
Greece	T2a	D					84.32								371.25						348.42				
Hungary	T1-2	CS	0.28	0.08	3.35	4.76	1.69	2.81							158.53	61.75	2.57				228.19	123.96	1.88		
Ireland	T2	D, CS	9.04	2.64	3.42	32.95	1.65	20.00				697.08	64.93	10.74							541.41	89.03	6.04		
Italy	D, T2	CS		12.99		-5.20	146.71	-0.04							803.60	1,029.60	0.78		0.11		2,960.10	1,797.38	1.65		
Japan	CS	CS	13,029.12	IE	NE	IE	55.83	NE	NO	IE		NO	IE		IE	240.51	NE	NO	IE		18,722.08	6,056.40	3.09		
Latvia	NE	NE	NO/NE	NE	NE	NO/NE	NE	NE	NO/NE	NE	NE	NO/NE	NE	NE	NO/NE	NE	NE	NO/NE	NE	NE	NE	NE	NE		
Lithuania	T1	D	NE	NE		0.20	NE	NE	NE	NE		NE	NE	NE	2.24	NE	NE	NE	NE	NE	30.16	NE	NE		
Luxembourg																									
Monaco	T1a	D				0.00									0.01			0.11			0.01				
Netherlands ^b	MCS, T2	CS													840.00	153.16	5.48				689.00	422.67	1.63		
New Zealand	T2	D	NE	NE	NE	NE	0.59	NE	NO	NO	NE	NO	NO	NE	NE	54.32	NE	NO	NO	NE	NE	249.85	NE		
Norway	T2	CS	1.76	0.93	1.90	5.96	1.46	4.08							374.73	115.30	3.25				555.84	111.56	4.98		
Portugal	D	D,CS														1.44									
Romania	NE	NE																							
Slovakia	D	D,CS	0.49	0.46	1.06	4.17	0.78	5.34							73.67	16.13	4.57				113.47	61.63	1.84		
Slovenia																									
Spain	D,CS,T2	D,PS,T2		790.30												187.49						69.19			
Sweden	T2, D	CS, D, PS	0.94	0.94	1.00	27.50	0.30	91.38							556.44	9.76	57.04				452.97	344.96	1.31		
Switzerland	T2	M	3.89	2.73	1.43	15.23	3.00	5.07	NO	NO	NA	NO	NO	NA	327.50	81.14	4.06	NO	NO	NA	605.57	286.87	2.11		
Ukraine	NE	NE																							
United Kingdom ^c	T2	D,CS	14,488.19	8,126.76	1.78		IE		IE				IE					IE							
United States	M, T2a	M, CS	1,549.20	277.50	5.58	617.32	319.74	1.93							22,829.65	13,376.40	1.71				93,004.33	56,937.32	1.63		

	HFC-152a			HFC-143			HFC-143a			HFC-227ea			HFC-236fa			HFC-245ca			Total		
	P	A	Ratio P/A	P	A	Ratio P/A	P	A	Ratio P/A	P	A	Ratio P/A	P	A	Ratio P/A	P	A	Ratio P/A	P	A	Ratio P/A
	2.F(p)	2.F(a)		2.F(p)	2.F(a)		2.F(p)	2.F(a)		2.F(p)	2.F(a)		2.F(p)	2.F(a)		2.F(p)	2.F(a)		2.F(p)	2.F(a)	
	(Gg CO ₂ eq.)	(Gg CO ₂ eq.)		(Gg CO ₂ eq.)	(Gg CO ₂ eq.)		(Gg CO ₂ eq.)	(Gg CO ₂ eq.)		(Gg CO ₂ eq.)	(Gg CO ₂ eq.)		(Gg CO ₂ eq.)	(Gg CO ₂ eq.)		(Gg CO ₂ eq.)	(Gg CO ₂ eq.)		(Gg CO ₂ eq.)	(Gg CO ₂ eq.)	
Australia	NE	NE		NE	NE		NE	557.87		NE	NE		NE	NE		NE	NE		NE	2,744.46	
Austria	105.51	63.31	1.67	NO	NO		202.54	51.55	3.93	11.60	0.50	23.42		NO	NO		NE	NO		2,774.99	1,033.25
Belarus																					
Belgium	53.19	52.59	1.01				750.12	415.38	1.81	199.52	20.59	9.69		56.07	2.46	22.82			3,209.37	1,505.04	2.13
Bulgaria	0.04						22.61			8.58									89.59		
Canada	2.57	4.39	0.59				47.18	113.67	0.42	3.10									1,814.53	917.38	1.98
Croatia							21.64												49.31		
Czech Republic	0.55						227.47			3.43				24.19					1,092.37		
Denmark	1.66	1.83	0.91				400.24	164.17	2.44										1,300.03	672.10	1.93
Estonia																					
European Community	IE	IE		IE	IE		IE	IE		IE	IE		IE	IE		IE	IE				
Finland	19.62	0.37	53.29				435.97	136.80	3.19										1,239.88	462.44	2.68
France		60.53					2,709.92			75.61									9,372.79		
Germany	256.62	263.03	0.98	NO	NO		1,967.94	1,189.04	1.66	216.75	C		C	C		NO	NO		9,156.99	7,035.37	1.30
Greece																			803.99		
Hungary	0.11	0.11	1.00				217.23	86.10	2.53										609.11	273.70	2.23
Ireland							724.18	84.32	8.59	116.00	10.36	11.20							2,130.67	352.92	5.38
Italy							79.80	556.46	0.14	89.90	3,537.47	0.03							3,928.20	7,080.72	0.55
Japan	IE	22.22		NO	IE		IE	IE		NO	45.00	NE	NO	IE		NO	IE		44,858.00	6,844.08	6.55
Latvia	NO/NE	NE	NE	NO/NE	NE	NE	NO/NE	NE	NE	NO/NE	NE	NE	NO/NE	NE	NE	NO/NE	NE	NE	NO/NE	NE	NE
Lithuania	NE	NE	NE	NE	NE	NE	1.90	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	34.50	NE	NE
Luxembourg																					
Monaco																			0.12	43.06	
Netherlands ^b							828.40	178.26	4.65	99.00	35.90	2.76							2,456.40	789.99	3.11
New Zealand	NE		NE	NO	NO	NE	NE	82.08	NE	NE	0.75	NE	NO	NO		NE	NO	NO	NE	387.59	NE
Norway	10.97	1.73	6.33				434.82	131.91	3.30	40.47	2.23	18.15							1,424.55	365.12	3.90
Portugal		0.56						2.32												49.05	
Romania																					
Slovakia	0.41	0.17	2.42				87.78	20.89	4.20	25.81	1.28	20.23	23.81	2.39	9.95				329.61	103.74	3.18
Slovenia																				69.19	
Spain								292.72			63.44			5.92						2,725.47	
Sweden	37.76	19.50	1.94				384.33	10.76	35.71	3.46	0.00	993.33							1,463.40	386.22	3.79
Switzerland	28.63	3.26	8.79	NO	NO	NA	334.45	87.53	3.82	47.58	6.81	6.98	NO	NO	NA	NO	NO	NA	1,362.87	471.36	2.89
Ukraine																					
United Kingdom ^c		IE			IE			IE		IE				IE		IE			14,488.19	8,126.76	1.78
United States							26,953.22	12,170.77	2.21				5,888.94	2,148.31	2.74				150,842.66	85,230.03	1.77

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

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

^c The United Kingdom reported aggregated HFCs emissions for the industrial processes sector in the HFC-23 column.

^d P = potential emissions

^c A = Actual emissions

Table 2.17 (continued)

Consumption of halocarbons and SF₆, PFCs and SF₆ (2002) (continued)

Methods and EF ^a			CF ₄			C ₂ F ₆			C ₃ F ₈			C ₄ F ₁₀			c-C ₄ F ₈			C ₃ F ₁₂			C ₆ F ₁₄			Total		
Method	EF	P ^d 2.F(p)	A ^e 2.F(a)	Ratio P/A	P 2.F(p)	A 2.F(a)	Ratio P/A	P 2.F(p)	A 2.F(a)	Ratio P/A	P 2.F(p)	A 2.F(a)	Ratio P/A	P 2.F(p)	A 2.F(a)	Ratio P/A	P 2.F(p)	A 2.F(a)	Ratio P/A	P 2.F(p)	A 2.F(a)	Ratio P/A	P 2.F(p)	A 2.F(a)	Ratio P/A	
		(Gg CO ₂ equ.)	(Gg CO ₂ equ.)		(Gg CO ₂ equ.)	(Gg CO ₂ equ.)		(Gg CO ₂ equ.)	(Gg CO ₂ equ.)		(Gg CO ₂ equ.)	(Gg CO ₂ equ.)		(Gg CO ₂ equ.)	(Gg CO ₂ equ.)		(Gg CO ₂ equ.)	(Gg CO ₂ equ.)								
Australia	NE	NA	NE																							
Austria	CS	CS	117.72	9.53	12.35	81.28	15.63	5.20	NO	NO				NO	NO		NO	NO		NO	NO		199.00	25.16	7.91	
Belarus																										
Belgium																										
Bulgaria																										
Canada	T2	D	5.46	3.12	1.75	29.49	11.75	2.51	18.88	1.67	11.32	0.12	0.00	336.63	0.00	0.07	0.01	0.15	0.08	1.85	2.23	2.42	0.92	56.34	19.12	2.95
Croatia																										
Czech Republic	T1		4.75			9.11			4.06															17.91		
Denmark	MCS	CS							13.62	22.17	0.61													13.62	22.17	
Estonia																								NE	NE	
European Community	NE	NE	IE	IE		IE	IE		IE	IE		IE	IE		IE	IE		IE	IE		IE	IE		NE	1,745.65	
Finland	T2, T1a & T1b	D							19.18	12.60	1.52													19.94	13.37	
France	CS, T2	CS		136.62			267.58			5.59											148.53				558.32	
Germany	T2	T2	13.00	C		36.80	C		21.70	C		NO	NO			C		NO	NO		NO	NO		71.50	355.00	
Greece																										
Hungary	T2	CS							3.41	1.45	2.35													3.41	1.45	
Ireland	T2	D, CS	49.02	39.16	1.25	274.45	167.15	1.64	0.13	0.08	1.64			4.35	0.87	5.00							327.95	207.26		
Italy	D, T1	CS		106.17			108.01									0.77									214.95	
Japan	CS	CS	2,866.50	IE		IE	IE		IE	IE		NO	IE		IE	IE		IE	IE		NO	IE		15,884.30	8,582.70	
Latvia	NE	NE	NO/NE	NE	NE	NO/NE	NE	NE	NO/NE	NE	NE	NO/NE	NE	NE	NO/NE	NE	NE	NO/NE	NE	NE	NO/NE	NE	NE	NO/NE	NE	
Lithuania			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	
Luxembourg																										
Monaco	T1a	D							0.06															0.06		
Netherlands ^b	T2&T3b	D													159.58									159.58		
New Zealand	T2	D	NE	NO	NE	NE	NO	NE	NE	2.80	NE	NO	NO	NE	NO	NO	NE	NO	NO	NE	NO	NO	NE	NE	2.80	
Norway									0.39	0.39	1.00													0.39	0.39	
Portugal																										
Romania	NE	NE																								
Slovakia	D	D,CS	3.90																					3.90		
Slovenia																										
Spain	D,CS,T2	D,PS,T2										62.34		2.91											65.24	
Sweden	T2	CS	10.40	3.38	3.08	10.12	8.31	1.22	8.61	6.02	1.43												29.13	17.71		
Switzerland	T2	M	10.60	6.02	1.76	25.02	15.73	1.59	0.70	3.65	0.19	NO	NO	NA	NO	NO	NA	NO	NO	NA	NO	NO	NA	36.32		
Ukraine	NE	NE																								
United Kingdom ^c	T2	D,CS	106.88	106.88	1.00			IE				IE				IE					IE			106.88		
United States	M, T2a	M, CS	1,216.78	1,147.67	1.06	3,208.11	2,245.68	1.43	163.60	65.44	2.50			159.50	47.85	3.33							4,747.99			
																							3,506.64			

Total PFCs	Method and EF used ^a		SF ₆		Ratio P/A
	Method	EF	P 2.F(p) (Gg CO ₂ equ.)	A 2.F(a)	
Australia	NE	NA	NE	NE	
Austria	CS	CS	1,056.62	669.30	1.58
Belarus					
Belgium			172.80	93.93	1.84
Bulgaria	D	D	2.39	1.10	2.17
Canada	NA	NA			
Croatia					
Czech Republic	T1		211.80		
Denmark	MCS	CS	33.46	21.63	1.55
Estonia			NO	NO	
European Community	C, CS, D, M, T1, T1a, T1b, T2, T3b, T3c	C, CS, D, PS, T1, T2	IE	6,543.03	
Finland	T2, T1a & T1b	D	65.22	51.31	1.27
France	CS, T2	CS	827.95		
Germany	CS, T2, T1	CS, T2, T1	11,125.45	2,620.32	4.25
Greece					
Hungary	T2-3	CS	168.88	121.49	1.39
Ireland	T2	D, CS	110.06	71.25	1.54
Italy	D, T1a	CS	3,680.60	360.13	10.22
Japan	CS	CS	25,023.30	3,322.40	7.53
Latvia	T2	D	NE	0.03	NE
Lithuania			NE		NE
Luxembourg				84,128.00	
Monaco	T1a	D			
Netherlands	T2&T3b	PS,CS/D		343.59	
New Zealand	T3/2		48.13	12.91	3.73
Norway			313.77	80.63	3.89
Portugal	D	CS		7.00	
Romania	NE	NE			
Slovakia	D	D,CS	126.60	14.41	8.78
Slovenia	T2	D		21.03	
Spain	CS,T2	CS,T2		238.69	
Sweden	T2, CS	CS, D, PS	347.27	32.60	10.65
Switzerland	T2	M		155.91	NA
Ukraine	NE	NE			
United Kingdom	T2	CS	738.14	661.91	1.12
United States	T3b, CS	CS	25,298.62	15,440.95	1.64

^a Information on methods and emission factors is included in this table as reported by Parties. It may not reflect the actual method or type of emission factor used for all PFCs for all subcategories within the category 2.F.Consumption of halocarbons and SF₆.^b The Netherlands reported aggregated emissions of all PFCs for the industrial processes sector. They are reported as unspecified and not as c-C₄F₁₀.^c The United Kingdom reported aggregated HFCs emissions for the industrial processes sector in the CF₄ column.^d P = Potential emissions^e A = Actual emissions

Table 2.18
Consumption of halocarbons and SF₆ – trend information
HFC-134a emissions (t)

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	NE	216	416	689	940	1,187	1,393	1,611
Austria	1	458	509	568	602	653	653	653
Belarus								
Belgium	189	270	363	408	381	403	467	545
Bulgaria								
Canada		543	406	523	523	523	523	523
Croatia								
Czech Republic								
Denmark		204	172	211	227	252	269	281
Estonia	NE	NE	NE	NE	NE	NE	NE	
European Community	IE	IE	IE	IE	IE	IE	IE	IE
Finland		38	89	91	127	240	203	128
France		1,541	2,013	2,177	2,553	2,826	3,205	3,821
Germany	NE	1,735	2,033	2,318	2,375	2,691	3,549	3,374
Greece		47	70	95	132	174	217	268
Hungary								95
Ireland	NE	10	17	31	34	44	60	68
Italy		256	391	629	817	989	1,191	1,383
Japan	NE	2,793	3,481	3,769	4,056	4,315	4,362	4,659
Latvia	NO	NE	NE	NE	NE	NE	NE	NE
Lithuania	NE			NE			NE	NE
Luxembourg								
Monaco								
Netherlands		389	602	696	728	633	439	325
New Zealand		72	38	114	76	105	124	192
Norway				38	50	61	72	86
Portugal		0	1	5	9	17	26	34
Romania								
Slovakia							43	47
Slovenia		23	29	26	26	34	43	53
Spain		62	143	353	617	807	961	1,066
Sweden	3	120	180	204	243	255	251	265
Switzerland	0	96	114	154	176	182	210	221
Ukraine								
United Kingdom								
United States		18,870	24,136	28,202	32,491	36,888	40,512	43,798

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	92.9	65.8	36.4	26.2	17.4	15.6	
Austria	11.2	11.5	6.0	8.5			48,146.9
Belarus							
Belgium	34.3	12.2	-6.4	5.6	15.9	16.7	188.5
Bulgaria							
Canada	-25.3	28.9					
Croatia							
Czech Republic							
Denmark	-15.4	22.2	8.0	10.7	6.7	4.4	
Estonia							
European Community							
Finland	136.6	1.7	39.2	90.0	-15.6	-36.9	
France	30.6	8.1	17.3	10.7	13.4	19.2	
Germany	17.2	14.0	2.4	13.3	31.9	-4.9	
Greece	46.7	36.7	38.5	31.9	25.0	23.5	
Hungary							
Ireland	77.3	80.2	12.2	27.5	37.0	14.0	
Italy	52.6	60.8	30.0	21.1	20.4	16.1	
Japan	24.6	8.3	7.6	6.4	1.1	6.8	
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands	55.0	15.6	4.5	-13.1	-30.5	-26.0	
New Zealand	-47.2	201.1	-33.5	39.2	17.6	55.1	
Norway			31.5	21.6	17.6	19.5	
Portugal	304.6	544.5	97.1	85.5	53.9	32.9	
Romania							
Slovakia						10.6	
Slovenia	24.2	-9.8	0.4	31.2	24.8	24.1	
Spain	130.4	147.0	74.5	30.9	19.0	11.0	
Sweden	49.7	13.2	19.6	5.0	-1.6	5.6	8,864.6
Switzerland	18.9	35.0	13.8	3.4	15.4	5.3	1,273,295.1
Ukraine							
United Kingdom							
United States	27.9	16.8	15.2	13.5	9.8	8.1	

Table 2.18**Consumption of halocarbons and SF₆ – trend information (continued)****SF₆ emissions (t)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	NE	NE	NE	NE	NE	NE	NE	NE
Austria	11	27	33	33	30	28	28	28
Belarus								
Belgium	4	4	5	5	5	5	4	4
Bulgaria								0
Canada								
Croatia								
Czech Republic								
Denmark	1	2	2	2	2	2	1	1
Estonia	NO	NO	NO	NO	NO	NO	NO	
European Community	247	389	395	384	302	287	274	274
Finland	4	2	2	1	1	1	2	1
France	44	51	47	43	38	37	35	35
Germany	NE	252	246	234	166	147	115	110
Greece								
Hungary								5
Ireland	NE	4	6	4	3	2	3	3
Italy	9	26	28	22	15	13	14	15
Japan	NE	551	502	455	290	207	157	139
Latvia	NO/NE							
Lithuania	NE			NE			NE	NE
Luxembourg				3,520		3,520		3,520
Monaco								
Netherlands	9	13	14	14	13	14	15	14
New Zealand	0	1	1	1	1	1	1	1
Norway	2			5	5	5	5	3
Portugal		0	0	0	0	0	0	0
Romania								
Slovakia							1	1
Slovenia	0	1	1	1	1	1	1	1
Spain	2	4	5	6	8	9	9	10
Sweden	3	3	5	3	3	2	2	1
Switzerland	7	4	4	4	4	6	8	7
Ukraine								
United Kingdom	25	35	33	33	31	29	28	28
United States	1,244	1,057	954	768	741	710	684	646

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria	25.7	-1.0	-10.5	-5.4			153.1
Belarus							
Belgium	3.8	3.9	4.6	-9.2	-3.7	-10.3	-9.0
Bulgaria							
Canada							
Croatia							
Czech Republic							
Denmark	14.2	-27.3	13.9	-22.0	-19.8	-28.9	61.6
Estonia							
European Community	1.5	-2.7	-21.3	-5.0	-4.7		10.7
Finland	10.8	-32.8	25.3	-8.9	12.5	-6.7	-61.3
France	-7.0	-9.5	-11.2	-2.9	-4.0	-2.4	-21.9
Germany	-2.3	-4.9	-29.1	-11.3	-22.0	-6.4	
Greece							
Hungary							
Ireland	30.8	-31.4	-30.0	-18.2	28.6	6.7	
Italy	6.8	-19.9	-30.8	-12.8	7.5	4.3	68.7
Japan	-8.9	-9.4	-36.2	-28.8	-24.2	-10.9	
Latvia	39.4	18.8	23.6	20.9	17.7	14.8	
Lithuania							
Luxembourg							
Monaco							
Netherlands	10.4	-4.6	-3.6	5.7	6.3	-3.6	58.1
New Zealand	0.2	130.8	8.3	-61.5	0.8	7.1	29.8
Norway			2.5	2.0	1.7	-32.6	91.4
Portugal	3.2	3.1	9.2	8.5	7.8	7.2	
Romania							
Slovakia						6.9	
Slovenia	-2.2						193.3
Spain	20.3	15.3	31.9	13.8	0.6	12.4	328.2
Sweden	45.0	-47.6	1.5	-38.5	41.2	-38.1	-60.9
Switzerland	-0.8	-1.3	-0.7	55.2	22.4	-13.3	-12.6
Ukraine							
United Kingdom	-5.2	-0.8	-6.6	-4.6	-5.1	-1.0	9.6
United States	-9.7	-19.5	-3.5	-4.2	-3.7	-5.5	-48.1

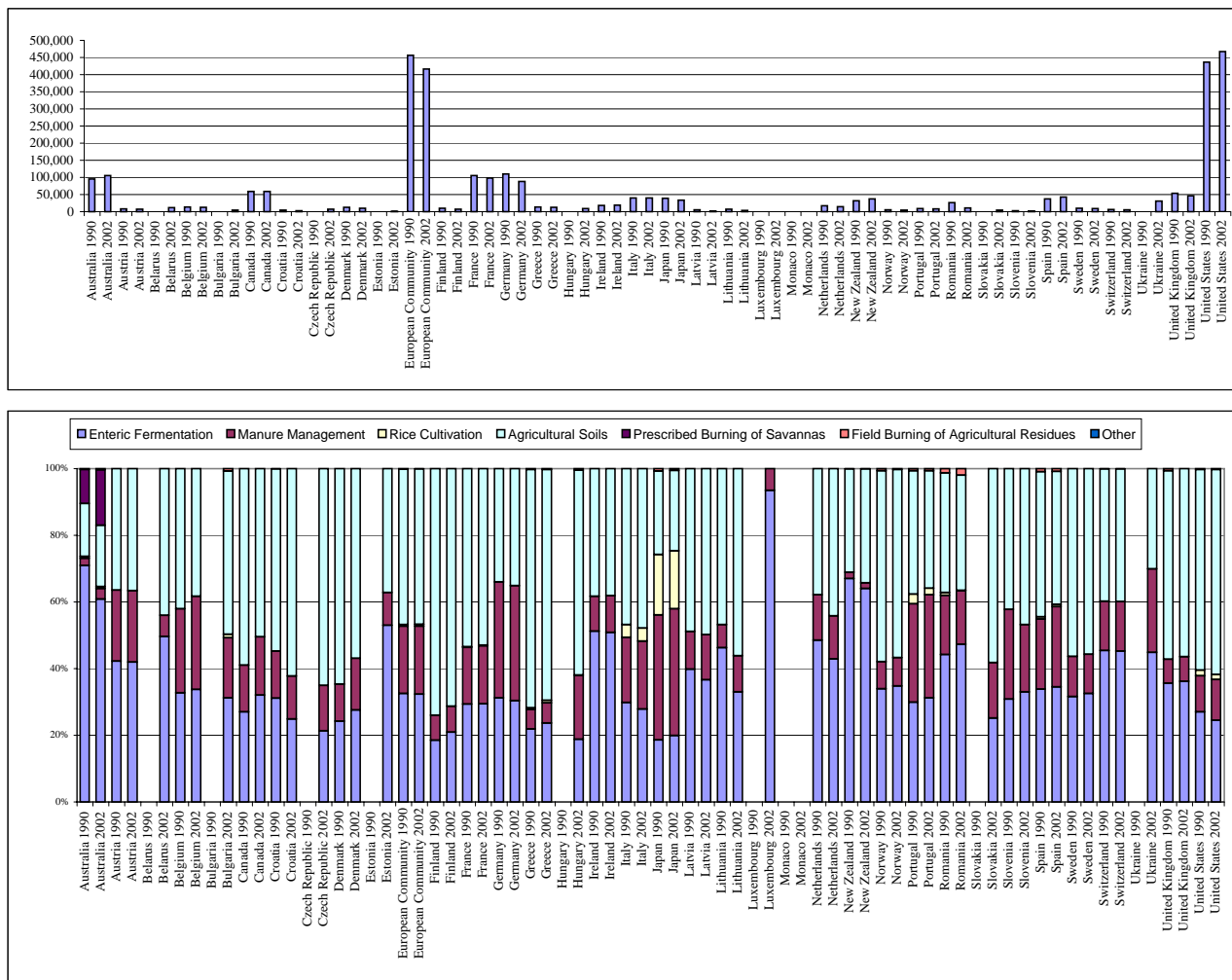
Table 3.1**Solvent and other product use, CO₂ and N₂O (2002)**

	Methods and EF used		Methods and EF used		Key source	Paint application		Degreasing and dry cleaning			
	CO ₂		N ₂ O			CO ₂		CO ₂		N ₂ O	
	Method	EF	Method	EF		Share of national total (%)	CO ₂ IEF (t/t)	Share of national total (%)	CO ₂ IEF (t/t)	Share of national total (%)	N ₂ O IEF (t/t)
Australia	NE	NE	NE	NE							
Austria	C, CS	CS	CS	CS		0.07	1.121	0.030	1.443		
Belarus											
Belgium											
Bulgaria							NE		NE		NA
Canada	NA	NA	CS	CS			NA		NA		NA
Croatia											
Czech Republic	C	C, CS	D	D		0.09	3.143	0.051	3.142		
Denmark						0.11					
Estonia											
European Community	NE	NE	NE	NE		0.06		0.008			
Finland	NO	NO	D	D							
France	C	CS				0.13	2.875	0.015	1.980		
Germany	NE	NE	CS	CS			NE		NE		NE
Greece	C	C				0.03	0.003	0.006	0.001		NE
Hungary	CS	CS				0.10	0.658	0.000	0.463		
Ireland	CS, C	CS, C	NA	NA		0.05	3.118	0.020	3.118		
Italy	D	D				0.12	0.757	0.014	2.429		NO
Japan	-	-	CS	CS			NO		NO		NO
Latvia	D	D	T1	D	L, T	0.69	1.560	0.058	0.000		
Lithuania							NE		NE		NE
Luxembourg	C/D	C/D	C/D	C/D							
Monaco											
Netherlands	CS	CS	CS	CS			NO		NO		NO
New Zealand			T2	NA			NE		NE		NE
Norway	M	CS	CS			0.04	3.000	0.002	3.000		NE
Portugal	MB					0.11	0.478	0.013	3.117		
Romania	NE	NE	NE	NE							
Slovakia											
Slovenia						0.18	NE		NE		NE
Spain	D	D	CS	CS		0.15	0.653	0.023	2.836		
Sweden	CS	CS	CS	CS	T	0.10	0.520	0.000	3.110		
Switzerland	CS	CS	CS	CS			NO		NO		NO
Ukraine	NE	NE	NE	NE							
United Kingdom	T2	CS	NE								
United States	NE	NE	NE	NE			NE		NE		NE

Agriculture

Figure 4.1

Emissions and contribution of subsectors in agriculture^a



^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Table 4.1
Enteric fermentation, CH₄ (2002)

	Key source	Share of national total (%)	Methods and EF used ^a		Cattle					Sheep				Swine			
					Activity data (population size)			Dairy cattle	Non-dairy cattle	Activity data (population size)			CH ₄ IEF (kg CH ₄ /head/yr)	Activity data (population size)			CH ₄ IEF (kg CH ₄ /head/yr)
			CRF	FAO ^b	Difference	CRF	FAO ^b			Difference	CRF	FAO ^b		Difference			
			(thousands of head)		(%)	(kg CH ₄ /head/yr)	(thousands of head)		(%)	(thousands of head)		(%)	(thousands of head)		(%)		
IPCC default EF ^c								56 - 118 ^d	44 - 56 ^d			8.0				1.5	
Australia	L, T	12.3	CS	CS	27,793	27,870	0.3	112	79	108,547	106,200	-2.2	6.9	2,844	2,940	3.4	1.4
Austria	L, T	3.7	T1, T2	D, CS	2,067	2,118	2.5	103	53	304	320	5.3	8.0	3,305	3,440	4.1	1.5
Belarus	L	8.3			4,006	4,085	2.0	81	56	73	83	13.2	8.0	3,329	3,373	1.3	1.5
Belgium	L, T	2.8	M	CS	2,967	2,891	-2.6	105	48	150	146	-2.3	6.8	6,722	6,735	0.2	1.1
Bulgaria	L	2.3	T1	D	663	635	-4.3	81	56	1,650	1,571	-4.8	8.0	893	1,014	13.6	1.5
Canada	L	2.6	T1+CS	D+CS	14,549	13,762	-5.4	118	54	656	994	51.5	8.0	14,588	14,367	-1.5	1.5
Croatia	L, T	2.6	T1	D	417	417	0.0	81	56	580	580	0.0	5.0	1,286	1,286	0.0	1.0
Czech Republic	L	1.1	T2	CS	1,466	1,520	3.7	68	24	97	96	-0.7	5.0	3,348	3,441	2.8	3.4
Denmark	L, T	4.1	T1/T2	CS	1,796	1,796	0.0	118	36	74	131	77.5	17.2	12,732	12,732	0.0	1.1
Estonia	L	1.9	T1	D	254	261	2.6	81	56	30	29	-3.7	5.0	341	345	1.2	1.0
European Community	L	3.2	C, CS, D, M, T1, T2	C, CS, D, T1, T2	NE	80,112		NE	NE	NE	102,110		NE	NE	122,727		NE
Finland	L, T	1.9	T1/T2	CS/D	1,025	1,025	0.0	115	42	96	67	-29.7	8.0	1,315	1,315	0.0	1.5
France	L, T	5.2	C	CS	20,354	20,061	-1.4	103	52	9,372	9,339	-0.4	8.0	10,388	15,305	47.3	1.5
Germany	L	2.6	C/D	C/D	14,603	14,227	-2.6	103	73	2,771	2,722	-1.8	8.0	25,784	25,958	0.7	1.5
Greece	L, T	2.2	T1	D	595	573	-3.7	81	56	9,050	9,205	1.7	8.0	967	861	-10.9	1.5
Hungary	L	2.1	T1	D, CS	775	783	1.0	115	48	1,133	1,136	0.3	8.0	5,094	4,822	-5.3	1.5
Ireland	L, T	13.8	D	CS, D	6,792	6,992	2.9	100	50	6,205	4,807	-22.5	8.0	1,751	1,770	1.1	1.5
Italy	L, T	2.0	D, T2	D, CS	7,068	6,510	-7.9	84	49	8,138	8,138	0.0	8.0	8,333	9,166	10.0	1.5
Japan		0.5	T2	D, CS	4,538	4,564	0.6	90	54	11	11	3.1	4.1	9,687	9,612	-0.8	1.1
Latvia	L, T	5.6	T1	D	388	388	0.0	81	56	32	32	-1.6	8.0	453	453	0.0	1.5
Lithuania	L	7.0	D	D	779	752	-3.5	81	56	14	12	-9.6	8.0	1,061	1,011	-4.7	1.5
Luxembourg						197					9				80		
Monaco					NO	0				NO	0			NO	0		
Netherlands	L, T	3.0	cattle 90: T2; rest: T1	cattle: CS; rest: D	3,897	3,858	-1.0	82	43	1,186	1,186	0.0	8.0	11,648	11,648	0.0	1.5
New Zealand	L, T	31.5	T2	CS/D	9,656	9,637	-0.2	77	56	40,284	39,546	-1.8	10.8	351	341	-2.8	1.5
Norway	L, T	3.1	T1	D	936	938	0.3	100	48	1,783	2,417	35.5	8.0	617	451	-26.9	1.5
Portugal	L, T	3.1	T1	D+CS	1,395	1,404	0.6	100	48	3,457	5,478	58.5	8.0	2,344	2,389	1.9	1.5
Romania	L, T	3.8	T1	T1	2,674	2,878	7.6	81	56	7,251	7,251	0.0	5.0	4,447	4,447	0.0	1.0
Slovakia	L	2.0	T1, T2	D, CS	608	608	0.0	100	56	316	316	0.0	8.0	1,554	1,554	0.0	1.5
Slovenia	L, T	3.3	T2, T1	CS, D	473	477	0.8	95	51	107	94	-12.4	8.0	656	600	-8.5	1.7
Spain	L, T	3.7	CS,T1,T2	T1,T2	6,522	6,478	-0.7	104	59	24,301	24,301	0.0	8.6	25,029	23,858	-4.7	1.3
Sweden	L, T	4.1	T1 + CS	D + CS	1,638	1,638	0.0	128	57	426	427	0.2	8.0	1,881	1,882	0.0	1.7
Switzerland	L, T	4.7	CS	CS	1,594	1,594	0.0	101	43	430	430	0.0	7.1	1,557	1,557	0.0	1.1
Ukraine	L	2.9	T1	D	9,108	9,421	3.4	81	56	950	967	1.8	8.0	9,204	8,370	-9.1	1.5
United Kingdom	L, T	2.7	T2	D/CS	10,345	10,343	0.0	121	43	35,834	35,834	0.0	4.8	5,588	5,588	0.0	1.5
United States	L, T	1.7	M, T1, T2	M, CS, D	78,359	96,704	23.4	99	60	6,685	6,685	0.0	8.0	59,979	59,804	-0.3	1.5

^a Information on methods and emission factors is included in this table as reported by Parties in table Summary 3 of the CRF. It may therefore not reflect the actual method or type of emission factor used for the various livestock types within the category CH₄ from 4.A Enteric fermentation.

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

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

^d For dairy and non-dairy cattle, IPCC default emission factors (in kg CH₄ / head/ yr) are provided by regions as shown below (see footnote c for source reference):

	North America	Western Europe	Eastern Europe	Oceania	Asia
Dairy cattle	118	100	81	68	56
Non-dairy cattle	47	48	56	53	44

Table 4.2**Enteric fermentation – trend information****CH₄ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	3,214	2,983	3,007	3,011	3,049	3,063	3,082	3,059
Austria	170	161	159	158	156	154	151	148
Belarus	471	341	332	326	311	296	283	277
Belgium	214	210	206	207	204	202	203	198
Bulgaria	193	82	79	82	83	79	62	69
Canada	762	867	875	856	849	843	896	897
Croatia	64	38	37	36	36	35	36	35
Czech Republic	156	98	93	86	85	81	81	76
Denmark	148	147	142	142	137	137	138	133
Estonia	52	24	23	22	19	18	18	18
European Community	7,074	6,746	6,660	6,627	6,600	6,527	6,497	6,411
Finland	89	78	79	77	76	75	75	74
France	1,469	1,407	1,389	1,379	1,378	1,392	1,398	1,376
Germany	1,633	1,353	1,320	1,300	1,291	1,264	1,276	1,276
Greece	142	140	141	141	142	143	143	143
Hungary	153	82	79	81	80	76	74	80
Ireland	437	464	473	483	483	473	461	454
Italy	574	573	573	565	551	553	552	526
Japan	345	335	331	328	324	322	320	319
Latvia	98	37	35	32	28	27	28	28
Lithuania	157			75			56	58
Luxembourg				16		16		15
Monaco								
Netherlands	402	366	353	341	334	319	322	306
New Zealand	1,018	1,059	1,063	1,070	1,075	1,101	1,124	1,123
Norway	82	85	85	85	85	84	81	80
Portugal	124	118	117	116	124	123	120	120
Romania	547	314	307	288	280	271	255	248
Slovakia	116	68	63	55	53	52	52	49
Slovenia	38	33	32	32	33	33	33	33
Spain	602	658	651	666	675	678	695	701
Sweden	144	147	147	143	142	138	137	136
Switzerland	132	124	119	118	119	117	119	117
Ukraine							688	667
United Kingdom	911	907	895	895	895	865	813	806
United States	5,612	5,737	5,635	5,557	5,551	5,509	5,443	5,450

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	0.8	0.1	1.2	0.5	0.6	-0.8	-4.8
Austria	-1.5	-0.7	-1.1	-1.4	-1.8	-2.0	-12.9
Belarus	-2.7	-1.9	-4.6	-4.7	-4.4	-2.3	-41.3
Belgium	-2.0	0.3	-1.1	-1.3	0.6	-2.3	-7.3
Bulgaria	-3.5	2.9	1.5	-4.4	-21.5	10.9	-64.2
Canada	1.0	-2.2	-0.8	-0.7	6.2	0.2	17.8
Croatia	-1.8	-3.4	0.2	-2.2	1.4	-2.8	-45.9
Czech Republic	-5.1	-7.6	-0.8	-4.9	-0.2	-6.6	-51.5
Denmark	-3.3	0.2	-3.6	-0.4	0.8	-3.2	-9.7
Estonia	-4.5	-4.7	-12.9	-5.8	2.5	-3.8	-65.9
European Community	-1.3	-0.5	-0.4	-1.1	-0.4	-1.3	-9.4
Finland	1.0	-2.4	-1.7	-0.6	-1.0	-0.2	-16.4
France	-1.2	-0.7	-0.1	1.0	0.4	-1.6	-6.4
Germany	-2.5	-1.6	-0.7	-2.0	0.9	0.0	-21.9
Greece	0.2	0.4	0.5	0.4	0.1	0.1	1.0
Hungary	-3.7	2.8	-1.3	-5.0	-3.0	8.1	-47.9
Ireland	1.9	2.1	0.0	-2.1	-2.5	-1.6	3.7
Italy	-0.1	-1.4	-2.3	0.2	-0.2	-4.7	-8.3
Japan	-1.1	-1.0	-1.2	-0.7	-0.7	-0.1	-7.5
Latvia	-6.4	-8.8	-13.1	-2.4	4.5	0.4	-71.2
Lithuania						2.8	-63.4
Luxembourg							
Monaco							
Netherlands	-3.6	-3.2	-2.2	-4.3	0.7	-4.9	-23.9
New Zealand	0.4	0.7	0.5	2.4	2.1	-0.1	10.4
Norway	0.2	0.9	-0.6	-1.7	-2.7	-1.1	-1.4
Portugal	-0.8	-0.3	6.2	-0.5	-2.1	-0.4	-3.5
Romania	-2.4	-6.0	-3.0	-3.1	-5.8	-2.8	-54.7
Slovakia	-7.6	-12.1	-3.1	-1.8	0.1	-5.6	-57.5
Slovenia	-2.1	0.2	1.3	2.5	-2.5	-0.1	-13.8
Spain	-1.0	2.3	1.4	0.4	2.6	0.8	16.4
Sweden	0.2	-2.9	-1.1	-2.4	-0.9	-0.6	-5.6
Switzerland	-4.5	-0.6	0.6	-1.2	1.1	-1.7	-11.4
Ukraine						-3.1	
United Kingdom	-1.3	0.1	0.0	-3.4	-6.0	-0.9	-11.5
United States	-1.8	-1.4	-0.1	-0.8	-1.2	0.1	-2.9

Table 4.3**Enteric fermentation: dairy cattle – trend information****CH₄ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	275	310	324	345	355	360	357	356
Austria	80	68	71	73	70	63	61	61
Belarus								
Belgium	95	85	84	90	86	85	87	85
Bulgaria								29
Canada	162	150	146	144	138	134	128	127
Croatia	40	25	25	24	24	23	23	23
Czech Republic								39
Denmark	82	82	78	78	75	74	73	72
Estonia								9
European Community	2,672	2,362	2,317	2,292	2,266	2,207	2,206	2,201
Finland	48	40	41	41	40	40	40	40
France	531	457	447	443	440	439	440	439
Germany	599	513	498	482	481	465	467	467
Greece	20	19	19	19	19	19	19	19
Hungary								40
Ireland	136	126	126	126	125	123	122	121
Italy	234	193	190	189	181	178	182	186
Japan	182	169	167	163	160	157	156	156
Latvia	43	22	21	20	17	17	17	17
Lithuania	69			47			36	36
Luxembourg				8		8		7
Monaco								0
Netherlands	291	262	252	248	242	230	234	225
New Zealand	238	306	310	318	333	358	390	394
Norway	34			35	35	34	33	32
Portugal	40	36	36	36	36	36	34	34
Romania	242	132	129	122	118	115	108	105
Slovakia							24	23
Slovenia	21	18	18	18	18	13	13	13
Spain	143	130	127	129	127	121	121	123
Sweden	69	58	59	56	56	54	53	53
Switzerland	81	77	74	73	74	73	75	72
Ukraine							398	382
United Kingdom	296	285	281	277	282	272	264	270
United States	1,375	1,254	1,255	1,251	1,266	1,284	1,283	1,289

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	4.3	6.4	2.9	1.5	-0.8	-0.4	29.5
Austria	4.2	2.1	-3.3	-10.2	-2.8	-0.6	-24.0
Belarus							
Belgium	-1.1	8.0	-5.2	-1.1	2.3	-2.5	-10.9
Bulgaria							
Canada	-3.1	-1.4	-3.9	-3.0	-4.6	-0.3	-21.3
Croatia	-2.3	-1.3	-1.3	-3.0	-2.4	-0.7	-43.1
Czech Republic							
Denmark	-4.3	0.5	-4.3	-0.7	-1.9	-1.6	-12.8
Estonia							
European Community	-1.9	-1.1	-1.2	-2.6	0.0	-0.2	-17.6
Finland	1.7	-1.5	-1.2	1.0	0.0	-0.9	-15.8
France	-2.0	-1.1	-0.7	-0.1	0.3	-0.4	-17.4
Germany	-2.9	-3.2	-0.2	-3.3	0.4		-22.0
Greece	0.3	1.7	2.1	0.8	-0.3	-0.3	-3.1
Hungary							
Ireland	-0.1	-0.2	-1.0	-1.3	-1.1	-1.0	-11.1
Italy	-1.6	-0.6	-3.9	-1.9	2.1	2.1	-20.8
Japan	-1.7	-1.9	-2.2	-1.6	-1.0	-0.1	-14.8
Latvia	-5.0	-8.0	-14.9	-0.7	2.2	-1.9	-61.7
Lithuania						0.3	-47.7
Luxembourg							
Monaco							
Netherlands	-3.9	-1.7	-2.5	-4.6	1.6	-3.9	-22.6
New Zealand	1.5	2.6	4.7	7.5	8.9	1.0	65.6
Norway			-0.6	-1.6	-4.0	-1.5	-5.5
Portugal		-1.9	0.6	-0.6	-4.8	0.9	-15.4
Romania	-1.7	-5.8	-2.9	-2.9	-6.0	-2.4	-56.4
Slovakia							-5.4
Slovenia	-2.0	-0.5	0.2	-25.0	-2.5	2.4	-37.4
Spain	-2.1	1.0	-1.5	-4.3	-0.1	1.1	-14.1
Sweden	1.7	-4.5	0.5	-4.8	-0.7	-0.1	-23.1
Switzerland	-5.0	-0.6	1.4	-1.2	1.8	-3.0	-10.8
Ukraine						-4.1	
United Kingdom	-1.4	-1.3	1.7	-3.4	-2.9	2.3	-8.8
United States	0.1	-0.3	1.2	1.5	-0.1	0.5	-6.2

Table 4.3**Enteric fermentation: dairy cattle – trend information (continued)****CH₄ implied emission factors (kg/head/year)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	107	109	110	112	113	113	113	112
Austria	89	98	99	100	101	102	103	103
Belarus								81
Belgium	100	103	103	109	104	104	105	105
Bulgaria								81
Canada	118	118	118	118	118	118	118	118
Croatia	81	81	81	81	81	81	81	81
Czech Republic								68
Denmark	109	116	116	117	117	117	117	118
Estonia								81
European Community						NE	NE	NE
Finland	97	103	105	106	108	111	114	115
France	99	102	102	102	103	103	103	103
Germany	94	99	99	100	101	102	103	103
Greece	83	81	81	81	81	81	81	81
Hungary								115
Ireland	100	100	100	100	100	100	100	100
Italy	89	93	91	89	86	86	84	84
Japan	88	89	90	90	90	90	90	90
Latvia	81	81	81	81	81	81	81	81
Lithuania	81			81			81	81
Luxembourg								
Monaco								
Netherlands	81	80	80	81	81	81	81	82
New Zealand	70	73	73	74	75	78	80	77
Norway	100			100	100	100	100	100
Portugal	100	100	100	100	100	100	100	100
Romania	81	81	81	81	81	81	81	81
Slovakia							100	100
Slovenia	85	86	86	86	86	95	95	95
Spain	89	98	98	99	104	106	106	104
Sweden	120	124	126	125	126	125	127	128
Switzerland	102	101	99	99	102	103	104	101
Ukraine							81	81
United Kingdom	104	110	113	114	115	116	117	121
United States	97	94	96	96	97	98	99	99

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	0.4	1.7	0.9	0.0	0.1	-0.7	4.9
Austria	0.9	0.9	0.9	0.9	0.9	0.9	16.7
Belarus							
Belgium	0.4	5.6	-4.5	0.4	0.3	0.1	4.8
Bulgaria							
Canada							
Croatia							
Czech Republic							
Denmark	0.1	0.7	0.0	0.0	0.0	0.6	7.7
Estonia							
European Community							
Finland	2.0	0.5	1.6	3.3	2.6	1.1	18.6
France	0.4	0.2	0.3	0.2	-0.2	0.6	4.6
Germany	0.4	0.7	1.2	0.9	0.8	0.0	8.9
Greece	0.0	0.0	0.0	0.0	0.0	0.0	-2.0
Hungary							
Ireland					0.0	0.0	
Italy	-2.0	-2.4	-3.5	0.1	-2.1		-4.8
Japan	0.3	0.5	0.3	0.1	-0.1	0.0	2.5
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands	0.0	1.1	0.4	-0.2	-0.4	1.1	1.3
New Zealand	-0.6	1.4	2.0	3.3	2.6	-3.2	10.3
Norway						0.0	0.0
Portugal							
Romania							
Slovakia							
Slovenia	0.0	0.1	0.1	9.8	0.7	-0.6	12.2
Spain	0.3	0.7	4.5	1.9	0.0	-1.0	17.9
Sweden	1.2	-0.5	0.5	-0.2	1.7	0.1	6.2
Switzerland	-2.4	0.2	3.2	0.2	0.9	-2.5	-0.9
Ukraine							
United Kingdom	3.0	0.9	1.0	0.9	0.7	3.4	16.7
United States	1.3	0.8	0.9	1.1	0.7	0.2	1.9

Table 4.4**Enteric fermentation: non-dairy cattle – trend information****CH₄ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	1,755	1,831	1,852	1,849	1,880	1,901	1,944	1,945
Austria	80	83	77	75	76	81	80	78
Belarus								
Belgium	110	116	113	106	109	107	107	105
Bulgaria								17
Canada	572	684	698	679	678	675	729	730
Croatia	18	8	8	8	8	8	9	8
Czech Republic								21
Denmark	50	48	46	46	44	44	46	42
Estonia								8
European Community	3,347	3,320	3,271	3,256	3,258	3,249	3,251	3,204
Finland	36	31	32	31	30	29	29	29
France	820	840	832	828	831	846	851	831
Germany	953	774	751	748	740	730	739	739
Greece	21	20	20	20	20	20	20	20
Hungary								21
Ireland	246	279	289	298	299	292	284	279
Italy	238	256	260	252	246	249	245	241
Japan	150	154	153	153	153	153	153	153
Latvia	51	13	12	11	10	9	10	10
Lithuania	83			24			17	19
Luxembourg				8		8		7
Monaco								0
Netherlands	75	66	63	59	57	55	54	50
New Zealand	233	259	255	251	251	252	254	257
Norway	31			33	32	31	30	29
Portugal	47	46	44	44	51	51	51	51
Romania	176	96	94	89	86	84	79	77
Slovakia							22	21
Slovenia	15	13	12	13	13	18	17	17
Spain	210	275	271	281	291	292	311	315
Sweden	61	74	74	73	71	71	70	69
Switzerland	44	41	40	39	38	38	38	38
Ukraine							252	246
United Kingdom	391	404	392	389	386	377	358	349
United States	3,961	4,227	4,124	4,046	4,035	3,976	3,911	3,912

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	1.2	-0.2	1.7	1.1	2.3	0.0	10.8
Austria	-6.6	-3.3	1.5	6.8	-1.2	-2.8	-3.4
Belarus							
Belgium	-2.9	-5.6	2.2	-1.4	-0.3	-2.2	-4.8
Bulgaria							
Canada	2.0	-2.6	-0.2	-0.4	8.0	0.1	27.6
Croatia	-2.0	-2.7	-0.7	-1.4	12.9	-12.0	-55.7
Czech Republic							
Denmark	-3.3	-1.9	-3.5	-0.6	4.6	-7.0	-15.2
Estonia							
European Community	-1.5	-0.5	0.1	-0.3	0.1	-1.4	-4.3
Finland	0.2	-3.0	-1.7	-2.7	-1.8	0.0	-19.2
France	-0.9	-0.5	0.3	1.8	0.6	-2.3	1.3
Germany	-3.0	-0.4	-1.0	-1.4	1.2		-22.5
Greece	0.1	0.9	0.4	0.7	-0.5	-0.5	-6.3
Hungary							
Ireland	3.4	3.4	0.3	-2.5	-2.8	-1.6	13.4
Italy	1.5	-3.2	-2.3	1.0	-1.5	-1.9	0.9
Japan	-0.6	0.0	-0.2	0.2	-0.4	-0.1	2.0
Latvia	-8.0	-10.3	-10.4	-5.7	8.5	4.0	-79.8
Lithuania						8.3	-77.2
Luxembourg							
Monaco							
Netherlands	-4.7	-6.0	-3.1	-3.7	-2.9	-7.5	-33.7
New Zealand	-1.8	-1.4	0.2	0.3	0.9	0.9	10.1
Norway			-3.0	-3.6	-3.2	-1.8	-3.7
Portugal	-2.7	-1.2	16.7	-0.5	0.7	-1.1	8.4
Romania	-1.8	-5.8	-2.8	-2.9	-6.0	-2.4	-56.4
Slovakia						-6.0	
Slovenia	-3.6	0.3	2.5	39.8	-2.5	-3.3	13.7
Spain	-1.5	3.9	3.5	0.2	6.4	1.5	50.0
Sweden	-0.4	-1.5	-2.1	-0.4	-1.7	-0.7	13.9
Switzerland	-3.7	-1.8	-1.2	-1.4	-0.1	0.4	-14.6
Ukraine						-2.4	
United Kingdom	-2.9	-0.9	-0.8	-2.3	-4.9	-2.6	-10.8
United States	-2.4	-1.9	-0.3	-1.5	-1.6	0.0	-1.3

Table 4.4**Enteric fermentation: non-dairy cattle – trend information (continued)****CH₄ implied emission factors (kg/head/year)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	79	78	78	78	79	79	79	79
Austria	48	52	52	52	52	53	53	53
Belarus								56
Belgium	48	48	48	47	48	48	48	48
Bulgaria								56
Canada	54	55	54	54	54	54	54	54
Croatia	56	56	56	56	56	56	56	56
Czech Republic								24
Denmark	34	34	35	35	35	35	36	36
Estonia								56
European Community						NE	NE	NE
Finland	41	42	42	42	42	42	42	42
France	50	52	52	52	52	52	52	52
Germany	73	73	74	74	73	73	73	73
Greece	59	56	56	56	56	56	56	56
Hungary								48
Ireland	50	50	50	50	50	50	50	50
Italy	47	50	51	50	49	50	51	49
Japan	53	54	54	54	54	54	54	54
Latvia	56	56	56	56	56	56	56	56
Lithuania	56			56			56	56
Luxembourg								
Monaco								
Netherlands	57	52	50	48	47	45	47	43
New Zealand	51	52	54	54	55	55	56	56
Norway	48			48	48	48	48	48
Portugal	48	48	48	48	48	48	48	48
Romania	56	56	56	56	56	56	56	56
Slovakia								56
Slovenia	46	49	49	50	50	51	51	51
Spain	61	59	59	58	58	59	59	59
Sweden	53	56	56	56	56	56	56	57
Switzerland	42	42	43	43	43	43	42	43
Ukraine							56	56
United Kingdom	42	43	43	43	43	43	43	43
United States	64	61	61	61	61	61	60	60

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	0.0	0.1	0.6	0.1	0.3	-0.2	-0.1
Austria	-0.5	-1.0	0.7	1.3	-0.3	-0.1	9.7
Belarus							
Belgium	0.2	-2.0	2.1	0.0	0.6	0.0	1.3
Bulgaria							
Canada	-0.4	0.1	-0.3	-0.2	0.3	-0.1	-0.4
Croatia							
Czech Republic							
Denmark	1.0	0.0	1.3	0.6	0.4	0.6	6.2
Estonia							
European Community							
Finland	0.4	-0.7	1.0	0.3	-0.3	0.7	3.7
France	0.3	0.0	0.1	0.0	-0.3	-0.1	2.5
Germany	0.5	0.5	-1.2	0.2	0.3		1.3
Greece	0.0	0.0	0.0	0.0	0.0	0.0	-4.5
Hungary							
Ireland					0.0	0.0	
Italy	1.3	-1.6	-1.7	1.0	1.4	-2.3	5.9
Japan	0.1	0.4	0.3	0.2	-0.2	-0.1	1.5
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands	-3.6	-3.1	-3.9	-3.5	3.8	-6.9	-23.5
New Zealand	3.4	0.1	1.7	-0.5	2.0	0.5	10.8
Norway						0.0	0.0
Portugal							
Romania							
Slovakia							
Slovenia	0.2	1.8	0.3	1.6	0.9	-1.0	11.2
Spain	-1.4	-0.3	-0.4	1.4	0.8	-0.8	-2.7
Sweden	0.4	0.3	-0.1	0.2	0.1	0.3	6.6
Switzerland	1.9	1.0	1.0	-0.2	-2.1	2.0	3.2
Ukraine							
United Kingdom	0.3	0.1	0.1	-0.2	0.2	0.2	1.4
United States	-0.6	-0.1	0.6	-0.8	-1.6	0.5	-6.0

Table 4.5**Manure management, CH₄ (2002)**

	Key source	Share of national total (%)	Methods and EF used ^a		Cattle		Sheep	Swine
			Methods	EF	Dairy cattle	Non-dairy cattle		
					CH ₄ IEF (kg CH ₄ /head/yr)			
IPCC default EF ^b					6 to 81	1 to 38	0.19 to 0.37	3 to 20
Australia		0.4	CS	CS, D	8.66	1.20	NA	22.75
Austria	L, T	1.0	T1, T2	D, CS	19.00	7.07	0.19	5.81
Belarus		1.1			6.00	4.00	0.19	4.00
Belgium	L	1.7	M	CS	21.52	13.51	1.40	10.08
Bulgaria		0.8	T1, T2	D, CS	18.30	12.21	0.28	9.95
Canada	L	0.8	T1	D	36.00	1.00	0.19	10.49
Croatia		0.6	T1	D	6.00	4.00	0.10	4.00
Czech Republic	L	0.4	T2	CS	3.29	1.01	0.23	7.87
Denmark	L	1.4	T2	CS	17.26	1.62	0.32	2.59
Estonia		0.3	T1	D	6.00	4.00	0.19	4.00
European Community	L	1.6	C, CS, D, M, T1, T2	C, CS, D, T1, T2	NE	NE	NE	NE
Finland		0.2	T2	CS/D	8.39	2.30	0.19	3.37
France	L	2.6	C	D	44.00	21.38	0.28	10.00
Germany	L	2.7	C/D	C/D	109.42	28.40	0.19	19.93
Greece		0.4	T1	D	19.00	13.00	0.28	7.00
Hungary		0.6	T1	D, CS	6.00	4.00	0.20	3.00
Ireland	L, T	2.0	D	CS, D	15.90	6.40		5.40
Italy	L	0.7	D, T1, T2	D, CS	20.05	11.03	0.22	7.92
Japan		0.1	D, CS	D, CS	8.69	3.23	0.28	0.92
Latvia	L	0.8	T1	D	6.00	4.00	0.19	4.00
Lithuania		1.1	D	D	6.00	4.00	0.19	4.00
Luxembourg								
Monaco								
Netherlands	L	0.8	CS/T2	CS (=D,corrected)	8.33	12.16	0.48	3.17
New Zealand	L, T	0.7	T2	CS	0.89	0.91	0.18	20.00
Norway		0.6	T2	CS	14.41	8.57	0.73	1.98
Portugal	L, T	1.8	T2	D (CS)	3.45	1.88	0.27	26.72
Romania	L, T	1.2	T1	T1	19.00	13.00	0.16	7.00
Slovakia		0.4	T1, T2	D, CS	4.00	3.80	0.19	4.00
Slovenia	L, T	0.8	T2, T1	CS, D	12.80	6.47	0.19	5.51
Spain	L	2.2	CS,T1,T2	T1,T2	13.92	3.77	0.23	14.03
Sweden	L, T	0.6	T1 + CS	D + CS	16.12	5.63	0.19	3.00
Switzerland		0.8	CS	CS	14.16	3.44	0.14	3.39
Ukraine	L	1.0	T1	D	19.00	13.00	0.28	7.00
United Kingdom	T	0.3	T2	D/CS	13.64	4.23	0.11	3.00
United States	L, T	0.6	M, T1, T2	M, CS, D	56.52	1.62	0.26	14.07

^a Information on methods and emission factors is included in this table as reported by Parties in table Summary 3 of the CRF. It may therefore not reflect the actual method or type of emission factor used for the various livestock types within the category CH₄ from 4.B Manure management.

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

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

	Dairy cattle			Non-dairy cattle			Swine		
	cool	temperate	warm	cool	temperate	warm	cool	temperate	warm
North America	36	54	76	1	2	3	10	14	18
Western Europe	14	44	81	6	20	38	3	10	19
Eastern Europe	6	19	33	4	13	23	4	7	11
Oceania	31	32	33	5	6	7	20	20	20
Asia	7	16	27	1	1	2	1	4	7
	Sheep								
	cool	temperate	warm						
Developed countries	0.19	0.28	0.37						

Table 4.6
Manure management, N₂O (2002)

	Key source	Share of national total (%)	Methods and EF used ^a		Animal waste management systems (AWMS)				N excretion rates				
					Anaerobic lagoons	Liquid systems	Solid storage and dry lot	Other	Dairy cattle	Non-dairy Cattle	Swine	Sheep	Poultry
			Methods	EF									
IPCC default EF					0.001 ^b	0.001 ^b	0.02 ^b	0.005 ^c	60 to 100 ^d	40 to 70 ^d	16 to 20 ^d	12 to 20 ^d	0.6 ^d
Australia		0.3	CS	D	0.001	0.001	0.020	0.018	138	39	12	7	0.7
Austria	L, T	0.8				0.036			65	34	18	20	0.9
Belarus		0.0			0.001	0.001	0.020	0.005	75	65	16	2	24.4
Belgium		0.6	D	D	NO	0.001	0.020	0.005	129	53	13	10	0.6
Bulgaria		0.6	D	D	0.001	0.001	0.020	0.005	70	50	20	16	0.6
Canada		0.6	T1	D		0.001	0.020	0.005	105	45	12	4	0.4
Croatia	T	0.8			0.001	0.001	0.020	0.005	70	50	20	16	0.6
Czech Republic		0.3	D	D		1.000	20.000	5.000	100	70	20	20	1.0
Denmark	L	0.9				0.001	0.020		127	38	10	17	0.6
Estonia		0.1	TI	D		0.001	0.020	0.005	0	0	0	0	0.0
European Community	L	0.4	C, CS, D, T1, T2	C, CS, D					NE	NE	NE	NE	NE
Finland	T	0.5	D	D/CS		0.001	0.020		96	35	10	16	0.2
France	L	0.5	C/ T2	D/ CS		0.001	0.020	0.005	100	72	20	20	0.6
Germany		0.3	D	D	NO	NE	NE		116	41	11	13	0.6
Greece		0.2	D	D, CS	NO	0.001	0.020	0.005	70	50	16	12	0.6
Hungary	L	1.6	D	D, CS		0.001	0.020	0.005	100	70	20	20	0.6
Ireland	L	1.0	D	CS, D	0.001	0.001	0.020		93	50	12	8	0.6
Italy	L	0.8	D	D, CS	NO	0.001	0.020	0.020	106	45	12	16	0.6
Japan	L	0.9	CS	CS	NO	0.007	0.004	0.047	80	47	16	NE	0.9
Latvia	L	1.2	T1	D/CS	0.001	0.001	0.020	0.005	71	51	10	6	0.9
Lithuania	L	1.2	D	D	0.001	0.001	0.020	0.005	70	50	20	16	0.6
Luxembourg													
Monaco													
Netherlands		0.1	CS	CS	IE	IE	IE	0.001	NA	NA	NA	NA	NA
New Zealand		0.1	T2	CS/D	0.001	NO	0.020	0.005	114	72	16	15	0.6
Norway		0.2	D	D, CS	NO	0.001	0.020	0.005	90	34	7	10	0.3
Portugal	L, T	1.3	T2	D (CS)	0.001	0.001	0.020		108	54	17	7	1.1
Romania		0.1	T1	T1	0.001	0.001	0.020	0.005	70	50	20	16	0.6
Slovakia		0.9	T1, T2	D, CS	NO	0.001	0.020		100	60	IE	16	IE
Slovenia	L, T	1.2	T1	D	0.001	0.001	0.020	0.001	100	70	20	20	0.6
Spain	T	0.4	CS,D	D	NO	0.001	0.020	0.005	70	33	10	10	0.4
Sweden	L, T	0.8	T1 + T2	D + CS	NO	0.001	0.020	0.020	122	41	10	6	0.4
Switzerland		0.8	CS	CS	NO	0.001	0.020	NO	105		16	12	0.5
Ukraine		0.6	T1	D									
United Kingdom		0.2	T1	D/CS		0.001	0.020	0.005	112	49	10	7	0.7
United States		0.3	M, T1, T2	D	0.001	0.001	0.021	0.013	84	45	8	4	0.4

^a Information on methods and emission factors is included in this table as reported by Parties in table Summary 3 of the CRF. It may therefore not reflect the actual method or type of emission factor used for all subcategories within the category N₂O from 4.B Manure management.

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

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

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

IPCC defaults:

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

Table 4.7**Manure management – trend information****CH₄ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	72	81	84	88	90	91	93	96
Austria	49	46	46	47	44	43	43	42
Belarus	58	43	42	41	39	38	36	35
Belgium	122	130	130	130	131	127	123	121
Bulgaria	73	32	28	30	30	27	19	22
Canada	219	241	236	242	243	242	261	268
Croatia	11	7	7	7	8	7	7	8
Czech Republic	48	36	36	35	35	33	32	30
Denmark	35	42	42	44	43	45	46	46
Estonia	18	3	3	3	3	3	3	3
European Community	3,410	3,170	3,215	3,192	3,183	3,164	3,183	3,161
Finland	9	10	11	10	10	10	10	10
France	707	684	677	674	672	677	683	673
Germany	1,605	1,351	1,388	1,338	1,334	1,300	1,309	1,309
Greece	24	23	23	23	23	23	23	23
Hungary	40	33	31	35	34	22	21	23
Ireland	60	66	67	69	69	68	66	66
Italy	192	186	186	188	185	184	189	187
Japan	51	47	46	45	45	44	44	44
Latvia	13	5	4	4	4	4	4	4
Lithuania	23			11			9	9
Luxembourg				1		1		1
Monaco								
Netherlands	103	98	93	93	91	91	88	83
New Zealand	27	27	27	27	27	26	26	26
Norway	14	15	15	15	15	15	15	15
Portugal	77	69	70	69	70	69	71	69
Romania	207	115	116	104	103	93	82	79
Slovakia	18	13	12	10	10	10	10	10
Slovenia	13	9	9	9	9	8	8	8
Spain	296	332	350	374	380	402	409	411
Sweden	17	20	20	20	20	19	21	21
Switzerland	22	20	19	19	19	19	19	19
Ukraine							228	230
United Kingdom	111	111	111	111	110	105	101	99
United States	1,478	1,648	1,728	1,846	1,840	1,807	1,849	1,879

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	4.2	4.8	2.4	1.2	2.3	2.4	33.0
Austria	0.0	1.1	-5.3	-3.0	0.8	-3.2	-13.5
Belarus	-2.5	-2.1	-4.2	-4.1	-4.7	-2.0	-39.5
Belgium	-0.1	0.2	0.8	-3.3	-3.2	-1.7	-0.9
Bulgaria	-11.6	6.1	2.2	-10.6	-28.7	16.2	-69.1
Canada	-2.2	2.6	0.5	-0.5	7.8	2.7	22.4
Croatia	-1.9	-1.6	10.7	-7.2	0.5	1.6	-31.5
Czech Republic	0.7	-2.6	0.1	-7.3	-2.2	-6.9	-38.4
Denmark	1.3	4.1	-1.3	3.3	2.0	1.1	30.2
Estonia	-0.8	-0.3	-12.3	-0.8	7.5	-3.0	-84.3
European Community	1.4	-0.7	-0.3	-0.6	0.6	-0.7	-7.3
Finland	3.7	-2.8	-2.3	-0.6	-3.5	-1.2	1.7
France	-1.0	-0.5	-0.4	0.8	0.9	-1.5	-4.8
Germany	2.7	-3.6	-0.3	-2.6	0.7	0.0	-18.5
Greece	0.2	0.6	0.5	0.2	0.0	0.0	-1.3
Hungary	-5.6	11.9	-0.6	-37.0	-4.0	12.5	-41.3
Ireland	2.3	2.6	0.3	-1.7	-2.1	-1.1	9.4
Italy	0.0	1.0	-1.5	-0.4	2.6	-1.0	-2.6
Japan	-1.4	-1.3	-1.4	-1.1	-0.8	-0.4	-14.5
Latvia	-6.3	-6.3	-8.7	-2.7	7.1	3.0	-69.1
Lithuania						3.8	-62.1
Luxembourg							
Monaco							
Netherlands	-4.7	0.2	-2.4	0.0	-3.3	-5.5	-19.5
New Zealand	-1.2	-1.0	-1.0	-1.1	-0.6	-0.1	-4.4
Norway	0.2	1.3	-0.9	-0.9	-2.6	-1.1	3.0
Portugal	0.9	-0.9	0.7	-0.5	1.7	-1.7	-10.4
Romania	0.7	-9.9	-0.7	-10.5	-11.1	-4.3	-61.9
Slovakia	-8.2	-11.7	-3.4	2.2	-5.5	2.2	-44.5
Slovenia	-0.7	0.3	0.0	-9.3	-0.8	2.3	-37.9
Spain	5.2	7.0	1.6	5.7	1.7	0.5	38.7
Sweden	-2.3	-1.1	-0.5	-4.1	12.4	-0.6	22.6
Switzerland	-3.4	1.1	-0.3	0.0	0.8	-1.2	-12.1
Ukraine						0.8	
United Kingdom	-0.1	0.7	-1.6	-4.0	-4.1	-2.0	-10.7
United States	4.9	6.8	-0.3	-1.8	2.3	1.6	27.1

Table 4.7**Manure management – trend information (continued)****N₂O emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	1.7	3.0	3.3	3.6	4.1	4.4	4.4	4.4
Austria	2.5	2.5	2.4	2.4	2.4	2.3	2.3	2.3
Belarus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belgium	2.9	2.9	2.9	3.0	3.0	2.9	2.9	2.9
Bulgaria	3.4	1.5	1.4	1.5	1.5	1.4	1.0	1.2
Canada	11.9	13.9	14.1	13.9	13.9	14.0	14.8	14.9
Croatia	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.7
Czech Republic	2.1	1.5	1.5	1.4	1.4	1.4	1.3	1.3
Denmark	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0
Estonia	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
European Community	66	61	61	61	61	60	60	59
Finland	1.8	1.5	1.5	1.4	1.4	1.3	1.3	1.2
France	9.9	9.6	9.5	9.5	9.4	9.4	9.5	9.4
Germany	14.4	10.2	10.1	10.0	9.8	9.7	9.8	9.8
Greece	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Hungary	5.0	NE	NE	1.6	1.6	2.5	2.5	3.9
Ireland	2.0	2.2	2.2	2.3	2.3	2.3	2.2	2.2
Italy	12.4	13.0	13.1	13.3	13.3	13.0	13.7	13.4
Japan	43.7	40.2	39.8	39.4	39.0	38.7	38.4	38.3
Latvia	1.0	0.5	0.5	0.5	0.4	0.4	0.4	0.4
Lithuania	NE			0.9			0.7	0.7
Luxembourg								
Monaco								
Netherlands	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6
New Zealand	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Norway	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3
Portugal	3.1	3.0	3.0	3.1	3.3	3.3	3.3	3.4
Romania	1.0	0.5	0.5	0.5	0.5	0.5	0.4	0.4
Slovakia	3.5	2.2	2.0	1.8	1.7	1.6	1.6	1.6
Slovenia	1.4	1.1	1.1	1.1	1.1	0.8	0.8	0.8
Spain	5.3	5.1	5.1	5.2	5.2	5.2	5.2	5.3
Sweden	2.6	2.2	2.2	2.2	2.1	2.0	1.9	1.9
Switzerland	1.4	1.4	1.4	1.4	1.3	1.4	1.3	1.3
Ukraine							9.7	9.6
United Kingdom	4.9	4.9	4.9	4.9	4.9	4.6	4.4	4.3
United States	52.2	54.8	55.8	55.9	56.0	57.3	57.9	57.6

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	10.8	8.8	13.8	6.2	0.7	0.4	160.8
Austria	-0.9	-0.3	-1.8	-1.9	-1.0	-2.2	-10.8
Belarus							-50.0
Belgium	0.1	1.0	0.8	-1.8	0.2	-1.3	0.5
Bulgaria	-8.5	7.0	3.3	-8.0	-25.3	14.9	-65.1
Canada	1.6	-1.3	0.4	0.1	6.3	0.5	25.8
Croatia	-1.0	-2.5	5.7	-2.7	0.7	-42.2	-42.4
Czech Republic	-1.5	-5.6	0.0	-5.6	-0.8	-7.3	-41.7
Denmark	0.4	2.0	-3.3	-4.3	0.9	-2.1	-11.8
Estonia	-3.8	-4.5	-12.7	-4.5	23.8	-4.4	-58.6
European Community	0.1	0.5	-0.8	-1.8	1.0	-1.1	-9.4
Finland	0.0	-4.3	-4.5	-1.9	-2.9	-5.7	-31.8
France	-0.7	-0.3	-0.8	0.2	0.9	-1.4	-5.6
Germany	-1.3	-0.8	-2.0	-1.5	1.1		-32.2
Greece	0.2	1.2	1.2	0.6	-0.3	-0.3	-3.9
Hungary			-2.5	63.4	-1.5	56.3	-22.0
Ireland	2.6	2.6	0.1	-2.2	-2.4	-1.4	7.5
Italy	1.2	1.6	-0.5	-1.9	5.1	-1.7	8.4
Japan	-1.1	-0.9	-1.0	-0.9	-0.7	-0.4	-12.4
Latvia	-6.6	-8.4	-11.9	-2.8	6.1	1.7	-55.9
Lithuania						3.0	
Luxembourg							
Monaco							
Netherlands	-4.3	-3.3	-2.6	-5.0	1.6	-6.3	-10.6
New Zealand	3.0	2.4	3.8	3.7	6.6	0.8	55.8
Norway	-0.4	1.0	-0.4	-1.5	-3.2	-1.3	-2.1
Portugal	1.0	3.2	4.7	0.6	0.9	0.8	9.8
Romania	-1.5	-7.4	-2.2	-4.7	-6.8	-2.8	-57.1
Slovakia	-8.3	-12.1	-5.3	-2.5	0.2	-4.4	-56.0
Slovenia	-0.2	0.3	0.6	-29.3	-2.2	2.3	-40.6
Spain	0.3	2.0	0.1	-0.9	0.6	1.1	0.1
Sweden	3.5	-0.1	-7.0	-2.2	-5.9	0.1	-25.9
Switzerland	-1.1	-0.1	-1.6	0.8	-5.1	3.3	-8.0
Ukraine						-1.0	
United Kingdom	0.0	0.0	1.3	-6.1	-4.2	-3.0	-11.7
United States	1.8	0.3	0.2	2.3	1.2	-0.7	10.3

Table 4.8

Agricultural soils, N₂O (2002)

	Methods and EF used ^a		Direct soil emissions								Animal production			Indirect soil emissions					
			Key source ^b	Share of national total ^b (%)	Synthetic fertilizers		Animal wastes applied to soils	N-fixing crops	Crop residue	Cultivation of histosols	Key source ^b	Share of national total ^b (%)	Pasture range and paddock (grazing)	Key source ^b	Share of national total ^b (%)	Atmospheric deposition		Nitrogen leaching and run-off	
	Activity data	N ₂ O IEF			Activity data (kg N / year)	N ₂ O IEF (kg N ₂ O-N / kg N)										Activity data (kg N/year)	N ₂ O IEF (kg N ₂ O-N / kg N)		
	Use of synthetic fertilizers	N ₂ O IEF																	
	(kg N / yr)	(kg N ₂ O-N / kg N)					(kg N ₂ O-N / kg dry biomass ^c)	(kg N ₂ O-N / ha)											
IPCC default EF ^b						0.0125 (0.0025 - 0.0225) ^b			5, 10 (2-15) ^c			0.02 (0.005-0.03) ^d				0.01 (0.002-0.2) ^e		0.025 (0.002-0.12) ^f	
Australia	CS	CS	L, T	1.5	1,018,248,000	0.0125	0.0180	NA	NA	NA	L, T	0.8	0.004		0.0	IE	NA	NE	NA
Austria	T1	D	L, T	1.8	104,330,033	0.0125	0.0125	0.0125	0.0125			0.3	0.020	L, T	1.2	23,232,570	0.010	72,895,640	0.025
Belarus			L	7.8	24,890,000	0.0130	0.0130	0.0130	0.0130	5.00		0.0	0.020		0.1	247,200,000	0.010		
Belgium	D	CS	L	1.8	154,400,350	0.0125	0.0125	0.0008	0.0003	5.00		0.4	0.020		0.7	55,662,929	0.010	60,692,700	0.025
Bulgaria	D	D	L	1.9	140,040,000	0.0100	0.0100	0.0003	0.0001	8.00	L	0.9	0.020		0.9	39,826,521	0.010	27,693,260	0.025
Canada	T1	D	L, T	2.8	1,575,512,000	0.0113	0.0092	0.0016	0.0002	5.00		0.4	0.020	L	1.0	395,472,150	0.010	414,767,513	0.025
Croatia			L, T	3.2	110,000,000	0.0125	0.0125	0.0000	0.0000	0.00		0.6	0.020	L	2.7	120,270,740	0.002	53,541,480	0.025
Czech Republic	D	D	L	1.9	203,186,700	0.0125	0.0125	0.0125	0.0125	5.00		0.2	0.020	L	1.3	63,800,000	0.010	129,564,450	0.025
Denmark	CS/M	CS/M	L, T	4.3	206,209,610	0.0125	0.0125	0.0125	0.0125	8.00		0.4	0.020	L, T	3.6	80,800,794	0.010	167,666,667	0.025
Estonia	TI	D		0.9	15,030,000	0.0125	0.0125	0.0007	0.0002			0.0	0.020		0.4	2,132,846	0.010	5,704,269	0.025
European Community	C, CS, D, M, T1, T1a, T1b, T2	C, CS, D, M	L	2.3	NE	NE	NE	NE	NE	NE	L	0.6	NE	L	1.6	NE	NE	NE	NE
Finland	D	D/CS	L, T	3.1	159,437,600	0.0125	0.0125	0.0125	0.0125	8.00		0.2	0.020	L, T	0.7	25,035,791	0.010	35,708,415	0.025
France	C/ T2	D/ CS	L, T	4.6	2,104,321,050	0.0125	0.0125	0.0008	0.0001		L	1.1	0.020	L, T	3.5	628,530,260	0.010	1,349,701,990	0.025
Germany	C/CS	C/D	L	1.8	1,770,479,000	0.0125	0.0044	2.9028	NE	0.01		0.2	0.020	L	1.1	505,637,841	0.010	724,165,018	0.025
Greece	D, T1b	D	L, T	1.5	278,174,834	0.0125	0.0125	0.0006	0.0001	NE	L, T	2.6	0.020	L, T	2.4	112,985,755	0.010	215,841,105	0.025
Hungary	T1a	CS	L	3.9	263,700,000	0.0125	0.0125	0.0008	0.0000			0.2	0.020	L	2.9	74,336,767	0.010	155,455,150	0.025
Ireland	D	CS, D	L, T	4.0	365,108,886	0.0125	0.0125	0.0125	0.0125		L, T	4.2	0.020	L, T	2.2	94,631,515	0.010	84,942,248	0.025
Italy	D	D, CS	L, T	1.6	751,406,653	0.0125	0.0125	0.0004	0.0001	8.00		0.3	0.020	L	1.5	414,712,710	0.010	506,366,714	0.025
Japan	CS	CS		0.3	484,158,000	0.0092	0.0081	IE	NE	NE		0.0	NE		0.3	156,777,173	0.010	307,789,460	0.025
Latvia	T1	D	L	4.3	24,840,000	0.0125	0.0125	0.0125	0.0125	8.00		0.7	0.020	L, T	2.5	9,390,207	0.010	18,225,310	0.025
Lithuania	D	D	L	2.6	59,500,000	0.0125	0.0070	NE	NE	NO		0.7	0.020		0.0	NE	NE	NE	NE
Luxembourg																			
Monaco					NO							0.0				NO		NO	
Netherlands	CS/T1b(D&I)	CS	L	2.0	290,300,000	0.0110	0.0200	0.0098	NE	IE		0.4	0.016			NE	NE	NA	IE
New Zealand	D	CS/D	L, T	2.8	260,744,400	0.0125	0.0125	0.0007	0.0014	8.01	L, T	9.7	0.010	L	4.4	342,395,079	0.010	129,978,338	0.025
Norway	D	D, CS	L, T	3.7	100,326,588	0.0125	0.0125	0.0125	0.0125	8.00		0.3	0.020	L	0.9	15,377,089	0.010	35,192,505	0.025
Portugal	D	D	L, T	1.5	117,000,000	0.0113	0.0106	0.0011	0.0000		T	0.6	0.019	L, T	1.4	59,025,865	0.010	68,929,008	0.025
Romania	D	D	L, T	1.8	215,100,000	0.0125	0.0125	0.0008	0.0002			0.1	0.020	T	0.9	32,868,936	0.010	85,153,404	0.025
Slovakia ^f	T1, T2	D, CS	L	3.6	79,434,000	0.0125	0.0125	0.0125	0.0125	NO		0.2	0.020		0.8	25,285,000	0.010	23,877,700	0.025
Slovenia	T1	D	L, T	2.5	30,073,500	0.0125	0.0125	0.0125	0.0125	NE		0.3	0.020	L, T	1.9	13,435,580	0.010	27,020,971	0.025
Spain	CS,D	CS,D	L, T	2.1	925,817,417	0.0125	0.0125	0.0125	0.0125	NO	L, T	0.8	0.020	L, T	1.3	358,353,230	0.010	284,138,503	0.025
Sweden	D, C	CS	L, T	4.2	174,400,000	0.0079	0.0250	0.0006	0.0001	8.00	L, T	0.4	0.016	L, T	1.4	40,214,000	0.010	61,638,000	0.025
Switzerland	CS	CS	L, T	2.5	59,032,000	0.0125	0.0125	0.0004	0.0001	8.00		0.3	0.020	L, T	1.4	50,647,028	0.010	38,512,806	0.025
Ukraine	T1	D	L	1.8	281,763,000	0.0125	0.0125	0.0125	0.0125			0.1	0.013			NE		NE	
United Kingdom	T1a/T1b	D	L	2.0	1,172,138,524	0.0125	0.0125	0.0007	0.0003	8.00	L, T	0.7	0.020	L, T	1.4	344,711,800	0.010	598,260,100	0.025
United States	T1a, T1b	D	L	2.5	10,021,948,539	0.0125	0.0125	0.0125	0.0125	9.22	T	0.5	0.020	L, T	1.1	2,484,225,071	0.010	5,363,108,644	0.025

^a Information on methods and emission factors is included in this table as reported by Parties in table Summary 3 of the CRF. It may therefore not reflect the actual method or type of emission factor used for all subcategories within the category N₂O from 4.D Agricultural soils.

^b Source of default emission factors: IPCC Guidelines, Volume 3; table 4-18, page 4.89. (See also IPCC good practice guidance, table 4-17, page 4.60.) It should be noted that for the sub-sources N-fixing crops and crop residue the IPCC default emission factors are not directly comparable to the N₂O implied emission factors because of the use of different units; the unit of default emission factors is kg N₂O-N/kg N, while in the CRF the unit relates to the amount of dry biomass (kg N₂O-N/kg dry biomass).

^c For cultivation of histosols the two default values refer to temperate and tropical, respectively. The values in parenthesis indicate the range. It should be noted that default emission factors for histosols have been updated from 5 to 8 and from 10 to 16 for temperate and tropical, respectively (table 4.17, page 4.60 of IPCC good practice guidance).

^d Source of default emission factor: IPCC Guidelines, Volume 3, table 4-22, page 4.104 (Pasture range and paddock). See also IPCC good practice guidance, table 4.12, page 4.43.

^e Source of default emission factor: IPCC Guidelines, Volume 3, table 4-23, page 4.105 (default emission factors for indirect emissions). See also IPCC good practice guidance, table 4.12, page 4.43.

^f Slovakia reported the IEF for N-fixing crops and crop residue in the unit kg N₂O-N/kg N.

Table 4.9**Agricultural soils, N₂O – trend information****N₂O emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	49	49	53	55	59	61	63	63
Austria	10	9	10	9	9	9	10	9
Belarus	31	17	19	20	18	19	34	17
Belgium	18	18	17	18	15	14	15	15
Bulgaria	21	8	8	8	8	8	7	7
Canada	88	104	104	105	108	109	101	97
Croatia	8	6	7	6	6	7	6	6
Czech Republic	24	19	18	16	16	15	15	16
Denmark	27	22	22	22	21	20	19	19
Estonia	3	1	1	1	1	1	1	1
European Community	677	645	650	646	643	639	629	621
Finland	14	12	11	11	11	11	11	11
France	182	174	177	176	176	173	169	168
Germany	123	103	101	103	106	107	103	102
Greece	31	28	29	29	29	30	28	28
Hungary	30	2	2	33	33	15	16	18
Ireland	22	24	24	25	25	25	24	23
Italy	61	61	65	62	63	62	63	61
Japan	31	27	27	26	26	26	26	26
Latvia	8	2	3	2	2	2	3	3
Lithuania	11			2			5	2
Luxembourg								
Monaco								
Netherlands	21	26	25	25	25	23	22	21
New Zealand	32	36	36	36	37	38	40	41
Norway	9	9	9	9	9	9	9	9
Portugal	10	10	9	10	10	9	9	9
Romania	30	14	15	14	14	12	14	12
Slovakia	13	8	8	8	7	7	8	8
Slovenia	3	3	3	3	3	3	3	3
Spain	53	56	53	54	57	60	57	55
Sweden	17	17	17	17	16	16	16	16
Switzerland	8	7	7	7	7	7	7	7
Ukraine							31	30
United Kingdom	98	94	97	94	92	89	83	85
United States	848	929	946	949	942	935	931	927

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	6.6	5.4	5.9	4.8	1.8	0.4	28.6
Austria	11.8	-9.0	-1.0	-0.6	3.0	-8.6	-11.8
Belarus	12.1	7.6	-12.6	5.9	81.1	-51.1	-45.9
Belgium	-0.4	0.9	-15.7	-2.9	3.1	-0.1	-18.5
Bulgaria	-3.0	-7.0	1.2	0.9	-8.1	2.9	-64.5
Canada	0.1	1.5	2.5	0.7	-6.7	-4.1	10.3
Croatia	16.5	-11.7	3.0	3.0	-13.8	3.6	-23.0
Czech Republic	-6.8	-10.1	-1.5	-2.8	1.5	0.6	-36.2
Denmark	-1.2	-0.6	-6.2	-3.5	-2.3	-4.0	-30.5
Estonia	10.8	4.0	-18.2	18.5	-14.8	-16.1	-72.5
European Community	0.8	-0.7	-0.4	-0.7	-1.5	-1.2	-8.2
Finland	-2.5	-2.4	-3.1	1.5	-1.4	-1.8	-23.3
France	1.4	-0.2	0.0	-1.9	-2.4	-0.7	-7.7
Germany	-1.2	1.6	2.4	1.4	-3.3	-1.4	-17.0
Greece	4.4	-1.4	-1.3	6.2	-6.2	-0.3	-9.4
Hungary	-0.4	1,865.9	0.7	-54.0	6.1	9.6	-41.9
Ireland	0.3	1.3	0.8	-0.4	-3.4	-3.6	4.0
Italy	5.3	-3.3	0.2	-0.9	1.7	-3.0	0.5
Japan	-2.1	-1.4	-0.5	-0.1	-0.2	-0.2	-16.8
Latvia	4.1	-3.1	-10.1	7.9	13.7	-3.1	-68.1
Lithuania						-60.1	-83.2
Luxembourg							
Monaco							
Netherlands	-1.5	-2.8	0.0	-8.1	-2.7	-2.8	0.5
New Zealand	0.4	1.3	1.7	3.4	4.3	2.6	27.6
Norway	0.5	0.4	-1.5	0.2	-2.1	-0.1	-5.2
Portugal	-4.0	3.9	-0.1	-5.5	0.9	0.0	-11.9
Romania	9.3	-8.7	5.9	-18.2	19.3	-12.8	-59.2
Slovakia	1.1	-5.5	-5.0	0.6	2.8	1.6	-42.1
Slovenia	0.4	0.7	0.4	1.4	-1.4	1.7	-10.5
Spain	-5.3	3.3	4.1	6.5	-6.2	-3.0	4.5
Sweden	1.0	-1.3	-5.1	-0.5	0.6	-1.7	-9.2
Switzerland	-3.8	-0.1	-0.6	0.8	-2.5	0.2	-10.8
Ukraine						-3.1	
United Kingdom	3.1	-2.9	-2.0	-3.8	-6.4	2.4	-13.0
United States	1.8	0.4	-0.7	-0.8	-0.4	-0.4	9.3

Table 4.10

Agricultural soils: parameters used (2002)

Parameters (fractions) used to estimate N₂O emissions in the agricultural soils category (direct and indirect emissions)

	Frac _{BURN}	Frac _{FUEL}	Frac _{GRAZ}	Frac _{NCRBF}	Frac _{NCRO}	Frac _R	Frac _{GASF}	Frac _{GASM}	Frac _{LEACH}
	(kg N/kg crop-N)	(kg N/ kg N excreted)		(kg N/ kg of dry biomass)	(kg N/ kg of dry biomass)	(kg N/ kg crop-N)	(NH ₃ -N + NO _x -N/ kg of synth fert. N applied)	(NH ₃ -N + NO _x -N/ kg of N excreted)	(kg N / kg of fertilizer or manure N)
IPCC defaults EF	0.1 ^a	no default ^b	no default ^b	0.03 ^a	0.015 ^a	0.45 ^a	0.1 ^a	0.2 ^a	0.3 (0.1 - 0.8) ^a
Australia	NA	NA	NA	NA	NA	NA	NA	NA	NA
Austria	0.01	0.00	0.16	0.01	0.015	0.34	0.03	0.18	0.30
Belarus									
Belgium									
Bulgaria	0.10	0.00	0.46	0.03	0.015	0.10	0.10	0.20	0.10
Canada	0.00	0.00	0.00	0.02	0.030	0.45	0.10	0.20	0.15
Croatia	0.10	0.00	0.24	0.02	0.030	0.45	0.10	0.15	0.30
Czech Republic									
Denmark	NO	NO	0.12	NE	NE	NE	0.02	0.23	0.34
Estonia	0.90	0.00	0.20	0.02	0.030	0.55	0.10	0.20	0.30
European Community									
Finland	NZ	0.00	0.22	0.01	0.042	0.43	0.01	0.31	0.15
France	NA	NA	0.28	CS	CS	CS	0.10	0.20	0.30
Germany	0.00	0.00	0.16	NE	NE	NE	0.06	0.29	0.30
Greece	0.10	0.00					0.10	0.20	0.30
Hungary	0.09	0.00	0.08	0.03	0.015	0.45	0.10	0.20	0.30
Ireland	0.00	0.00	0.63	as GPG	as GPG	as GPG	0.04	0.17	0.10
Italy	0.10	0.00	0.25	0.03	0.015	0.45	0.10	0.39	0.30
Japan	NE	NE	NE	NE	NE	NE	0.10	0.20	0.30
Latvia	0.10	NO	0.24	0.02	0.030	0.45	0.10	0.20	0.30
Lithuania									
Luxembourg									
Monaco									
Netherlands	NO	NO	NE	NE	NE	NE	NE	NE	NE
New Zealand	0.50	0.00		0.03	0.015	0.45	0.10	0.20	0.07
Norway	0.15	NO	0.23	NE	NE	NE	0.01	0.18	0.18
Portugal	0.10	0.00	0.27	0.01	0.023	0.80	0.10	0.16	0.27
Romania	0.25	0.00	0.02	0.02	0.030	0.45	0.10	0.20	0.30
Slovakia	NO	NO	0.06	NE	NE	NE	0.10	0.24	0.14
Slovenia	0.00	0.00	0.11	0.03	0.015	0.72	0.10	0.20	0.30
Spain	NA	0.00	NA	NA	NA	NA	0.08	0.36	0.15
Sweden	NO	NO	0.29	0.01	0.020	0.19	0.01	0.33	0.22
Switzerland	0.00	0.00	see in Table 4.B(a)	see in Table 4.F	see in Table 4.F	see in Table 4.F	0.08	see National Inventory Report	0.20
Ukraine									
United Kingdom	0.00	0.00	0.54	0.03	0.015	0.45	0.10	0.20	0.30
United States	0.11	NO	0.01, 0.04, 0.21, 0.85, 0.89, 0.92	0.03	0.0048, 0.0058, 0.0062, 0.0067, 0.007, 0.0072, 0.0077, 0.0106, 0.0108, 0.023, 0.03	0.38, 0.5, 0.39, 0.43, 0.43, 0.42, 0.42, 0.45, 0.5, 0.42, 0.32, 1	0.10	0.20	0.30

Abbreviations of fractions:

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

^a Source of IPCC default fractions: IPCC Guidelines, Volume 3, tables 4.19 and 4.24, pages 4.94 and 4.106. (See also IPCC good practice guidance, table 4.19, page 4.74).^b Countries are recommended to obtain country-specific data.

Table 4.11

Agricultural soils, CO₂ – trend information
CO₂ emissions/removals (Gg)

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	NA	NA	NA	NA	NA	NA	NA	NA
Austria	NA	NA	NA	NA	NA	NA	NA	NA
Belarus								
Belgium								
Bulgaria								NO
Canada	7,553	2,082	1,539	1,011	475	62	-299	-531
Croatia								
Czech Republic								
Denmark								
Estonia								
European Community	3,208	1,818	2,055	2,024	2,007	2,023	1,946	2,057
Finland	3,208	1,818	2,055	2,024	2,007	2,023	1,946	2,057
France								
Germany	IE	IE	IE	IE	IE	IE	IE	IE
Greece								
Hungary								
Ireland	IE		IE	IE	IE	IE	IE	IE
Italy								
Japan	NE	NE	NE	NE	NE	NE	NE	NE
Latvia	IE/NE	IE/NE	IE/NE	IE/NE	IE/NE	IE/NE	IE/NE	IE/NE
Lithuania	NE			NE			NE	NE
Luxembourg								
Monaco								
Netherlands	NE	NE	NE	NE	NE	NE	NE	NE
New Zealand								
Norway	IE			IE	IE	IE	IE	IE
Portugal	NE	NE	NE	NE	NE	NE	NE	NE
Romania								
Slovakia								
Slovenia	NE	NE	NE	NE	NE	NE	NE	NE
Spain	0	0	0	0	0	0	0	0
Sweden	IE	IE	IE	IE	IE	IE	IE	IE
Switzerland	IE	IE	IE	IE	IE	IE	IE	IE
Ukraine								
United Kingdom	IE	IE	IE	IE	IE	IE	IE	IE
United States	IE	IE	IE	IE	IE	IE	IE	IE

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

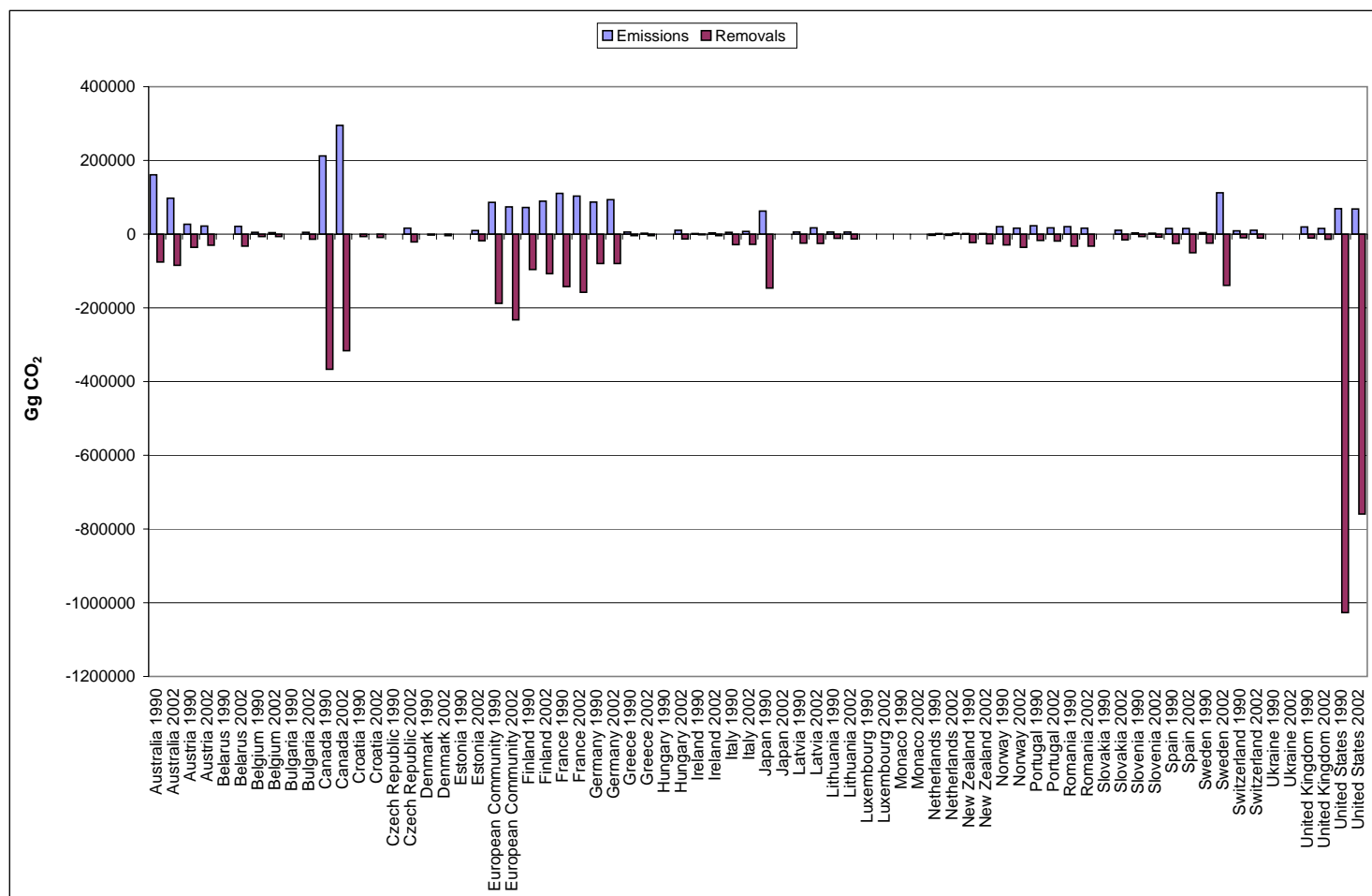
Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria							
Belarus							
Belgium							
Bulgaria							
Canada	-26.1	-34.3	-53.0	-87.0	-584.0	77.9	-107.0
Croatia							
Czech Republic							
Denmark							
Estonia							
European Community	13.0	-1.5	-0.8	0.8	-3.8	5.7	-35.9
Finland	13.0	-1.5	-0.8	0.8	-3.8	5.7	-35.9
France							
Germany							
Greece							
Hungary							
Ireland							
Italy							
Japan							
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands							
New Zealand							
Norway							
Portugal							
Romania							
Slovakia							
Slovenia							
Spain							
Sweden							
Switzerland							
Ukraine							
United Kingdom							
United States							

Land-use change and forestry

Figure 5.1

Emissions and removals for land-use change and forestry (LUCF)



^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Table 5.1**Methods and emission factors used (2002)**

	Changes in forest and other woody biomass stocks			Forest/grassland conversion			Abandonment of lands			CO ₂ emissions / removals from soils			Others		
	Methods	EF	Provision of activity data in CRF	Methods	EF	Provision of activity data in CRF	Methods	EF	Provision of activity data in CRF	Methods	EF	Provision of activity data in CRF	Methods	EF	Provision of activity data in CRF
Australia	CS	CS		CS	CS		CS	CS		CS	CS		CS	CS	
Austria	D	CS	CRF	NA	NA		NA	NA		NA	NA		NA	NA	
Belarus									CRF						
Belgium	D	CS	CRF	NE	NE		NE	NE		NE	NE		NE	NE	
Bulgaria	CS	CS	CRF												
Canada	CS/D	CS	CRF	CS/D	CS	CRF	D	CS	CRF	CS/D	CS		NA	NA	
Croatia	T1	D	CRF												
Czech Republic	CS	CS	CRF	NO			NO			NE					
Denmark			CRF												
Estonia	TI	D	CRF				TI	D	CRF	TI	D	CRF			
European Community	NE	NE		NE	NE		NE	NE		NE	NE		NE	NE	
Finland	CS	CS		NO	NO		NO	NO		D	D	CRF			
France	CS	CS	CRF	CS	CS	CRF	CS	CS		CS	CS	CRF			
Germany	CS	CS	CRF	NE	NE		NE	NE		CS/T2	CS	CRF	NO	NO	
Greece	D	D	CRF	D	D	CRF				D	CS	CRF			
Hungary	D	D	CRF	D	D					D	CS	CRF			
Ireland ^a	CS	CS	CRF	NA	NA		NA	NA		D	D	CRF	NA	NA	
Italy	D, CS	D, CS	CRF				D	D	CRF	D	D, CS	CRF			
Japan	D	D, CS	CRF	D	D, CS		-	-		-	-		-	-	
Latvia	D	D/CS	CRF	D	D/CS	CRF	D	D/CS	CRF	D	D	CRF	NO	NO	
Lithuania	D	CS	CRF						CRF	D	D	CRF			
Luxembourg															
Monaco															
Netherlands	T1	CS	CRF	NE			NE			NE			NO		
New Zealand	CS	CS		CS/D	CS/D							CRF			
Norway	CS	D, CS	CRF							CS	CS	CRF	CS	CS	
Portugal	D	D+CS	CRF										D	D	
Romania	D	D	CRF	D	D	CRF	NE	NE		NE	NE				
Slovakia	T1, CS	D, CS	CRF	T1, CS	D, CS	CRF	NO	NO		T1, T2	D, CS	CRF	NO	NO	
Slovenia	T1	D	CRF				T1	D	CRF	T1	D	CRF			
Spain	CS	CS	CRF	NE			NE			NE			NO		
Sweden	T2	CS	CRF	T2	CS		T2	CS		CS, T1	CS, D	CRF		NO	
Switzerland	CS	CS	CRF							CS	CS				
Ukraine															
United Kingdom	M	M		NO	NO	CRF	NE	NE		D/CS/M	CS/CS/CS		CS	CS	
United States	CS	CS	CRF	IE, NE	IE, NA		IE, NE	IE, NA		CS, D	CS, D	CRF	CS	CS	

^a CRF table 5.A has been modified by the Party.

Table 5.2Net CO₂ emissions/removals from Changes in forest and other woody biomass stocks – trend informationCO₂ emissions/removals (Gg)

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	-24,598	-22,429	-22,515	-22,706	-23,298	-23,220	-22,442	-21,827
Austria	-9,215	-5,385	-7,633	-7,633	-7,633	-7,633	-7,633	-7,633
Belarus	-35,095	-35,325	-36,000	-36,800	-38,179	-38,199	-35,795	-31,346
Belgium	-1,893	-1,850	-1,843	-1,836	-1,829	-1,822	-1,814	-1,814
Bulgaria	-4,657	-7,190	-5,852	-6,233	-6,608	-8,976	-9,467	-8,318
Canada	-180,302	-111,144	-132,379	5,670	-75,109	-99,732	-104,698	-46,767
Croatia	-6,505	-8,069	-8,069	-8,069	-8,069	-8,069	-8,069	-9,000
Czech Republic	-2,128	-4,486	-4,639	-3,757	-3,401	-4,016	-4,363	-4,492
Denmark	-2,832	-3,064	-3,153	-3,313	-3,311	-653	-3,539	-3,813
Estonia	-7,463	-8,345	-7,217	-6,906	-6,493	-6,399	-5,621	-5,285
European Community	-181,576	-202,016	-206,425	-202,747	-209,623	-198,431	-218,207	-232,181
Finland	-23,798	-21,032	-12,637	-9,713	-10,821	-11,953	-16,851	-18,010
France	-43,917	-53,452	-56,981	-56,417	-58,497	-50,753	-62,456	-67,505
Germany	-33,689	-33,400	-33,400	-33,400	-33,400	-25,402	-25,402	-25,402
Greece	18	-506	-548	-1,060	-147	-185	-1,796	-1,735
Hungary	-3,906	-5,421	-5,703	-6,102	-6,191	-5,772	-6,264	-6,385
Ireland	-450	-420	-498	-574	-501	-407	-1,007	-1,320
Italy	-28,605	-27,886	-27,255	-25,745	-25,668	-25,543	-26,914	-27,583
Japan	-84,482	0	0	0	0	0	0	0
Latvia	-18,836	-15,004	-11,823	-10,152	-9,137	-8,618	-9,570	-8,328
Lithuania	-7,265			-6,249			-5,997	-5,302
Luxembourg				-295		-295		-295
Monaco								
Netherlands	-1,422	-1,398	-1,180	-1,380	-1,236	-1,413	-1,413	-1,413
New Zealand	-22,994	-18,478	-19,954	-21,917	-24,044	-25,760	-26,325	-26,057
Norway	-9,765	-17,607	-16,499	-17,588	-17,767	-18,743	-18,968	-20,055
Portugal	5,573	-19	-107	-1,106	-435	-1,251	-881	-1,606
Romania	-13,038	-17,947	-18,256	-20,117	-19,010	-18,283	-19,139	-16,570
Slovakia	-1,753	-1,734	-975	-1,474	-1,107	-1,410	-4,761	-4,779
Slovenia	-1,631	-4,285	-4,285	-4,285	-4,285	-4,285	-4,285	-4,285
Spain	-9,456	-18,785	-21,606	-23,871	-26,758	-31,746	-31,477	-35,301
Sweden	-24,100	-26,100	-31,100	-28,100	-31,100	-31,100	-28,586	-30,306
Switzerland	-1,887	-3,120	-3,287	-3,216	-2,869	-464	-163	-308
Ukraine								
United Kingdom	-7,304	-8,426	-8,316	-8,184	-8,122	-8,309	-8,144	-8,444
United States	-692,648	-810,102	-733,760	-621,464	-592,114	-606,003	-603,817	-604,432

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	0.4	0.9	2.6	-0.3	-3.4	-2.7	-11.3
Austria	41.7	0.0	0.0	0.0	0.0	0.0	-17.2
Belarus	1.9	2.2	3.7	0.1	-6.3	-12.4	-10.7
Belgium	-0.4	-0.4	-0.4	-0.4	-0.4	0.0	-4.2
Bulgaria	-18.6	6.5	6.0	35.8	5.5	-12.1	78.6
Canada	19.1	-104.3	-1,424.7	32.8	5.0	-55.3	-74.1
Croatia	0.0	0.0	0.0	0.0	0.0	11.5	38.4
Czech Republic	3.4	-19.0	-9.5	18.1	8.6	3.0	111.1
Denmark	2.9	5.1	-0.1	-80.3	442.0	7.7	34.6
Estonia	-13.5	-4.3	-6.0	-1.4	-12.2	-6.0	-29.2
European Community	2.2	-1.8	3.4	-5.3	10.0	6.4	27.9
Finland	-39.9	-23.1	11.4	10.5	41.0	6.9	-24.3
France	6.6	-1.0	3.7	-13.2	23.1	8.1	53.7
Germany	0.0	0.0	0.0	-23.9	0.0	0.0	-24.6
Greece	8.3	93.5	-86.1	26.0	868.5	-3.4	-9,556.4
Hungary	5.2	7.0	1.5	-6.8	8.5	1.9	63.4
Ireland	18.5	15.2	-12.7	-18.6	147.2	31.0	193.2
Italy	-2.3	-5.5	-0.3	-0.5	5.4	2.5	-3.6
Japan							
Latvia	-21.2	-14.1	-10.0	-5.7	11.0	-13.0	-55.8
Lithuania						-11.6	-27.0
Luxembourg							
Monaco							
Netherlands	-15.5	16.9	-10.4	14.4	0.0	0.0	-0.6
New Zealand	8.0	9.8	9.7	7.1	2.2	-1.0	13.3
Norway	-6.3	6.6	1.0	5.5	1.2	5.7	105.4
Portugal	449.6	931.8	-60.7	187.8	-29.6	82.4	-128.8
Romania	1.7	10.2	-5.5	-3.8	4.7	-13.4	27.1
Slovakia	-43.8	51.1	-24.9	27.4	237.5	0.4	172.7
Slovenia	0.0	0.0	0.0	0.0	0.0	0.0	162.6
Spain	15.0	10.5	12.1	18.6	-0.8	12.2	273.3
Sweden	19.2	-9.6	10.7	0.0	-8.1	6.0	25.8
Switzerland	5.3	-2.2	-10.8	-83.8	-64.8	88.8	-83.7
Ukraine							
United Kingdom	-1.3	-1.6	-0.8	2.3	-2.0	3.7	15.6
United States	-9.4	-15.3	-4.7	2.3	-0.4	0.1	-12.7

Tables 5.3 and 5.4

Changes in forest and other woody biomass stocks: temperate and boreal forests (2002)

(Average annual growth rates and implied carbon uptake factors)

	Species as specified by Parties	Temperate forests								Boreal forests	
		Plantations		Commercial evergreen		Commercial deciduous		Other			
		Average annual growth rate (t dm/ha/yr)	Implied carbon uptake factor (t C/ha/yr)	Average annual growth rate (t dm/ha/yr)	Implied carbon uptake factor (t C/ha/yr)	Average annual growth rate (t dm/ha/yr)	Implied carbon uptake factor (t C/ha/yr)	Average annual growth rate (t dm/ha/yr)	Implied carbon uptake factor (t C/ha/yr)	Average annual growth rate (t dm/ha/yr)	Implied carbon uptake factor (t C/ha/yr)
Australia											
Austria				4.91		5.15					
Belarus											
Belgium				0.00	4.75	0.00	2.48				
Bulgaria				2.71	1.22	2.19	0.98				
Canada				IE	IE	IE	IE				
	Commercial							1.53	0.76	1.19	0.60
Croatia				4.07	2.03	2.45	1.23				
Czech Republic											
	Commercial							4.83	2.17		
Denmark				NO		NO		NE		NO	
	Conifers (before 1990)	9.00	4.50								
	Broadleaves (bef. 1990)	5.20	2.60								
Estonia										5.00	2.25
European Community		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Finland											
France		IE		IE		IE					
	Forest as a whole							4.78	2.39		
Germany		NO	NO					NO	NO	NO	NO
	Evergreen / deciduous			4.27	2.13						
Greece		NE	NE								
	Abies spp			0.84	0.42						
	Picea abies			5.90	2.95						
	Pinus spp			0.71	0.36						
	Other Evergreen			1.26	0.63						
	Fagus spp					1.58	0.79				
	Quercus spp					0.27	0.14				
	Other Deciduous					1.26	0.63				
	Other non commercial							NE	NE		
Hungary				4.68	2.34	4.39	2.20			NA	
	Evergreen	3.74	1.87								
	Deciduous	3.01	1.51								
Ireland											
Italy											
	Total							2.85			

Tables 5.3 and 5.4

Changes in forest and other woody biomass stocks: temperate and boreal forests (2002)

(Average annual growth rates and implied carbon uptake factors)

	Species as specified by Parties	Temperate forests								Boreal forests	
		Plantations		Commercial evergreen		Commercial deciduous		Other			
		Average annual growth rate	Implied carbon uptake factor	Average annual growth rate	Implied carbon uptake factor	Average annual growth rate	Implied carbon uptake factor	Average annual growth rate	Implied carbon uptake factor	Average annual growth rate	Implied carbon uptake factor
		(t dm/ha/yr)	(t C/ha/yr)	(t dm/ha/yr)	(t C/ha/yr)	(t dm/ha/yr)	(t C/ha/yr)	(t dm/ha/yr)	(t C/ha/yr)	(t dm/ha/yr)	(t C/ha/yr)
Japan		NO	NO	NO	NO	NO	NO	2.06	NE	NO	NO
	Others							0.00	NE		
	Square parks							2.00	0.19		
	Neighborhood parks							2.00	0.30		
	Community parks							2.00	0.33		
	Comprehensive parks							2.00	0.39		
	Sport parks							2.00	0.29		
	Large scaled parks							2.00	0.43		
	Specific parks							2.00	0.37		
	National government parks							2.00	0.39		
	Buffer greenbelts							2.00	0.33		
	Ornamental green spaces							2.00	0.33		
	Greenways							2.00	0.60		
	Specified community parks							2.00	0.32		
	Green space conservation zones							2.00	1.00		
	Intesively Managed Forest (Single Storied Forest)							4.96	NE		
	Semi-Natural Forest							1.94	NE		
Latvia		NE	NE	4.78	2.39	5.16	2.58				
	Bushes							1.00	0.50		
	Clearing and rough afforestation							1.00	0.50		
	Garden and parks							4.46	2.23		
Lithuania				3.30	0.50	2.80	0.50	NO		NO	NO
Luxembourg											
Monaco											
Netherlands		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
	forest land coniferous							4.67	2.33		
	forest land broadleaved							5.68	2.84		
New Zealand											
Norway		NO	NO	NO	NO	NO	NO	NO	NO	NE	1.00
Portugal											
	Pinus pinaster							4.37	2.18		
	other softwood							7.20	3.60		
	Eucalyptus							6.65	3.33		
	Quercus suber							0.29	0.14		
	Quercus ilex							0.29	0.14		
	other Quercus							0.29	0.14		
	Castanea sativa							2.80	1.40		
	other hardwood							1.65	0.83		
	Pinus pinaster							1.24	0.62		
	other softwood							1.00	0.50		
	Eucalyptus							5.45	2.73		
	Quercus suber							0.30	0.15		
	Quercus ilex							0.30	0.15		
	other Quercus							0.30	0.00		
	Castanea sativa							0.00	0.00		
	other hardwood							1.45	0.73		
Romania				3.25	1.63	2.65	0.00				

Tables 5.3 and 5.4

Changes in forest and other woody biomass stocks: temperate and boreal forests (2002)

(Average annual growth rates and implied carbon uptake factors)

	Species as specified by Parties	Temperate forests								Boreal forests	
		Plantations		Commercial evergreen		Commercial deciduous		Other		Average annual growth rate	Implied carbon uptake factor
		Average annual growth rate	Implied carbon uptake factor	Average annual growth rate	Implied carbon uptake factor	Average annual growth rate	Implied carbon uptake factor	Average annual growth rate	Implied carbon uptake factor		
		(t dm/ha/yr)	(t C/ha/yr)	(t dm/ha/yr)	(t C/ha/yr)	(t dm/ha/yr)	(t C/ha/yr)	(t dm/ha/yr)	(t C/ha/yr)	(t dm/ha/yr)	(t C/ha/yr)
Slovakia				NO	NO	NO	NO	NO	NO	NO	NO
	Picea abies							3.40	1.70		
	Abies alba							3.49	1.75		
	Pinus sp.							3.42	1.71		
	Larix Decidua							3.60	1.80		
	Other Coniferous							1.37	0.69		
	Quercus robur, petr.							4.16	2.04		
	Fagus sylvatica							5.71	2.80		
	Carpinus betulus							5.35	2.62		
	Acer sp.							4.91	2.40		
	Fraxinus excelsior							4.84	2.37		
	Ulmus sp.							4.68	2.30		
	Quercus cerris							4.58	2.24		
	Robinia pseudoac.							2.90	1.42		
	Betulus sp.							1.50	0.73		
	Alnus sp.							2.46	1.20		
	Tilia sp.							3.89	1.91		
	Breeding Poplars							2.51	1.23		
	Populus sp.							1.39	0.68		
	Salix sp.							2.16	1.06		
	Other Broadleaves							1.28	0.62		
Slovenia		NO	NO	2.95	1.48	3.94	1.97	NE	NE	NO	NO
Spain				1.25	0.56	1.57	0.71				
	Pinus radiata	1.83	0.82								
	Eucalyptus	8.50	3.83								
Sweden								5.81	2.85	3.14	1.54
Switzerland				4.47	2.24	6.48	3.24				
Ukraine											
United Kingdom											
United States				NA	IE	NA	IE				
	Evergreen	NA	IE							NE	NE
	Deciduous	NA	IE								
	Naturally Regenerated -Other							NA	IE		
	Plantations-Other							NA	IE		

Tables 5.5 and 5.6

Changes in forest and other woody biomass stocks: Temperate forests (plantation/commercial evergreen and deciduous) – trend information

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

	Evergreen (Evg) / Deciduous (Dec)	IPCC default growth rate ^a	1990 ^b		1996		1997		1998		1999		2000		2001		2002	
			Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate
			t dm/ha/yr	(kha)	(t dm/ha/yr)	(kha)	(t dm/ha/yr)	(kha)	(t dm/ha/yr)	(kha)	(t dm/ha/yr)	(kha)	(t dm/ha/yr)	(kha)	(t dm/ha/yr)	(kha)	(t dm/ha/yr)	(kha)
Plantations																		
Austria	(to be specified)	6.0-4.0	2	NE	2	NE	2	NE	2	NE	2	NE	2	NE	2	NE	2	NE
	(to be specified)	6.0-4.0	NO															
Bulgaria	(to be specified)	6.0-4.0															NE	NE
	(to be specified)	6.0-4.0															NE	NE
Canada	(to be specified)	6.0-4.0	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
	(to be specified)	6.0-4.0	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Denmark	Conifers	6.0-4.0	268	8.86	268	8.86	268	8.86	268	8.86	268	8.86	274	9.00	274	9.00	274	9.00
	Broaleaves	6.0-4.0	143	5.30	143	5.30	143	5.30	143	5.30	143	5.30	164	5.20	164	5.20	164	5.20
European Community	(to be specified)	6.0-4.0											NE	NE	NE	NE	NE	NE
	(to be specified)	6.0-4.0											NE	NE	NE	NE	NE	NE
France		6.0-4.0	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Germany	(to be specified)	6.0-4.0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
	(to be specified)	6.0-4.0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Greece	(to be specified)	6.0-4.0	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
	(to be specified)	6.0-4.0	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Hungary	Evergreen	6.0-4.0															208	3.74
	Deciduous	6.0-4.0															166	3.01
Japan	(to be specified)	6.0-4.0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
	(to be specified)	6.0-4.0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	(to be specified)	6.0-4.0	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
	(to be specified)	6.0-4.0	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lithuania	(to be specified)	6.0-4.0	NO	NO					NO	NO					NO	NO	NO	NO
	(to be specified)	6.0-4.0	NO	NO					NO	NO					NO	NO	NO	NO
Monaco	(to be specified)	6.0-4.0															NO	
	(to be specified)	6.0-4.0															NO	
Netherlands	(to be specified)	6.0-4.0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
	(to be specified)	6.0-4.0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Norway	(to be specified)	6.0-4.0	NO	NO					NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
	(to be specified)	6.0-4.0	NO	NO					NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Romania	(to be specified)	6.0-4.0			NO				NO				NE		NE		NE	
Slovakia	(to be specified)	6.0-4.0													NO	NO	NO	NO
	(to be specified)	6.0-4.0													NO	NO	NO	NO
Slovenia	(to be specified)	6.0-4.0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
	(to be specified)	6.0-4.0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Spain	Pinus radiata	6.0-4.0	315	1.43	368	1.62	378	1.65	388	1.68	398	1.72	409	1.75	420	1.80	431	1.83
	Eucalyptus	6.0-4.0	380	4.03	444	5.79	456	6.17	468	6.57	480	7.00	493	7.46	506	7.96	520	8.50
Sweden	(to be specified)	6.0-4.0	NO												0		0	
	(to be specified)	6.0-4.0	NO												0		0	
Switzerland	(to be specified)	6.0-4.0	NO		NO		NO		NO		NO		NO		NO		NO	
	(to be specified)	6.0-4.0	NO		NO		NO		NO		NO		NO		NO		NO	
United States	(to be specified)	6.0-4.0													NA			
	Evergreen	6.0-4.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Deciduous	6.0-4.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Tables 5.5 and 5.6 (continued)

Changes in forest and other woody biomass stocks: Temperate forests (plantation/commercial evergreen and deciduous) – trend information

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

	Evergreen (Evg) / Deciduous (Dec)	IPCC default growth rate ^a	1990 ^b		1996		1997		1998		1999		2000		2001		2002	
			Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate
			t dm/ha/yr	(kha)	(t dm/ha/yr)	(kha)	(t dm/ha/yr)	(kha)	(t dm/ha/yr)	(kha)	(t dm/ha/yr)	(kha)	(t dm/ha/yr)	(kha)	(t dm/ha/yr)	(kha)	(t dm/ha/yr)	(kha)
Plantations/commercial evergreen and deciduous																		
Austria	Evg	3	2,561	5.95	2,534	4.91	2,534	4.91	2,534	4.91	2,534	4.91	2,534	4.91	2,534	4.91	2,534	4.91
	Dec	2	777	6.22	818	5.15	818	5.15	818	5.15	818	5.15	818	5.15	818	5.15	818	5.15
Belgium	Evg	3	240	9.49	232	9.50	230	9.50	229	9.50	228	9.50	226	9.50	225		225	0.00
	Dec	2	249	4.94	250	4.96	250	4.96	250	4.96	250	4.96	250	4.97	251		251	0.00
Bulgaria	Evg	3															1,122	2.71
	Dec	2															2,367	2.19
Canada	Evg	3	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
	Dec	2	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Croatia	Evg	3	1,775	3.15	1,797	4.07	1,797	4.07	1,797	4.07	1,797	4.07	1,797	4.07	1,797	4.07	1,797	4.07
	Dec	2	286	1.92	292	2.45	292	2.45	292	2.45	292	2.45	292	2.45	292	2.45	292	2.45
Denmark	Evg	3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
	Dec	2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
European Community	Evg	3											NE	NE	NE	NE	NE	NE
	Dec	2											NE	NE	NE	NE	NE	NE
France	Evg	3	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
	Dec	2	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Germany	Evergreen / deciduous	3-2	10,144	4.27	10,144	4.27	10,144	4.27	10,144	4.27	10,144	4.27	10,144	4.27	10,144	4.27	10,144	4.27
Hungary	Evg	3															28	4.68
	Dec	2															1,296	4.39
Japan	Evg	3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
	Dec	2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	Evg	3	1,567	4.73	1,614	4.81	1,615	4.81	1,607	4.83	1,558	4.99	1,618	4.81	1,615	4.82	1,630	4.78
	Dec	2	1,044	5.35	1,076	5.20	1,077	5.20	1,072	5.22	1,127	4.96	1,078	5.20	1,076	5.21	1,087	5.16
Lithuania	Evg	3	1,064	3.30					1,146	3.30					1,161	3.30	1,160	3.30
	Dec	2	733	2.80					742	2.80					777	2.80	791	2.80
Monaco	Evg	3															NO	
	Dec	2															NO	
Netherlands	Evg	3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
	Dec	2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Norway	Evg	3	NO	NO					NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
	Dec	2	NO	NO					NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Romania	Evg	3	1,926	3.25	1,890	3.25	1,883	3.25	1,868	3.25	1,861	3.25	1,856	3.25	1,853	3.25	1,856	3.25
	Dec	2	4,323	2.65	4,350	2.65	4,353	2.65	4,359	2.65	4,365	2.65	4,367	2.65	4,372	2.65	4,383	2.65
Slovakia	Evg	3													NO	NO	NO	NO
	Dec	2													NO	NO	NO	NO
Slovenia	Evg	3	485	2.16	456	2.95	456	2.95	456	2.95	456	2.95	456	2.95	456	2.95	456	2.95
	Dec	2	520	3.10	570	3.94	570	3.94	570	3.94	570	3.94	570	3.94	570	3.94	570	3.94
Spain	Evg	3	6,597	0.99	7,709	1.11	7,913	1.13	8,123	1.15	8,339	1.18	8,561	1.26	8,789	1.23	9,025	1.25
	Dec	2	6,613	1.01	7,727	1.24	7,931	1.28	8,142	1.33	8,358	1.38	8,581	1.48	8,810	1.45	9,046	1.57
Sweden	Evg	3	NO												NO		NO	
	Dec	2	NO												IE (Incl. in Other)		IE (Incl. in Other)	
Switzerland	Evg	3	780	4.47	786	4.47	790	4.47	790	4.47	789	4.47	786	4.47	786	4.47	784	4.47
	Dec	2	295	6.48	315	6.48	319	6.48	322	6.48	325	6.48	326	6.48	330	6.48	332	6.48
United States	Evg	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dec	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Note: Only Parties reporting numerical values and/or notation keys under this category are included in the table.

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

^b In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Tables 5.5 and 5.6 (continued)

Changes in forest and other woody biomass stocks: Temperate forests (plantation/commercial evergreen and deciduous) – trend information

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

Average annual growth rate: relative change (%)

		1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
	Plantations							
Austria	(to be specified)							
	(to be specified)							
Bulgaria	(to be specified)							
	(to be specified)							
Canada	(to be specified)							
	(to be specified)							
Denmark	Conifers	0.00	0.00	0.00	1.58	0.00	0.00	1.58
	Broaleaves	0.00	0.00	0.00	-1.89	0.00	0.00	-1.89
European Community	(to be specified)							
	(to be specified)							
France								
Germany	(to be specified)							
	(to be specified)							
Greece	(to be specified)							
	(to be specified)							
Hungary	Evergreen							
	Deciduous							
Japan	(to be specified)							
	(to be specified)							
Latvia	(to be specified)							
	(to be specified)							
Lithuania	(to be specified)							
	(to be specified)							
Monaco	(to be specified)							
	(to be specified)							
Netherlands	(to be specified)							
	(to be specified)							
Norway	(to be specified)							
	(to be specified)							
Romania	(to be specified)							
Slovakia	(to be specified)							
	(to be specified)							
Slovenia	(to be specified)							
	(to be specified)							
Spain	Pinus radiata	0.02	0.02	1.90	1.88	2.85	1.78	28.24
	Eucalyptus	0.06	0.07	6.57	6.64	6.70	6.76	110.93
Sweden	(to be specified)							
	(to be specified)							
Switzerland	(to be specified)							
Switzerland	(to be specified)							
United States	(to be specified)							
	Evergreen							
	Deciduous							

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

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
	Plantations						
Austria	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bulgaria							
Canada							
Denmark	0.00	0.00	0.00	2.24	0.00	0.00	2.24
	0.00	0.00	0.00	14.69	0.00	0.00	14.69
European Community							
France							
Germany							
Greece							
Hungary							
Japan							
Latvia							
Lithuania							
Monaco							
Netherlands							
Norway							
Romania							
Slovakia							
Slovenia							
Spain	2.65	2.65	2.66	2.66	2.67	2.68	36.80
	2.65	2.65	2.66	2.66	2.67	2.68	36.80
Sweden							
Switzerland							
Switzerland							
United States							

Tables 5.5 and 5.6 (continued)

Changes in forest and other woody biomass stocks: Temperate forests (plantation/commercial evergreen and deciduous) – trend information

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

		1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Commercial evergreen and deciduous								
Austria	Evg	0.00	0.00	0.00	0.00	0.00	0.00	-17.37
	Dec	0.00	0.00	0.00	0.00	0.00	0.00	-17.22
Belgium	Evg	0.00	0.00	0.00	0.00			
	Dec	0.00	0.00	0.00	0.20			
Bulgaria	Evg							
	Dec							
Canada	Evg							
	Dec							
Croatia	Evg	0.00	0.00	0.00	0.00	0.00	0.00	29.08
	Dec	0.00	0.00	0.00	0.00	0.00	0.00	27.66
Denmark	Evg							
	Dec							
European Community	Evg							
	Dec							
France	Evg							
	Dec							
Germany	Evergreen / deciduous	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hungary	Evg							
	Dec							
Japan	Evg							
	Dec							
Latvia	Evg	0.00	0.00	3.20	-3.51	0.19	-0.94	0.94
	Dec	0.00	0.00	-4.95	4.70	0.19	-0.94	-3.61
Lithuania	Evg						0.00	0.00
	Dec						0.00	0.00
Monaco	Evg							
	Dec							
Netherlands	Evg							
	Dec							
Norway	Evg							
	Dec							
Romania	Evg	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Dec	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Slovakia	Evg							
	Dec							
Slovenia	Evg	0.00	0.00	0.00	0.00	0.00	0.00	36.78
	Dec	0.00	0.00	0.00	0.00	0.00	0.00	27.10
Spain	Evg	0.02	0.02	1.92	7.09	-2.23	1.90	27.26
	Dec	0.03	0.04	3.83	7.59	-1.78	7.95	55.58
Sweden	Evg							
	Dec							
Switzerland	Evg	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Dec	0.00	0.00	0.00	0.00	0.00	0.00	0.00
United States	Evg							
	Dec							

		1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Commercial evergreen and deciduous								
Austria		0.00	0.00	0.00	0.00	0.00	0.00	-1.06
		0.00	0.00	0.00	0.00	0.00	0.00	5.31
Belgium		-0.58	-0.58	-0.59	-0.59	-0.59	0.00	-6.17
		0.06	0.06	0.06	0.06	0.06	0.00	0.62
Bulgaria								
Canada								
Croatia		0.00	0.00	0.00	0.00	0.00	0.00	1.24
		0.00	0.00	0.00	0.00	0.00	0.00	2.10
Denmark								
European Community								
France								
Germany		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hungary								
Japan								
Latvia		0.07	-0.48	-3.10	3.85	-0.19	0.95	4.04
		0.07	-0.48	5.21	-4.35	-0.19	0.95	4.04
Lithuania							-0.09	9.02
							1.80	7.91
Monaco								
Netherlands								
Norway								
Romania		-0.37	-0.80	-0.37	-0.27	-0.16	0.16	-3.63
		0.07	0.14	0.14	0.05	0.11	0.25	1.39
Slovakia								
Slovenia		0.00	0.00	0.00	0.00	0.00	0.00	-5.98
		0.00	0.00	0.00	0.00	0.00	0.00	9.62
Spain		2.65	2.65	2.66	2.66	2.67	2.68	36.80
		2.65	2.65	2.66	2.66	2.67	2.68	36.80
Sweden								
Switzerland		0.51	0.00	-0.13	-0.38	0.00	-0.25	0.51
		1.27	0.94	0.93	0.31	1.23	0.61	12.54
United States								

Table 5.7

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

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

Evergreen / Deciduous	1990 ^a		1996		1997		1998		1999		2000		2001		2002	
	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate
	(k ha)	(t dm/ha/yr)	(k ha)	(t dm/ha/yr)	(k ha)	(t dm/ha/yr)	(k ha)	(t dm/ha/yr)	(k ha)	(t dm/ha/yr)	(k ha)	(t dm/ha/yr)	(k ha)	(t dm/ha/yr)	(k ha)	(t dm/ha/yr)
Other																
Austria	Other (specify)	NE		NE		NE		NE		NE		NE		NE		NE
Canada	Commercial	52,906	1.53	49,672	1.53	49,258	1.53	48,950	1.53	48,436	1.53	47,920	1.53	47,485	1.53	47,359
Czech Republic	Commercial															2,560
Denmark	Other (specify)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
European Community	Other (specify)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
France	Forest as a whole	15,195	4.78	16,564	4.68	16,741	4.65	16,797	4.71	16,797	4.76	16,835	4.71	16,870	4.75	16,894
Germany	Other (specify)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Greece	None commercial	3,154	NE	3,154	NE	3,154	NE	3,154	NE	3,154	NE	3,154	NE	3,154	NE	3,154
Italy	Total	6,760	3.13	6,837	2.99	6,843	2.96	6,847	2.93	6,853	2.90	6,854	2.88	6,855	2.85	6,881
Japan	Other (specify)	25,335	2.07	NE	2.06	NE	2.06	NE	2.06	NE	2.06	NE	2.06	NE	2.06	NE
	Intensively Managed Forest															
	(Single Storied Forest)	10,327	5.03	NAV	4.96	NAV	4.96	NAV	4.96	NAV	4.96	NAV	4.96	NAV	4.96	NAV
	Semi-Natural Forest	13,523	2.05	NAV	1.94	NAV	1.94	NAV	1.94	NAV	1.94	NAV	1.94	NAV	1.94	NAV
	Others	1,415	0.00	NAV	0.00	NAV	0.00	NAV	0.00	NAV	0.00	NAV	0.00	NAV	0.00	NAV
	Square parks	9	2.00	10	2.00	10	2.00	11	2.00	11	2.00	11	2.00	11	2.00	12
	Neighborhood parks	6	2.00	8	2.00	8	2.00	8	2.00	8	2.00	8	2.00	8	2.00	9
	Community parks	5	2.00	6	2.00	6	2.00	6	2.00	6	2.00	7	2.00	7	2.00	7
	Comprehensive parks	14	2.00	18	2.00	18	2.00	19	2.00	20	2.00	21	2.00	21	2.00	22
	Sport parks	7	2.00	9	2.00	10	2.00	10	2.00	10	2.00	11	2.00	11	2.00	11
	Large scaled parks	6	2.00	9	2.00	10	2.00	10	2.00	10	2.00	11	2.00	11	2.00	12
	Specific parks	11	2.00	12	2.00	12	2.00	12	2.00	13	2.00	13	2.00	13	2.00	13
	National government parks	1	2.00	1	2.00	1	2.00	2	2.00	2	2.00	2	2.00	2	2.00	2
	Buffer greenbelts	1	2.00	1	2.00	1	2.00	1	2.00	1	2.00	2	2.00	2	2.00	2
	Ornamental green spaces	5	2.00	8	2.00	9	2.00	9	2.00	10	2.00	10	2.00	10	2.00	11
	Greenways	1	2.00	1	2.00	1	2.00	1	2.00	1	2.00	1	2.00	1	2.00	1
	Specified community parks	0	2.00	1	2.00	1	2.00	1	2.00	1	2.00	1	2.00	1	2.00	1
	Green space conservation zones	2	2.00	4	2.00	4	2.00	5	2.00	5	2.00	5	2.00	5	2.00	5
Latvia	Bushes	111	1.00	112	1.00	127	1.00	122	1.00	124	1.00	120	1.00	117	1.00	117
	Clearing and rough afforestation	140	1.00	140	1.00	140	1.00	140	1.00	140	1.00	140	1.00	140	1.00	140
	Garden parks	20	4.46	29	4.46	30	4.46	30	4.46	29	4.46	29	4.46	29	4.46	29
Lithuania	Other (specify)	NO	NO					NO	NO			NO	NO	NO	NO	NO
Netherlands	Other (specify)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
	forest land coniferous	190	5.02	195	4.66	195	4.74	195	4.74	195	4.69	196	4.67	196	4.67	196
	forest land broadleaved	151	5.07	157	5.59	159	5.69	161	5.72	163	5.70	164	5.68	164	5.68	164
Norway	Other (specify)	NO	NO					NO	NO			NO	NO	NO	NO	NO
Portugal	Pinus pinaster	1,011	4.37	931	4.37	935	4.37	939	4.37	943	4.37	947	4.37	949	4.37	951
	other softwood	77	7.20	79	7.20	81	7.20	83	7.20	85	7.20	86	7.20	90	7.20	93
	Eucalyptus	539	6.65	648	6.65	653	6.65	657	6.65	662	6.65	666	6.65	669	6.65	671
	Quercus suber	679	0.29	676	0.29	675	0.29	674	0.29	673	0.29	671	0.29	672	0.29	674
	Quercus ilex	462	0.29	457	0.29	456	0.29	454	0.29	453	0.29	452	0.29	450	0.29	449
	other Quercus	123	0.29	131	0.29	130	0.29	130	0.29	129	0.29	129	0.29	129	0.29	128
	Castanea sativa	36	2.80	39	2.80	39	2.80	40	2.80	40	2.80	40	2.80	40	2.80	40
	other hardwood	87	1.65	79	1.65	79	1.65	80	1.65	81	1.65	82	1.65	85	1.65	88
	Pinus pinaster	58	1.24	43	1.24	37	1.24	30	1.24	27	1.24	24	1.24	22	1.24	19
	other softwood	27	1.00	30	1.00	31	1.00	30	1.00	34	1.00	38	1.00	39	1.00	40
	Eucalyptus	15	5.45	26	5.45	23	5.45	20	5.45	18	5.45	18	5.45	18	5.45	18
	Quercus suber	14	0.30	44	0.30	53	0.30	63	0.30	73	0.30	81	0.30	88	0.30	94
	Quercus ilex	0	0.30	6	0.30	10	0.30	13	0.30	16	0.30	19	0.30	23	0.30	26
	other Quercus	0	0.30	0	0.30	0	0.30	0	0.30	0	0.30	0	0.30	0	0.30	0
	Castanea sativa	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	0	0.00	0	0.00	0
	other hardwood	11	1.45	25	1.45	27	1.45	29	1.45	31	1.45	33	1.45	32	1.45	31

Table 5.7 (continued)

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

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

Evergreen / Deciduous	1990 ^a		1996		1997		1998		1999		2000		2001		2002	
	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate
	(k ha)	(t dm/ha/yr)	(k ha)	(t dm/ha/yr)	(k ha)	(t dm/ha/yr)	(k ha)	(t dm/ha/yr)	(k ha)	(t dm/ha/yr)	(k ha)	(t dm/ha/yr)	(k ha)	(t dm/ha/yr)	(k ha)	(t dm/ha/yr)
Other																
Slovakia	Other (specify)												NO	NO	NO	NO
	Picea abies												515	3.40	516	3.40
	Abies alba												81	3.49	81	3.49
	Pinus sp.												144	3.42	144	3.42
	Larix decidua												45	3.60	45	3.60
	Other coniferous												20	1.37	20	1.37
	Quercus robur, petr.												213	4.16	213	4.16
	Fagus sylvatica												586	5.71	586	5.71
	Carpinus betulus												109	5.35	109	5.35
	Acer sp.												35	4.91	35	4.91
	Fraxinus excelsior												25	4.84	25	4.84
	Ulmus sp.												1	4.68	1	4.68
	Quercus cerris												47	4.58	47	4.58
	Robinia pseudoac.												34	2.90	34	2.90
	Betulus sp.												27	1.50	27	1.50
	Alnus sp.												14	2.46	14	2.46
	Tilia sp.												7	3.89	7	3.89
	Breeding poplars												11	2.51	11	2.51
	Populus sp.												7	1.39	7	1.39
	Salix sp.												2	2.16	2	2.16
	Other broadleaves												4	1.28	4	1.28
Slovenia	Other (specify)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Sweden	Other (specify)	NO											824		816	5.81
Switzerland	Other (specify)										NO					
United States	Naturally Regenerated -Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Plantations-Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Note: Only Parties reporting numerical values and/or notation keys under this category are included in the table.

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Table 5.7 (continued)

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

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

Average annual growth rate: relative change (%)

		1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
		Other						
Austria	Other (specify)							
Canada	Commercial	0.00	0.00	0.01	-0.03	-0.02	-0.03	-0.15
Czech Republic	Commercial							
Denmark	Other (specify)							
European Community	Other (specify)							
France	Forest as a whole	-0.01	0.01	1.01	-0.92	0.64	0.73	0.00
Germany	Other (specify)							
Greece	None commercial							
Italy	Total	-0.01	-0.01	-0.83	-0.87	-1.07	-0.80	-9.77
Japan	Other (specify)	0.00	0.00	0.00	0.00	0.00	0.00	-0.54
	Intensively Managed Forest (Single Storied Forest)	0.00	0.00	0.00	0.00	0.00	0.00	-1.39
	Semi-Natural Forest	0.00	0.00	0.00	0.00	0.00	0.00	-5.37
	Others							
	Square parks	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Neighborhood parks	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Community parks	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Comprehensive parks	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Sport parks	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Large scaled parks	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Specific parks	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	National government parks	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Buffer greenbelts	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ornamental green spaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Greenways	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Specified community parks	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Green space conservation zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Latvia	Bushes	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Clearing and rough afforestation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Garden parks	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lithuania	Other (specify)							
Netherlands	Other (specify)							
	forest land coniferous	0.02	0.00	-1.04	-0.52	0.00	0.00	-6.96
	forest land broadleaved	0.02	0.01	-0.46	-0.34	0.00	0.00	11.96
Norway	Other (specify)							
Portugal	Pinus pinaster	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	other softwood	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Eucalyptus	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Quercus suber	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Quercus ilex	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	other Quercus	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Castanea sativa	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	other hardwood	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Pinus pinaster	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	other softwood	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Eucalyptus	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Quercus suber	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Quercus ilex	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	other Quercus	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Castanea sativa							
	other hardwood	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

		1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
		Other						
Austria								
Canada		-0.83	-0.62	-1.05	-1.07	-0.91	-0.27	-10.49
Czech Republic								
Denmark								
European Community								
France		1.07	0.33	0.00	0.23	0.21	0.14	11.18
Germany								
Greece		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Italy		0.08	0.07	0.08	0.01	0.02	0.38	1.80
Japan								
		2.18	2.53	2.12	2.21	2.23	1.75	34.57
		1.95	2.91	2.92	1.97	1.06	2.09	36.60
		2.42	3.22	2.78	2.26	2.29	2.63	37.77
		1.40	3.47	6.29	2.77	3.90	2.31	53.59
		4.76	3.78	1.61	3.06	2.66	2.85	49.22
		6.13	5.72	-0.13	5.32	6.41	3.43	82.62
		1.09	1.77	1.11	0.54	2.58	-2.82	14.36
		6.14	7.51	8.62	5.07	5.09	8.91	93.15
		0.90	0.54	1.12	3.17	1.64	0.54	22.48
		5.32	7.15	5.00	3.76	2.67	4.03	101.25
		3.84	3.99	2.61	3.84	2.99	1.07	49.32
		5.25	3.10	8.15	5.29	4.80	29.37	197.74
		2.26	18.91	0.22	0.62	1.86	4.94	168.63
Latvia		13.54	-3.91	1.89	-3.55	-2.35	-0.49	5.01
		0.00	0.00	0.00	0.00	0.00	0.00	0.00
		4.63	-1.34	-2.50	-1.13	0.79	0.15	45.64
Lithuania								
Netherlands								
		-0.20	0.09	0.10	0.56	0.00	0.00	3.16
		1.45	1.08	1.06	0.50	0.00	0.00	8.34
Norway								
Portugal		0.43	0.43	0.43	0.43	0.20	0.20	-5.96
		2.39	2.34	2.28	2.23	3.93	3.78	20.52
		0.71	0.71	0.70	0.70	0.35	0.35	24.55
		-0.19	-0.19	-0.19	-0.19	0.15	0.22	-0.79
		-0.30	-0.30	-0.30	-0.31	-0.31	-0.31	-2.84
		-0.30	-0.30	-0.30	-0.30	-0.30	-0.31	4.19
		0.41	0.41	0.41	0.40	-0.30	-0.31	11.63
		0.85	0.84	0.83	0.83	4.29	4.11	1.74
		-13.08	-19.95	-9.33	-10.29	-11.48	-12.96	-67.54
		5.88	-3.39	12.62	12.06	2.22	2.17	49.96
		-10.88	-12.20	-13.90	0.00	0.00	0.00	15.73
		21.95	18.70	14.43	11.32	8.51	7.29	580.52
		52.00	34.21	25.49	20.31	16.88	14.44	
		0.00	-21.10	-41.38				
		5.53	6.43	7.49	6.81	-3.21	-3.31	178.26

Table 5.7 (continued)

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

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

Average annual growth rate: relative change (%)

		1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
	Other							
Slovakia	Other (specify)							
	Picea abies						0.12	
	Abies alba						-0.06	
	Pinus sp.						0.12	
	Larix decidua						0.00	
	Other coniferous						-0.29	
	Quecus robur, petr.						0.00	
	Fagus sylvatica						-0.04	
	Carpinus betulus						0.07	
	Acer sp.						0.08	
	Fraxinus excelsior						0.00	
	Ulmus sp.						0.00	
	Quercus cerris						0.09	
	Robinia pseudoac.						-0.14	
	Betulus sp.						0.27	
	Alnus sp.						0.12	
	Tilia sp.						0.05	
	Breeding poplars						-0.16	
	Populus sp.						0.29	
	Salix sp.						0.00	
	Other broadleaves						0.31	
Slovenia	Other (specify)							
Sweden	Other (specify)							
Switzerland	Other (specify)							
United States	Naturally Regenerated -Other							
	Plantations-Other							

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

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
	Other						
Slovakia							
						0.07	
						0.07	
						0.07	
						0.08	
						0.06	
						0.07	
						0.07	
						0.07	
						0.06	
						0.08	
						-0.13	
						0.07	
						0.07	
						0.05	
						0.07	
						0.01	
						0.08	
						0.08	
						-0.13	
						0.16	
Slovenia							
Sweden						-0.93	
Switzerland							
United States							

Table 5.8**Changes in forest and other woody biomass stocks – trend information (continued)****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	46,751	50,104	50,837	51,653	52,535	54,725	56,681	58,473
Austria	26,679	24,423	22,175	22,175	22,175	22,175	22,175	22,175
Belarus								
Belgium	4,534	4,452	4,439	4,425	4,411	4,398	4,384	4,384
Bulgaria								5,240
Canada	184,883	220,964	198,666	335,307	247,752	219,205	211,138	267,653
Croatia								
Czech Republic								16,378
Denmark								
Estonia								10,601
European Community	283,708	282,033	285,107	290,795	291,935	305,673	399,139	398,912
Finland	72,141	76,969	85,934	90,424	90,447	91,139	88,231	89,470
France	94,678	94,239	91,333	94,115	93,497	100,217	89,748	85,983
Germany	45,686	45,975	45,975	45,975	45,975	53,973	53,973	53,973
Greece	4,023	3,499	3,457	2,945	3,858	3,819	2,209	2,270
Hungary								6,656
Ireland	1,181	1,739	1,638	1,861	1,959	2,122	2,038	3,048
Italy								
Japan	61,665	NO	NO	NO	NO	NO	NO	NO
Latvia	5,622	10,197	13,417	15,075	16,089	16,641	15,686	16,928
Lithuania	2,935			4,494			5,016	5,775
Luxembourg								
Monaco								
Netherlands	-3,302	-3,574	-3,522	-3,600	-3,410	-3,593	-3,593	-3,593
New Zealand								
Norway	19,727			15,899	16,306	15,953	16,359	15,941
Portugal	22,736	17,985	17,985	17,065	17,836	17,148	17,614	16,985
Romania	19,413	13,997	13,661	11,739	13,258	13,965	13,115	15,756
Slovakia							10,230	10,221
Slovenia	3,242	2,301	2,301	2,301	2,301	2,301	2,301	2,301
Spain	15,543	16,321	15,566	15,529	15,058	14,239	15,398	15,385
Sweden							106,962	108,833
Switzerland	8,014	7,066	6,980	7,086	7,460	9,852	10,201	10,065
Ukraine								
United Kingdom								
United States	25,098	25,098	25,098	25,098	25,098	25,098	25,098	25,098

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	1.5	1.6	1.7	4.2	3.6	3.2	25.1
Austria	-9.2						-16.9
Belarus							
Belgium	-0.3	-0.3	-0.3	-0.3	-0.3		-3.3
Bulgaria							
Canada	-10.1	68.8	-26.1	-11.5	-3.7	26.8	44.8
Croatia							
Czech Republic							
Denmark							
Estonia							
European Community	1.1	2.0	0.4	4.7	30.6	-0.1	40.6
Finland	11.6	5.2	0.0	0.8	-3.2	1.4	24.0
France	-3.1	3.0	-0.7	7.2	-10.4	-4.2	-9.2
Germany				17.4	0.0	0.0	18.1
Greece	-1.2	-14.8	31.0	-1.0	-42.2	2.7	-43.6
Hungary							
Ireland	-5.8	13.6	5.3	8.3	-4.0	49.6	158.2
Italy							
Japan							
Latvia	31.6	12.4	6.7	3.4	-5.7	7.9	201.1
Lithuania						15.1	96.8
Luxembourg							
Monaco							
Netherlands	-1.4	2.2	-5.3	5.4			8.8
New Zealand							
Norway			2.6	-2.2	2.5	-2.6	-19.2
Portugal		-5.1	4.5	-3.9	2.7	-3.6	-25.3
Romania	-2.4	-14.1	12.9	5.3	-6.1	20.1	-18.8
Slovakia						-0.1	
Slovenia							-29.0
Spain	-4.6	-0.2	-3.0	-5.4	8.1	-0.1	-1.0
Sweden						1.7	
Switzerland	-1.2	1.5	5.3	32.1	3.5	-1.3	25.6
Ukraine							
United Kingdom							
United States							

Table 5.8**Changes in forest and other woody biomass stocks – trend information (continued)****CO₂ removals (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	-71,350	-72,533	-73,352	-74,359	-75,833	-77,945	-79,122	-80,300
Austria	-35,894	-29,808	-29,808	-29,808	-29,808	-29,808	-29,808	-29,808
Belarus								-31,346
Belgium	-6,428	-6,303	-6,282	-6,261	-6,240	-6,219	-6,198	-6,198
Bulgaria								-13,558
Canada	-365,185	-332,108	-331,045	-329,637	-322,861	-318,938	-315,836	-314,420
Croatia	-6,505	-8,069	-8,069	-8,069	-8,069	-8,069	-8,069	-9,000
Czech Republic								-20,870
Denmark	-2,832	-3,064	-3,153	-3,313	-3,311	-653	-3,539	-3,813
Estonia								-15,886
European Community	-465,284	-484,048	-491,532	-493,541	-501,558	-504,103	-617,346	-631,093
Finland	-95,939	-98,001	-98,571	-100,137	-101,268	-103,093	-105,082	-107,480
France	-138,595	-147,691	-148,314	-150,532	-151,994	-150,970	-152,204	-153,488
Germany	-79,375	-79,375	-79,375	-79,375	-79,375	-79,375	-79,375	-79,375
Greece	-4,005	-4,005	-4,005	-4,005	-4,005	-4,005	-4,005	-4,005
Hungary								13,018
Ireland	-1,631	-2,159	-2,136	-2,435	-2,460	-2,530	-3,045	-4,368
Italy	-28,605	-27,886	-27,255	-25,745	-25,668	-25,543	-26,914	-27,583
Japan	-146,147							
Latvia	-24,458	-25,201	-25,240	-25,227	-25,226	-25,259	-25,256	-25,255
Lithuania	-10,200			-10,742			-11,013	-11,077
Luxembourg				-295		-295		-295
Monaco								
Netherlands	1,881	2,176	2,342	2,220	2,175	2,180	2,180	2,180
New Zealand	-22,994	-18,478	-19,954	-21,917	-24,044	-25,760	-26,325	-26,057
Norway	-29,492			-33,486	-34,074	-34,696	-35,326	-35,996
Portugal	-17,163	-18,004	-18,092	-18,171	-18,271	-18,399	-18,495	-18,591
Romania	-32,451	-32,368	-32,341	-32,280	-32,268	-32,248	-32,254	-32,325
Slovakia							-14,990	-15,000
Slovenia	-4,873	-6,585	-6,585	-6,585	-6,585	-6,585	-6,585	-6,585
Spain	-24,999	-35,107	-37,171	-39,400	-41,816	-45,985	-46,875	-50,686
Sweden	-24,100	-26,100	-31,100	-28,100	-31,100	-31,100	-135,548	-139,139
Switzerland	-9,900	-10,186	-10,267	-10,302	-10,329	-10,316	-10,364	-10,373
Ukraine								
United Kingdom	-7,304	-8,426	-8,316	-8,184	-8,122	-8,309	-8,144	-8,444
United States	-717,746	-835,200	-758,859	-646,562	-617,212	-631,102	-628,915	-629,531

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	1.1	1.4	2.0	2.8	1.5	1.5	12.5
Austria							-17.0
Belarus							
Belgium	-0.3	-0.3	-0.3	-0.3	-0.3		-3.6
Bulgaria							
Canada	-0.3	-0.4	-2.1	-1.2	-1.0	-0.4	-13.9
Croatia		0.0			0.0	11.5	38.4
Czech Republic							
Denmark	2.9	5.1	-0.1	-80.3	442.0	7.7	34.6
Estonia							
European Community	1.5	0.4	1.6	0.5	22.5	2.2	35.6
Finland	0.6	1.6	1.1	1.8	1.9	2.3	12.0
France	0.4	1.5	1.0	-0.7	0.8	0.8	10.7
Germany							
Greece							
Hungary							
Ireland	-1.1	14.0	1.0	2.8	20.4	43.4	167.8
Italy	-2.3	-5.5	-0.3	-0.5	5.4	2.5	-3.6
Japan							
Latvia	0.2	0.0	0.0	0.1	0.0	0.0	3.3
Lithuania						0.6	8.6
Luxembourg							
Monaco							
Netherlands	7.6	-5.2	-2.0	0.2			15.9
New Zealand	8.0	9.8	9.7	7.1	2.2	-1.0	13.3
Norway			1.8	1.8	1.8	1.9	22.1
Portugal	0.5	0.4	0.5	0.7	0.5	0.5	8.3
Romania	-0.1	-0.2	0.0	-0.1	0.0	0.2	-0.4
Slovakia						0.1	
Slovenia							35.1
Spain	5.9	6.0	6.1	10.0	1.9	8.1	102.8
Sweden	19.2	-9.6	10.7		335.8	2.6	477.3
Switzerland	0.8	0.3	0.3	-0.1	0.5	0.1	4.8
Ukraine							
United Kingdom	-1.3	-1.6	-0.8	2.3	-2.0	3.7	15.6
United States	-9.1	-14.8	-4.5	2.3	-0.3	0.1	-12.3

Table 5.9**Forest/grassland conversion – trend information****CO₂ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	114,192	60,106	57,061	65,208	52,968	44,115	34,213	39,164
Austria	IE	IE	IE	IE	IE	IE	IE	IE
Belarus	8,412	4,700	4,750	4,900	5,219	5,639	5,268	5,326
Belgium	NE	NE	NE	NE	NE	NE	NE	NE
Bulgaria	NE	NE	NE	NE	NE	NE	NE	NE
Canada	13,691	13,691	13,691	13,691	13,691	13,691	13,691	13,691
Croatia	NE	NE	NE	NE	NE	NE	NE	NE
Czech Republic								
Denmark								
Estonia	75	39	37	38	35	27	0	0
European Community	10,435	10,159	10,275	13,750	10,620	14,367	10,850	10,307
Finland								
France	8,753	9,216	9,360	9,809	9,809	9,881	9,954	9,954
Germany	NE	NE	NE	NE	NE	NE	NE	NE
Greece	1,455	687	652	3,974	505	4,557	670	98
Hungary	1,764	1,490	1,498	1,488	1,488	1,436	1,426	1,446
Ireland	NO			NO	NO			
Italy								
Japan	579	NE	NE	NE	NE	NE	NE	NE
Latvia	NO/IE	NO/IE	NO/IE	NO/IE	NO/IE	NO/IE	NO/IE	NO/IE
Lithuania	NE			NE			NE	NE
Luxembourg								
Monaco								
Netherlands	NE	NE	NE	NE	NE	NE	NE	NE
New Zealand	870	2,509	2,252	1,133	1,421	1,435	1,620	1,105
Norway	NE			NE	NE	NE	NE	NE
Portugal	0	0	0	0	0	0	0	0
Romania	598	598	598	598	598	598	598	598
Slovakia							269	269
Slovenia	IE	IE	IE	IE	IE	IE	IE	IE
Spain	0	0	0	0	0	0	0	0
Sweden								
Switzerland	NO	NO	NO	NO	NO	NO	NO	NO
Ukraine								
United Kingdom	259	259	259	259	259	259	259	259
United States	0	0	0	0	0	0	0	0

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	-5.1	14.3	-18.8	-16.7	-22.4	14.5	-65.7
Austria							
Belarus	1.1	3.2	6.5	8.0	-6.6	1.1	-36.7
Belgium							
Bulgaria							
Canada							
Croatia							
Czech Republic							
Denmark							
Estonia	-6.1	2.3	-6.9	-23.1			
European Community	1.1	33.8	-22.8	35.3	-24.5	-5.0	-1.2
Finland							
France	1.6	4.8		0.7	0.7		13.7
Germany							
Greece	-5.1	509.9	-87.3	801.6	-85.3	-85.4	-93.3
Hungary	0.5	-0.7	0.0	-3.5	-0.7	1.4	-18.0
Ireland							
Italy							
Japan							
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands							
New Zealand	-10.3	-49.7	25.4	1.0	12.8	-31.8	27.0
Norway							
Portugal							
Romania							
Slovakia						0.2	
Slovenia							
Spain							
Sweden							
Switzerland							
Ukraine							
United Kingdom							
United States							

Table 5.10

Forest/grassland conversion: average annual net loss of biomass (t dm/ha) (2002)

	On- and off-site burning			Decay			Difference in annual net loss of biomass (t dm/ha/yr)
	Area converted annually (kha/yr)	Average annual net loss of biomass (t dm/ha/yr)	Annual net loss of biomass (kt dm/yr)	Average area converted (kha/yr)	Average annual net loss of biomass (t dm/ha/yr)	Annual net loss of biomass (kt dm/yr)	
	Original natural ecosystem: Tropical, wet / very moist						
Default ^a		(225-300)			(225-300)		
Austria	NO			NO			
Belgium	NO		NO	NO	NO		
Canada	NO		NO	NO	NO		
Denmark	NO		NO	NO	NO		
Estonia			0.00		0.00		
European Community	NE		NE	NE			
France	0.80	142.50	114.00	NA *	NA *		
Germany	NO		NO	NO	NO		
Greece	NO		NO	NO	NO		
Hungary	NA		NA	NA	NA		
Ireland							
Japan	NO		NO	NO	NO		
Latvia	NO		NO	NO	NO		
Lithuania	NO		NO	NO	NO		
Monaco	NO						
Netherlands	NO		NO	NO	NO		
Norway	NO		NO	NO	NO		
Romania	NO		0.00		0.00		
Slovakia	NO		NO	NO	NO		
Slovenia	NO		NO	NO	NO		
Spain	NO						
Sweden	NO						
United States	NE		NE	NE	NE		
Original natural ecosystem: temperate / coniferous							
Default ^b		(220-295)			(220-295)		
Austria	NO			IE			
Belgium	NO		NO	NE	NE		
Canada	IE		IE	NE	NE		
Denmark	NO		NO	NO	NO		
Estonia			0.00		0.00		
European Community	NE		NE	NE	NE		
France	IE		IE	IE	IE		
Germany	NO		NO	NE	NE		
Greece	0.43	33.86	14.65	NO	NO		
Hungary	IE		IE	IE	IE		
Ireland	0.00		0.00		0.00		
Japan	NO		NO	NO	NO		
Latvia	NO		NO	NO	NO		
Lithuania	NE		NE	NE	NE		
Monaco	NO						
Netherlands	NE		NE	NE	NE		
Norway	IE		IE	IE	IE		
Romania	0.34	250.00	85.00	0.34	85.00	28.90	
Slovakia	NA		847.30	0.90	63.90	57.51	
Slovenia	IE		IE	IE	IE		
Spain	NE						
Sweden	0.00						
United States	NE		NE	NE	NE		

Table 5.10 (continued)

Forest/grassland conversion: average annual net loss of biomass (t dm/ha) (2002)

	On- and off-site burning			Decay			Difference in annual net loss of biomass (t dm/ha/yr)
	Area converted annually (kha/yr)	Average annual net loss of biomass (t dm/ha/yr)	Annual net loss of biomass (kt dm/yr)	Average area converted (kha/yr)	Average annual net loss of biomass (t dm/ha/yr)	Annual net loss of biomass (kt dm/yr)	
	Original natural ecosystem: temperate / broadleaf						
Default ^b		(175-250)			(175-250)		
Austria	NO			IE			
Belgium	NO		NO	NE	NE		
Canada	IE		IE	NE	NE		
Denmark	NO		NO	NO	NO		
Estonia			0.00			0.00	
European Community	NE		NE	NE	NE		
France	IE		IE	IE	IE		
Germany	NO		NO	NE	NE		
Greece	0.22	19.72	4.37	NO	NO		
Hungary	IE		IE	IE	IE		
Ireland	0.00		0.00			0.00	
Japan	NE		NE	NE	NAV		
Latvia	NO		NO	NO	NO		
Lithuania	NE		NE	NE	NE		
Monaco	NO						
Netherlands	NE		NE	NE	NE		
Norway	IE		IE	IE	IE		
Romania	1.36	200.00	272.00	1.36	272.00	369.92	
Slovakia	NA		1,323.36	IE	IE		
Slovenia	IE		IE	IE	IE		
Spain	NE						
Sweden	0.00						
United States	NE		NE	NE	NE		
	Original natural ecosystem: temperate - mixed broadleaf / coniferous						
Default ^b		(175-295)			(175-295)		
Austria	NO			IE			
Belgium	NO		NO	NE	NE		
Canada	45.40	101.88	4,625.25	NE	NE		
Denmark	NO		NO	NO	NO		
European Community	NE		NE	NE	NE		
France	58.63	86.94	5,097.10	NO	NO		
Germany	NO		NO	NE	NE		
Greece	1.92	19.72	37.79	NO	NO		
Hungary	NE		NE	NE	NE		
Ireland	NE			NE			
Japan	NO		NO	NO	NO		
Latvia	NO		NO	NO	NO		
Lithuania	NO		NO	NO	NO		
Monaco	NO						
Netherlands	NE		NE	NE	NE		
Norway	IE		IE	IE	IE		
Romania	NO		0.00		0.00		
Slovakia	NA		NA	NA	NA		
Slovenia	IE		IE	IE	IE		
Spain	NE						
Sweden	0.00						
United Kingdom	1.63	240.00	392.16	NO	NO		
United States	NE		NE	NE	NE		

Table 5.10 (continued)

Forest/grassland conversion: average annual net loss of biomass (t dm/ha) (2002)

	On- and off-site burning			Decay			Difference in annual net loss of biomass (t dm ³ /ha ² /yr)
	Area converted annually (kha/yr)	Average annual net loss of biomass (t dm ³ /ha ² /yr)	Annual net loss of biomass (kt dm ³ /yr)	Average area converted (kha/yr)	Average annual net loss of biomass (t dm ³ /ha ² /yr)	Annual net loss of biomass (kt dm ³ /yr)	
	Original natural ecosystem: grasslands						
Default ^c							
Austria	NO			NE			
Belgium	NO		NO	NE	NE		
Canada	63.42	11.81	748.87	NE	NE		
Denmark	NO		NO	NO	NO		
Estonia			0.00		0.00		
European Community	NE		NE	NE	NE		
France	NO		NO	NO	NO		
Germany	NO		NO	NE	NE		
Greece	0.64		NE	NO	NO		
Hungary	NO		NO	NO	NO		
Ireland			0.00		0.00		
Japan	NE		NE	NE	NE		
Latvia	NO		NO	NO	NO		
Lithuania	NO		NO	NO	NO		
Monaco	NO						
Netherlands	NE		NE	NE	NE		
Norway	IE		IE	IE	IE		
Romania	NO		0.00		0.00		
Slovakia	NO		NO	NO	NO		
Slovenia	IE		IE	IE	IE		
Spain	NE						
Sweden	NO						
United States	NE		NE	NE	NE		
Original natural ecosystem: boreal, mixed coniferous / broadleaf							
Default ^b		(40-87)			(40-87)		
Austria	NO			NO			
Belgium	NO		NO	NO	NO		
Canada	28.65	73.07	2,093.83	NE	NE		
Denmark	NO		NO	NO	NO		
Estonia	0.00		0.00	0.00	0.00		
European Community	NE		NE	NE	NE		
France	NO		NO	NO	NO		
Germany	NO		NO	NO	NO		
Greece	NO		NO	NO	NO		
Hungary	NA		NA	NA	NA		
Ireland			0.00		0.00		
Japan	NO		NO	NO	NO		
Latvia	NO		NO	NO	NO		
Lithuania	NO		NO	NO	NO		
Monaco	NO						
Netherlands	NO		NO	NO	NO		
Norway	IE		IE	IE	IE		
Romania	NO		0.00		0.00		
Slovakia	NO		NO	NO	NO		
Slovenia	NO		NO	NO	NO		
Spain	NO						
Sweden	0.00						
United States	NE		NE	NE	NE		

Note: Only Parties reporting numerical values and/or notation keys under this category are included in the table.

^a Source of default emission factors: IPCC Guidelines, volume 3, table 5.4, page 5.26.

^b Source of default emission factors: IPCC Guidelines, volume 3, table 5.6, page 5.30.

^c No IPCC default values available.

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

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia								
Austria	NO	NO	NO	NO	NO	NO	NO	NO
Belarus								
Belgium	NO	NO	NO	NO	NO	NO	NO	NO
Bulgaria								
Canada	IE	IE	IE	IE	IE	IE	IE	IE
Croatia								
Czech Republic								
Denmark	NO	NO	NO	NO	NO	NO	NO	NO
Estonia								
European Community						NE	NE	NE
Finland								
France	IE	IE	IE	IE	IE	IE	IE	IE
Germany	NO	NO	NO	NO	NO	NO	NO	NO
Greece	13.6	4.1	4.9	33.5	3.2	29.9	4.6	0.4
Hungary								IE
Ireland	NE	NE	NE	NE	NE			0.0
Italy								
Japan	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	NE			NO			NO	NE
Luxembourg								
Monaco								NO
Netherlands	NE	NE	NE	NE	NE	NE	NE	NE
New Zealand								
Norway	IE			IE	IE	IE	IE	IE
Portugal								
Romania	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Slovakia							NA	NA
Slovenia	IE	IE	IE	IE	IE	IE	IE	IE
Spain	NE	NE	NE	NE	NE	NE	NE	NE
Sweden	NO						0.0	0.0
Switzerland								
Ukraine								
United Kingdom								
United States	NE	NE	NE	NE	NE	NE	NE	NE

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria							
Belarus							
Belgium							
Bulgaria							
Canada							
Croatia							
Czech Republic							
Denmark							
Estonia							
European Community							
Finland							
France							
Germany							
Greece	19.8	583.7	-90.4	835.3	-84.8	-90.5	-96.8
Hungary							
Ireland							
Italy							
Japan							
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands							
New Zealand							
Norway							
Portugal							
Romania							
Slovakia							
Slovenia							
Spain							
Sweden							
Switzerland							
Ukraine							
United Kingdom							
United States							

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

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia								
Austria	NO	NO	NO	NO	NO	NO	NO	NO
Belarus								
Belgium	NO	NO	NO	NO	NO	NO	NO	NO
Bulgaria								
Canada	IE	IE	IE	IE	IE	IE	IE	IE
Croatia								
Czech Republic								
Denmark	NO	NO	NO	NO	NO	NO	NO	NO
Estonia								
European Community						NE	NE	NE
Finland								
France	IE	IE	IE	IE	IE	IE	IE	IE
Germany	NO	NO	NO	NO	NO	NO	NO	NO
Greece	5.0	1.9	1.1	12.5	1.2	21.4	2.3	0.2
Hungary								IE
Ireland	NE	NE	NE	NE	NE			0.0
Italy								
Japan	9.0	NE	NE	NE	NE	NE	NE	NE
Latvia	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	NE			NO			NO	NE
Luxembourg								
Monaco								NO
Netherlands	NE	NE	NE	NE	NE	NE	NE	NE
New Zealand								
Norway	IE			IE	IE	IE	IE	IE
Portugal								
Romania	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Slovakia							NA	NA
Slovenia	IE	IE	IE	IE	IE	IE	IE	IE
Spain	NE	NE	NE	NE	NE	NE	NE	NE
Sweden	NO						0.0	0.0
Switzerland								
Ukraine								
United Kingdom								
United States	NE	NE	NE	NE	NE	NE	NE	NE

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria							
Belarus							
Belgium							
Bulgaria							
Canada							
Croatia							
Czech Republic							
Denmark							
Estonia							
European Community							
Finland							
France							
Germany							
Greece	-40.9	1,036.4	-90.4	1,685.8	-89.1	-90.5	-95.5
Hungary							
Ireland							
Italy							
Japan							
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands							
New Zealand							
Norway							
Portugal							
Romania							
Slovakia							
Slovenia							
Spain							
Sweden							
Switzerland							
Ukraine							
United Kingdom							
United States							

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

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia								
Austria	NO	NO	NO	NO	NO	NO	NO	NO
Belarus								
Belgium	NO	NO	NO	NO	NO	NO	NO	NO
Bulgaria								
Canada	45.4	45.4	45.4	45.4	45.4	45.4	45.4	45.4
Croatia								
Czech Republic								
Denmark	NO	NO	NO	NO	NO	NO	NO	NO
Estonia								
European Community						NE	NE	NE
Finland								
France	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6
Germany	NO	NO	NO	NO	NO	NO	NO	NO
Greece	15.5	10.5	9.0	48.5	8.4	63.7	9.4	1.9
Hungary								NE
Ireland	NE	NE	NE	NE	NE	NE	NE	NE
Italy								
Japan	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	NE			NO			NO	NO
Luxembourg								
Monaco								NO
Netherlands	NE	NE	NE	NE	NE	NE	NE	NE
New Zealand								
Norway	IE			IE	IE	IE	IE	IE
Portugal								
Romania	NO							NO
Slovakia							NA	NA
Slovenia	IE	IE	IE	IE	IE	IE	IE	IE
Spain	NE	NE	NE	NE	NE	NE	NE	NE
Sweden	NO						0.0	0.0
Switzerland								
Ukraine								
United Kingdom	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
United States	NE	NE	NE	NE	NE	NE	NE	NE

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria							
Belarus							
Belgium							
Bulgaria							
Canada							
Croatia							
Czech Republic							
Denmark							
Estonia							
European Community							
Finland							
France							
Germany							
Greece	-14.4	438.9	-82.7	658.6	-85.2	-79.7	-87.6
Hungary							
Ireland							
Italy							
Japan							
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands							
New Zealand							
Norway							
Portugal							
Romania							
Slovakia							
Slovenia							
Spain							
Sweden							
Switzerland							
Ukraine							
United Kingdom							
United States							

Table 5.11

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

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia								
Austria	NO	NO	NO	NO	NO	NO	NO	NO
Belarus								
Belgium	NO	NO	NO	NO	NO	NO	NO	NO
Bulgaria								
Canada	63.4	63.4	63.4	63.4	63.4	63.4	63.4	63.4
Croatia								
Czech Republic								
Denmark	NO	NO	NO	NO	NO	NO	NO	NO
Estonia								
European Community						NE	NE	NE
Finland								
France	NO	NO	NO	NO	NO	NO	NO	NO
Germany	NO	NO	NO	NO	NO	NO	NO	NO
Greece	4.9	9.3	8.3	19.8	2.4	19.2	5.5	0.6
Hungary								NO
Ireland	NE	NE	NE	NE	NE			
Italy								
Japan	NE	NE	NE	NE	NE	NE	NE	NE
Latvia	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	NO			NO			NO	NO
Luxembourg								
Monaco								NO
Netherlands	NE	NE	NE	NE	NE	NE	NE	NE
New Zealand								
Norway	IE			IE	IE	IE	IE	IE
Portugal								
Romania								NO
Slovakia							NO	NO
Slovenia	IE	IE	IE	IE	IE	IE	IE	IE
Spain	NE	NE	NE	NE	NE	NE	NE	NE
Sweden	NO						NO	NO
Switzerland								
Ukraine								
United Kingdom								
United States	NE	NE	NE	NE	NE	NE	NE	NE

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria							
Belarus							
Belgium							
Bulgaria							
Canada							
Croatia							
Czech Republic							
Denmark							
Estonia							
European Community							
Finland							
France							
Germany							
Greece	-11.0	139.3	-87.9	700.0	-71.2	-88.5	-86.8
Hungary							
Ireland							
Italy							
Japan							
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands							
New Zealand							
Norway							
Portugal							
Romania							
Slovakia							
Slovenia							
Spain							
Sweden							
Switzerland							
Ukraine							
United Kingdom							
United States							

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

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia								
Austria	NO	NO	NO	NO	NO	NO	NO	NO
Belarus								
Belgium	NO	NO	NO	NO	NO	NO	NO	NO
Bulgaria								
Canada	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7
Croatia								
Czech Republic								
Denmark	NO	NO	NO	NO	NO	NO	NO	NO
Estonia								0.0
European Community						NE	NE	NE
Finland								
France	NO	NO	NO	NO	NO	NO	NO	NO
Germany	NO	NO	NO	NO	NO	NO	NO	NO
Greece	NO	NO	NO	NO	NO	NO	NO	NO
Hungary								NA
Ireland	NA	NO	NO	NA	NA			
Italy								
Japan	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	NO			NE			NE	NO
Luxembourg								
Monaco								NO
Netherlands	NO	NO	NO	NO	NO	NO	NO	NO
New Zealand								
Norway	IE			IE	IE	IE	IE	IE
Portugal								
Romania								NO
Slovakia							NO	NO
Slovenia	NO	NO	NO	NO	NO	NO	NO	NO
Spain	NO	NO	NO	NO	NO	NO	NO	NO
Sweden							0.0	0.0
Switzerland								
Ukraine								
United Kingdom								
United States	NE	NE	NE	NE	NE	NE	NE	NE

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria							
Belarus							
Belgium							
Bulgaria							
Canada							
Croatia							
Czech Republic							
Denmark							
Estonia							
European Community							
Finland							
France							
Germany							
Greece							
Hungary							
Ireland							
Italy							
Japan							
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands							
New Zealand							
Norway							
Portugal							
Romania							
Slovakia							
Slovenia							
Spain							
Sweden							
Switzerland							
Ukraine							
United Kingdom							
United States							

Table 5.12**Abandonment of managed land – trend information****CO₂ removals (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	NA	NA	NA	NA	NA	NA	NA	NA
Austria	IE	IE	IE	IE	IE	IE	IE	IE
Belarus								2,247
Belgium	NE	NE	NE	NE	NE	NE	NE	NE
Bulgaria								
Canada	-746	-746	-746	-746	-746	-746	-746	-746
Croatia								
Czech Republic								
Denmark								
Estonia								-2,312
European Community	-150	-199	-201	-202	-201	-199	-197	-184
Finland								
France	-48	-48	-48	-48	-48	-48	-48	-48
Germany	NE	NE	NE	NE	NE	NE	NE	NE
Greece								
Hungary								
Ireland	NO			NE	NE			
Italy	-102	-151	-153	-154	-153	-151	-149	-136
Japan	NE	NE	NE	NE	NE	NE	NE	NE
Latvia	NO	-37	-14	-42	-51	-62	-82	-95
Lithuania	-930			-1,549			-1,549	-1,609
Luxembourg								
Monaco								
Netherlands	NE	NE	NE	NE	NE	NE	NE	NE
New Zealand								
Norway								
Portugal								
Romania								
Slovakia								
Slovenia	-224	-216	-216	-216	-216	-216	-216	-216
Spain								
Sweden								
Switzerland	IE	IE	IE	IE	IE	IE	IE	IE
Ukraine								
United Kingdom								
United States								

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria							
Belarus							
Belgium							
Bulgaria							
Canada							
Croatia							
Czech Republic							
Denmark							
Estonia							
European Community	1.1	0.1	0.0	-1.0	-1.3	-6.7	22.4
Finland							
France							
Germany							
Greece							
Hungary							
Ireland							
Italy	1.5	0.1	0.0	-1.3	-1.7	-8.9	33.0
Japan							
Latvia	-62.2	204.6	21.7	20.0	32.7	16.4	
Lithuania						3.8	72.9
Luxembourg							
Monaco							
Netherlands							
New Zealand							
Norway							
Portugal							
Romania							
Slovakia							
Slovenia							-3.3
Spain							
Sweden							
Switzerland							
Ukraine							
United Kingdom							
United States of America							

Table 5.13

Abandonment of managed land (2002)

Annual above ground biomass growth rate (t dm/ha/yr) and rate of biomass C uptake (t C/ha/yr)

	Annual rate of biomass growth		C fraction of biomass		Rate of biomass C uptake	
	<20 yrs	> 20 yrs	<20 yrs	> 20 yrs	<20 yrs	> 20 yrs
	t dm/ha/yr	t dm/ha/yr			t C/ha/yr	t C/ha/yr
Temperate: Mixed coniferous / broadleaf						
Default ^a	(2.0-3.0)	(2.0-3.0)				
Austria	IE	IE	IE	IE		
Belarus	2.70	2.10	0.50	0.50		
Belgium	NE	NE	NE	NE	NE	NE
Canada	0.95	NE	0.50	NE	0.48	NE
European Community	NE	NE	NE	NE	NE	NE
Germany	NE	NE	NE	NE	NE	NE
Greece	NE	NE	NE	NE	NE	NE
Hungary	NO	NO	NO	NO		
Italy	2.00		0.50		1.00	
Japan	NE	NE	NE	NE	NE	NE
Latvia	1.00	NO	0.50	NO	0.50	
Lithuania	2.50	2.50	0.50	0.50	1.25	1.25
Netherlands	NE	NE	NE	NE	NE	NE
Norway	IE	IE	IE	IE	IE	IE
Slovakia	NO	NO	NO	NO	NO	NO
Slovenia	1.75	NE	0.50	NE	0.88	NE
Spain					NE	NE
United States	NE	NE	NE	NE	IE	NE
Temperate: Broadleaf						
Default ^a	(2.0)	(2.0)				
Austria	IE	IE	IE	IE		
Belgium	NE	NE	NE	NE	NE	NE
Canada	NA	NA	NA	NA	NA	NA
European Community	NE	NE	NE	NE	NE	NE
Germany	NE	NE	NE	NE	NE	NE
Greece	NE	NE	NE	NE	NE	NE
Hungary	NO	NO	NO	NO		
Japan	NE	NE	NE	NE	NE	NE
Latvia	NO	NO	NO	NO		
Lithuania	NO	NO	NO	NO	NO	NO
Netherlands	NE	NE	NE	NE	NE	NE
Norway	IE	IE	IE	IE	IE	IE
Slovakia	NO	NO	NO	NO	NO	NO
Slovenia	NE	NE	NE	NE	NE	NE
Spain					NE	NE
United States	NE	NE	NE	NE	IE	NE

Table 5.13 (continued)

Abandonment of managed land (2002)

Annual above ground biomass growth rate (t dm/ha/yr) and rate of biomass C uptake (t C/ha/yr)

	Annual rate of biomass growth		C fraction of biomass		Rate of biomass C uptake	
	<20 yrs	> 20 yrs	<20 yrs	> 20 yrs	<20 yrs	> 20 yrs
	t dm/ha/yr	t dm/ha/yr			t C/ha/yr	t C/ha/yr
	Temperate: Coniferous					
Default ^a	(3.0)	(3.0)				
Austria	IE	IE	IE	IE		
Belarus						
Belgium	NE	NE	NE	NE	NE	NE
Canada	NA	NA	NA	NA	NA	NA
European Community	NE	NE	NE	NE	NE	NE
Germany	NE	NE	NE	NE	NE	NE
Greece	NE	NE	NE	NE	NE	NE
Hungary	NO	NO	NO	NO		
Japan	NE	NE	NE	NE	NE	NE
Latvia	NO	NO	NO	NO		
Lithuania	NO	NO	NO	NO	NO	NO
Netherlands	NE	NE	NE	NE	NE	NE
Norway	IE	IE	IE	IE	IE	IE
Slovakia	NO	NO	NO	NO	NO	NO
Slovenia	NE	NE	NE	NE	NE	NE
Spain					NE	NE
United States	NE	NE	NE	NE	IE	NE
	Boreal: Mixed Broadleaf / Coniferous					
Default ^b	(0.7-2.0)	(0.7-6.4)				
Austria	NO	NO	NO	NO		
Belgium	NO	NO	NO	NO	NO	NO
Canada	0.21	NE	0.50	NE	0.11	NE
Estonia	5.00		0.45	0.45	2.25	
European Community	NE	NE	NE	NE	NE	NE
Germany	NO	NO	NO	NO	NO	NO
Greece	NO	NO	NO	NO	NO	NO
Hungary	NA	NA	NA	NA		
Japan	NO	NO	NO	NO	NO	NO
Latvia	NO	NO	NO	NO		
Lithuania	NO	NO	NO	NO	NO	NO
Netherlands	NO	NO	NO	NO	NO	NO
Norway	IE	IE	IE	IE	IE	IE
Slovakia	NO	NO	NO	NO	NO	NO
Slovenia	NO	NO	NO	NO	NO	NO
Spain					NO	NO
United States	NE	NE	NE	NE	NE	NE
	Grassland					
Default ^c						
Austria	NE	NE	NE	NE		
Belgium	NE	NE	NE	NE	NE	NE
Canada	NO	NO	NO	NO	NO	NO
European Community	NE	NE	NE	NE	NE	NE
Germany	NE	NE	NE	NE	NE	NE
Greece	NE	NE	NE	NE	NE	NE
Hungary	NA	NA	NA	NA		
Japan	NE	NE	NE	NE	NE	NE
Latvia	NO	NO	NO	NO		
Lithuania	NO	NO	NO	NO	NO	NO
Netherlands	NE	NE	NE	NE	NE	NE
Norway	IE	IE	IE	IE	IE	IE
Slovakia	NO	NO	NO	NO	NO	NO
Slovenia	NE	NE	NE	NE	NE	NE
Spain					NE	NE
United States	NE	NE	NE	NE	NE	NE

Note: Only Parties reporting numerical values and/or notation keys under this category are included in the table.

^a Source of default emission factors: IPCC Guidelines, volume 3, table 5.2, page 5.20.

^b Source of default emission factors: IPCC Guidelines, volume 2, table 5.8, page 5.22.

^c No IPCC default values available.

Table 5.13
Abandonment of managed land (2002) (continued)
Abandonment area (kha) – first 20 years^a

		1990 ^b	1996	1997	1998	1999	2000	2001	2002
Canada	Temperate Forests : Mixed Broadleaf/Coniferous	394	394	394	394	394	394	394	394
	Mixed Broadleaf/Coniferous	155	155	155	155	155	155	155	155
Estonia	Boreal Forests : Mixed Broadleaf/ Coniferous								280
Italy	Temperate Forests : Mixed Broadleaf/Coniferous	28	41	42	42	42	41	41	37
Latvia	Temperate Forests : Mixed Broadleaf/Coniferous	NO	20	15	23	28	34	45	52
Lithuania	Temperate Forests : Mixed Broadleaf/Coniferous	3			88			138	151
Slovenia	Temperate Forests : Mixed Broadleaf/Coniferous	70	67	67	67	67	67	67	67

^a Only Parties reporting numerical values under this category are included in the table.

^b In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Canada							
Estonia							
Italy	1.5	0.1	0.0	-1.3	-1.7	-8.9	33.0
Latvia	-24.5	52.3	21.7	20.0	32.7	16.4	
Lithuania						9.4	4,933.3
Slovenia							-4.3

Table 5.14**CO₂ emissions and removals from soils – trend information****Net CO₂ emissions/removals (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	-4,224	-4,224	-4,224	-4,224	-4,224	-4,224	-4,224	-4,224
Austria	NE	NE	NE	NE	NE	NE	NE	NE
Belarus	2,517	770	800	820	788	715	780	1,701
Belgium	NE	NE	NE	NE	NE	NE	NE	NE
Bulgaria	NE	NE	NE	NE	NE	NE	NE	NE
Canada	13,177	13,177	13,177	13,177	13,177	13,177	13,177	13,177
Croatia	NE	NE	NE	NE	NE	NE	NE	NE
Czech Republic								
Denmark	0	0	0	0	0	0	0	0
Estonia	3,053	420	-347	-42	646	463	-967	-967
European Community	70,541	67,565	68,800	68,312	67,074	67,181	66,253	63,734
Finland								
France	3,567	3,043	2,859	2,809	2,669	3,007	2,692	2,734
Germany	41,204	39,087	39,151	39,325	39,301	39,499	39,211	39,309
Greece		-253	-508	-84	-339	-202	-169	-254
Hungary	794	NE	NE	203	203	-41	296	2,580
Ireland	384	416	467	413	379	360	378	342
Italy	5,175	7,815	9,645	8,472	8,110	8,749	8,761	7,333
Japan	NE	NE	NE	NE	NE	NE	NE	NE
Latvia	134	102	113	92	93	95	91	94
Lithuania	2,713			240			211	190
Luxembourg								
Monaco								
Netherlands	NE	NE	NE	NE	NE	NE	NE	NE
New Zealand	360	485	534	583	632	682	731	780
Norway	217	152	149	134	129	108	113	116
Portugal	0	0	0	0	0	0	0	0
Romania								
Slovakia	-815	-805	-547	-593	-669	-1,146	-619	-616
Slovenia	-1,095	-1,061	-1,061	-1,061	-1,061	-1,061	-1,061	-1,061
Spain	0	0	0	0	0	0	0	0
Sweden	3,808	3,831	3,812	3,769	3,795	3,794	3,775	3,765
Switzerland	593	593	593	593	593	593	593	593
Ukraine								
United Kingdom	16,404	13,626	13,374	13,607	13,160	11,973	11,604	10,506
United States	-239,187	-231,716	-74,337	-71,874	-72,325	-74,014	-75,717	-76,177

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria							
Belarus	3.9	2.5	-3.9	-9.3	9.2	118.0	-32.4
Belgium							
Bulgaria							
Canada							
Croatia							
Czech Republic							
Denmark							
Estonia	-182.6	-87.8	-1,623.1	-28.4	-308.9		-131.7
European Community	1.8	-0.7	-1.8	0.2	-1.4	-3.8	-9.6
Finland							
France	-6.1	-1.7	-5.0	12.6	-10.4	1.6	-23.3
Germany	0.2	0.4	-0.1	0.5	-0.7	0.2	-4.6
Greece	100.7	-83.4	302.2	-40.5	-16.0	50.0	
Hungary				-120.2	-819.2	771.5	224.9
Ireland	12.3	-11.7	-8.1	-5.0	5.1	-9.6	-11.1
Italy	23.4	-12.2	-4.3	7.9	0.1	-16.3	41.7
Japan							
Latvia	10.1	-18.2	0.9	1.7	-3.6	2.9	-30.2
Lithuania						-9.7	-93.0
Luxembourg							
Monaco							
Netherlands							
New Zealand	10.2	9.2	8.5	7.8	7.2	6.7	116.6
Norway	-1.6	-10.3	-3.3	-16.4	4.8	2.3	-46.5
Portugal							
Romania							
Slovakia	-32.1	8.5	12.8	71.3	-46.0	-0.5	-24.4
Slovenia							-3.2
Spain							
Sweden	-0.5	-1.1	0.7	0.0	-0.5	-0.3	-1.1
Switzerland							
Ukraine							
United Kingdom	-1.8	1.7	-3.3	-9.0	-3.1	-9.5	-36.0
United States	-67.9	-3.3	0.6	2.3	2.3	0.6	-68.2

Table 5.15

Cultivation of mineral soils: average annual rate of soils C uptake/removal (tC/ha/year) (2002)

	Average annual rate of soil C uptake/removal (t C/ha/yr)					
	High activity	Low activity	Sandy	Volcanic	Wetland	Other
Default ^a						
Australia						
Austria						
Belarus						
Belgium	NE	NE	NE	NE	NE	
Bulgaria						
Canada	IE	IE	IE	IE	IE	
Croatia						
Czech Republic						
Denmark						
Estonia	0.10				0.15	
European Community	NE	NE	NE	NE	NE	
Finland	-0.08	-0.08	-0.02			
France						
Germany	NE	NE	NE	NO	NE	
Greece	2.31	NE	NE	NE	NO	
Hungary	0.01		-0.04		-0.30	
Ireland						
Italy						-0.09
Japan	NE	NE	NE	NE	NE	
Latvia						
Lithuania	NE	NE	NE	NO	NE	
Luxembourg						
Monaco						
Netherlands	NE	NE	NE	NE	NE	
New Zealand						
Norway	NE	NE	NE	NE	NE	
Portugal						
Romania						
Slovakia	0.05	0.00	-0.02	-0.03	0.17	NO
Slovenia	0.42	0.14	NO	NO	NO	
Spain	NE	NE	NE	NE	NE	
Sweden	NE	NE	NE	NE	NE	
Switzerland						
Ukraine						
United Kingdom						
United States	0.03	0.03	0.02	-0.04	0.03	

^a No IPCC default values available.

^b Source of default emission factors: IPCC Guidelines, volume 2, table 5.11, page 5.29.

Table 5.16

Cultivation of organic soils: annual loss rate (Mg/ha/year) (2002)

	Annual loss rate (Mg C/ha/yr)						Histosol cultivation	
	Cool temperate		Warm temperate		Tropical		Table 4.D.	Table 5.D.
	Upland crops	Pasture/forest	Upland crops	Pasture/forest	Upland crops	Pasture/forest	(ha)	
Default ^b	1	0.25	10	2.5	20	5		
Australia								
Austria							NO	
Belarus							851,600	
Belgium	NE	NE	NE	NE	NE	NE	25,200	NE
Bulgaria							205	
Canada	IE	IE	NO	NO	NO	NO	29,802	NE
Croatia								
Czech Republic							1,695	
Denmark							18,440	
Estonia		4.30						
European Community	NE	NE	NE	NE	NE	NE	NE	NE
Finland	1.18	1.06					295,500	295,500
France							NO	NO
Germany	NE	NE	NO	NO	NO	NO	1,413,326	1,413,326
Greece	NO	NO	NO	NO	NO	NO	NE	NO
Hungary							NO	
Ireland							0	
Italy							9,000	
Japan	NO	NO	NE	NE	NO	NO	NE	NE
Latvia	1.00						27,483	
Lithuania	1.00	0.25	NO	NO	NO	NO		59,896
Luxembourg								
Monaco							NO	NO
Netherlands	NE	NE	NO	NO	NO	NO	NE	
New Zealand							10,109	
Norway	NE	NE	NO	NO	NO	NO	175,000	
Portugal							NE	
Romania							NE	
Slovakia	NO	NO	NO	NO	NO	NO	NO	NO
Slovenia	NE	NE	NO	NO	NO	NO	NE	NE
Spain	NO	NO	NO	NO	NO	NO	NO	NO
Sweden	5.44	2.81					241,000	
Switzerland							17,000	
Ukraine								
United Kingdom							39,200	
United States	11.08	2.70	13.63	3.50	13.98	3.46	647,336	1,153,882

Table 5.17

Liming of agricultural soils: C conversion factor (2002)

	C conversion factor	
	Limestone	Dolomite
Default ^b		
Australia		
Austria		
Belarus		
Belgium	NE	NE
Bulgaria		
Canada	IE	IE
Croatia		
Czech Republic		
Denmark		
Estonia		
European Community	NE	NE
Finland	0.12	0.13
France	0.12	0.12
Germany	0.48	NE
Greece	NO	NO
Hungary	0.11	
Ireland	0.12	
Italy		
Japan	NE	NE
Latvia	0.12	
Lithuania		
Luxembourg		
Monaco		
Netherlands	NE	NE
New Zealand	0.01	
Norway	0.12	IE
Portugal		
Romania		
Slovakia	0.12	0.12
Slovenia	0.12	NE
Spain	NO	NO
Sweden	0.12	0.12
Switzerland		
Ukraine		
United Kingdom		
United States	0.12	0.13

Table 5.18**Cultivation of mineral soils – trend information****Net CO₂ emission/removals (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	NA	NA	NA	NA	NA	NA	NA	NE
Austria								
Belarus								
Belgium								
Bulgaria								
Canada								
Croatia								
Czech Republic								
Denmark								
Estonia								-997
European Community	19,361	20,405	21,453	20,494	19,872	20,291	20,241	18,012
Finland								
France								
Germany	NE	NE	NE	NE	NE	NE	NE	NE
Greece		-253	-508	-84	-339	-202	-169	-254
Hungary								2,568
Ireland	NE			NE	NE			
Italy	5,175	7,815	9,645	8,472	8,110	8,749	8,761	7,333
Japan	NE	NE	NE	NE	NE	NE	NE	NE
Latvia	NE							
Lithuania	NE			NE			NE	NE
Luxembourg								
Monaco								
Netherlands								
New Zealand								
Norway								
Portugal								
Romania								
Slovakia							-620	-617
Slovenia	-1,139	-1,105	-1,105	-1,105	-1,105	-1,105	-1,105	-1,105
Spain								
Sweden								
Switzerland	NE	NE	NE	NE	NE	NE	NE	NE
Ukraine								
United Kingdom	14,187	12,843	12,316	12,106	12,102	11,744	11,649	10,933
United States	-70,323	-62,653	-62,760	-61,189	-61,110	-62,533	-64,405	-64,698

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria							
Belarus							
Belgium							
Bulgaria							
Canada							
Croatia							
Czech Republic							
Denmark							
Estonia							
European Community	5.1	-4.5	-3.0	2.1	-0.2	-11.0	-7.0
Finland							
France							
Germany							
Greece	100.7	-83.4	302.2	-40.5	-16.0	50.0	
Hungary							
Ireland							
Italy	23.4	-12.2	-4.3	7.9	0.1	-16.3	41.7
Japan							
Latvia							
Lithuania							
Luxembourg							
Monaco							
Netherlands							
New Zealand							
Norway							
Portugal							
Romania							
Slovakia						-0.5	
Slovenia							-3.1
Spain							
Sweden							
Switzerland							
Ukraine							
United Kingdom	-4.1	-1.7	0.0	-3.0	-0.8	-6.2	-22.9
United States	0.2	-2.5	-0.1	2.3	3.0	0.5	-8.0

Table 5.19**Cultivation of organic soils – trend information****Net CO₂ emission/removals (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	NA	NA	NA	NA	NA	NA	NA	NE
Austria								
Belarus								
Belgium								
Bulgaria								
Canada								
Croatia								
Czech Republic								
Denmark								
Estonia								30
European Community	42,199	41,068	41,068	41,030	40,993	40,993	3,638	40,993
Finland								
France								
Germany	38,561	37,429	37,429	37,392	37,354	37,354	NE	37,354
Greece								
Hungary								
Ireland	NE			NE	NE			
Italy								
Japan	NE	NE	NE	NE	NE	NE	NE	NE
Latvia	130	99	111	90	91	90	91	92
Lithuania	NO			240			211	190
Luxembourg								
Monaco								
Netherlands								
New Zealand								
Norway								
Portugal								
Romania								
Slovakia								
Slovenia								
Spain								
Sweden	3,638	3,638	3,638	3,638	3,638	3,638	3,638	3,638
Switzerland	593	593	593	593	593	593	593	593
Ukraine								
United Kingdom								
United States	34,313	34,721	34,721	34,721	34,721	34,721	34,721	34,721

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria							
Belarus							
Belgium							
Bulgaria							
Canada							
Croatia							
Czech Republic							
Denmark							
Estonia							
European Community		-0.1	-0.1		-91.1	1,026.7	-2.9
Finland							
France							
Germany		-0.1	-0.1				-3.1
Greece							
Hungary							
Ireland							
Italy							
Japan							
Latvia	12.6	-19.1	0.8	-0.8	0.8	1.6	-28.8
Lithuania						-9.7	
Luxembourg							
Monaco							
Netherlands							
New Zealand							
Norway							
Portugal							
Romania							
Slovakia							
Slovenia							
Spain							
Sweden							
Switzerland							
Ukraine							
United Kingdom							
United States							1.2

Table 5.20**Liming of agricultural soils – trend information****Net CO₂ emission/removals (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	NA	NA	NA	NA	NA	NA	NA	NE
Austria								
Belarus								
Belgium								
Bulgaria								
Canada								
Croatia								
Czech Republic								
Denmark								
Estonia								
European Community	5,016	4,212	4,249	4,010	3,838	3,837	39,070	3,501
Finland								
France	552	601	709	647	623	518	475	475
Germany	2,480	1,487	1,552	1,761	1,792	2,009	37,354	1,805
Greece								
Hungary								12
Ireland	384	416	467	413	379	360	378	342
Italy								
Japan	NE	NE	NE	NE	NE	NE	NE	NE
Latvia	5	3	1	2	2	4	0	1
Lithuania	NE			NE			NE	NE
Luxembourg								
Monaco								
Netherlands								
New Zealand	360	485	534	583	632	682	731	780
Norway	217			134	129	108	113	116
Portugal								
Romania								
Slovakia							1	1
Slovenia	44	44	44	44	44	44	44	44
Spain								
Sweden	170	193	174	131	156	156	137	127
Switzerland	NO	NO	NO	NO	NO	NO	NO	NO
Ukraine								
United Kingdom	1,430	1,515	1,346	1,058	887	794	725	752
United States	9,490	8,882	8,702	9,593	9,064	8,797	8,966	8,800

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia							
Austria							
Belarus							
Belgium							
Bulgaria							
Canada							
Croatia							
Czech Republic							
Denmark							
Estonia							
European Community	0.9	-5.6	-4.3	0.0	918.1	-91.0	-30.2
Finland							
France	17.9	-8.7	-3.7	-17.0	-8.1		-13.8
Germany	4.3	13.5	1.8	12.1	1,758.9	-95.2	-27.2
Greece							
Hungary							
Ireland	12.3	-11.7	-8.1	-5.0	5.1	-9.6	-11.1
Italy							
Japan							
Latvia	-61.5	56.2	4.3	108.2	-93.1	370.4	-68.6
Lithuania							
Luxembourg							
Monaco							
Netherlands							
New Zealand	10.2	9.2	8.5	7.8	7.2	6.7	116.6
Norway			-3.3	-16.4	4.8	2.3	-46.5
Portugal							
Romania							
Slovakia							
Slovenia							
Spain							
Sweden	-9.6	-24.9	19.6	-0.1	-12.3	-7.6	-25.5
Switzerland							
Ukraine							
United Kingdom	-11.1	-21.4	-16.2	-10.5	-8.8	3.8	-47.4
United States	-2.0	10.2	-5.5	-2.9	1.9	-1.9	-7.3

Table 5.21**Other sources/sinks in LUCF – trend information****CO₂ net emission/removal and non-CO₂ GHG (Gg)^a**

	Specification	Gas	1990 ^b	1996	1997	1998	1999	2000	2001	2002
Belarus		CO2	10,098	10,620	11,120	11,600	11,950	11,979	11,979	11,979
		CH4	18	18	18	17	17	17	17	17
Belgium		CH4	5	5	5	5	5	5	5	5
		N2O	1	1	1	1	1	1	1	1
Czech Republic	On-site burning of Cleared Forest	CO2								1E
		CH4								3
		N2O								0
		NOx								0
		CO								23
European Community		CO2	-308	-231	-285	-396	-278	-284	-245	-417
		CH4	3	-17	-21	-8	-16	-5	-12	-8
		N2O	1	1	1	1	1	1	1	1
		NOx	9	4	4	7	5	7	6	7
		CO	252	78	49	163	91	188	128	161
France	Managed forests for CH4, N2O, NMVOC	CO2								
		CH4	-31	-31	-31	-31	-31	-31	-31	-31
		N2O								
Italy	Forest fires	CH4	8	1	3	3	2	3	3	1
		N2O	0	0	0	0	0	0	0	0
		NOx	2	0	1	1	1	1	1	0
		CO	68	8	23	30	19	29	23	10
Luxembourg	Other (please specify)	N2O				0		0		0
Norway	Liming of Lakes	CO2	10			23	26	26	24	19
Portugal	Forest Fires	CH4	21	8	3	15	8	18	12	17
		N2O	0	0	0	0	0	0	0	0
		NOX	5	2	1	4	2	5	3	4
		CO	184	71	26	133	72	159	105	150
Spain	Managed forests	NOX	2	2	2	2	2	2	2	2
United Kingdom	Changes in Crop Biomass	CO2	-1,100	-1,100	-1,100	-1,100	-1,100	-1,100	-1,100	-1,100
	Peat Extraction	CO2	792	869	815	704	822	816	855	683
United States	Landfilled Yard Trimmings	CO2	-26,031	-13,404	-12,857	-12,447	-11,314	-10,133	-10,213	-10,114

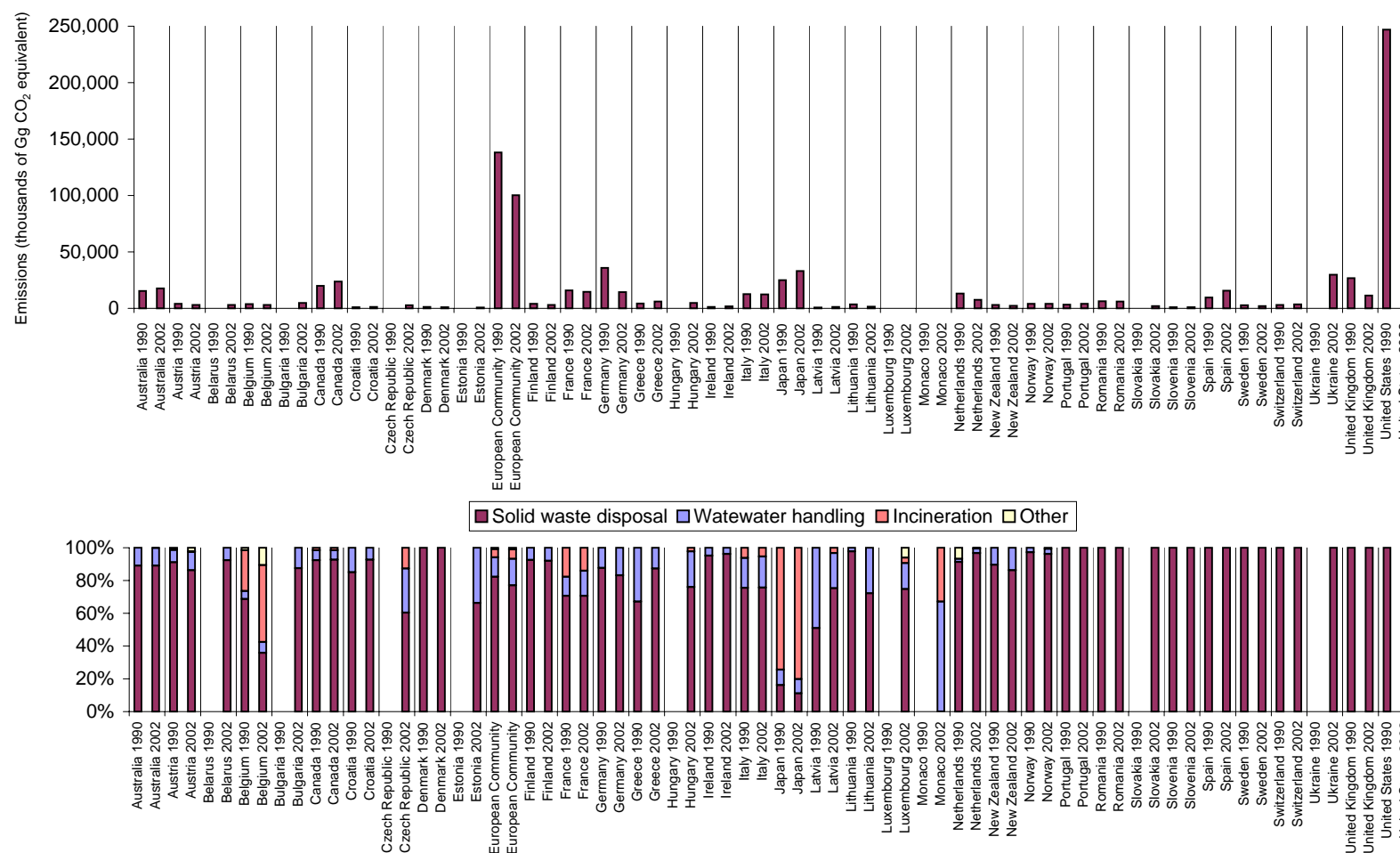
^a Only Parties reporting numerical values under this category are included in the table.^b In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).**Relative change (%)**

	1996 to 1997	1997 to 1998	1998to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Belarus	4.7	4.3	3.0	0.2			18.6
	-0.9	-1.2	-0.6				-2.6
Belgium	-0.3	-0.3	-0.2	-0.4	-0.6		-3.7
	-0.4	-0.9	0.3	-0.5	-0.7		-4.7
Czech Republic							
European Community	23.4	39.0	-29.8	2.0	-13.6	70.0	35.2
	19.5	-63.1	108.4	-70.2	146.7	-32.4	-387.7
	1.2	9.7	-5.8	8.2	-5.5	2.9	-10.4
	-17.1	89.4	-30.0	59.1	-22.6	16.2	-27.8
	-37.2	231.4	-44.1	106.8	-32.0	25.8	-36.1
France							
	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Italy							
	196.3	33.1	-36.2	53.4	-21.3	-55.4	-84.8
	196.3	33.1	-36.2	53.4	-21.3	-55.4	-84.8
	196.3	33.1	-36.2	53.4	-21.3	-55.4	-84.8
Luxembourg							
Norway			12.1	1.5	-9.9	-22.2	83.0
Portugal	-62.5	400.5	-45.9	121.1	-34.0	43.8	-18.1
	-62.5	400.5	-45.9	121.1	-34.0	43.8	-18.1
	-62.5	400.5	-45.9	121.1	-34.0	43.8	-18.1
	-62.5	400.5	-45.9	121.1	-34.0	43.8	-18.1
Spain	4.6	-2.5	0.9	1.0	1.0	-0.1	-0.5
United Kingdom							
	-6.2	-13.7	16.8	-0.7	4.7	-20.1	-13.7
United States	-4.1	-3.2	-9.1	-10.4	0.8	-1.0	-61.1

Waste

Figure 6.1

Emissions and contribution of subsectors in waste^a



^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Table 6.1

Solid waste disposal on land, waste-water handling and waste incineration (2002)

Activity data	6.A Solid waste disposal on land								6.B Wastewater handling										6.C Waste incineration							
	CH ₄								CH ₄								N ₂ O from human sewage		CO ₂ from non-biogenic waste							
	Population (million)		Methods and EF used ^a		Key source	Share of national total	Emissions per capita	CH ₄ IEF		Methods and EF used ^b		Key source	Share of national total	Emissions per capita	CH ₄ IEF				Emissions per capita (kg)	N ₂ O IEF	Methods and EF used ^c		Key source	Share of national total (%)	IEF (kg/t)	
															Domestic/ commercial		Industrial									
															Waste-water	Sludge	Waste-water	Sludge								
CRF	World Bank ^d	Methods	EF				Managed	Unmanaged	Methods	EF					kg / kg DC					kg N ₂ O -N/kg sewage N	Methods	EF			(%)	
IPCC default EF ^e						(%)	(kg)	(t/t)	(t/t)			(kg)	(kg)							0.01						
Australia	20	20	T2	M	L, T	3.0	38	0.06		T2	D		0.26	3.29	NE	NE	NE	NE	0.09	0.01	T2	CS			0.00	NA
Austria	8	8	CS	CS	L, T	3.0	15	0.07		C	CS		0.35	1.77					0.01	0.00	C	CS			0.01	
Belarus	10	10			L	4.1	14																			
Belgium		10	M	CS	L, T	0.7	5	0.02		D	D,CS		0.05	0.37			NE	NE	0.03	0.01	D	PS	L, T	0.94		
Bulgaria	8	8	D	D,CS	L	6.7	25	0.07	NE	D	D,CS		0.73	2.74	0.06	0.06	0.04	0.04	0.06	0.01					NO	
Canada	31	31	CS	CS	L	3.0	33	0.04	NA	CS	CS		0.06	0.61	NA	NE	NE	NE	0.10	0.01	CS	CS		0.04		
Croatia	4	4	T1	CS	L, T	4.1	12	0.06											0.06	0.01						
Czech Republic	10	10	T1, T3	CS	L	1.2	8	0.03		T2	D, CS		0.39	2.61	0.10	0.01	0.01	0.01	0.06	0.16				0.25	3,500.0	
Denmark	See doc b	5	CS/M	CS/M	L	1.7	10	0.05		NE											IE					
Estonia	1	1	T1	D	L	2.5	17			T1	D	L	1.29	8.84	0.12		0.12									
European Community			C, CS, D, M, T1, T2	C, CS, D, M, T2	L	1.9		NE	NE	NE	NE		0.18		NE	NE	NE	NE		NE	NE	NE		0.11	NE	
Finland	5	5	T2	D/CS	L, T	3.3	25	0.05		D	D/CS		0.16	1.17	0.04		0.00		0.05	0.01	NO	NO				
France	NA	59	CS/ T2	CS	L, T	1.9	8	0.01	0.50	CS/T2	CS		0.21	0.93	0.04				0.06		C	CS/ PS	T	0.32		
Germany	NE	82	T2	D/CS	L, T	1.2	7	0.04	NO	D	D/CS	T	0.01	0.08	NE	NE	NO	NO	0.09	0.01	NO	NO			NO	
Greece	11	11	T1	D	L, T	3.9	24	0.07		D	D	T	0.29	1.75	0.06		0.25	NE	0.11	0.01	NE	NE			NE	
Hungary	10	10	D, CS	CS, D	L	4.7	17	0.04		D, CS	CS, D	L	1.36	4.97	0.25		0.25				CS	CS		0.14		
Ireland		4	T2	CS, D	L	2.5	21	0.08		NA	NA							0.05	10.00	NA	NA					
Italy	58	58	D, T2	D, CS	L, T	1.7	8	0.02		D	D, CS		0.23	1.04	NO	NO	0.25	NO	0.06	0.01	D	CS		0.05	1,141.8	
Japan	127	127	M, CS	CS		0.3	1	0.21	NO	CS	CS		0.08	0.38	NE	IE	NE	IE	0.02	NE	CS	CS	L	1.82	426.0	
Latvia	2	2	T1	D	L, T	8.1	18	0.06		T1	D	L, T	1.81	3.93	0.16		0.07		0.07	0.01	C	D		0.35		
Lithuania	3	3	D	D	L	6.3	15	NE	0.05	D	D	L	2.44	5.77	0.25	NE	0.25	NE		NE					NE	
Luxembourg		0					5							0.50												
Monaco	0	0				0.0	0			D	D							0.07		0.01	CS	CS				
Netherlands	16	16	M, CS/T2	CS	L, T	3.4	21	0.07	NO	CS/T2	CS		0.01	0.04	IE	IE	NE	NE		NE	NO (IE)				IE	
New Zealand	4	4	T2	CS	L, T	2.8	25	0.03	NE	CS/D	CS/D		0.23	2.05		IE			0.07						NE	
Norway	5	5	M3)	CS	L, T	7.0	41	0.14		D	D		0.04	0.22	0.01				0.07		D	CS		0.05		
Portugal	10	10	T2	D+CS	L, T	2.7	10	0.00	2.95	D	D+CS	L, T	0.97	3.69	0.13	0.16	0.00		0.11		D	D+C	T	0.47	1,047.8	
Romania	12	22	D	D	L, T	3.0	9	0.05		D	D	L, T	1.17	3.42	0.12		0.12		0.05	0.01	NE	NE				
Slovakia	5	5	D	D	L	2.3	11	IE	IE	D,CS	D, CS	L	1.44	6.60	0.23	0.30	0.01	0.18		NA	D	CS		0.28		
Slovenia		2			L, T	4.7	23	0.05	NE	T1	D		0.51	2.52	0.00	0.10	IE	NE							NO	
Spain	41	41	T2	CS,T2	L, T	2.7	13	0.04	0.08	D	CS,D	L	0.61	2.83	0.00	43.20	0.03	0.02	0.09	0.01	C	CS,C	T	0.06		
Sweden	9	9	T2	D+CS	L, T	2.6	10	0.07		IE	IE				NO	NO	NO	NO	0.01	0.01	IE	IE				
Switzerland	7	7	CS	CS	L, T	1.9	7	0.50	IE	CS	CS		0.06	0.22	0.01	IE	IE	IE			CS	CS	L, T	4.37	IE	
Ukraine	48	49	T1	D	L	5.2	24	0.10		T1	D	L	0.74	3.51	0.48		0.24		0.07	0.01	T1	D		0.03	557.3	
United Kingdom	59	59	M	CS	L, T	1.4	7	0.01		M	CS		0.12	0.63		0.02			0.07	0.08	T2	CS		0.08		
United States	288	288	M	M	L, T	2.8	32	0.04	NA	D	D		0.41	4.73	0.10	NE	0.06	NE	0.17	0.02	CS	CS			IE	

^a Information on methods and emission factors is included in this table as reported by Parties. It may not reflect the actual method used or type of emission factor for all subcategories within the category 6.A Solid waste disposal on land.^b Information on methods and emission factors is included in this table as reported by Parties. It may not reflect the actual method used or type of emission factor for all subcategories within the category 6.B Waste-water handling.^c Information on methods and emission factors is included in this table as reported by Parties. It may not reflect the actual method used or type of emission factor for all subcategories within the category 6.C Waste incineration.^d Population data are from World Development Indicators database, <http://devdata.worldbank.org/data-query/>, the World Bank.^e Source of default emission factors: IPCC Guidelines, volume 3, page 6.28.

Table 6.2**Solid waste disposal on land – trend information****CH₄ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	649	671	681	672	695	705	721	746
Austria	178	150	145	140	136	129	124	120
Belarus	112	101	110	119	128	130	131	136
Belgium	125	109	108	101	86	79	57	52
Bulgaria	613	356	294	254	196	201	200	200
Canada	882	973	996	1,021	1,059	1,085	1,050	1,047
Croatia	38	43	45	48	51	51	53	54
Czech Republic	93	95	81	82	76	76	73	81
Denmark	62	62	59	58	58	57	57	54
Estonia	67	48	51	48	49	47	24	24
European Community	5,400	4,983	4,710	4,494	4,205	3,999	3,806	3,672
Finland	175	168	164	156	152	143	138	128
France	534	675	585	572	546	530	505	496
Germany	1,499	1,092	990	887	771	684	610	568
Greece	134	180	187	200	215	227	240	251
Hungary	188	68	68	72	102	182	199	176
Ireland	55	68	66	55	52	58	61	81
Italy	454	462	463	455	447	452	458	444
Japan	193	202	200	197	192	187	182	176
Latvia	20	32	33	36	38	40	42	41
Lithuania	162			74			54	52
Luxembourg				3		3		2
Monaco	0	0	0	0	0	0	0	0
Netherlands	572	483	468	448	411	389	367	345
New Zealand	124	106	97	98	97	95	97	98
Norway	182	191	190	188	188	189	185	184
Portugal	99	129	134	139	143	116	106	107
Romania	206	207	207	206	206	205	205	194
Slovakia	50	60	51	46	47	48	45	57
Slovenia	39	49	49	49	49	48	47	46
Spain	257	397	423	442	458	481	499	518
Sweden	122	113	111	109	102	97	94	86
Switzerland	59	55	55	54	53	52	50	48
Ukraine							1,199	1,188
United Kingdom	1,131	892	806	729	626	552	487	420
United States	9,998	9,942	9,685	9,360	9,419	9,491	9,202	9,192

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	1.5	-1.3	3.4	1.5	2.3	3.4	14.9
Austria	-3.8	-3.2	-3.3	-4.6	-4.3	-3.2	-32.6
Belarus	8.7	8.4	7.4	1.2	0.8	4.1	21.7
Belgium	-1.1	-6.1	-15.4	-7.3	-27.7	-9.0	-58.3
Bulgaria	-17.5	-13.5	-23.0	2.8	-0.6	-0.1	-67.4
Canada	2.4	2.5	3.7	2.4	-3.2	-0.3	18.6
Croatia	5.7	5.3	7.0	0.4	2.7	3.4	44.3
Czech Republic	-14.9	1.3	-7.3		-3.3	9.7	-13.5
Denmark	-4.8	-1.8	0.2	-1.3	-1.5	-4.8	-13.6
Estonia	5.2	-6.4	2.5	-4.6	-48.5	-1.6	-65.0
European Community	-5.5	-4.6	-6.4	-4.9	-4.8	-3.5	-32.0
Finland	-2.7	-4.6	-2.4	-6.0	-3.6	-7.5	-27.0
France	-13.3	-2.2	-4.5	-2.9	-4.7	-1.9	-7.1
Germany	-9.4	-10.3	-13.1	-11.2	-10.9	-6.9	-62.1
Greece	4.2	6.8	7.3	6.0	5.7	4.5	87.7
Hungary	0.0	6.3	41.0	78.4	9.3	-11.8	-6.5
Ireland	-2.9	-15.9	-6.6	12.8	4.6	33.3	46.8
Italy	0.1	-1.7	-1.8	1.1	1.3	-3.0	-2.3
Japan	-1.2	-1.3	-2.3	-2.8	-2.9	-2.8	-8.4
Latvia	4.6	9.8	4.6	4.7	5.5	-2.0	105.3
Lithuania						-4.4	-53.8
Luxembourg							
Monaco							
Netherlands	-3.2	-4.3	-8.1	-5.4	-5.6	-6.0	-39.6
New Zealand	-8.0	0.5	-0.2	-2.2	1.3	2.0	-20.7
Norway	-0.6	-1.3	0.0	0.7	-1.8	-0.7	1.4
Portugal	4.2	3.5	3.2	-18.7	-9.0	0.8	7.3
Romania	-0.1	-0.5	-0.4	-0.5	0.0	-5.2	-5.7
Slovakia	-14.5	-10.2	1.6	3.7	-5.9	25.4	13.3
Slovenia	1.5	-0.7	-0.7	-0.7	-2.8	-2.9	18.5
Spain	6.6	4.7	3.6	5.0	3.8	3.7	101.7
Sweden	-1.4	-2.2	-6.0	-5.3	-3.1	-7.9	-28.9
Switzerland	-1.0	-1.5	-2.1	-2.4	-3.3	-4.7	-20.0
Ukraine						-0.9	
United Kingdom	-9.7	-9.6	-14.0	-11.8	-11.8	-13.8	-62.9
United States	-2.6	-3.4	0.6	0.8	-3.0	-0.1	-8.1

Table 6.2**Solid waste disposal on land – trend information (continued)****Ratio: kg CH₄/capita**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	38.0	36.6	36.7	35.8	36.6	36.8	37.2	37.9
Austria	23.0	18.9	18.2	17.6	17.0	16.1	15.4	14.9
Belarus	11.0	10.0	10.9	11.8	12.8	13.0	13.1	13.7
Belgium	12.6	10.7	10.6	9.9	8.4	7.7	5.6	5.1
Bulgaria	68.3	42.6	35.3	30.8	23.8	24.6	24.9	25.1
Canada	31.8	32.8	33.2	33.8	34.7	35.3	33.8	33.4
Croatia	7.9	9.5	10.2	10.8	11.6	11.5	11.8	12.2
Czech Republic	9.0	9.2	7.8	8.0	7.4	7.4	7.2	7.9
Denmark	12.1	11.8	11.2	11.0	10.9	10.8	10.6	10.0
Estonia	43.0	34.1	36.3	34.3	35.4	34.0	17.6	17.4
European Community								
Finland	35.1	32.8	31.9	30.3	29.5	27.7	26.6	24.6
France	9.4	11.6	10.0	9.8	9.3	9.0	8.5	8.3
Germany	18.9	13.3	12.1	10.8	9.4	8.3	7.4	6.9
Greece	13.2	17.2	17.8	19.0	20.4	21.5	22.7	23.6
Hungary	17.8	6.7	6.7	7.2	10.1	18.2	19.5	17.3
Ireland	15.7	18.6	17.9	14.9	13.7	15.2	15.7	20.7
Italy	8.0	8.1	8.0	7.9	7.8	7.8	7.9	7.7
Japan	1.6	1.6	1.6	1.6	1.5	1.5	1.4	1.4
Latvia	7.5	12.6	13.4	15.0	15.8	16.7	17.7	17.5
Lithuania	43.8			20.7			15.6	15.0
Luxembourg				6.2		6.1		
Monaco	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Netherlands	38.3	31.1	30.0	28.5	26.0	24.4	22.9	21.4
New Zealand	36.0	28.3	25.7	25.6	25.4	24.7	24.9	25.0
Norway	42.8	43.7	43.2	42.3	42.1	42.1	41.1	40.6
Portugal	10.1	12.9	13.4	13.8	14.2	11.5	10.4	10.5
Romania	8.9	9.2	9.2	9.2	9.2	9.1	9.1	8.7
Slovakia	9.5	11.1	9.5	8.5	8.6	9.0	8.4	10.6
Slovenia	19.5	24.5	24.9	24.8	24.5	24.3	23.8	23.3
Spain	6.6	10.1	10.6	11.1	11.4	11.9	12.3	12.7
Sweden	14.2	12.8	12.6	12.3	11.5	10.9	10.6	9.7
Switzerland	8.9	7.8	7.7	7.6	7.4	7.2	6.9	6.5
Ukraine							24.4	24.4
United Kingdom	19.7	15.3	13.8	12.4	10.7	9.4	8.3	7.1
United States	40.1	37.1	35.6	34.0	33.8	33.6	32.3	31.9

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	0.3	-2.5	2.2	0.4	1.1	2.1	-0.2
Austria	-3.9	-3.3	-3.5	-4.9	-4.5	-3.4	-35.3
Belarus	9.1	8.9	7.7	1.6	1.1	4.6	24.9
Belgium	-1.3	-6.3	-15.6	-7.5	-28.0	-9.4	-59.8
Bulgaria	-17.1	-12.9	-22.5	3.3	1.2	0.6	-63.2
Canada	1.3	1.7	2.8	1.5	-4.1	-1.2	5.1
Croatia	7.4	6.2	7.1	-0.2	2.3	3.3	54.2
Czech Republic	-14.8	1.4	-7.1	0.1	-2.8	9.9	-12.2
Denmark	-5.2	-2.2	-0.1	-1.7	-1.9	-5.1	-17.4
Estonia	6.4	-5.4	3.2	-4.2	-48.2	-1.1	-59.6
European Community							
Finland	-3.0	-4.9	-2.6	-6.2	-3.9	-7.7	-30.0
France	-13.6	-2.5	-4.9	-3.3	-5.2	-2.4	-11.4
Germany	-9.6	-10.3	-13.2	-11.3	-11.0	-7.1	-63.5
Greece	4.0	6.6	7.1	5.8	5.4	4.1	79.4
Hungary	0.4	6.7	41.6	79.2	7.5	-11.6	-3.1
Ireland	-3.9	-16.9	-7.8	11.2	3.2	31.4	31.3
Italy	-0.1	-1.8	-1.9	1.0	1.3	-3.0	-3.9
Japan	-1.4	-1.5	-2.5	-2.9	-3.0	-2.9	-11.0
Latvia	6.3	11.6	5.4	5.5	6.1	-1.1	134.5
Lithuania						-4.0	-65.8
Luxembourg							
Monaco							
Netherlands	-3.8	-4.8	-8.8	-6.1	-6.3	-6.6	-44.1
New Zealand	-9.2	-0.4	-0.7	-2.7	0.7	0.5	-30.6
Norway	-1.1	-2.0	-0.7	0.0	-2.3	-1.2	-5.2
Portugal	3.8	3.1	2.8	-18.9	-9.3	0.6	4.3
Romania	0.2	-0.2	-0.2	-0.4	0.1	-4.7	-2.1
Slovakia	-14.6	-10.3	1.5	3.8	-5.7	25.4	11.3
Slovenia	1.8	-0.6	-0.9	-0.9	-2.2	-2.2	19.6
Spain	5.5	4.4	2.7	4.2	3.2	3.2	91.4
Sweden	-1.5	-2.2	-6.0	-5.4	-3.4	-8.2	-31.8
Switzerland	-1.2	-1.8	-2.5	-2.9	-4.0	-5.5	-26.3
Ukraine						-0.2	
United Kingdom	-9.9	-9.8	-14.2	-12.1	-12.0	-14.1	-63.9
United States	-3.8	-4.6	-0.6	-0.5	-4.1	-1.2	-20.5

Table 6.3**Waste-water handling – trend information****CH₄ emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	56.19	60.29	60.98	61.61	62.32	63.07	63.92	64.67
Austria	13.73	14.31	14.34	14.35	14.37	14.40	14.27	14.27
Belarus								
Belgium	3.85	4.02	3.95	3.92	3.93	3.98	3.91	3.87
Bulgaria	44.55	46.86	39.79	34.31	34.87	28.27	22.93	21.79
Canada	16.93	18.30	18.51	18.67	18.82	18.96	19.12	19.27
Croatia								
Czech Republic	39.31	29.02	29.64	30.77	27.43	27.52	24.84	26.64
Denmark	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Estonia	9.14	12.68	20.32	19.82	13.34	10.41	10.37	12.00
European Community	420.83	367.77	363.66	361.17	360.17	355.61	354.57	356.02
Finland	7.29	6.76	6.77	6.62	6.40	6.26	6.19	6.10
France	33.96	47.61	49.90	52.20	54.48	54.85	55.13	55.40
Germany	106.01	31.62	20.97	10.31	9.32	8.32	7.33	6.33
Greece	49.71	43.60	41.77	41.27	38.27	32.13	21.35	18.55
Hungary	63.23	185.86	185.17	55.97	53.27	52.95	50.96	50.46
Ireland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Italy	59.74	58.83	59.13	59.03	58.60	59.67	60.10	60.01
Japan	50.94	47.97	48.23	47.70	47.84	48.15	48.25	47.92
Latvia	16.52	9.51	9.46	9.47	9.33	9.42	9.60	9.19
Lithuania	3.70			6.55			20.03	20.03
Luxembourg				0.21		0.22		0.22
Monaco	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Netherlands	6.55	1.27	0.79	3.78	1.81	0.78	0.72	0.72
New Zealand	7.46	7.66	7.69	7.72	7.76	7.79	7.82	8.08
Norway	0.93	0.96	0.96	0.97	0.98	0.98	0.99	0.99
Portugal	39.17	39.85	39.21	38.56	37.91	37.25	37.41	37.58
Romania	80.68	81.19	83.75	71.83	76.45	80.16	76.26	76.25
Slovakia	48.19	40.04	40.31	39.11	39.64	35.09	35.42	35.50
Slovenia	6.75	3.59	4.47	4.69	4.87	5.06	4.85	4.95
Spain	72.30	89.55	95.01	99.45	103.42	106.71	110.81	115.60
Sweden	IE	IE	IE	IE	IE	IE	IE	IE
Switzerland	1.35	1.51	1.52	1.53	1.53	1.54	1.55	1.57
Ukraine							172.66	171.00
United Kingdom	33.38	35.27	36.21	37.15	36.02	36.89	37.13	37.35
United States	1,148.90	1,281.49	1,305.41	1,319.78	1,343.42	1,350.24	1,339.47	1,364.88

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	1.1	1.0	1.1	1.2	1.4	1.2	15.1
Austria	0.2	0.1	0.2	0.2	-1.0		3.9
Belarus							
Belgium	-1.7	-0.8	0.2	1.4	-1.7	-1.0	0.6
Bulgaria	-15.1	-13.8	1.6	-18.9	-18.9	-5.0	-51.1
Canada	1.2	0.9	0.8	0.7	0.8	0.8	13.9
Croatia							
Czech Republic	2.1	3.8	-10.8	0.3	-9.7	7.2	-32.2
Denmark							
Estonia	60.3	-2.5	-32.7	-21.9	-0.4	15.7	31.4
European Community	-1.1	-0.7	-0.3	-1.3	-0.3	0.4	-15.4
Finland	0.1	-2.2	-3.3	-2.3	-1.1	-1.4	-16.2
France	4.8	4.6	4.4	0.7	0.5	0.5	63.2
Germany	-33.7	-50.8	-9.6	-10.7	-11.9	-13.6	-94.0
Greece	-4.2	-1.2	-7.3	-16.0	-33.6	-13.1	-62.7
Hungary	-0.4	-69.8	-4.8	-0.6	-3.8	-1.0	-20.2
Ireland							
Italy	0.5	-0.2	-0.7	1.8	0.7	-0.1	0.5
Japan	0.5	-1.1	0.3	0.6	0.2	-0.7	-5.9
Latvia	-0.5	0.2	-1.5	1.0	1.8	-4.2	-44.4
Lithuania						0.0	32.6
Luxembourg							
Monaco							
Netherlands	-37.5	378.3	-52.1	-57.2	-7.6		-89.1
New Zealand	0.4	0.4	0.5	0.4	0.4	3.3	8.3
Norway	0.5	0.6	0.7	0.4	0.6	0.5	6.7
Portugal	-1.6	-1.7	-1.7	-1.7	0.4	0.5	-4.0
Romania	3.2	-14.2	6.4	4.9	-4.9	0.0	-5.5
Slovakia	0.7	-3.0	1.4	-11.5	0.9	0.2	-26.3
Slovenia	24.4	5.0	3.8	3.8	-4.1	2.0	-26.6
Spain	6.1	4.7	4.0	3.2	3.8	4.3	59.9
Sweden							
Switzerland	1.1	0.2	0.3	0.4	0.8	1.2	16.6
Ukraine						-1.0	
United Kingdom	2.7	2.6	-3.1	2.4	0.7	0.6	11.9
United States	1.9	1.1	1.8	0.5	-0.8	1.9	18.8

Table 6.3**Waste-water handling – trend information (continued)****Ratio: kg CH₄/capita**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29
Austria	1.78	1.80	1.80	1.80	1.80	1.80	1.78	1.77
Belarus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Belgium	0.39	0.40	0.39	0.38	0.38	0.39	0.38	0.37
Bulgaria	4.96	5.61	4.79	4.16	4.25	3.46	2.86	2.74
Canada	0.61	0.62	0.62	0.62	0.62	0.62	0.62	0.61
Croatia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Czech Republic	3.79	2.81	2.88	2.99	2.67	2.68	2.43	2.61
Denmark	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Estonia	5.82	8.95	14.51	14.30	9.69	7.60	7.61	8.84
European Community								
Finland	1.46	1.32	1.32	1.28	1.24	1.21	1.19	1.17
France	0.60	0.82	0.86	0.89	0.93	0.93	0.93	0.93
Germany	1.33	0.39	0.26	0.13	0.11	0.10	0.09	0.08
Greece	4.89	4.16	3.98	3.92	3.63	3.04	2.02	1.75
Hungary	6.01	18.23	18.23	5.53	5.29	5.28	5.00	4.97
Ireland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Italy	1.05	1.03	1.03	1.03	1.02	1.03	1.04	1.04
Japan	0.41	0.38	0.38	0.38	0.38	0.38	0.38	0.38
Latvia	6.19	3.82	3.86	3.93	3.90	3.97	4.07	3.93
Lithuania	1.00			1.84			5.75	5.77
Luxembourg				0.49		0.50		0.50
Monaco	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Netherlands	0.44	0.08	0.05	0.24	0.11	0.05	0.04	0.04
New Zealand	2.16	2.05	2.03	2.02	2.02	2.02	2.01	2.05
Norway	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Portugal	3.96	3.99	3.91	3.83	3.75	3.68	3.68	3.69
Romania	3.48	3.59	3.71	3.19	3.40	3.57	3.40	3.42
Slovakia	9.12	7.45	7.49	7.25	7.35	6.51	6.59	6.60
Slovenia	3.41	1.81	2.25	2.37	2.45	2.54	2.46	2.52
Spain	1.86	2.28	2.39	2.50	2.57	2.63	2.72	2.83
Sweden								
Switzerland	0.20	0.21	0.21	0.21	0.21	0.21	0.21	0.22
Ukraine							3.52	3.51
United Kingdom	0.58	0.60	0.62	0.63	0.61	0.63	0.63	0.63
United States	4.61	4.78	4.81	4.80	4.82	4.78	4.69	4.73

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	-0.1	-0.1	0.0	0.1	0.1	-0.1	-0.1
Austria	0.0	0.0	0.0	0.0	-1.2	-0.2	-0.2
Belarus							
Belgium	-1.9	-1.0	-0.1	1.2	-2.0	-1.5	-2.9
Bulgaria	-14.6	-13.2	2.2	-18.5	-17.4	-4.3	-44.9
Canada	0.1	0.0	0.0	-0.1	-0.2	-0.1	0.9
Croatia							
Czech Republic	2.2	3.9	-10.7	0.4	-9.3	7.4	-31.2
Denmark							
Estonia	62.1	-1.5	-32.2	-21.6	0.1	16.2	51.8
European Community							
Finland	-0.2	-2.4	-3.5	-2.4	-1.4	-1.6	-19.7
France	4.5	4.3	4.0	0.2	0.0	0.0	55.6
Germany	-33.8	-50.8	-9.6	-10.9	-12.0	-13.8	-94.3
Greece	-4.4	-1.4	-7.5	-16.2	-33.8	-13.4	-64.3
Hungary	0.0	-69.7	-4.4	-0.2	-5.3	-0.7	-17.3
Ireland							
Italy	0.3	-0.3	-0.8	1.7	0.7	-0.1	-1.2
Japan	0.3	-1.3	0.1	0.5	0.1	-0.8	-8.6
Latvia	1.2	1.8	-0.7	1.8	2.4	-3.4	-36.5
Lithuania						0.4	477.1
Luxembourg							
Monaco							
Netherlands	-37.8	375.5	-52.4	-57.5	-8.3	-0.7	-89.9
New Zealand	-0.9	-0.5	0.0	-0.2	-0.2	1.8	-5.2
Norway	0.0	0.0	0.1	-0.3	0.1	-0.1	-0.3
Portugal	-2.0	-2.0	-2.0	-2.0	0.2	0.3	-6.7
Romania	3.4	-14.0	6.6	5.0	-4.7	0.5	-1.9
Slovakia	0.5	-3.1	1.3	-11.4	1.2	0.2	-27.7
Slovenia	24.7	5.2	3.7	3.7	-3.5	2.7	-26.0
Spain	5.0	4.4	3.1	2.4	3.2	3.9	51.8
Sweden							
Switzerland	0.9	-0.1	-0.1	-0.2	0.1	0.4	7.3
Ukraine						-0.2	
United Kingdom	2.5	2.4	-3.3	2.2	0.4	0.3	8.7
United States	0.6	-0.2	0.5	-0.8	-1.9	0.8	2.8

Table 6.3**Waste-water handling – trend information (continued)****N₂O emissions (Gg)**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	1.56	1.67	1.69	1.71	1.73	1.75	1.77	1.79
Austria	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Belarus	0.77	0.66	0.69	0.72	0.75	0.75	0.76	0.76
Belgium	0.35	0.36	0.37	0.37	0.38	0.38	0.38	0.39
Bulgaria	0.76	0.54	0.47	0.53	0.54	0.51	0.47	0.45
Canada	2.80	3.00	3.03	3.05	3.08	3.10	3.14	3.17
Croatia	0.45	0.27	0.27	0.26	0.28	0.27	0.29	0.29
Czech Republic	0.65	0.65	0.65	0.65	0.65	0.65	0.64	0.64
Denmark	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Estonia								
European Community	24.29	24.98	24.98	25.18	25.27	25.36	28.17	28.10
Finland	0.46	0.39	0.39	0.37	0.36	0.36	0.35	0.33
France	3.65	3.68	3.57	3.46	3.47	3.51	3.53	3.54
Germany	7.14	7.22	6.85	7.26	7.23	7.24	7.41	7.42
Greece	1.06	1.14	1.17	1.18	1.19	1.22	1.21	1.21
Hungary		NA	NA	NA	NA	NA	NA	NA
Ireland	0.19	0.20	0.20	0.20	0.21	0.21	0.21	0.21
Italy	3.37	3.40	3.41	3.40	3.40	3.41	3.41	3.43
Japan	4.10	5.31	5.66	5.53	5.52	5.55	5.51	5.98
Latvia	0.18	0.17	0.17	0.17	0.17	0.16	0.16	0.16
Lithuania	NE			NE			NE	NE
Luxembourg				0.02		0.02		0.02
Monaco	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Netherlands	0.40	0.48	0.58	0.53	0.59	0.62	0.60	0.60
New Zealand	0.47	0.49	0.49	0.50	0.50	0.50	0.51	0.51
Norway	0.29	0.36	0.38	0.38	0.39	0.35	0.36	0.33
Portugal	1.44	1.69	1.68	1.74	1.78	1.79	1.80	1.81
Romania	1.09	1.07	1.06	1.06	1.06	1.06	1.06	1.03
Slovakia	0.06	0.04	0.04	0.04	0.04	0.03	0.06	0.11
Slovenia	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Spain	3.23	3.40	3.40	3.43	3.44	3.48	3.50	3.52
Sweden	0.63	0.60	0.60	0.52	0.51	0.47	0.47	0.47
Switzerland	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ukraine							3.38	3.46
United Kingdom	3.33	3.46	3.85	3.80	3.80	3.79	4.00	3.87
United States	41.24	45.69	46.54	47.44	48.99	49.39	49.69	50.16

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	1.1	1.0	1.1	1.2	1.4	1.2	15.1
Austria	-0.6	3.0	-2.4	0.2	-1.0		8.0
Belarus	4.5	4.3	4.2		1.3		-1.3
Belgium	1.2	1.2	1.2	1.0	1.2	1.0	11.0
Bulgaria	-13.0	13.0	3.0	-6.4	-7.5	-4.4	-40.7
Canada	1.1	0.9	0.9	0.8	1.2	1.0	13.4
Croatia	-0.9	-4.0	10.8	-4.2	6.8	0.1	-35.7
Czech Republic				0.1	-0.7	-0.2	-1.0
Denmark							
Estonia							
European Community	0.0	0.8	0.3	0.4	11.1	-0.3	15.7
Finland	-1.1	-4.6	-4.1	-0.2	-0.4	-6.4	-27.1
France	-3.0	-3.1	0.5	1.1	0.5	0.4	-2.8
Germany	-5.1	6.0	-0.4	0.1	2.3	0.1	4.0
Greece	2.9	0.7	1.1	2.5	-1.0	-0.2	14.1
Hungary							
Ireland	1.0	0.5	1.0	1.0	2.4	1.2	10.6
Italy	0.3	-0.1	0.0	0.2	0.1	0.5	1.9
Japan	6.6	-2.3	-0.1	0.5	-0.8	8.7	46.1
Latvia	-0.8	-0.9	-0.8	-2.6	-0.5	-0.7	-12.1
Lithuania							
Luxembourg							
Monaco	0.7	0.7	0.6	0.6	0.6	0.6	8.2
Netherlands	20.4	-8.1	11.1	6.1	-3.5		48.7
New Zealand		2.0			2.0		8.5
Norway	7.8	0.2	1.1	-10.3	2.4	-7.2	12.6
Portugal	-0.5	3.6	2.5	0.5	0.4	0.5	25.3
Romania	-0.9					-2.8	-5.5
Slovakia	-6.6	4.3	-13.8	-15.0	108.7	77.0	74.1
Slovenia							
Spain	-0.2	0.9	0.5	1.0	0.6	0.6	8.9
Sweden	-0.3	-13.8	-0.8	-7.8	0.0	-0.3	-25.4
Switzerland	1.1	0.2	0.3	0.4	0.8	1.2	16.6
Ukraine						2.5	
United Kingdom	11.2	-1.2	-0.1	-0.3	5.7	-3.2	16.2
United States	1.9	1.9	3.3	0.8	0.6	0.9	21.6

Table 6.3**Waste-water handling – trend information (continued)****Ratio: kg N₂O/capita**

	1990 ^a	1996	1997	1998	1999	2000	2001	2002
Australia	0.091	0.091	0.091	0.091	0.091	0.091	0.091	0.091
Austria	0.009	0.010	0.010	0.010	0.010	0.010	0.009	0.009
Belarus	0.076	0.065	0.068	0.072	0.075	0.075	0.076	0.077
Belgium	0.035	0.036	0.036	0.036	0.037	0.037	0.037	0.038
Bulgaria	0.085	0.064	0.056	0.064	0.066	0.062	0.059	0.057
Canada	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101
Croatia	0.094	0.059	0.060	0.058	0.064	0.061	0.065	0.065
Czech Republic	0.062	0.063	0.063	0.063	0.063	0.063	0.063	0.063
Denmark	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Estonia	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
European Community								
Finland	0.091	0.077	0.076	0.072	0.069	0.069	0.068	0.064
France	0.064	0.063	0.061	0.059	0.059	0.060	0.060	0.060
Germany	0.090	0.088	0.083	0.088	0.088	0.088	0.090	0.090
Greece	0.104	0.108	0.111	0.112	0.113	0.116	0.114	0.113
Hungary								
Ireland	0.055	0.055	0.055	0.055	0.054	0.054	0.055	0.055
Italy	0.059	0.059	0.059	0.059	0.059	0.059	0.059	0.059
Japan	0.033	0.042	0.045	0.044	0.044	0.044	0.043	0.047
Latvia	0.069	0.069	0.070	0.070	0.070	0.069	0.069	0.069
Lithuania								
Luxembourg				0.047		0.040		0.040
Monaco	0.074		0.068	0.068	0.068	0.070	0.070	0.070
Netherlands	0.027	0.031	0.037	0.034	0.037	0.039	0.038	0.037
New Zealand	0.136	0.131	0.130	0.131	0.130	0.130	0.131	0.129
Norway	0.069	0.081	0.087	0.087	0.087	0.077	0.079	0.073
Portugal	0.146	0.169	0.168	0.173	0.177	0.177	0.177	0.178
Romania	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.046
Slovakia	0.012	0.008	0.007	0.008	0.007	0.006	0.012	0.021
Slovenia	0.075	0.075	0.075	0.075	0.075	0.075	0.075	0.076
Spain	0.083	0.086	0.085	0.086	0.086	0.086	0.086	0.086
Sweden	0.074	0.068	0.068	0.058	0.058	0.053	0.053	0.053
Switzerland	0.009	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Ukraine							0.069	0.071
United Kingdom	0.058	0.059	0.066	0.065	0.065	0.064	0.068	0.065
United States	0.165	0.170	0.171	0.172	0.176	0.175	0.174	0.174

^a In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Romania (1989) and Slovenia (1986).

Relative change (%)

	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001	2001 to 2002	1990 to 2002
Australia	-0.1	-0.1	0.0	0.1	0.1	-0.1	-0.1
Austria	-0.7	2.9	-2.6	0.0	-1.2	-0.2	3.7
Belarus	5.0	4.8	4.5	0.3	1.7	0.5	1.3
Belgium	1.0	1.0	1.0	0.7	0.9	0.6	7.1
Bulgaria	-12.5	13.8	3.6	-5.9	-5.8	-3.8	-33.1
Canada	0.0	0.0	0.0	-0.1	0.2	0.1	0.5
Croatia	0.6	-3.2	10.9	-4.8	6.5	0.1	-31.2
Czech Republic	0.1	0.1	0.1	0.2	-0.3	-0.1	0.5
Denmark							
Estonia							
European Community							
Finland	-1.4	-4.8	-4.4	-0.3	-0.7	-6.6	-30.1
France	-3.3	-3.4	0.1	0.6	0.0	-0.1	-7.3
Germany	-5.3	6.0	-0.5	0.0	2.2	-0.1	0.1
Greece	2.7	0.5	0.9	2.3	-1.3	-0.6	9.1
Hungary							
Ireland	0.0	-0.7	-0.4	-0.4	1.0	-0.2	-1.1
Italy	0.1	-0.2	-0.1	0.2	0.0	0.6	0.2
Japan	6.4	-2.6	-0.3	0.4	-0.9	8.6	42.0
Latvia	0.8	0.8	0.1	-1.9	0.1	0.2	0.4
Lithuania							
Luxembourg							
Monaco		0.3	0.6	1.6	0.3	0.0	-5.3
Netherlands	19.7	-8.6	10.3	5.3	-4.3	-0.7	37.7
New Zealand	-1.3	1.2	-0.5	-0.6	1.4	-1.5	-5.0
Norway	7.2	-0.4	0.5	-11.0	1.9	-7.7	5.2
Portugal	-0.9	3.2	2.2	0.2	0.1	0.3	21.8
Romania	-0.7	0.2	0.2	0.1	0.1	-2.4	-1.9
Slovakia	-6.8	4.2	-13.8	-14.9	109.2	77.0	71.0
Slovenia	0.3	0.2	-0.2	-0.2	0.6	0.7	0.9
Spain	-1.2	0.6	-0.3	0.3	0.0	0.2	3.4
Sweden	-0.4	-13.8	-0.9	-8.0	-0.3	-0.6	-28.5
Switzerland	0.9	-0.1	-0.1	-0.2	0.1	0.4	7.3
Ukraine						3.3	
United Kingdom	10.9	-1.4	-0.4	-0.5	5.4	-3.5	13.0
United States	0.6	0.6	2.0	-0.5	-0.5	-0.1	5.2