

B. SECTORAL TABLES

1. Energy

Energy - Total CO₂ emissions from the reference approach and the sectoral approach (1999)

CO₂ emissions from total fuel combustion

	Reference approach	Sectoral approach	Difference	Explanation for difference as reported in table 1.A(c) of the CRF
	Gg CO ₂		(%)	
Australia	324,722	326,378	-0.51	Four main reasons for the difference between the reference approach and the national approach: 1) It is 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. 2) The CRF tables assume that all ethane is sourced from oil refineries, derived from crude oil. This is false. 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 gaseous fuel, not a liquid fuel. 3) The difference is partly a consequence of the fact that coal consumption (activity) data used in the reference approach are one-year projections, whereas most coal consumption data used in the national approach are "actuals", collected from power station operators. For petroleum and natural gas, however, both approaches use actual national consumption. 4) It is also partly a consequence of the treatment of emission factors for natural gas in the national approach which has resulted in a slight over estimate of emissions from this fuel.
Austria	51,065	50,658	0.80	The reference approach CO ₂ emissions are more than those for the sectoral approach by 0.8 per cent. The following is the Party's explanation: CORINAIR is used as the national method, considering the following items of the official Austrian energy balance (in German): "Energetischer Endverbrauch", "Umwandlungseinsatz", "Verbrauch des Sektors Energie". Differences between national estimates and the reference approach include: Solid fuels: <u>Energy consumption</u> The national approach does not include transformation losses of coking coal to coke oven gas and coke <u>CO₂ emissions</u> The national approach does not distinguish between the fuel related and non-fuel related CO ₂ emissions for metal production. All CO ₂ emissions are included in sector 2.C: Metal production. Gaseous fuels: <u>Energy consumption</u> The national approach does not include energy losses and non-energy use. <u>CO₂ emissions</u> The national approach uses sector-specific carbon contents (different from IPCC reference factor). Liquid fuels: <u>Energy consumption</u> The national approach does not include energy losses and non-energy use. <u>CO₂ emissions</u> 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 (municipal and industrial waste, sludge). Ninety per cent of CO ₂ emissions from waste-burning are considered as biogenic.
Belgium				CO ₂ -emissions from the reference approach have not been reported.
Bulgaria	44,573	44,513	0.14	
Canada	536,175	491,410	9.11	This comparison as programmed in the CRF is not suitable for the Canadian inventory since our national approach does not include fossil fuel based CO ₂ from various industrial processes such as ammonia production and aluminium production. When these sources are included in the national approach totals for energy, the two match quite closely.
Czech Republic	115,136	117,501	-2.01	
Denmark		54,561		CO ₂ emissions from the reference approach were not reported.
Estonia	16,425	16,425	0.00	
Finland	56,845	56,781	0.11	The relatively high differences in liquid fuels CO ₂ emissions is due to statistical difference in national balance. In the national approach, statistical differences arising from CO ₂ calculations have not been included in total consumption.
France	N/A	379,591		Detailed data for the reference approach are not available at this time. The same method as that of previous years has been used for the sectoral approach.
Germany		832,036		CO ₂ emissions from the reference approach were not reported for the year 1999.
Greece	90,235	90,471	-0.03	
Hungary	56,900	56,490	0.73	
Iceland	1,892	1,930	-1.97	
Ireland	40,856	39,603	3.17	The difference is due largely to the inclusion of 17.166 PJ of natural gas in the reference approach which is used in industry feedstocks and therefore omitted from the national approach.
Italy	416,909	429,759	-2.99	

CO₂ emissions from total fuel combustion

	Reference approach	Sectoral approach	Difference	Explanation for difference as reported in table 1.A(c) of the CRF
	Gg CO ₂		(%)	
Japan	1,150,549	1,147,945	0.23	Difference of "CO ₂ emissions" was caused by using different "emission factors" and "Fraction of carbon stored" between the reference approach and the national approach. "Emission factors" and "Fraction of carbon stored" used in the national approach were indicated in Environmental Agency <i>The Estimation of CO₂ Emissions in Japan (1992)</i>
Latvia	7,379	7,385	-0.06	The Party explained that this was owing to statistical differences.
Luxembourg		4,740		Emissions according to the reference approach were not reported.
Netherlands	167,331	170,619	-1.93	The Party gives the following explanation for the differences: The energy consumption in the national approach is based on the data from the national inventory. These fuel data are not complete because: 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 CQ 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 CQ emissions from energy used as chemical feedstock using different overall CQ emission factors for the amount of energy carriers converted into products than used in the reference approach for estimating non-reported feedstock emissions. 4) Industry firms report more heavy fuels used as chemical feedstock than the energy statistics used in the reference approach. The extent of these causes may differ from year to year, which then also causes the fluctuations in the difference between the reference approach and the national approach. In addition, the reference approach 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	28,076	26,984	4.05	The Party attributes the difference to insufficient data breakdown being available, where the data for manufacture of solid fuels and other energy industries has been manually included in the appropriate final totals.
Norway	34,013	31,728	7.20	The Party explains the differences as follows: 1) The sum of statistical differences in 1999: 700 ktonnes CQ 2) Combustion of waste is not included in the reference approach: about 100 ktonnes CQ 3) Furthermore, combustion of hazardous waste apart from waste oil and landfill gas are also not included in the reference approach. 'Other': Cell formula E12 has been altered in order to sum emission figures up to the Norwegian national total (includes emissions from combustion of methane).
Portugal		52,449		CO ₂ emissions from the reference approach were not reported.
Slovakia	41,326	40,783	1.33	The Party explains this anomaly by highlighting the fact that two independent data sets of fuels are used in determining emissions for the two approaches.
Spain	259,637	256,801	1.10	
Sweden	53,520	51,722	5.50	For comparison of emissions from the reference approach and the sectoral approach for 1999, the Party refers to the Appendix II of the Swedish national inventory report for further information.
Switzerland	41,256	41,104	0.37	The difference is mainly due to the differences in energy consumption, i.e. different conversion factors in the reference approach (IPCC factors) and national approach (National factors) as well as fuel allocation problems.
United Kingdom	541,095	509,917	6.11	The following is an explanation from the Party for the discrepancies: A significant proportion of fuel consumption emissions occur in 1.B.1.b Solid fuel transformation, 2.C Metal production, 2.B.1 Ammonia production. Including these sources in 1.A Energy, the comparison reduces the discrepancy to 4.8 per cent. 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 of America	5,485,807	5,453,088		Although theoretically the two methods should arrive at the same estimate for USA energy consumption, the reference approach provides an energy total that is 2.1 per cent lower than the sectoral approach for 1999. The greatest difference lies in the higher estimate of petroleum consumption using the sectoral approach (3.9 %). Table 1.A(b) - The United States reference approach is provided in a separate Excel spreadsheet and is more detailed than this table allows. Specifically, the fuel types provided in the CRF tables differ from the fuel types as defined in the United States, and no "other" options were offered in the CRF table. The United States suggests revising the table to allow for additional fuel types.

Energy - Stationary combustion: liquid fuels (1999)

	Stationary combustion - liquid fuels (CQ)																	
	Key source	Percentage 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 ^d		CO ₂ IEF			Methods and EF used ^d		CO ₂ IEF	Methods and EF used ^d		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	7.0	GCV	T2	CS	68.37	69.46	67.91	69.09	T2	CS	67.46	T1, T2	CS	66.51	61.63	62.66	68.84
Austria	L	15.4	NCV	C	CS	40.09	79.23			C	CS	63.53	CS	CS	74.68	75.52	74.74	73.67
Belgium ^a																		
Bulgaria	L	7.3	NCV	T3	CS, D	5.49	73.07	2.08	69.25	T2	CS, D	75.75	T2	CS, D	73.29	74.05	65.24	74.48
Canada	L	9.4	GCV	T1	CS	66.47	71.98	64.38		T1	CS	48.89	T1	CS	85.42	99.80	77.19	92.73
Czech Republic	L	8.2	NCV	T1	D	74.65	75.88	73.48	71.40	T1	D	64.01	T1	D	69.73	72.05	62.44	73.33
Denmark	L	18.0	NCV			56.58	56.18	58.27				78.21			73.03	64.06	73.91	74.37
Estonia	L	11.2	NCV			75.27	75.27					72.61			69.84	72.31	69.72	71.66
Finland	L	18.7	NCV	CS (T2)	CS/PS/D	73.16	76.41	71.66		CS (T2)	CS/PS/D	73.30	CS (T2, T1)	CS/D	73.67	74.33	73.41	73.60
France	L	18.4	NCV	C	CS	69.72	77.46	66.30	77.97	C	CS	74.55	C	CS	73.39	74.27	72.95	73.25
Germany ^a																		
Greece	L	18.0	NCV	C	C and CS	75.03	75.96	73.16		C	C	61.90	C	C	72.89	72.14	72.93	74.90
Hungary	L	9.0	NCV	D	D	76.58	76.58			D	D	41.77	D	D	64.70	67.90	62.65	72.07
Iceland	L	33.1	NCV	T1	D	74.00	74.00	NO	NO	T1	D	81.21	T1	D	73.48	NO	73.40	73.48
Ireland	L	19.9	NCV	T1	PS, CS	78.51	78.58	73.96		T1	PS, CS	73.91	T1	CS	72.53	73.74	71.29	73.30
Italy	L	23.9	NCV			75.49	76.69	71.84	78.33			79.75			74.19	74.43	74.25	74.02
Japan	L	30.8	NCV	T1, RA, CS	D, CS	69.49	NE	NE	NE	T1, RA, CS	D, CS	72.38	T1, RA, CS	D, CS	70.08	70.71	68.32	72.39
Latvia	L	22.0	NCV			76.50	76.50					75.30			71.02	73.31	62.09	73.98
Luxembourg	L	16.7	NCV			73.02	73.02					67.96			70.32	70.00	70.00	73.82
Netherlands	L	5.4	NCV			65.17	76.94	65.02	74.36			52.85			73.56	74.20	73.00	74.82
New Zealand	L	3.2	GCV	T1	CS/D	73.64	68.06	73.65		T1	CS/D	68.42	T1	CS/D	68.14	68.58	60.82	68.90
Norway	L	17.4	NCV	T2	CS	59.59	73.62	56.28	73.55	T2	CS	68.36	T2	CS	73.45	73.57	73.20	73.52
Portugal	L	26.5	NCV	C+T2	C	71.71	72.57	69.79		C+T2	C	69.77	C+T2	C	68.91	71.19	65.06	73.29
Slovakia	L	5.9	NCV	T1	D	50.00	50.00	IE					T1	D	32.37	32.37	NE	IE
Spain ^b																		
Sweden	L	31.5	NCV	CS	CS	75.86	75.26	76.20	75.30	CS	CS	73.60	CS	CS	74.71	74.64	75.32	72.74
Switzerland	L	31.9	NCV	RA, C	RA, CS	76.45	75.58	77.00		C	CS	73.99	C	CS	73.70	73.70	73.70	73.70
United Kingdom	L	9.8	NCV	T2	CS	71.51	75.54	71.59	61.91	T2	CS	72.53	T2	CS	72.13	73.62	71.07	72.88
United States	L	9.7	GCV	T1	CS	73.80	73.80	IE	IE	T1	CS	34.28	T1	CS	66.09	68.06	65.10	IE

^a The Party provided insufficient data.

^b The Party did not report liquid fuels from stationary combustion.

^c 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 1.A.1 Energy industries.

^d 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 1.A.2 Manufacturing industries and construction.

^e 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 1.A.4 Other sectors.

Energy - Stationary combustion: solid fuels (1999)

	Stationary combustion - Solid fuels (CQ)																		
	Key source	Percentage 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 ^d		CO ₂ IEF			Methods and EF used ^d	CO ₂ IEF	Methods and EF used ^d		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	38.1	GCV	T2	CS	90.45	90.94	55.09	T2	CS	97.39	T1, T2	CS	95.95	95.83	97.65	NA		
Austria	L	7.0	NCV	C	CS	91.31	91.31		C	CS	7.35	CS	CS	93.37	95.63	93.16			
Belgium ^a																			
Bulgaria	L	35.2	NCV	T3	CS, D	78.37	108.59	4.90	T2	CS, D	89.16	T2	CS, D	99.58	97.58	99.69	100.38		
Canada	L	14.7	GCV	T1	CS	88.12	88.16	79.47	T1	CS	31.12	T1	CS	90.21		90.21			
Czech Republic	L	54.1	NCV	T1	D	99.04	98.86	103.97	T1	D	106.38	T1	D	98.33	99.32	97.96	99.38		
Denmark	L	25.8	NCV			95.00	95.00				95.00			95.00		95.00			
Estonia	L	58.5	NCV			101.02	101.02				104.28			98.55	96.30	98.58	96.30		
Finland	L	18.5	NCV	CS (T2)	CS/PS/D	91.34	92.71	39.69	CS (T2)	CS/PS/D	97.69	CS (T2, T1)	CS/D	92.75	100.00	93.00	92.55		
France	L	8.1	NCV	C	CS	105.90	104.97	106.20	C	CS	114.85	C	CS	95.00	95.00	95.00	95.00		
Germany ^a																			
Greece	L	34.7	NCV	C	C and CS	122.11	122.11		C	C	93.26	C	C	96.62		95.27	99.17		
Hungary	L	17.7	NCV	D	D	96.19	96.19		D	D	102.11	D	D	94.14	94.84	93.99	94.47		
Iceland			NCV				NO		T1	D	92.71				NO	NO	NO		
Ireland	L	16.6	NCV	T1	PS, CS	97.67	97.67		T1	PS, CS	98.55	T1	CS	98.83	98.88	98.83	NO		
Italy	L	8.5	NCV			117.12	106.72	235.63			67.31			102.24	102.24	102.24			
Japan	L	26.6	NCV	T1, RA, CS	D, CS	97.85	NE	NE	T1, RA, CS	D, CS	101.33	T1, RA, CS	D, CS	105.80	106.15	102.60			
Latvia	L	4.7	NCV			100.56	100.56				100.96			93.41	93.01	94.39	93.78		
Luxembourg	L	1.2	NCV								97.12			100.67	100.67	100.67			
Netherlands	L	13.2	NCV			108.17	108.28				2,020.51			98.36	94.00	103.00	94.00		
New Zealand	L	4.0	GCV	T1	CS/D	92.99	92.99		T1	CS/D	76.42	T1	CS/D	91.20	91.20	91.20	91.20		
Norway	L	1.0	NCV	T2	CS	86.12	86.12		T2	CS	92.91	T2	CS	94.08		94.37	86.12		
Portugal	L	14.7	NCV	C+T2	C	92.05	92.02	96.30	C+T2	C	106.42								
Slovakia	L	33.4	NCV	T1	D	97.13	97.13					T1	D	93.88	95.33	93.10			
Spain ^b																			
Sweden	L	9.7	NCV	CS	CS	96.22	100.54	79.00	CS	CS	87.00								
Switzerland	L	0.2	NCV						C	CS	94.00	C	CS	94.00	94.00	94.00			
United Kingdom	L	19.4	NCV	T2	CS	88.07	88.00	91.32	T2	CS	127.05	T2	CS	89.76	87.49	89.95	88.09		
United States	L	29.8	GCV	T1	CS	88.62	88.62	IE	T1	CS	87.75	T1	CS	89.47	89.47	89.47			

^a The Party provided insufficient data.^b The Party did not report solid fuels from stationary combustion.^c 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 1.A.1 Energy industries.^d 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 1.A.2 Manufacturing industries and construction.^e 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 1.A.4 Other sectors.

Energy - Stationary combustion: gaseous fuels (1999)

	Stationary combustion - gaseous fuels (CQ)																	
	Key source	Percentage 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 ^d		CO ₂ IEF				Methods and EF used ^d		CO ₂ IEF	Methods and EF used ^d		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
		(%)			(t/TJ)						(t/TJ)				(t/TJ)			
Australia	L	8.9	GCV	T2	CS	51.29	51.40	51.15	51.15	T2	CS	50.84	T1, T2	CS	51.19	51.18	51.20	51.15
Austria	L	19.2	NCV	C	CS	55.00	55.00		55.00	C	CS	54.15	CS	CS	55.00	55.00	55.00	
Belgium ^a																		
Bulgaria	L	6.9	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	20.7	GCV	T1	CS	51.41	49.59	49.59	52.18	T1	CS	33.91	T1	CS	49.59	49.59	49.59	49.59
Czech Republic	L	12.8	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	14.3	NCV			56.90	56.89		56.90			56.90			51.65	49.56	56.90	30.42
Estonia	L	6.8	NCV			55.82	55.82					55.82			55.82	55.82	55.82	55.82
Finland	L	10.4	NCV	CS (T2)	CS/PS/D	55.82	55.82	55.82	NO	CS (T2)	CS/PS/D	56.23	CS (T2, T1)	CS/D	55.81	55.78	55.82	55.88
France	L	13.0	NCV	C	CS	57.00	57.00	57.03		C	CS	56.96	C	CS	57.00	57.00	57.00	57.00
Germany ^a																		
Greece	L	2.1	NCV	C	C and CS	55.82	55.82		55.85	C	C	41.52	C	C	55.82	55.82	55.83	
Hungary	L	26.9	NCV	D	D	57.53	57.53			D	D	55.02	D	D	55.82	55.82	55.82	55.82
Iceland						NO	NO	NO	NO			NO			NO	NO	NO	NO
Ireland	L	9.2	NCV	T1	PS, CS	54.99	54.56	65.00	NO	T1	PS, CS	54.94	T1	CS	54.94	54.94	54.94	NO
Italy	L	23.3	NCV			56.03	56.14	55.44	55.44			55.44			55.46	55.46	55.46	55.46
Japan	L	11.0	NCV	T1, RA, CS	D, CS	54.84	NE	NE	NE	T1, RA, CS	D, CS	51.68	T1, RA, CS	D, CS	51.55	51.55	51.55	
Latvia	L	20.9	NCV			55.83	55.83					55.80			55.84	55.70	55.99	55.52
Luxembourg			NCV			56.00	56.00					55.00			55.00	55.00	55.00	
Netherlands	L	34.3	NCV			54.90	54.84	54.31	56.00			57.77			56.00	56.01	55.95	56.10
New Zealand	L	12.2	GCV	T1	CS/D	53.19	52.20	60.86	NE	T1	CS/D	31.98	T1	CS/D	52.08	52.08	52.08	NE
Norway	L	13.0	NCV	T2	CS	57.35	58.00		57.35	T2	CS	58.35	T2	CS	58.00	58.00		
Portugal	L	1.3	NCV	C+T2	C	56.05	56.05			C+T2	C	56.04	C+T2	C	56.05	56.07	56.04	56.07
Slovakia	L	25.8	NCV	T1	D	57.48	57.48	IE	IE			IE	T1	D	57.48	57.48	57.48	IE
Spain ^b																		
Sweden	L	2.4	NCV	CS	CS	56.50	56.50			CS	CS	56.50	CS	CS	56.86	57.48	56.50	56.50
Switzerland	L	11.2	NCV	RA, C	RA, CS	57.48	55.00	59.30	NO	C	CS	55.00	C	CS	55.00	55.00	55.00	55.00
United Kingdom	L	31.5	NCV	T2	CS	61.04	58.64	57.96	70.50	T2	CS	57.96	T2	CS	57.96	57.96	57.96	57.96
United States	L	16.5	GCV	T1	CS	50.04	50.04	IE	IE	T1	CS	48.38	T1	CS	50.04	50.04	50.04	IE

^a The Party provided insufficient data.

^b The Party did not report gaseous fuels from stationary combustion.

^c 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 1.A.1 Energy industries.

^d 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 1.A.2 Manufacturing industries and construction.

^e 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 1.A.4 Other sectors.

Energy - Stationary combustion: other fuels (1999)

	Stationary Combustion - Other fuels (CC ₂)															
	Key source	Percentage 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		CO ₂ IEF		Methods and EF used		CO ₂ IEF	Methods and EF used		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)				(t/TJ)					
(%)																
Australia					NA	NA							NA	NA	NA	
Austria			NCV					C	CS	7.5	CS	CS	10.0	10.0		
Belgium																
Bulgaria					NO	NO										
Canada																
Czech Republic																
Denmark																
Estonia			NCV										64.9	86.6	62.4	
Finland	L	10.2	NCV	CS (T2)	CS/PS/D	102.9	102.9	CS (T2)	CS/PS/D	99.9	CS (T2, T1)	CS/D	104.9	105.2	104.9	
France	L	4.8	NCV	C	CS	103.9	56.9	C	CS	49.4	C	CS	57.0	57.0	57.0	
Germany																
Greece					NO	NO										
Hungary			NCV	D	D	79.9	79.9	D	D	30.6						
Iceland			NCV					T1	D	99.7						
Ireland			NCV	T1	PS, CS	54.9	54.9						NO	NO	NO	
Italy	L	1.3	NCV			94.2	93.9			93.9			56.7	38.5	65.1	
Japan					NO	NO				NO			NO	NO	NO	
Latvia																
Luxembourg																
Netherlands	L	6.1	NCV			1239.2	1239.2			20717.7						
New Zealand					NO	NO				NO				NO	NO	
Norway			NCV	T2	CS	25.2	25.2				T2	CS	4.8	4.8		
Portugal			NCV					C+T2	C	76.0						
Slovakia	L	4.3	NCV	T1	D	50.0	50.0				T1	D	57.0	57.0	IE	
Spain																
Sweden	L	1.5	NCV	CS	CS	35.4	35.4	CS	CS	59.5						
Switzerland	L	5.0	NCV			NO	NO	C	CS	75.9	C	CS	73.7	NO	NO	
United Kingdom			NCV	T2	CS	34.5	34.5	T2	CS	94.3						
United States			GCV	T1	CS	7.1	7.1							NE	NE	
															IE	

Note

This table is provided for the purpose of completeness. Parties reported emissions and activity data from different fuels under Other fuels in the CRF and, consequently, the CO₂ EFs may not be comparable.

Trends in CO₂ emissions 1990 to 1999

Gigagrams

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	141,807									188,071
Austria	12,377	13,400	9,808	9,133	9,395	10,922	11,406	11,870	10,848	11,373
Belgium									30,015	26,444
Bulgaria										26,322
Canada	144,277	143,735	152,371	143,826	146,647	152,961	152,221	159,790	177,041	180,047
Czech Republic										53,848
Denmark	26,216	35,142	29,778	31,268	35,624	32,153	44,379	35,275	31,506	28,237
Estonia										13,478
Finland	18,517	19,107	17,510	19,945	24,645	22,456	27,509	24,673	21,395	21,029
France	65,495	77,232	69,530	56,161	52,439	55,169	59,468	55,984	68,432	61,389
Germany	412,896	398,899	376,304	366,002	362,678	356,954	358,448	341,967	344,232	329,754
Greece	43,302	42,149	44,091	44,366	46,317	45,056	44,205	47,668	50,254	50,220
Hungary										23,614
Iceland										3
Ireland										15,728
Italy									151,975	146,563
Japan	338,908	341,967	349,458	331,667	369,322	359,370	360,447	356,859	349,661	371,437
Latvia									3,543	3,116
Luxembourg										103
Netherlands	52,117	52,190	54,130	53,800	55,980	57,314	58,900	57,902	59,957	57,041
New Zealand										6,629
Norway	7,395									9,661
Portugal	15,910	16,586	19,534	17,780	17,121	19,752	16,342	16,877	18,740	18,160
Slovakia										29,215
Spain	74,783	75,028	83,033	77,114	78,029	83,568	71,307	81,832	81,378	88,576
Sweden	10,170	11,280	11,319	10,829	13,119	11,576	16,669	11,491	12,671	11,129
Switzerland	891	1,201	1,280	962	1,039	1,094	1,267	1,176	1,423	1,126
United Kingdom	228,089	226,050	215,977	199,254	196,560	197,766	197,683	183,604	188,985	179,116
United States	1,757,344	1,736,959	1,735,396	1,793,606	1,813,883	1,810,565	1,880,288	1,953,514	2,010,670	1,953,353

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										32.6
Austria	8.3	-26.8	-6.9	2.9	16.3	4.4	4.1	-8.6	4.8	-8.1
Belgium										
Bulgaria										
Canada	-0.4	6.0	-5.6	2.0	4.3	-0.5	5.0	10.8	1.7	24.8
Czech Republic										
Denmark	34.1	-15.3	5.0	13.9	-9.7	38.0	-20.5	-10.7	-10.4	7.7
Estonia										
Finland	3.2	-8.4	13.9	23.6	-8.9	22.5	-10.3	-13.3	-1.7	13.6
France	17.9	-10.0	-19.2	-6.6	5.2	7.8	-5.9	22.2	-10.3	-6.3
Germany										
Greece	-2.7	4.6	0.6	4.4	-2.7	-1.9	7.8	5.4	-0.1	16.0
Hungary										
Iceland										
Ireland										
Italy									-3.6	
Japan	0.9	2.2	-5.1	11.4	-2.7	0.3	-1.0	-2.0	6.2	9.6
Latvia										
Luxembourg										
Netherlands									-4.9	9.4
New Zealand										
Norway										30.6
Portugal	4.2	17.8	-9.0	-3.7	15.4	-17.3	3.3	11.0	-3.1	14.1
Slovakia										
Spain	2.5	80.0	-59.2	9.2	55.4	-122.6	105.3	-4.5	72.0	18.4
Sweden	10.9	0.3	-4.3	21.1	-11.8	44.0	-31.1	10.3	-12.2	9.4
Switzerland	3.1	0.8	-3.2	0.8	0.6	1.7	-0.9	2.5	-3.0	26.4
United Kingdom	-20.4	-100.7	-167.2	-26.9	12.1	-0.8	-140.8	53.8	-98.7	-21.5
United States	-1.2	-0.1	3.4	1.1	-0.2	3.9	3.9	2.9	-2.9	11.2

Trends in CO₂ emissions 1990 to 1999

Gigagrams

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	8,780.09									8,920.45
Austria	1,849.78	2,320.08	1,866.24	2,055.28	1,883.79	1,648.46	1,511.38	2,047.69	2,201.51	2,257.61
Belgium										
Bulgaria										1,389.23
Canada	35,450.85	33,458.64	35,705.44	33,891.25	31,815.50	33,868.93	32,272.92	33,766.27	37,679.50	35,821.29
Czech Republic										1,711.80
Denmark	2,267.59	2,500.57	2,412.98	2,461.94	3,818.75	4,449.47	6,240.88	5,675.31	5,224.66	5,039.24
Estonia										1,320.78
Finland	2,606.90	2,638.30	2,486.40	2,481.50	3,009.30	2,972.40	3,145.10	2,608.10	2,843.60	2,871.40
France	20,926.34	25,556.56	22,435.66	19,658.38	19,988.93	21,239.90	21,144.49	21,921.93	24,124.77	22,648.50
Germany										
Greece	7,947.64	8,462.08	8,330.02	8,483.29	8,505.50	9,008.93	9,164.95	8,978.75	8,863.11	8,427.98
Hungary										4,199.46
Iceland										3.31
Ireland										4,601.72
Italy									90,311.00	79,231.50
Japan	161,303.41	154,718.75	159,106.38	133,523.79	157,787.38	136,610.21	128,391.17	112,703.18	104,344.15	104,763.35
Latvia									1,662.40	1,404.00
Luxembourg										3.24
Netherlands	7,865.30								8,936.01	9,072.37
New Zealand										218.57
Norway	1,942.12									2,694.34
Portugal	8,006.57	8,227.58	10,921.04	8,325.50	7,243.28	8,422.98	5,917.64	5,917.64	8,518.61	8,318.10
Slovakia										2,998.16
Spain										
Sweden	4,269.46	5,093.38	4,871.39	4,749.22	7,027.01	5,903.40	8,881.32	5,830.84	6,360.97	5,777.78
Switzerland										212.75
United Kingdom	38,940.13	37,801.46	35,433.73	33,958.96	30,845.72	30,875.84	30,070.15	24,514.14	22,939.70	21,553.12
United States	96,804.12	91,150.13	73,887.91	81,805.36	74,986.19	50,953.25	56,029.47	64,098.22	90,760.75	73,400.41

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										1.6
Austria	25.4	-19.6	10.1	-8.3	-12.5	-8.3	35.5	7.5	2.5	22.0
Belgium										
Bulgaria										
Canada	-5.6	6.7	-5.1	-6.1	6.5	-4.7	4.6	11.6	-4.9	1.0
Czech Republic										
Denmark	10.3	-3.5	2.0	55.1	16.5	40.3	-9.1	-7.9	-3.5	122.2
Estonia										
Finland	1.2	-5.8	-0.2	21.3	-1.2	5.8	-17.1	9.0	1.0	10.1
France	22.1	-12.2	-12.4	1.7	6.3	-0.4	3.7	10.0	-6.1	8.2
Germany										
Greece	6.5	-1.6	1.8	0.3	5.9	1.7	-2.0	-1.3	-4.9	6.0
Hungary										
Iceland										
Ireland										
Italy									-12.3	
Japan	-4.1	2.8	-16.1	18.2	-13.4	-6.0	-12.2	-7.4	0.4	-35.1
Latvia										
Luxembourg										
Netherlands									1.5	15.3
New Zealand										
Norway										38.7
Portugal	2.8	32.7	-23.8	-13.0	16.3	-29.7	0.0	44.0	-2.4	3.9
Slovakia										
Spain										
Sweden	19.3	-4.4	-2.5	48.0	-16.0	50.4	-34.3	9.1	-9.2	35.3
Switzerland										
United Kingdom	-11.4	-23.7	-14.7	-31.1	0.3	-8.1	-55.6	-15.7	-13.9	-44.7
United States	-5.8	-18.9	10.7	-8.3	-32.0	10.0	14.4	41.6	-19.1	-24.2

Trends in CO₂ emissions 1990 to 1999
Gigagrams

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	119,873									161,067
Austria	6,379	6,932	4,088	3,129	3,233	4,517	4,664	5,007	3,510	3,813
Belgium										
Bulgaria										22,020
Canada	78,674	82,365	85,180	77,859	81,052	83,079	84,800	91,329	97,337	95,639
Czech Republic										49,539
Denmark	22,457	30,903	25,682	26,935	29,151	24,251	34,011	25,005	20,858	17,567
Estonia										10,960
Finland	9,279	9,204	7,536	9,328	12,565	9,724	13,895	12,044	8,171	8,309
France	38,376	45,284	40,588	30,247	26,622	28,203	31,994	27,830	37,851	32,457
Germany										
Greece	35,257	33,594	35,672	35,798	37,714	35,953	34,941	38,466	40,501	39,764
Hungary										11,892
Iceland										
Ireland										7,454
Italy									31,584	30,268
Japan	100,499	105,104	108,854	116,531	124,765	134,545	139,789	148,496	146,838	162,185
Latvia									315	184
Luxembourg										
Netherlands	27,025								27,161	23,491
New Zealand										1,139
Norway	50									60
Portugal	7,903	8,358	8,613	9,455	9,878	11,329	10,424	10,424	9,891	9,673
Slovakia										15,035
Spain										
Sweden	4,873	4,938	5,016	4,583	4,618	4,317	5,388	4,209	4,748	3,905
Switzerland										NO
United Kingdom	180,801	179,415	168,239	140,228	132,575	126,668	117,122	99,703	102,662	86,085
United States	1,509,262	1,494,955	1,511,979	1,566,740	1,577,337	1,587,739	1,677,667	1,729,688	1,743,996	1,711,931

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										34.4
Austria	8.7	-41.0	-23.5	3.3	39.7	3.2	7.4	-29.9	8.6	-40.2
Belgium										
Bulgaria										
Canada	4.7	3.4	-8.6	4.1	2.5	2.1	7.7	6.6	-1.7	21.6
Czech Republic										
Denmark	37.6	-16.9	4.9	8.2	-16.8	40.2	-26.5	-16.6	-15.8	-21.8
Estonia										
Finland	-0.8	-18.1	23.8	34.7	-22.6	42.9	-13.3	-32.2	1.7	-10.5
France	18.0	-10.4	-25.5	-12.0	5.9	13.4	-13.0	36.0	-14.3	-15.4
Germany										
Greece	-4.7	6.2	0.4	5.4	-4.7	-2.8	10.1	5.3	-1.8	12.8
Hungary										
Iceland										
Ireland										
Italy									-4.2	
Japan	4.6	3.6	7.1	7.1	7.8	3.9	6.2	-1.1	10.5	61.4
Latvia										
Luxembourg										
Netherlands									-13.5	-13.1
New Zealand										
Norway										20.7
Portugal	5.8	3.1	9.8	4.5	14.7	-8.0	0.0	-5.1	-2.2	22.4
Slovakia										
Spain										
Sweden	1.3	1.6	-8.6	0.8	-6.5	24.8	-21.9	12.8	-17.8	-19.9
Switzerland										
United Kingdom	-0.8	-6.2	-16.6	-5.5	-4.5	-7.5	-14.9	3.0	-16.1	-52.4
United States	-0.9	1.1	3.6	0.7	0.7	5.7	3.1	0.8	-1.8	13.4

Trends in CO₂ emissions 1990 to 1999

Gigagrams

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	13,154									18,084
Austria	4,147	4,146	3,854	3,949	4,279	4,756	5,231	4,815	5,136	5,302
Belgium										
Bulgaria										2,913
Canada	30,152	27,911	31,486	32,076	33,780	36,013	35,148	34,695	42,025	48,587
Czech Republic										2,597
Denmark	1,491	1,739	1,683	1,871	2,654	3,453	4,127	4,595	5,423	5,630
Estonia										1,197
Finland	2,659	2,775	2,998	3,117	3,495	3,552	3,920	4,000	4,738	4,756
France	1,583	1,891	2,060	2,176	2,092	1,966	2,700	2,697	2,670	2,244
Germany										
Greece	97	92	89	85	98	94	99	224	890	2,028
Hungary										7,456
Iceland										
Ireland										3,598
Italy									29,888	36,795
Japan	77,105	82,144	81,498	81,613	86,770	88,215	92,267	95,660	98,478	104,489
Latvia									1,566	1,528
Luxembourg										100
Netherlands	15,520								21,958	22,557
New Zealand										4,911
Norway	5,306									6,778
Portugal								56	331	169
Slovakia										8,942
Spain										
Sweden	435	527	668	725	631	692	685	690	663	670
Switzerland										913
United Kingdom	8,215	8,698	12,139	24,837	32,621	39,690	49,863	58,635	62,534	70,675
United States	151,058	150,646	149,321	144,867	161,381	171,751	146,457	159,587	175,781	167,978

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										37.5
Austria	0.0	-7.1	2.5	8.4	11.2	10.0	-8.0	6.7	3.2	27.9
Belgium										
Bulgaria										
Canada	-7.4	12.8	1.9	5.3	6.6	-2.4	-1.3	21.1	15.6	61.1
Czech Republic										
Denmark	16.7	-3.3	11.2	41.9	30.1	19.5	11.3	18.0	3.8	277.7
Estonia										
Finland	4.3	8.0	4.0	12.1	1.6	10.4	2.0	18.5	0.4	78.8
France	19.4	9.0	5.6	-3.9	-6.0	37.3	-0.1	-1.0	-16.0	41.7
Germany										
Greece	-4.7	-3.2	-5.0	15.3	-4.4	5.4	126.4	298.3	127.8	1991.7
Hungary										
Iceland										
Ireland										
Italy									23.1	
Japan	6.5	-0.8	0.1	6.3	1.7	4.6	3.7	2.9	6.1	35.5
Latvia										
Luxembourg										
Netherlands									2.7	45.3
New Zealand										
Norway										27.7
Portugal									-48.8	
Slovakia										
Spain										
Sweden	21.2	26.7	8.6	-13.0	9.7	-1.1	0.8	-4.0	1.2	54.1
Switzerland										
United Kingdom	5.9	39.6	104.6	31.3	21.7	25.6	17.6	6.6	13.0	760.4
United States	-0.3	-0.9	-3.0	11.4	6.4	-14.7	9.0	10.1	-4.4	11.2

Energy - Energy Industries**Contribution (%) of each fuel type to total CO₂ emissions 1990 and 1999**

	Liquid fuels		Solid fuels		Gaseous fuels	
	1990	1999	1990	1999	1990	1999
Australia	6.2	4.7	84.5	85.6	9.3	9.6
Austria	14.9	19.9	51.5	33.5	33.5	46.6
Belgium						
Bulgaria		5.3		83.7		11.1
Canada	24.6	19.9	54.5	53.1	20.9	27.0
Czech Republic		3.2		92.0		4.8
Denmark	8.6	17.8	85.7	62.2	5.7	19.9
Estonia		9.8		81.3		8.9
Finland	14.1	13.7	50.1	39.5	14.4	22.6
France	32.0	36.9	58.6	52.9	2.4	3.7
Germany						
Greece	18.4	16.8	81.4	79.2	0.2	4.0
Hungary		17.8		50.4		31.6
Iceland		100.0		0.0		0.0
Ireland		29.3		47.4		22.9
Italy		54.1		20.7		25.1
Japan	47.6	28.2	29.7	43.7	22.8	28.1
Latvia		45.1		5.9		49.0
Luxembourg		3.1		0.0		96.9
Netherlands	15.1	15.9	51.9	41.2	29.8	39.5
New Zealand		3.3		17.2		74.1
Norway	26.3	27.9	0.7	0.6	71.8	70.2
Portugal	50.3	45.8	49.7	53.3	0.0	0.9
Slovakia		10.3		51.5		30.6
Spain					0.0	
Sweden	42.0	51.9	47.9	35.1	4.3	6.0
Switzerland		18.9				81.1
United Kingdom	17.1	12.0	79.3	48.1	3.6	39.5
United States	5.5	3.8	85.9	87.6	8.6	8.6

Trends in CO₂ emissions 1990 to 1999

Gigagrams

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	50,029	49,405	47,228	47,423	48,180	51,144	52,159	51,387	51,174	51,661
Austria	7,434	6,815	6,949	6,849	6,661	7,510	8,780	9,028	9,655	8,630
Belgium									31,878	30,478
Bulgaria										9,488
Canada	62,090	58,301	57,585	57,401	60,670	61,490	64,199	64,334	61,109	60,137
Czech Republic										34,156
Denmark	6,040	6,369	6,467	6,416	6,513	6,070	6,332	6,305	6,079	6,121
Estonia										660
Finland	14,358	13,840	13,505	13,205	13,987	13,866	13,534	15,194	15,282	15,844
France	76,919	77,956	75,552	70,782	74,188	73,393	74,173	75,208	77,045	77,213
Germany	196,457	173,008	159,701	147,771	149,378	149,050	145,486	147,034	142,729	139,028
Greece	9,792	9,640	9,285	9,028	8,870	9,603	10,341	10,531	10,696	9,406
Hungary										9,924
Iceland										305
Ireland										4,238
Italy									77,811	80,484
Japan	339,227	337,590	327,780	332,138	340,622	345,719	352,685	353,503	343,015	357,939
Latvia									1,275	1,146
Luxembourg										1,785
Netherlands	41,881	42,660	42,510	39,920	40,950	43,430	42,100	44,535	43,982	43,549
New Zealand										5,826
Norway	3,098									3,839
Portugal	8,797	9,062	8,938	8,809	9,325	9,045	9,500	9,500	9,537	10,354
Slovakia										
Spain	48,817	50,038	49,176	47,361	51,310	55,333	49,440	54,698	56,481	54,798
Sweden	11,615	11,539	10,261	11,418	12,861	13,370	12,784	12,997	12,660	11,991
Switzerland	5,237	5,410	4,994	4,862	4,861	5,098	4,853	4,736	4,893	5,499
United Kingdom	94,578	95,291	93,761	92,363	93,863	91,653	92,532	92,667	89,806	88,668
United States	1,023,471	1,007,631	1,064,906	1,062,396	1,090,872	1,101,048	1,140,592	1,141,146	1,113,319	1,155,610

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										3.3
Austria	-8.3	2.0	-1.4	-2.7	12.7	16.9	2.8	6.9	-10.6	16.1
Belgium										
Bulgaria										
Canada	-6.1	-1.2	-0.3	5.7	1.4	4.4	0.2	-5.0	-1.6	-3.1
Czech Republic										
Denmark	5.4	1.5	-0.8	1.5	-6.8	4.3	-0.4	-3.6	0.7	1.3
Estonia										
Finland	-3.6	-2.4	-2.2	5.9	-0.9	-2.4	12.3	0.6	3.7	10.4
France	1.3	-3.1	-6.3	4.8	-1.1	1.1	1.4	2.4	0.2	0.4
Germany	-11.9	-7.7	-7.5	1.1	-0.2	-2.4	1.1	-2.9	-2.6	-29.2
Greece	-1.6	-3.7	-2.8	-1.7	8.3	7.7	1.8	1.6	-12.1	-3.9
Hungary										
Iceland										
Ireland										
Italy									3.4	
Japan	-0.5	-2.9	1.3	2.6	1.5	2.0	0.2	-3.0	4.4	5.5
Latvia										
Luxembourg										
Netherlands									-1.0	4.0
New Zealand										
Norway										23.9
Portugal	3.0	-1.4	-1.4	5.9	-3.0	5.0	0.0	0.4	8.6	17.7
Slovakia										
Spain	2.5	-1.7	-3.7	8.3	7.8	-10.7	10.6	3.3	-3.0	12.3
Sweden	-0.7	-11.1	11.3	12.6	4.0	-4.4	1.7	-2.6	-5.3	3.2
Switzerland	3.3	-7.7	-2.6	0.0	4.9	-4.8	-2.4	3.3	12.4	5.0
United Kingdom	0.8	-1.6	-1.5	1.6	-2.4	1.0	0.1	-3.1	-1.3	-6.2
United States	-1.5	5.7	-0.2	2.7	0.9	3.6	0.0	-2.4	3.8	12.9

Trends in CO₂ emissions 1990 to 1999

Gigagrams

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	10,908									11,929
Austria	2,621	1,797	2,029	1,715	1,476	2,036	2,319	2,235	2,640	1,903
Belgium										
Bulgaria										3,688
Canada	15,451	13,177	12,511	12,824	13,559	12,395	12,735	12,367	11,793	11,238
Czech Republic										7,533
Denmark	3,363	3,569	3,411	3,136	2,714	2,981	3,107	2,642	2,525	2,495
Estonia										88
Finland	4,294	3,888	3,888	3,754	3,864	3,611	3,580	4,018	4,101	4,790
France	21,668	22,547	20,701	20,020	19,815	19,925	20,371	19,759	20,033	20,144
Germany										
Greece	5,479	5,217	5,232	4,862	4,900	5,654	6,487	6,820	6,557	6,009
Hungary										2,477
Iceland										268
Ireland										2,540
Italy									24,720	26,109
Japan	153,532	151,150	149,147	152,195	157,882	160,637	161,489	157,185	156,580	161,857
Latvia										625
Luxembourg										370
Netherlands	7,229								2,771	3,087
New Zealand										539
Norway	2,684									2,826
Portugal	6,013	6,270	6,113	6,058	6,566	6,639	7,046	7,046	7,153	7,491
Slovakia										
Spain										
Sweden	7,391	6,602	6,591	7,269	8,036	8,635	8,099	8,771	8,424	8,116
Switzerland										2,512
United Kingdom	27,438	29,119	29,988	30,347	30,208	27,375	27,093	24,594	22,759	20,120
United States	338,299	314,070	349,932	325,752	336,852	318,177	347,248	346,390	334,118	345,626

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										9.4
Austria	-31.4	12.9	-15.5	-13.9	37.9	13.9	-3.6	18.1	-27.9	-27.4
Belgium										
Bulgaria										
Canada	-14.7	-5.1	2.5	5.7	-8.6	2.7	-2.9	-4.6	-4.7	-27.3
Czech Republic										
Denmark	6.1	-4.4	-8.1	-13.4	9.8	4.2	-15.0	-4.4	-1.2	-25.8
Estonia										
Finland	-9.4	0.0	-3.5	2.9	-6.5	-0.9	12.2	2.1	16.8	11.6
France	4.1	-8.2	-3.3	-1.0	0.6	2.2	-3.0	1.4	0.6	-7.0
Germany										
Greece	-4.8	0.3	-7.1	0.8	15.4	14.7	5.1	-3.9	-8.4	9.7
Hungary										
Iceland										
Ireland										
Italy									5.6	
Japan	-1.6	-1.3	2.0	3.7	1.7	0.5	-2.7	-0.4	3.4	5.4
Latvia										
Luxembourg										
Netherlands									11.4	-57.3
New Zealand										
Norway										5.3
Portugal	4.3	-2.5	-0.9	8.4	1.1	6.1	0.0	1.5	4.7	24.6
Slovakia										
Spain										
Sweden	-10.7	-0.2	10.3	10.5	7.5	-6.2	8.3	-4.0	-3.7	9.8
Switzerland										
United Kingdom	6.1	3.0	1.2	-0.5	-9.4	-1.0	-9.2	-7.5	-11.6	-26.7
United States	-7.2	11.4	-6.9	3.4	-5.5	9.1	-0.2	-3.5	3.4	2.2

Trends in CO₂ emissions 1990 to 1999

Gigagrams

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	24,940.6									23,059.6
Austria	608.7	731.4	636.1	728.7	628.3	628.6	635.2	675.4	704.2	529.0
Belgium										
Bulgaria										3,435.7
Canada	7,174.6	6,456.7	6,128.5	5,767.8	6,716.7	6,514.2	6,772.9	6,940.5	6,663.4	6,752.0
Czech Republic										19,370.1
Denmark	1,489.4	1,615.2	1,383.0	1,473.4	1,961.9	1,385.9	1,376.0	1,386.0	1,207.4	1,156.7
Estonia										518.6
Finland	6,409.6	5,698.7	5,466.9	5,304.6	5,863.7	5,665.4	5,399.2	5,874.7	5,780.0	5,734.1
France	10,391.2	11,184.8	12,673.0	10,016.1	13,061.6	11,194.2	11,166.8	11,179.7	11,527.6	10,388.4
Germany										
Greece	4,144.0	4,254.1	3,901.5	4,062.8	3,947.7	3,927.9	3,826.1	3,557.5	3,585.1	2,851.6
Hungary										2,238.2
Iceland										33.2
Ireland										763.4
Italy									15,412.3	15,297.6
Japan	178,866.3	178,634.7	170,164.6	170,318.5	172,023.8	173,541.7	178,798.8	182,688.3	172,499.2	181,008.0
Latvia										67.2
Luxembourg										549.3
Netherlands	6,699.4								6,403.0	6,927.8
New Zealand										1,418.5
Norway	414.3									510.2
Portugal	2,781.1	2,791.9	2,825.7	2,751.6	2,758.5	2,406.0	2,453.8	2,453.8	1,862.0	2,014.2
Slovakia										
Spain										
Sweden	3,050.4	3,588.4	3,031.2	3,100.7	3,225.4	3,220.6	3,156.5	3,154.8	3,095.5	2,920.9
Switzerland										99.1
United Kingdom	37,983.0	38,281.5	37,937.5	35,456.8	34,106.7	32,639.6	30,587.1	31,116.1	29,250.1	28,003.6
United States	251,389.4	253,007.5	253,276.2	256,028.4	265,971.5	266,639.3	259,345.0	261,300.2	260,229.5	289,449.9

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										-7.5
Austria	20.2	-13.0	14.5	-13.8	0.0	1.1	6.3	4.3	-24.9	-13.1
Belgium										
Bulgaria										
Canada	-10.0	-5.1	-5.9	16.5	-3.0	4.0	2.5	-4.0	1.3	-5.9
Czech Republic										
Denmark	8.4	-14.4	6.5	33.1	-29.4	-0.7	0.7	-12.9	-4.2	-22.3
Estonia										
Finland	-11.1	-4.1	-3.0	10.5	-3.4	-4.7	8.8	-1.6	-0.8	-10.5
France	7.6	13.3	-21.0	30.4	-14.3	-0.2	0.1	3.1	-9.9	0.0
Germany										
Greece	2.7	-8.3	4.1	-2.8	-0.5	-2.6	-7.0	0.8	-20.5	-31.2
Hungary										
Iceland										
Ireland										
Italy									-0.7	
Japan	-0.1	-4.7	0.1	1.0	0.9	3.0	2.2	-5.6	4.9	1.2
Latvia										
Luxembourg										
Netherlands									8.2	3.4
New Zealand										
Norway										23.1
Portugal	0.4	1.2	-2.6	0.3	-12.8	2.0	0.0	-24.1	8.2	-27.6
Slovakia										
Spain										
Sweden	17.6	-15.5	2.3	4.0	-0.1	-2.0	-0.1	-1.9	-5.6	-4.2
Switzerland										
United Kingdom	0.8	-0.9	-6.5	-3.8	-4.3	-6.3	1.7	-6.0	-4.3	-26.3
United States	0.6	0.1	1.1	3.9	0.3	-2.7	0.8	-0.4	11.2	15.1

Trends in CO₂ emissions 1990 to 1999

Gigagrams

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	14,181									16,672
Austria	4,005	4,095	4,082	4,205	4,549	4,837	5,777	6,066	6,271	6,174
Belgium										
Bulgaria										2,365
Canada	39,465	38,667	38,946	38,809	40,394	42,582	44,691	45,027	42,652	42,148
Czech Republic										7,252
Denmark	1,188	1,185	1,673	1,806	1,837	1,703	1,849	2,277	2,346	2,470
Estonia										53
Finland	2,094	2,751	2,751	2,620	2,380	2,570	2,419	2,379	2,672	2,724
France	18,623	19,926	19,510	20,102	19,881	21,060	22,277	22,760	23,876	24,832
Germany										
Greece	169	169	151	103	22	21	28	153	553	545
Hungary										4,781
Iceland										
Ireland										934
Italy									37,656	39,046
Japan	6,829	7,805	8,468	9,625	10,716	11,540	12,398	13,631	13,936	15,075
Latvia										454
Luxembourg										866
Netherlands	18,341								21,917	21,456
New Zealand										3,868
Norway										502
Portugal								132	521	848
Slovakia										
Spain										
Sweden	600	560	571	618	712	645	711	686	701	685
Switzerland										1,523
United Kingdom	29,157	27,890	25,836	26,559	29,506	31,553	34,767	36,888	37,746	40,489
United States	433,783	440,554	461,698	480,615	488,049	516,232	533,999	533,456	518,971	520,534

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										17.6
Austria	2.2	-0.3	3.0	8.2	6.3	19.4	5.0	3.4	-1.5	54.2
Belgium										
Bulgaria										
Canada	-2.0	0.7	-0.4	4.1	5.4	5.0	0.8	-5.3	-1.2	6.8
Czech Republic										
Denmark	-0.2	41.1	8.0	1.7	-7.3	8.6	23.2	3.0	5.3	107.9
Estonia										
Finland	31.4	0.0	-4.8	-9.2	8.0	-5.9	-1.6	12.3	1.9	30.1
France	7.0	-2.1	3.0	-1.1	5.9	5.8	2.2	4.9	4.0	33.3
Germany										
Greece	0.1	-10.6	-31.9	-78.2	-8.0	37.7	437.8	261.9	-1.5	222.3
Hungary										
Iceland										
Ireland										
Italy									3.7	
Japan	14.3	8.5	13.7	11.3	7.7	7.4	9.9	2.2	8.2	120.8
Latvia										
Luxembourg										
Netherlands									-2.1	17.0
New Zealand										
Norway										
Portugal									62.8	
Slovakia										
Spain										
Sweden	-6.7	2.0	8.2	15.3	-9.5	10.2	-3.5	2.2	-2.3	14.3
Switzerland										
United Kingdom	-4.3	-7.4	2.8	11.1	6.9	10.2	6.1	2.3	7.3	38.9
United States	1.6	4.8	4.1	1.5	5.8	3.4	-0.1	-2.7	0.3	20.0

Contribution (%) of each fuel type to total CO₂ emissions 1990 and 1999

	Liquid fuels		Solid fuels		Gaseous fuels	
	1990	1999	1990	1999	1990	1999
Australia	21.8	23.1	49.9	44.6	28.3	32.3
Austria	35.3	22.1	8.2	6.1	53.9	71.5
Belgium						
Bulgaria		38.9		36.2		24.9
Canada	24.9	18.7	11.6	11.2	63.6	70.1
Czech Republic		22.1		56.7		21.2
Denmark	55.7	40.8	24.7	18.9	19.7	40.3
Estonia		13.4		78.6		8.0
Finland	29.9	30.2	44.6	36.2	14.6	17.2
France	28.2	26.1	13.5	13.5	24.2	32.2
Germany						
Greece	56.0	63.9	42.3	30.3	1.7	5.8
Hungary		25.0		22.6		48.2
Iceland		87.9		10.9		0.0
Ireland		59.9		18.0		22.0
Italy		32.4		19.0		48.5
Japan	45.3	45.2	52.7	50.6	2.0	4.2
Latvia		54.5		5.9		39.6
Luxembourg		20.7		30.8		48.5
Netherlands	17.3	7.1	16.0	15.9	43.8	49.3
New Zealand		9.3		24.3		66.4
Norway	86.6	73.6	13.4	13.3	0.0	13.1
Portugal	68.4	72.4	31.6	19.5	0.0	8.2
Slovakia						
Spain						
Sweden	63.6	67.7	26.3	24.4	5.2	5.7
Switzerland		45.7		1.8		27.7
United Kingdom	29.0	22.7	40.2	31.6	30.8	45.7
United States	33.1	29.9	24.6	25.0	42.4	45.0

Energy - Other sectors (commercial/institutional, residential, agricultural/forestry/fisheries): all fuel types**Trends in CO₂ emissions 1990 to 1999**
Gigagrams

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	12,486	12,559	12,895	13,376	13,492	13,961	14,045	14,572	14,769	14,821
Austria	13,305	15,795	14,351	14,741	14,714	14,839	14,462	14,178	12,862	13,011
Belgium									32,115	31,643
Bulgaria										2,491
Canada	69,415	68,821	71,091	73,881	73,489	73,957	79,476	76,576	68,085	71,894
Czech Republic										16,211
Denmark	8,945	9,201	9,004	8,991	7,960	8,684	9,276	8,525	8,024	7,865
Estonia										1,083
Finland	7,571	7,206	7,354	6,608	6,883	6,679	6,483	6,598	6,659	6,369
France	94,375	104,195	103,357	100,784	94,777	97,146	105,557	99,072	103,306	102,167
Germany	203,439	204,882	188,877	197,590	187,470	190,544	215,916	198,396	191,163	174,402
Greece	5,341	5,556	5,428	5,380	5,413	5,685	7,541	7,781	8,136	7,938
Hungary										13,385
Iceland										798
Ireland										9,903
Italy									77,145	81,345
Japan	158,233	164,502	169,778	168,984	167,049	177,029	173,326	171,614	167,056	165,624
Latvia									1,048	978
Luxembourg										1,515
Netherlands	34,320	40,390	37,330	40,060	38,460	38,930	45,200	36,431	35,852	35,301
New Zealand										2,800
Norway	4,339									3,874
Portugal	3,621	3,772	3,881	3,899	4,188	4,003	4,584	5,021	4,722	5,285
Slovakia										6,748
Spain	24,070	27,534	26,881	25,863	26,936	26,605	27,635	27,544	28,102	29,506
Sweden	10,673	10,486	9,739	9,713	9,736	9,359	9,422	8,617	8,470	8,692
Switzerland	18,631	19,810	19,830	19,100	18,023	19,013	19,810	18,785	19,402	18,437
United Kingdom	112,041	123,373	120,077	123,269	118,154	113,815	127,060	117,276	118,627	117,421
United States	549,373	560,840	570,246	588,644	580,617	586,246	623,239	608,569	558,376	577,133

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										18.7
Austria	18.7	-9.1	2.7	-0.2	0.9	-2.5	-2.0	-9.3	1.2	-2.2
Belgium										
Bulgaria										
Canada	-0.9	3.3	3.9	-0.5	0.6	7.5	-3.6	-11.1	5.6	3.6
Czech Republic										
Denmark	2.9	-2.1	-0.1	-11.5	9.1	6.8	-8.1	-5.9	-2.0	-12.1
Estonia										
Finland	-4.8	2.1	-10.1	4.2	-3.0	-2.9	1.8	0.9	-4.4	-15.9
France	10.4	-0.8	-2.5	-6.0	2.5	8.7	-6.1	4.3	-1.1	8.3
Germany	0.7	-7.8	4.6	-5.1	1.6	13.3	-8.1	-3.6	-8.8	-14.3
Greece	4.0	-2.3	-0.9	0.6	5.0	32.7	3.2	4.6	-2.4	48.6
Hungary										
Iceland										
Ireland										
Italy									5.4	
Japan	4.0	3.2	-0.5	-1.1	6.0	-2.1	-1.0	-2.7	-0.9	4.7
Latvia										
Luxembourg										
Netherlands									-1.5	2.9
New Zealand										
Norway										-10.7
Portugal	4.2	2.9	0.5	7.4	-4.4	14.5	9.5	-6.0	11.9	46.0
Slovakia										
Spain	14.4	-2.4	-3.8	4.2	-1.2	3.9	-0.3	2.0	5.0	22.6
Sweden	-1.7	-7.1	-0.3	0.2	-3.9	0.7	-8.5	-1.7	2.6	-18.6
Switzerland	6.3	0.1	-3.7	-5.6	5.5	4.2	-5.2	3.3	-5.0	-1.0
United Kingdom	10.1	-2.7	2.7	-4.1	-3.7	11.6	-7.7	1.2	-1.0	4.8
United States	2.1	1.7	3.2	-1.4	1.0	6.3	-2.4	-8.2	3.4	5.1

Energy - Other sectors (commercial/institutional, residential, agricultural/forestry/fisheries) by fuel type: liquid**Trends in CO₂ emissions 1990 to 1999****Gigagrams**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	5,500									6,148
Austria	7,854	9,339	8,295	8,535	8,502	8,558	8,552	8,979	8,031	8,074
Belgium										
Bulgaria										594
Canada	22,239	20,718	21,249	21,095	20,601	20,055	21,012	20,486	17,721	18,258
Czech Republic										960
Denmark	7,068	6,909	6,734	6,441	5,838	5,941	6,285	5,894	5,559	5,424
Estonia										816
Finland	7,274	6,969	7,117	6,437	6,703	6,488	5,989	6,090	6,265	5,972
France	59,845	64,117	64,590	61,938	57,476	59,299	62,489	58,877	59,408	57,377
Germany										
Greece	5,204	5,365	5,232	5,167	5,216	5,484	7,319	7,570	7,938	7,799
Hungary										1,146
Iceland										798
Ireland										5,840
Italy									23,677	23,918
Japan	136,229	142,134	146,723	144,155	141,618	149,455	144,625	142,904	137,619	135,788
Latvia									422	418
Luxembourg										870
Netherlands	1,098								346	322
New Zealand										1,703
Norway	4,301									3,859
Portugal	3,621	3,772	3,881	3,899	4,188	4,003	4,584	4,584	4,686	5,241
Slovakia										36
Spain										
Sweden	10,332	10,160	9,454	9,407	9,457	9,062	9,116	8,321	8,158	8,372
Switzerland										14,310
United Kingdom	20,156	21,157	21,443	21,721	21,228	20,456	21,918	20,035	19,825	17,525
United States	153,824	152,004	149,967	150,747	147,528	145,946	154,258	149,658	137,854	145,288

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										11.8
Austria	18.9	-11.2	2.9	-0.4	0.7	-0.1	5.0	-10.6	0.5	2.8
Belgium										
Bulgaria										
Canada	-6.8	2.6	-0.7	-2.3	-2.6	4.8	-2.5	-13.5	3.0	-17.9
Czech Republic										
Denmark	-2.2	-2.5	-4.4	-9.4	1.8	5.8	-6.2	-5.7	-2.4	-23.3
Estonia										
Finland	-4.2	2.1	-9.5	4.1	-3.2	-7.7	1.7	2.9	-4.7	-17.9
France	7.1	0.7	-4.1	-7.2	3.2	5.4	-5.8	0.9	-3.4	-4.1
Germany										
Greece	3.1	-2.5	-1.2	0.9	5.1	33.4	3.4	4.9	-1.8	49.9
Hungary										
Iceland										
Ireland										
Italy									1.0	
Japan	4.3	3.2	-1.8	-1.8	5.5	-3.2	-1.2	-3.7	-1.3	-0.3
Latvia										
Luxembourg										
Netherlands									-6.9	-70.7
New Zealand										
Norway										-10.3
Portugal	4.2	2.9	0.5	7.4	-4.4	14.5	0.0	2.2	11.8	44.7
Slovakia										
Spain										
Sweden	-1.7	-7.0	-0.5	0.5	-4.2	0.6	-8.7	-2.0	2.6	-19.0
Switzerland										
United Kingdom	5.0	1.4	1.3	-2.3	-3.6	7.1	-8.6	-1.0	-11.6	-13.1
United States	-1.2	-1.3	0.5	-2.1	-1.1	5.7	-3.0	-7.9	5.4	-5.5

Energy - Other sectors (commercial/institutional, residential, agricultural/forestry/fisheries) by fuel type: solid**Trends in CO₂ emissions 1990 to 1999****Gigagrams**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	583									193
Austria	2,558	3,033	2,255	1,957	2,040	1,650	1,835	1,560	1,243	1,219
Belgium										
Bulgaria										1,847
Canada	191	190	166	160	142	195	193	179	158	151
Czech Republic										7,060
Denmark	320	403	320	301	76	225	159	138	98	85
Estonia										151
Finland	57	13	13	16	15	19	25	9	26	24
France	4,403	4,414	3,098	2,549	1,472	2,502	2,216	1,484	1,045	1,045
Germany										
Greece	120	172	175	193	180	181	203	191	167	112
Hungary										1,157
Iceland										
Ireland										2,607
Italy									306	297
Japan	5,048	4,260	4,275	4,651	5,171	5,842	6,041	5,624	5,771	5,216
Latvia									325	268
Luxembourg										25
Netherlands	174								41	40
New Zealand										497
Norway	35									11
Portugal										
Slovakia										2,260
Spain										
Sweden	157	104	58	45	25	12	5	16	8	
Switzerland										14
United Kingdom	19,007	20,193	17,443	18,642	15,534	11,190	11,642	10,520	9,301	9,855
United States	14,562	13,288	13,504	13,392	12,981	12,621	12,835	13,653	10,443	10,443

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										-66.9
Austria	18.6	-25.6	-13.2	4.2	-19.1	11.2	-15.0	-20.3	-1.9	-52.3
Belgium										
Bulgaria										
Canada	-0.7	-12.5	-4.1	-11.0	36.9	-0.8	-7.3	-12.0	-4.2	-21.2
Czech Republic										
Denmark	26.1	-20.7	-5.9	-74.8	196.3	-29.6	-13.2	-28.7	-13.8	-73.6
Estonia										
Finland	-77.4	0.0	22.7	-3.8	25.2	32.3	-62.8	175.3	-5.1	-57.1
France	0.3	-29.8	-17.7	-42.2	69.9	-11.4	-33.0	-29.6	0.0	-76.3
Germany										
Greece	43.8	1.4	10.2	-6.7	0.8	12.2	-6.1	-12.5	-32.8	-6.4
Hungary										
Iceland										
Ireland										
Italy									-3.0	
Japan	-15.6	0.4	8.8	11.2	13.0	3.4	-6.9	2.6	-9.6	3.3
Latvia										
Luxembourg										
Netherlands									-1.7	-77.0
New Zealand										
Norway										-67.3
Portugal										
Slovakia										
Spain										
Sweden	-33.3	-44.9	-21.4	-45.5	-50.0	-60.0	217.0	-50.0		-100.0
Switzerland										
United Kingdom	6.2	-13.6	6.9	-16.7	-28.0	4.0	-9.6	-11.6	6.0	-48.2
United States	-8.8	1.6	-0.8	-3.1	-2.8	1.7	6.4	-23.5	0.0	-28.3

Energy - Other sectors (commercial/institutional, residential, agricultural/forestry/fisheries) by fuel type: gaseous**Trends in CO₂ emissions 1990 to 1999****Gigagrams**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	6,402									8,480
Austria	2,889	3,415	3,800	4,249	4,169	4,626	4,069	3,634	3,581	3,712
Belgium										
Bulgaria										51
Canada	46,985	47,912	49,675	52,627	52,746	53,708	58,271	55,911	50,207	53,485
Czech Republic										8,191
Denmark	1,557	1,889	1,951	2,249	2,047	2,518	2,832	2,494	2,366	2,356
Estonia										98
Finland	99	116	116	132	137	142	297	322	241	260
France	30,057	35,594	35,599	36,226	35,758	35,293	40,798	38,639	42,781	43,691
Germany										
Greece	17	19	21	20	18	19	19	20	31	26
Hungary										11,082
Iceland										
Ireland										1,456
Italy									48,112	50,286
Japan	16,957	18,108	18,780	20,179	20,261	21,732	22,660	23,086	23,666	24,620
Latvia									300	291
Luxembourg										620
Netherlands	33,048								35,446	34,938
New Zealand										600
Norway										3
Portugal								6	36	44
Slovakia										4,446
Spain										
Sweden	184	221	227	261	255	285	301	281	304	320
Switzerland										3,537
United Kingdom	72,878	82,024	81,190	82,907	81,393	82,169	93,501	86,721	89,501	90,042
United States	380,987	395,548	406,774	424,505	420,107	427,679	456,146	445,258	410,079	421,403

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										32.5
Austria	18.2	11.3	11.8	-1.9	10.9	-12.0	-10.7	-1.5	3.7	28.5
Belgium										
Bulgaria										
Canada	2.0	3.7	5.9	0.2	1.8	8.5	-4.0	-10.2	6.5	13.8
Czech Republic										
Denmark	21.3	3.3	15.3	-9.0	23.0	12.5	-12.0	-5.1	-0.4	51.4
Estonia										
Finland	17.7	0.0	13.5	4.5	3.6	108.6	8.5	-25.3	7.9	163.7
France	18.4	0.0	1.8	-1.3	-1.3	15.6	-5.3	10.7	2.1	45.4
Germany										
Greece	9.2	14.8	-4.7	-13.0	7.6	0.0	4.4	56.6	-14.8	55.9
Hungary										
Iceland										
Ireland										
Italy									4.5	
Japan	6.8	3.7	7.5	0.4	7.3	4.3	1.9	2.5	4.0	45.2
Latvia										
Luxembourg										
Netherlands									-1.4	5.7
New Zealand										
Norway										
Portugal									24.4	
Slovakia										
Spain										
Sweden	20.4	2.7	14.8	-2.3	11.6	5.6	-6.6	8.3	5.2	73.9
Switzerland										
United Kingdom	12.5	-1.0	2.1	-1.8	1.0	13.8	-7.3	3.2	0.6	23.6
United States	3.8	2.8	4.4	-1.0	1.8	6.7	-2.4	-7.9	2.8	10.6

Energy - Other sectors (commercial/institutional, residential, agricultural/forestry/fisheries)Contribution (%) of each fuel type to total CO₂ emissions 1990 and 1999

	Liquid fuels		Solid fuels		Gaseous fuels	
	1990	1999	1990	1999	1990	1999
Australia	44.1	41.5	4.7	1.3	51.3	57.2
Austria	59.0	62.1	19.2	9.4	21.7	28.5
Belgium						
Bulgaria		23.8		74.1		2.1
Canada	32.0	25.4	0.3	0.2	67.7	74.4
Czech Republic		5.9		43.6		50.5
Denmark	79.0	69.0	3.6	1.1	17.4	30.0
Estonia		75.3		13.9		9.0
Finland	96.1	93.8	0.7	0.4	1.3	4.1
France	63.4	56.2	4.7	1.0	31.8	42.8
Germany						
Greece	97.4	98.3	2.2	1.4	0.3	0.3
Hungary		8.6		8.6		82.8
Iceland		100.0		0.0		0.0
Ireland		59.0		26.3		14.7
Italy		29.4		0.4		61.8
Japan	86.1	82.0	3.2	3.1	10.7	14.9
Latvia		42.7		27.4		29.7
Luxembourg		57.4		1.7		40.9
Netherlands	3.2	0.9	0.5	0.1	96.3	99.0
New Zealand		60.8		17.8		21.4
Norway	99.1	99.6	0.8	0.3	0.0	0.1
Portugal	100.0	99.2	0.0	0.0	0.0	0.8
Slovakia		0.5		33.5		65.9
Spain						
Sweden	96.8	96.3	1.5	0.0	1.7	3.7
Switzerland		77.6		0.1		19.2
United Kingdom	18.0	14.9	17.0	8.4	65.0	76.7
United States	28.0	25.2	2.7	1.8	69.3	73.0

Total CO₂ emissions from fuel combustion 1990 to 1999

Gigagrams

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	265,220	267,477	270,003	273,139	276,695	288,689	298,498	305,943	322,086	326,378
Austria	46,685	51,068	46,162	45,827	46,933	48,704	50,028	50,906	50,174	50,658
Belgium									117,170	111,175
Bulgaria										44,513
Canada	421,613	411,468	425,723	422,945	436,057	447,878	459,857	471,074	480,525	491,410
Czech Republic										117,501
Denmark	51,676	61,873	56,382	58,104	61,983	58,924	72,153	62,374	58,232	54,561
Estonia										16,425
Finland	53,893	53,070	51,259	52,035	58,331	55,882	61,220	59,815	57,404	56,781
France	355,945	381,154	374,696	354,007	348,976	355,365	370,381	363,863	384,549	379,591
Germany	986,832	951,137	902,918	893,006	877,157	877,107	899,777	868,049	862,099	832,036
Greece	76,474	76,395	78,054	78,177	80,047	79,778	82,012	86,503	91,235	90,471
Hungary										56,490
Iceland										1,930
Ireland										39,603
Italy									427,801	429,759
Japan	1,052,782	1,072,706	1,085,118	1,064,565	1,133,429	1,138,556	1,153,570	1,150,775	1,109,504	1,147,945
Latvia									8,051	7,385
Luxembourg										4,740
Netherlands	158,536	164,860	163,430	165,890	166,750	174,224	182,021	178,266	177,395	170,619
New Zealand										26,623
Norway	26,366									31,728
Portugal	39,558	41,373	45,290	44,003	44,534	47,260	45,688	47,359	50,584	52,449
Slovakia										40,783
Spain	205,673	213,404	223,785	211,499	222,031	232,254	220,255	236,250	245,598	256,801
Sweden	51,278	52,196	50,434	50,281	54,360	53,390	57,791	52,114	53,311	51,722
Switzerland	39,673	41,854	41,846	39,611	38,789	39,764	40,554	39,894	41,140	41,104
United Kingdom	556,554	565,039	551,387	537,695	531,563	525,044	543,636	520,790	523,367	509,917
United States	4,835,688	4,782,409	4,881,065	4,986,700	5,078,407	5,121,263	5,302,961	5,374,913	5,386,762	5,453,088

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										23.1
Austria	9.4	-9.6	-0.7	2.4	3.8	2.7	1.8	-1.4	1.0	8.5
Belgium										
Bulgaria										
Canada	-2.4	3.5	-0.7	3.1	2.7	2.7	2.4	2.0	2.3	16.6
Czech Republic										
Denmark	19.7	-8.9	3.1	6.7	-4.9	22.5	-13.6	-6.6	-6.3	5.6
Estonia										
Finland	-1.5	-3.4	1.5	12.1	-4.2	9.6	-2.3	-4.0	-1.1	5.4
France	7.1	-1.7	-5.5	-1.4	1.8	4.2	-1.8	5.7	-1.3	6.6
Germany	-3.6	-5.1	-1.1	-1.8	0.0	2.6	-3.5	-0.7	-3.5	-15.7
Greece	-0.1	2.2	0.2	2.4	-0.3	2.8	5.5	5.5	-0.8	18.3
Hungary										
Iceland										
Ireland										
Italy									0.5	
Japan	1.9	1.2	-1.9	6.5	0.5	1.3	-0.2	-3.6	3.5	9.0
Latvia										
Luxembourg										
Netherlands							-2.1	-0.5	-3.8	7.6
New Zealand										
Norway										20.3
Portugal	4.6	9.5	-2.8	1.2	6.1	-3.3	3.7	6.8	3.7	32.6
Slovakia										
Spain	3.8	4.9	-5.5	5.0	4.6	-5.2	7.3	4.0	4.6	24.9
Sweden	1.8	-3.4	-0.3	8.1	-1.8	8.2	-9.8	2.3	-3.0	0.9
Switzerland	5.5	0.0	-5.3	-2.1	2.5	2.0	-1.6	3.1	-0.1	3.6
United Kingdom	1.5	-2.4	-2.5	-1.1	-1.2	3.5	-4.2	0.5	-2.6	-8.4
United States	-1.1	2.1	2.2	1.8	0.8	3.5	1.4	0.2	1.2	12.8

Total CO₂ emissions from fuel combustion 1990 to 1999
Gigagrams

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	85,777									98,324
Austria	25,881	28,502	27,231	27,397	28,013	27,662	27,751	29,082	29,673	29,869
Belgium										
Bulgaria										11,882
Canada	210,148	198,318	201,953	203,620	208,960	212,171	216,058	223,046	227,671	231,033
Czech Republic										22,947
Denmark	23,141	24,107	23,660	23,437	24,227	25,360	27,769	26,448	25,897	25,259
Estonia										3,422
Finland	27,386	26,412	26,381	24,707	25,964	25,504	26,083	25,920	26,912	26,837
France	220,843	233,242	233,217	227,140	223,967	229,207	234,159	232,950	237,815	237,232
Germany										
Greece	36,667	38,092	38,039	37,912	38,065	39,580	42,893	43,890	45,508	45,144
Hungary										17,355
Iceland										1,893
Ireland										22,589
Italy									252,706	244,057
Japan	637,993	643,353	656,078	634,654	673,068	669,007	661,738	642,986	630,513	637,777
Latvia									4,209	4,508
Luxembourg										2,580
Netherlands	42,576	28,550	29,830	30,460	30,800	32,030	31,611	30,848	43,891	45,265
New Zealand										13,110
Norway	20,448									23,729
Portugal	28,862	30,217	33,845	31,794	31,898	33,524	32,810	32,810	37,943	39,700
Slovakia										7,833
Spain										
Sweden	40,616	40,546	39,826	39,547	42,962	42,483	44,810	41,916	42,250	41,970
Switzerland										30,895
United Kingdom	208,380	208,401	208,438	208,835	205,268	200,517	205,441	196,386	191,472	183,909
United States	2,056,429	1,999,440	2,050,217	2,064,309	2,112,121	2,098,200	2,175,618	2,188,573	2,230,432	2,294,573

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										14.6
Austria	10.1	-4.5	0.6	2.2	-1.3	0.3	4.8	2.0	0.7	15.4
Belgium										
Bulgaria										
Canada	-5.6	1.8	0.8	2.6	1.5	1.8	3.2	2.1	1.5	9.9
Czech Republic										
Denmark	4.2	-1.9	-0.9	3.4	4.7	9.5	-4.8	-2.1	-2.5	9.2
Estonia										
Finland	-3.6	-0.1	-6.3	5.1	-1.8	2.3	-0.6	3.8	-0.3	-2.0
France	5.6	0.0	-2.6	-1.4	2.3	2.2	-0.5	2.1	-0.2	7.4
Germany										
Greece	3.9	-0.1	-0.3	0.4	4.0	8.4	2.3	3.7	-0.8	23.1
Hungary										
Iceland										
Ireland										
Italy									-3.4	
Japan	0.8	2.0	-3.3	6.1	-0.6	-1.1	-2.8	-1.9	1.2	0.0
Latvia										
Luxembourg										
Netherlands							-2.4	42.3	3.1	6.3
New Zealand										
Norway										16.0
Portugal	4.7	12.0	-6.1	0.3	5.1	-2.1	0.0	15.6	4.6	37.6
Slovakia										
Spain										
Sweden	-0.2	-1.8	-0.7	8.6	-1.1	5.5	-6.5	0.8	-0.7	3.3
Switzerland										
United Kingdom	0.0	0.0	0.2	-1.7	-2.3	2.5	-4.4	-2.5	-3.9	-11.7
United States	-2.8	2.5	0.7	2.3	-0.7	3.7	0.6	1.9	2.9	11.6

Total CO₂ emissions from fuel combustion 1990 to 1999
Gigagrams

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	145,707									184,689
Austria	9,553	10,703	6,986	5,820	5,906	6,802	7,139	7,245	5,460	5,565
Belgium										
Bulgaria										27,302
Canada	86,040	89,012	91,474	83,787	87,911	89,788	91,766	98,449	104,158	102,541
Czech Republic										75,969
Denmark	24,267	32,921	27,385	28,710	31,189	25,862	35,546	26,528	22,164	18,809
Estonia										11,630
Finland	15,746	14,916	13,015	14,648	18,444	15,409	19,319	17,928	13,977	14,067
France	53,170	60,883	56,359	42,812	41,155	41,899	45,377	40,494	50,424	43,891
Germany										
Greece	39,524	38,023	39,753	40,056	41,844	40,065	38,973	42,217	44,253	42,727
Hungary										15,317
Iceland										33
Ireland										10,825
Italy									47,303	45,862
Japan	284,414	287,999	283,294	291,500	301,959	313,929	324,629	336,808	325,108	348,409
Latvia									640	520
Luxembourg										575
Netherlands	33,898								33,605	30,459
New Zealand										3,055
Norway	499									582
Portugal	10,693	11,156	11,445	12,209	12,637	13,735	12,878	12,878	11,753	11,687
Slovakia										17,295
Spain										
Sweden	8,080	8,631	8,104	7,729	7,868	7,550	8,599	7,379	7,851	6,826
Switzerland										113
United Kingdom	237,791	237,889	223,620	194,327	182,215	170,497	159,351	141,338	141,213	123,943
United States	1,775,855	1,761,957	1,779,565	1,837,036	1,857,202	1,867,931	1,950,790	2,005,595	2,015,565	2,012,754

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										26.8
Austria	12.0	-34.7	-16.7	1.5	15.2	5.0	1.5	-24.6	1.9	-41.7
Belgium										
Bulgaria										
Canada	3.5	2.8	-8.4	4.9	2.1	2.2	7.3	5.8	-1.6	19.2
Czech Republic										
Denmark	35.7	-16.8	4.8	8.6	-17.1	37.4	-25.4	-16.5	-15.1	-22.5
Estonia										
Finland	-5.3	-12.7	12.5	25.9	-16.5	25.4	-7.2	-22.0	0.6	-10.7
France	14.5	-7.4	-24.0	-3.9	1.8	8.3	-10.8	24.5	-13.0	-17.5
Germany										
Greece	-3.8	4.5	0.8	4.5	-4.3	-2.7	8.3	4.8	-3.4	8.1
Hungary										
Iceland										
Ireland										
Italy									-3.0	
Japan	1.3	-1.6	2.9	3.6	4.0	3.4	3.8	-3.5	7.2	22.5
Latvia										
Luxembourg										
Netherlands									-9.4	-10.1
New Zealand										
Norway										16.6
Portugal	4.3	2.6	6.7	3.5	8.7	-6.2	0.0	-8.7	-0.6	9.3
Slovakia										
Spain										
Sweden	6.8	-6.1	-4.6	1.8	-4.0	13.9	-14.2	6.4	-13.1	-15.5
Switzerland										
United Kingdom	0.0	-6.0	-13.1	-6.2	-6.4	-6.5	-11.3	-0.1	-12.2	-47.9
United States	-0.8	1.0	3.2	1.1	0.6	4.4	2.8	0.5	-0.1	13.3

Energy - Fuel combustion by fuel type: gaseous

FCCC/WEB/SAI/2001

Total CO₂ emissions from fuel combustion 1990 to 1999

Gigagrams

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	33,736									43,366
Austria	11,041	11,656	11,736	12,403	12,997	14,219	15,077	14,515	14,989	15,188
Belgium										
Bulgaria										5,329
Canada	123,348	121,981	129,799	133,684	137,441	143,992	150,218	147,918	147,102	156,494
Czech Republic										18,416
Denmark	4,235	4,813	5,306	5,926	6,537	7,673	8,808	9,366	10,136	10,456
Estonia										1,348
Finland	5,087	5,642	5,865	6,112	6,442	6,712	6,961	6,848	8,018	7,929
France	50,500	57,693	57,474	58,763	58,115	58,714	66,203	64,518	69,794	71,266
Germany										
Greece	283	280	262	208	138	133	146	396	1,475	2,599
Hungary										23,319
Iceland										
Ireland										6,108
Italy									117,245	127,925
Japan	100,890	108,058	108,746	111,417	117,747	121,487	127,326	132,377	136,080	144,184
Latvia									1,926	2,337
Luxembourg										1,585
Netherlands	66,920								79,335	78,965
New Zealand										9,396
Norway	5,320									7,287
Portugal								194	887	1,061
Slovakia										13,388
Spain										
Sweden	1,221	1,311	1,470	1,612	1,605	1,627	1,704	1,673	1,676	1,687
Switzerland										5,973
United Kingdom	110,249	118,613	119,164	134,303	143,520	153,412	178,131	182,244	189,781	201,206
United States	1,001,851	1,019,577	1,049,941	1,083,988	1,106,916	1,153,977	1,175,512	1,179,778	1,139,764	1,144,741

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Perentage change from 1990 to 1999
Australia										28.5
Austria	5.6	0.7	5.7	4.8	9.4	6.0	-3.7	3.3	1.3	37.6
Belgium										
Bulgaria										
Canada	-1.1	6.4	3.0	2.8	4.8	4.3	-1.5	-0.6	6.4	26.9
Czech Republic										
Denmark	13.6	10.2	11.7	10.3	17.4	14.8	6.3	8.2	3.2	146.9
Estonia										
Finland	10.9	4.0	4.2	5.4	4.2	3.7	-1.6	17.1	-1.1	55.9
France	14.2	-0.4	2.2	-1.1	1.0	12.8	-2.5	8.2	2.1	41.1
Germany										
Greece	-1.0	-6.5	-20.5	-33.7	-3.5	9.7	171.1	272.2	76.2	818.6
Hungary										
Iceland										
Ireland										
Italy									9.1	
Japan	7.1	0.6	2.5	5.7	3.2	4.8	4.0	2.8	6.0	42.9
Latvia										
Luxembourg										
Netherlands									-0.5	18.0
New Zealand										
Norway										37.0
Portugal									19.6	
Slovakia										
Spain										
Sweden	7.3	12.1	9.7	-0.4	1.3	4.8	-1.8	0.2	0.7	38.1
Switzerland										
United Kingdom	7.6	0.5	12.7	6.9	6.9	16.1	2.3	4.1	6.0	82.5
United States	1.8	3.0	3.2	2.1	4.3	1.9	0.4	-3.4	0.4	14.3

Total CO₂ emissions from fuel combustion 1990 to 1999

Gigagrams

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	16,515	16,642	15,142	16,800	17,619	18,448	18,437	20,275	20,493	20,145
Austria	11,496	10,849	10,873	11,101	13,243	14,479	14,311	13,903	13,426	13,623
Belgium									920	
Bulgaria										2,413
Canada	44,453	45,268	45,387	44,561	48,609	50,967	49,123	53,020	50,022	53,634
Czech Republic										2,776
Denmark	4,312	4,610	4,959	5,098	4,928	5,580	6,071	6,288	6,266	6,281
Estonia										2,282
Finland	18,452	17,691	16,932	19,961	20,985	23,051	22,927	26,524	27,225	28,987
France	37,859	45,267	42,905	42,251	37,077	37,894	39,933	36,405	37,281	36,992
Germany	NE		NE	NE		NE	NE	NE	NE	NE
Greece	2,474	2,474	2,474	2,474	2,612	2,612	4,084	4,093	4,079	4,089
Hungary										1,476
Iceland										17
Ireland										622
Italy										
Japan	34,887	35,825	35,359	35,393	38,708	39,567	39,352	40,585	40,164	41,847
Latvia									4,061	3,547
Luxembourg										71
Netherlands	3,100	2,700	2,600	3,300	3,500	3,600	4,500	5,314	5,350	5,447
New Zealand										3,248
Norway	7,077									7,600
Portugal	12,023	12,227	12,157	11,888	11,493	11,423	11,285	11,285	11,220	11,125
Slovakia										72
Spain	13,934	13,873	13,590	13,440	13,302	13,088	12,948	13,721	13,985	14,226
Sweden	11,361	11,760	12,716	13,577	15,100	15,889	17,713	16,264	16,604	16,709
Switzerland										1,894
United Kingdom	3,850	4,008	4,295	4,447	4,833	5,223	5,477	5,761	6,118	7,000
United States	180,563	179,318	188,276	183,975	191,667	200,488	202,117	194,317	194,762	234,063

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										22.0
Austria	-5.6	0.2	2.1	19.3	9.3	-1.2	-2.8	-3.4	1.5	18.5
Belgium										
Bulgaria										
Canada	1.8	0.3	-1.8	9.1	4.9	-3.6	7.9	-5.7	7.2	20.7
Czech Republic										
Denmark	6.9	7.6	2.8	-3.3	13.2	8.8	3.6	-0.3	0.2	45.7
Estonia										
Finland	-4.1	-4.3	17.9	5.1	9.8	-0.5	15.7	2.6	6.5	57.1
France	19.6	-5.2	-1.5	-12.2	2.2	5.4	-8.8	2.4	-0.8	-2.3
Germany										
Greece	0.0	0.0	0.0	5.6	0.0	56.4	0.2	-0.3	0.2	65.3
Hungary										
Iceland										
Ireland										
Italy										
Japan	2.7	-1.3	0.1	9.4	2.2	-0.5	3.1	-1.0	4.2	19.9
Latvia										
Luxembourg										
Netherlands									1.8	75.7
New Zealand										
Norway										7.4
Portugal	1.7	-0.6	-2.2	-3.3	-0.6	-1.2	0.0	-0.6	-0.8	-7.5
Slovakia										
Spain	-0.4	-2.0	-1.1	-1.0	-1.6	-1.1	6.0	1.9	1.7	2.1
Sweden	3.5	8.1	6.8	11.2	5.2	11.5	-8.2	2.1	0.6	47.1
Switzerland										
United Kingdom	4.1	7.2	3.5	8.7	8.1	4.9	5.2	6.2	14.4	81.8
United States	-0.7	5.0	-2.3	4.2	4.6	0.8	-3.9	0.2	20.2	29.6

Total CO₂ emissions from fuel combustion 1990 to 1999
Gigagrams

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	0									
Austria	211	207	210	207	17	21	61	64	51	36
Belgium										
Bulgaria										
Canada	2,077	2,157	2,496	1,855	1,745	1,928	1,815	1,661	1,595	1,342
Czech Republic										169
Denmark	32	32	31	31	30	29	30	31	35	37
Estonia										25
Finland	5,674	6,101	5,997	6,569	7,482	8,257	8,857	9,119	8,497	7,948
France	31,433	29,336	27,646	25,292	25,739	25,545	24,642	25,900	26,515	27,203
Germany										
Greece										
Hungary										499
Iceland										4
Ireland										82
Italy									10,547	11,915
Japan	29,485	33,296	37,001	26,994	40,655	34,133	39,878	38,604	17,803	17,575
Latvia										18
Luxembourg										1
Netherlands	15,142	136,310	133,600	135,430	135,950	142,194	150,410	147,418	20,564	15,929
New Zealand										1,063
Norway	100									129
Portugal	3	0				1	0	0	1	1
Slovakia										2,267
Spain										
Sweden	1,360	1,708	1,034	1,393	1,924	1,730	1,783	1,147	1,534	1,240
Switzerland										4,123
United Kingdom	134	136	165	229	561	617	713	822	900	859
United States	1,554	1,435	1,342	1,367	2,168	1,155	1,041	967	1,001	1,021

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										
Austria	-1.6	1.2	-1.1	-91.8	25.9	186.2	5.0	-20.2	-30.1	-83.0
Belgium										
Bulgaria										
Canada	3.8	15.7	-25.7	-5.9	10.5	-5.8	-8.5	-4.0	-15.9	-35.4
Czech Republic										
Denmark	-0.5	-1.2	-1.1	-4.9	-1.2	2.7	4.5	12.6	4.1	15.0
Estonia										
Finland	7.5	-1.7	9.5	13.9	10.4	7.3	3.0	-6.8	-6.5	40.1
France	-6.7	-5.8	-8.5	1.8	-0.8	-3.5	5.1	2.4	2.6	-13.5
Germany										
Greece										
Hungary										
Iceland										
Ireland										
Italy									13.0	
Japan	12.9	11.1	-27.0	50.6	-16.0	16.8	-3.2	-53.9	-1.3	-40.4
Latvia										
Luxembourg										
Netherlands							-2.0	-86.1	-22.5	5.2
New Zealand										
Norway										28.1
Portugal	-97.0					-23.4	0.0	28.4	5.5	-81.2
Slovakia										
Spain										
Sweden	25.5	-39.5	34.8	38.1	-10.1	3.1	-35.7	33.8	-19.2	-8.9
Switzerland										
United Kingdom	1.1	21.8	38.7	144.9	9.9	15.6	15.3	9.6	-4.6	540.0
United States	-7.7	-6.5	1.9	58.6	-46.7	-9.8	-7.2	3.6	1.9	-34.3

Contribution (%) of each fuel type to total CO₂ emissions 1990 and 1999

	Liquid fuel		Solid fuel		Gaseous fuel		Other fuels	
	1990	1999	1990	1999	1990	1999	1990	1999
Australia	32.3	30.1	54.9	56.6	12.7	13.3	0.0	0.0
Austria	55.4	59.0	20.5	11.0	23.6	30.0	0.5	0.1
Belgium		0.0		0.0		0.0		0.0
Bulgaria		26.7		61.3		12.0		0.0
Canada	49.8	47.0	20.4	20.9	29.3	31.8	0.5	0.3
Czech Republic		19.5		64.7		15.7		0.1
Denmark	44.8	46.3	47.0	34.5	8.2	19.2	0.1	0.1
Estonia		20.8		70.8		8.2		0.2
Finland	50.8	47.3	29.2	24.8	9.4	14.0	10.5	14.0
France	62.0	62.5	14.9	11.6	14.2	18.8	8.8	7.2
Germany								
Greece	47.9	49.9	51.7	47.2	0.4	2.9	0.0	0.0
Hungary		30.7		27.1		41.3		0.9
Iceland		98.1		1.7		0.0		0.2
Ireland		57.0		27.3		15.4		0.2
Italy		56.8		10.7		29.8		2.8
Japan	60.6	55.6	27.0	30.4	9.6	12.6	2.8	1.5
Latvia		61.0		7.0		31.7		0.2
Luxembourg		54.4		12.1		33.4		0.0
Netherlands	26.9	26.5	21.4	17.9	42.2	46.3	9.6	9.3
New Zealand		49.2		11.5		35.3		4.0
Norway	77.6	74.8	1.9	1.8	20.2	23.0	0.4	0.4
Portugal	73.0	75.7	27.0	22.3	0.0	2.0	0.0	0.0
Slovakia		19.2		42.4		32.8		5.6
Spain								
Sweden	79.2	81.1	15.8	13.2	2.4	3.3	2.7	2.4
Switzerland		75.2		0.3		14.5		10.0
United Kingdom	37.4	36.1	42.7	24.3	19.8	39.5	0.0	0.2
United States	42.5	42.1	36.7	36.9	20.7	21.0	0.0	0.0

Energy - Road transportation: emission factors (1999)

	1.A.3.b Road transportation (CO ₂ and N ₂ O)													
	CO ₂ emissions							N ₂ O emissions						
	Key source	Percentage of national total	Methods and EF used ^a		CO ₂ IEF			Key source	Percentage 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	12.9	T1, T2	CS	GCV	65.34	69.00			T1, T2	D, CS	GCV	19.38	1.82
Austria	L	21.7	M	CS	NCV	73.50	74.16	L	0.7	M	CS	NCV	16.98	2.52
Belgium														
Bulgaria	L	6.9	T2	C, CS, D	NCV		74.37			T2	C, CS, D	NCV		1.87
Canada	L	17.8	CS	CS	GCV	68.09	70.58	L	0.8	CS	CS	GCV	13.92	2.15
Czech Republic	L	8.1	T1	D	NCV	68.61	73.33			T2	PS	NCV	16.71	3.00
Denmark	L	15.5			NCV	73.00	74.00					NCV	13.50	3.79
Estonia	L	4.6			NCV	68.61	73.33					NCV	0.60	0.60
Finland	L	14.3	CS (M)	CS	NCV	72.76	73.75	L	0.7	CS (M)	CS/M	NCV	12.62	3.70
France	L	23.8	C /CS	C /M /CS	NCV	72.35	74.70	L	0.6	C /CS	C /M /CS	NCV	9.60	3.56
Germany														
Greece	L	12.9	C	C	NCV	68.61	72.79			C	C	NCV	4.70	4.31
Hungary	L	9.9	D	D	NCV	68.61	73.33			D	CS, D	NCV	1.50	0.60
Iceland	L	23.7	T1	D	NCV	68.61	73.33			T1	D	NCV	13.20	2.74
Ireland	L	14.0	T1	CS	NCV	69.96	73.30			T1	C	NCV	12.44	4.11
Italy	L	20.4			NCV	71.00	73.00	L	0.5			NCV	6.60	5.87
Japan	L	17.5	T1, RA, CS	D, CS	NCV					T1, T3, CS	D, CS	NCV	5.03	3.59
Latvia	L	15.7	T1, CS	D	NCV	73.01	73.77			T1, CS	D	NCV	1.57	3.07
Luxembourg					NCV	72.35	72.97					NCV	11.50	3.53
Netherlands	L	13.5			NCV	72.30	73.30	L	0.7			NCV	12.51	10.50
New Zealand ^c	L	13.8	T1	CS/D	GCV	NE	NE						NE	NE
Norway	L	16.6	M, T1, CS/T2	CS	NCV	71.30	73.55	L	0.8	CS, T2, CS/T2	CS, D, C	NCV	18.44	1.95
Portugal	L	21.2	C	C	NCV	71.10	72.45			C	C	NCV	10.16	3.61
Slovakia	L	8.7	M	M	NCV	72.98	73.91			M	M	NCV	9.45	4.20
Spain														
Sweden	L	25.6	CS	CS	NCV	75.52	71.75	L	0.7	CS	CS	NCV	8.81	1.72
Switzerland	L	28.0	CS	CS	NCV	73.90	73.60	L	1.2	CS	CS	NCV	11.98	2.94
United Kingdom	L	18.0	T2	CS	NCV	70.06	72.54	L	0.7	T2/T3	D	NCV	12.26	3.27
United States	L	19.8	T1, T2	CS	GCV	66.60	67.11	L	0.9	T1, T2, M	D, CS, M	GCV	11.52	2.57

^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 1.A.3 Transport.

^b Source of default emission factors: IPCC Guidelines, volume 3, pages 1.70-1.83.

^c New Zealand did not report activity data and emissions from the use of gasoline and diesel for road transportation. However, activity data, emissions and IEFs were provided for the total transport sector (CO₂ IEF for gasoline = 65.9 t/TJ, CO₂ IEF for diesel oil = 68.0 t/TJ, N₂O IEF for gasoline = 3.0 kg/TJ and N₂O IEF for diesel oil 3.0 kg/TJ).

Trends in CO₂ emissions 1990 to 1999

Gigagrams

	Base year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia		59,219	58,576	60,025	60,758	62,301	64,792	66,831	68,396	68,426	69,503
Austria		13,570	15,059	15,054	15,104	16,163	15,432	15,380	15,830	16,809	17,643
Belgium										23,162	22,611
Bulgaria(b)	12,639										6,212
Canada		145,831	140,612	144,676	147,836	155,251	159,470	163,962	170,373	174,291	179,332
Czech Republic											12,016
Denmark		10,356	10,873	10,993	11,192	11,634	11,765	11,990	12,098	12,419	12,156
Estonia											1,204
Finland		12,475	11,610	11,583	10,963	11,366	11,125	10,994	11,531	12,299	12,734
France		119,156	121,771	126,258	126,280	127,572	129,657	131,182	133,599	135,766	138,822
Germany		162,281	165,953	171,661	176,532	172,899	176,468	176,942	177,689	180,894	186,110
Greece		18,039	19,051	19,251	19,403	19,446	19,435	19,925	20,523	22,149	22,908
Hungary	7,741										9,568
Iceland											819
Ireland											9,734
Italy										120,571	121,165
Japan		204,665	214,152	219,398	221,689	232,679	239,522	246,016	250,350	250,286	253,670
Latvia										2,126	2,087
Luxembourg											1,337
Netherlands		29,095	28,550	29,830	30,460	30,800	32,030	33,821	33,060	33,999	34,700
New Zealand											11,729
Norway		11,077									13,957
Portugal		11,221	11,948	12,931	13,512	13,900	14,459	15,263	16,084	17,585	18,650
Slovakia											4,821
Spain		58,004	60,804	64,695	61,161	65,756	66,747	71,874	72,176	79,637	83,922
Sweden		18,736	18,807	19,032	18,237	18,561	18,993	18,834	18,966	19,481	19,886
Switzerland		14,144	14,668	14,983	13,933	14,117	13,815	13,885	14,462	14,691	15,315
United Kingdom		116,581	116,051	117,504	118,683	119,042	117,939	122,571	123,631	122,767	121,576
United States		1,422,585	1,386,224	1,425,797	1,456,126	1,499,862	1,537,307	1,571,796	1,588,138	1,615,079	1,677,714

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	-1.1	2.5	1.2	2.5	4.0	3.1	2.3	0.0	1.6	17.4
Austria	11.0	0.0	0.3	7.0	-4.5	-0.3	2.9	6.2	5.0	30.0
Belgium									-2.4	
Bulgaria										50.9
Canada	-3.6	2.9	2.2	5.0	2.7	2.8	3.9	2.3	2.9	23.0
Czech Republic										
Denmark	5.0	1.1	1.8	3.9	1.1	1.9	0.9	2.7	-2.1	17.4
Estonia										
Finland	-6.9	-0.2	-5.4	3.7	-2.1	-1.2	4.9	6.7	3.5	2.1
France	2.2	3.7	0.0	1.0	1.6	1.2	1.8	1.6	2.3	16.5
Germany	2.3	3.4	2.8	-2.1	2.1	0.3	0.4	1.8	2.9	14.7
Greece	5.6	1.0	0.8	0.2	-0.1	2.5	3.0	7.9	3.4	27.0
Hungary										-23.6
Iceland										
Ireland										
Italy									0.5	
Japan	4.6	2.4	1.0	5.0	2.9	2.7	1.8	0.0	1.4	23.9
Latvia										
Luxembourg										
Netherlands	-1.9	4.5	2.1	1.1	4.0	5.6	-2.3	2.8	2.1	19.3
New Zealand										
Norway										26.0
Portugal	6.5	8.2	4.5	2.9	4.0	5.6	5.4	9.3	6.1	66.2
Slovakia										
Spain	4.8	6.4	-5.5	7.5	1.5	7.7	0.4	10.3	5.4	44.7
Sweden	0.4	1.2	-4.2	1.8	2.3	-0.8	0.7	2.7	2.1	6.1
Switzerland	3.7	2.1	-7.0	1.3	-2.1	0.5	4.2	1.6	4.2	8.3
United Kingdom	-0.5	1.3	1.0	0.3	-0.9	3.9	0.9	-0.7	-1.0	4.3
United States	-2.6	2.9	2.1	3.0	2.5	2.2	1.0	1.7	3.9	17.9

	Base year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia		5.3	6.0	7.2	8.1	9.0	9.9	10.6	11.3	11.9	12.6
Austria		1.0	1.3	1.5	1.6	1.8	1.8	1.8	1.8	1.9	1.9
Belgium										3.0	3.1
Bulgaria	0.2										0.1
Canada		20.6	21.0	22.9	25.0	27.5	28.3	28.4	29.0	28.8	29.3
Czech Republic											1.6
Denmark		0.5	0.6	0.7	0.7	0.9	1.0	1.1	1.3	1.4	1.5
Estonia											0.0
Finland		2.0	1.8	1.7	1.8	1.9	1.8	1.9	2.0	2.4	2.3
France		3.9	4.1	4.4	4.9	5.9	6.7	7.7	8.6	9.3	10.2
Germany		10.3	12.3	14.3	16.3	16.3	18.0	18.3	18.3	18.3	18.0
Greece		1.7	1.8	1.8	1.9	1.9	1.9	2.0	2.0	2.1	2.2
Hungary											0.1
Iceland											0.1
Ireland											1.3
Italy										9.2	10.0
Japan		12.9	13.4	13.7	13.7	13.9	14.3	14.5	14.7	14.6	14.9
Latvia										0.2	0.2
Luxembourg											0.1
Netherlands		4.5	6.2	7.2	7.2	7.2	7.4	7.1	7.2	6.2	6.0
New Zealand											0.5
Norway		0.5									1.7
Portugal		0.4	0.5	0.5	0.6	0.8	0.9	1.0	1.1	1.3	1.5
Slovakia											0.5
Spain		2.8	2.9	3.1	3.2	3.8	4.1	4.7	5.1	6.0	6.7
Sweden		1.5	1.4	1.4	1.5	1.5	1.6	1.7	1.8	1.7	1.8
Switzerland		1.0	1.1	1.3	1.4	1.5	1.6	1.7	1.7	2.0	2.1
United Kingdom		4.1	4.3	4.7	5.9	7.4	8.9	10.4	11.9	13.4	14.7
United States		175.2	185.6	198.7	208.1	214.1	215.4	210.6	210.2	207.2	204.4

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	12.9	21.2	12.5	11.2	9.9	7.3	6.3	5.2	5.9	139.3
Austria	23.7	13.1	9.8	12.2	1.9	-1.0	-0.5	4.8	-0.7	79.9
Belgium									2.9	
Bulgaria										46.5
Canada	1.9	8.8	9.5	9.8	3.1	0.1	2.2	-0.6	1.6	42.0
Czech Republic										
Denmark	23.7	16.2	14.4	22.9	12.6	9.9	14.2	8.6	3.4	220.7
Estonia										
Finland	-13.8	-0.7	5.4	2.0	-3.8	7.5	4.1	21.5	-6.0	13.2
France	5.8	7.0	11.2	19.2	15.0	14.2	11.7	8.8	9.6	162.7
Germany	19.4	16.3	14.0	0.0	10.4	1.7	0.0	0.0	-1.6	74.8
Greece	9.9	0.1	2.4	1.8	-1.6	4.0	4.5	4.1	1.7	29.7
Hungary										
Iceland										
Ireland										
Italy									8.6	
Japan	4.1	2.2	-0.4	1.3	3.0	1.3	1.5	-0.3	1.9	15.6
Latvia										
Luxembourg										
Netherlands	36.5	16.1	0.0	0.0	2.8	-3.8	1.0	-13.6	-3.7	31.7
New Zealand										
Norway										273.5
Portugal	7.0	7.6	25.3	18.3	14.6	16.2	14.1	14.8	12.5	235.1
Slovakia										
Spain	5.6	7.2	3.9	15.8	9.5	13.2	9.5	17.1	12.5	143.9
Sweden	-6.9	2.2	5.1	5.0	2.2	5.9	7.1	-3.3	7.2	26.1
Switzerland	15.0	13.8	8.6	9.6	5.5	4.3	3.3	15.5	3.8	112.2
United Kingdom	3.5	10.3	24.1	25.9	19.9	17.2	14.4	12.6	9.8	254.8
United States	6.0	7.1	4.7	2.9	0.6	-2.2	-0.2	-1.4	-1.3	16.7

Energy - Road transportation**Trends in CO₂ emissions 1990 to 1999****Gigagrams**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	52,697									62,355
Austria	13,279	14,756	14,749	14,804	15,406	15,125	15,080	15,482	16,422	17,207
Belgium										
Bulgaria									5,151	5,324
Canada	102,812	99,901	102,785	104,974	109,881	112,440	114,246	119,533	120,502	124,086
Czech Republic										11,348
Denmark	9,337	9,765	9,927	10,067	10,575	10,668	10,858	11,049	11,532	11,323
Estonia										909
Finland	11,111	10,823	10,807	10,174	10,515	10,325	10,192	10,701	10,807	10,880
France	111,400	114,125	118,755	118,923	119,806	121,132	122,378	124,716	126,593	129,476
Germany										
Greece	11,873	12,683	12,985	13,284	13,462	13,872	14,509	14,851	15,561	15,845
Hungary										8,568
Iceland										769
Ireland										9,121
Italy									109,371	110,251
Japan	183,535	191,938	196,937	199,003	209,155	215,040	220,753	223,712	224,681	228,373
Latvia										1,749
Luxembourg										1,313
Netherlands	25,374						30,365	29,518	30,233	31,111
New Zealand	7,552	7,641	7,984	8,262	8,816	9,527	9,727	10,067	10,269	10,584
Norway	7,865									9,304
Portugal	9,761	10,470	11,424	12,056	12,534	12,985	13,733	14,628	15,667	16,824
Slovakia									4,580	4,493
Spain	51,313	53,721	56,842	56,289	59,334	60,119	64,023	64,639	71,133	75,080
Sweden	16,871	17,093	17,376	16,669	17,002	17,346	17,267	17,349	17,752	18,073
Switzerland										14,962
United Kingdom	109,039	108,238	109,677	110,944	111,548	110,496	114,787	116,215	115,473	114,560
United States	1,121,391	1,108,311	1,129,327	1,159,402	1,192,291	1,218,330	1,248,784	1,268,145	1,303,237	1,337,967

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										18.33
Austria	11.12	-0.05	0.37	4.06	-1.82	-0.30	2.67	6.07	4.78	29.58
Belgium										
Bulgaria									3.35	
Canada	-2.83	2.89	2.13	4.68	2.33	1.61	4.63	0.81	2.97	20.69
Czech Republic										
Denmark	4.59	1.66	1.41	5.04	0.88	1.79	1.76	4.37	-1.81	21.26
Estonia										
Finland	-2.59	-0.15	-5.86	3.35	-1.80	-1.29	5.00	0.99	0.68	-2.08
France	2.45	4.06	0.14	0.74	1.11	1.03	1.91	1.51	2.28	16.23
Germany										
Greece	6.83	2.38	2.30	1.34	3.04	4.59	2.36	4.78	1.82	33.46
Hungary										
Iceland										
Ireland										
Italy									0.80	
Japan	4.58	2.60	1.05	5.10	2.81	2.66	1.34	0.43	1.64	24.43
Latvia										
Luxembourg										
Netherlands							-2.79	2.42	2.90	22.61
New Zealand	1.18	4.48	3.49	6.71	8.06	2.10	3.50	2.01	3.07	40.15
Norway										18.29
Portugal	7.27	9.11	5.54	3.96	3.60	5.76	6.52	7.11	7.38	72.37
Slovakia										
Spain	4.69	5.81	-0.97	5.41	1.32	6.49	0.96	10.05	5.55	46.32
Sweden	1.31	1.65	-4.07	2.00	2.02	-0.45	0.47	2.32	1.81	7.13
Switzerland										
United Kingdom	-0.73	1.33	1.15	0.55	-0.94	3.88	1.24	-0.64	-0.79	5.06
United States	-1.17	1.90	2.66	2.84	2.18	2.50	1.55	2.77	2.66	19.31

Energy - Road transportation**Trends in N₂O emissions 1990 to 1999****Gigagrams**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	5.09									12.41
Austria	1.02	1.27	1.44	1.58	1.76	1.81	1.80	1.79	1.87	1.86
Belgium										
Bulgaria									0.10	0.10
Canada	11.75	12.94	14.78	16.55	18.36	19.11	18.86	19.10	18.69	18.58
Czech Republic										1.57
Denmark	0.40	0.50	0.59	0.69	0.86	0.97	1.07	1.24	1.36	1.41
Estonia										0.01
Finland	1.34	1.37	1.37	1.45	1.46	1.41	1.55	1.62	1.68	1.75
France	3.79	4.02	4.31	4.81	5.74	6.62	7.58	8.48	9.23	10.12
Germany										
Greece	0.46	0.56	0.64	0.71	0.74	0.80	0.86	0.95	1.00	1.03
Hungary										0.13
Iceland										0.10
Ireland										1.05
Italy									8.79	9.57
Japan	12.16	12.67	12.98	12.96	13.13	13.55	13.72	13.92	13.93	14.27
Latvia										0.05
Luxembourg										0.14
Netherlands	3.80						6.40	6.46	5.47	5.26
New Zealand	0.34	0.35	0.36	0.38	0.40	0.43	0.44	0.45	0.46	0.48
Norway	0.24									1.41
Portugal	0.38	0.41	0.44	0.58	0.69	0.80	0.94	0.94	1.25	1.42
Slovakia									0.38	0.41
Spain	2.40	2.54	2.73	2.97	3.44	3.79	4.29	4.73	5.59	6.33
Sweden	1.00	0.90	0.93	1.00	1.10	1.22	1.29	1.40	1.50	1.58
Switzerland										2.09
United Kingdom	3.11	3.22	3.64	4.83	6.38	7.86	9.39	11.01	12.51	13.85
United States	165.71	176.43	189.38	198.85	204.55	205.90	200.85	200.91	197.99	194.80

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										143.72
Austria	24.22	13.51	9.98	11.32	3.04	-0.95	-0.67	4.83	-0.82	81.93
Belgium										
Bulgaria									5.15	
Canada	10.08	14.27	11.93	10.95	4.10	-1.29	1.25	-2.16	-0.56	58.09
Czech Republic										
Denmark	25.56	18.90	15.24	25.46	13.16	10.20	15.61	9.62	3.75	253.92
Estonia										
Finland	2.28	-0.41	6.20	0.42	-3.10	9.71	4.26	3.89	4.31	30.48
France	6.13	7.19	11.53	19.45	15.30	14.53	11.88	8.91	9.62	167.31
Germany										
Greece	21.04	15.05	10.44	3.95	8.14	7.78	10.13	5.81	2.70	122.99
Hungary										
Iceland										
Ireland										
Italy									8.90	
Japan	4.25	2.39	-0.14	1.34	3.18	1.25	1.50	0.06	2.40	17.36
Latvia										
Luxembourg										
Netherlands							0.96	-15.33	-3.95	38.44
New Zealand										
Norway										493.96
Portugal	7.71	8.74	30.19	20.77	15.34	17.74	0.00	32.30	13.37	275.15
Slovakia									6.77	
Spain	6.07	7.39	8.74	15.79	10.17	13.13	10.34	18.17	13.16	163.77
Sweden	-10.00	3.33	7.53	10.00	10.69	5.75	8.47	7.72	4.69	57.50
Switzerland										
United Kingdom	3.53	13.06	32.62	32.01	23.15	19.50	17.22	13.69	10.71	344.90
United States	6.47	7.34	5.00	2.87	0.66	-2.45	0.03	-1.45	-1.61	17.55

Energy - Domestic aviation and marine transport: emission factors (1999)

	Domestic aviation and marine transport (CO ₂)														
	Methods and EF used ^a		IEF in CRF based on	1.A.3.a Civil aviation (domestic)			International aviation transport		1.A.3.d Navigation (domestic)				International marine transport		
	Methods	EF		Key source	Percentage of national total	CO ₂ IEF		CO ₂ IEF		Key source	Percentage 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
					(%)	(t/TJ)	(t/TJ)	(t/TJ)			(%)	(t/TJ)	(t/TJ)	(t/TJ)	(t/TJ)
IPCC Default EF ^b			NCV			72.8	72.1	72.8	72.1			77.6	73	77.6	75.0-77.6
Australia	T1, T2	CS	GCV			69.0	67.3	69.0	NA			72.9	69.0	72.9	69.0
Austria	M	CS	NCV			63.1	74.0	63.1					73.7		
Belgium															
Bulgaria	T2	C, CS, D	NCV			70.6	92.3	70.6						81.2	76.1
Canada	CS	CS	GCV	L	1.9	70.1	69.5	70.1	69.5	L	0.7	74.0	70.6	74.0	70.6
Czech Republic	T1	D	NCV			70.8		70.8					73.3		
Denmark			NCV			72.0	73.0	72.0	73.0			78.0	74.0	78.0	74.0
Estonia			NCV			70.8						75.8	73.3	75.8	73.3
Finland	CS (M)	CS	NCV			70.8	72.5	70.8	NO	L	0.7	76.6	73.4	76.6	73.4
France	C /CS	C /M /CS	NCV	L	1.1	71.6		71.6				78.0	75.0	78.0	75.0
Germany															
Greece	C	C	NCV	L	1.4	70.8		70.8		L	2.2	76.6	71.5	76.6	73.3
Hungary	D	D	NCV					70.8					68.6		
Iceland	T1	D	NCV			70.8	68.6	70.8	68.6			76.6	73.3	76.6	73.3
Ireland	T1	CS	NCV	L	0.4	NE	NE	71.3	70.0			76.0	73.3	76.0	73.3
Italy			NCV			70.7	70.9	70.7		L	1.3		75.0	77.6	
Japan	T1, RA, CS	D, CS	NCV	L	0.8	70.7	NO	74.4	NO	L	1.1	NO	72.3	77.9	76.1
Latvia	T1, CS	D	NCV			70.9		NE	NE				72.8	NE	NE
Luxembourg			NCV										70.0		
Netherlands			NCV			73.0		73.0					73.0	73.0	73.0
New Zealand ^c	T1	CS/D	GCV	L	1.0	NE	NE	NE	NE			NE	NE	NE	NE
Norway	M, T1, CS/T2	CS	NCV	L	2.0	73.1	71.3	73.1		L	5.0	78.8	73.6	78.8	73.6
Portugal	C	C	NCV	L	1.5	72.4	71.7	72.4	71.7	L	0.6	76.4	73.7	76.4	73.4
Slovakia	M	M	NCV			NA	IE	NE	NE			NO	75.0	NE	NE
Spain															
Sweden	CS	CS	NCV	L	1.1	73.1	72.3	73.1	72.3	L	0.9	76.2	74.8	76.2	74.6
Switzerland	CS	CS	NCV	L	0.5	73.2	IE	73.2	IE			NO	73.6	NO	NO
United Kingdom	T2	CS	NCV			71.8	70.6	71.8	IE			75.9	72.5	75.9	72.5
United States	T1, T2	CS	GCV	L	2.2	66.5	64.9	66.5	NE	L	1.0	73.9	72.3	73.9	68.6

^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 all subcategories within the category 1.A.3 Transport.

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

^c New Zealand reported aggregate total activity data and emissions data for all fuels used for aviation and marine transport.

Energy - Domestic and international aviation transport: activity data (1999)

	Activity data in CRF based on	Domestic and international aviation transport											
		1.A.3.a 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	Difference
		(TJ)		(%)	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)
Australia	GCV	56,267	70,744	25.7	3,358	3,434	2.3	105,330	105,999	0.6	164,955	180,178	9.2
Austria	NCV	1,639	1,739	6.1	93	0		25,577	21,805	-14.7	27,308	23,544	-13.8
Belgium			3,344			90			64,031			67,465	
Bulgaria	NCV	502	2,185	334.9	0	134		4,522	3,032	-32.9	5,024	5,351	6.5
Canada	GCV	184,276	188,870	2.5	3,570	3,575	0.1	43,240	45,836	6.0	231,086	238,281	3.1
Czech Republic	NCV	187	2,898	1449.9		45		7,610	4,949	-35.0	7,797	7,893	1.2
Denmark	NCV	1,979	5,262	165.9	103	134	30.9	32,132	32,952	2.6	34,214	38,348	12.1
Estonia	NCV	949	0		0	45		0	758		949	803	-15.4
Finland	NCV	6,408	6,599	3.0	153	179	17.1	14,946	15,384	2.9	21,507	22,162	3.0
France	NCV	84,753	56,986	-32.8		1,210		192,104	222,950	16.1	276,857	281,146	1.5
Germany			13,867			1,120			289,434			304,421	
Greece	NCV	23,722	15,428	-35.0	0	0		32,016	40,309	25.9	55,738	55,738	0.0
Hungary	NCV	0	0		0	0		8,424	8,963	6.4	8,424	8,963	6.4
Iceland	NCV	394	401	2.0	55	45	-17.8	5,130	5,128	-0.1	5,579	5,574	-0.1
Ireland	NCV	NE	1,159		NE	45		22,692	21,805	-3.9	22,692	23,009	1.4
Italy	NCV	33,488	12,218	-63.5	395	403	2.1	105,581	142,108	34.6	139,464	154,729	10.9
Japan	NCV	145,858	157,180	7.8	NO	538		248,931	266,425	7.0	394,790	424,143	7.4
Latvia	NCV	1,255	0			0		NE	1,293		1,255	1,293	3.0
Luxembourg	NCV	0	0		0	0			14,403			14,403	
Netherlands	NCV	5,747	4,013	-30.2	0	134		137,896	143,089	3.8	143,643	147,237	2.5
New Zealand	GCV	NE	11,611		NE	659		NE	29,075		NE	41,345	
Norway	NCV	15,237	8,249	-45.9	106	0	-100.0	13,346	24,614	84.4	28,689	32,863	14.5
Portugal	NCV	16,124	9,007	-44.1	72	134	87.9	12,025	23,142	92.4	28,221	32,284	14.4
Slovakia	NCV	NA	892		NA	0		NE	0		NA/NE	892	
Spain			72,726			448			109,513			182,687	
Sweden	NCV	10,824	19,976	84.6	59	224	282.5	28,621	20,779	-27.4	39,503	40,979	3.7
Switzerland	NCV	3,483	4,058	16.5	IE	224		61,748	63,362	2.6	65,231	67,644	3.7
United Kingdom	NCV	37,381	176,710	372.7	1,977	1,882	-4.8	355,886	264,998	-25.5	395,244	443,590	12.2
United States	GCV	2,190,067	2,806,548	28.1	41,329	47,181	14.2	916,695	843,079	-8.0	3,148,091	3,696,808	17.4

^a Data from the International Energy Agency (conversion factors used: 44.59 TJ/kt for jet kerosene and 44.80 TJ/kt for aviation gasoline; source of conversion factors: IPCC Guidelines, volume 3, page 1.23, tables 1-3). For those Parties using GCV, the above conversion factors were increased by 5 per cent.

Energy - Domestic and international marine transport: activity data (1999)

	Activity data in CRF based on	Domestic and international marine transport																	
		1.A.3.d Navigation (domestic)						International marine transport						Total fuel consumption					
		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	Difference	CRF	IEA	Difference
		(TJ)		(%)	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)
Australia	GCV	7,660	7,554	-1.4	1,492	5,138	244.3	29,640	30,637	3.4	4,210	4,049	-3.8	37,300	38,191	2.4	5,702	9,187	61.1
Austria	NCV	0	0		709	173	-75.6	0	0		0	0		0	0		709	173	-75.6
Belgium			7,475			3,637			158,791			24,698		0	166,266		0	28,335	
Bulgaria	NCV	0	121		103	0		39	40	3.1	294	303	3.2	39	161	312.2	397	303	-23.6
Canada	GCV	29,002	28,485	-1.8	38,022	38,054	0.1	40,282	39,541	-1.8	8,034	8,053	0.2	69,284	68,026	-1.8	46,056	46,107	0.1
Czech Republic	NCV		0		440	0			0			0		0	0		440	0	
Denmark	NCV	1,435	1,407	-2.0	3,751	3,464	-7.7	26,085	28,213	8.2	28,526	26,475	-7.2	27,520	29,620	7.6	32,277	29,939	-7.2
Estonia	NCV	5	0		243	217	-10.9	3,050	5,265	72.6	1,785	2,340	31.1	3,055	5,265	72.3	2,028	2,556	26.1
Finland	NCV	2,111	2,090	-1.0	2,634	3,291	24.9	16,524	16,357	-1.0	6,784	6,500	-4.2	18,635	18,447	-1.0	9,418	9,790	4.0
France	NCV	1,419	322	-77.3	18,978	21,001	10.7	100,691	101,399	0.7	19,425	18,155	-6.5	102,111	101,721	-0.4	38,404	39,156	2.0
Germany			0			12,903			64,826			20,928		0	64,826		0	33,832	
Greece	NCV	23,752	23,752	0.0	13,165	12,514	-4.9	98,548	98,546	0.0	30,591	30,591	0.0	122,300	122,298	0.0	43,756	43,105	-1.5
Hungary	NCV	0	0		30	0		0	0		0	0		0	0		30	0	
Iceland	NCV	1	0		246	260	5.7	94	80	-14.3	2,137	2,123	-0.6	95	80	-15.0	2,383	2,383	0.0
Ireland	NCV	963	924	-4.0	795	779	-2.0	2,052	2,010	-2.0	5,275	5,286	0.2	3,014	2,934	-2.7	6,071	6,066	-0.1
Italy	NCV	0	0		83,636	9,656	-88.5	36,961	65,670	77.7	0	34,404		36,961	65,670	77.7	83,636	44,060	-47.3
Japan	NCV	NO	123,584		6,803	81,534	1098.5	221,250	206,858	-6.5	1,203	10,746	793.0	221,250	330,442	49.4	8,006	92,280	1052.6
Latvia	NCV		0		976	433	-55.6	NE	0		NE	0		NE	0		976	433	-55.6
Luxembourg	NCV	0	0		80	0			0			0		0	0		80	0	
Netherlands	NCV	0	0		11,059	28,578	158.4	472,523	439,116	-7.1	85,791	87,050	1.5	472,523	439,116	-7.1	96,851	115,628	19.4
New Zealand	GCV	NE	0		NE	5,547		NE	8,693		NE	3,640		NE	8,693		NE	9,186	
Norway	NCV	505	482	-4.5	37,927	35,160	-7.3	15,912	15,714	-1.2	20,109	20,235	0.6	16,417	16,197	-1.3	58,036	55,395	-4.6
Portugal	NCV	546	0		6,370	1,645	-74.2	11,014	16,719	51.8	4,989	7,929	58.9	11,560	16,719	44.6	11,360	9,575	-15.7
Slovakia	NCV	NO	0		1,892	0		NE	0		NE	0		NO/NE	0		1,892	0	
Spain			9,244			58,455			195,725			49,700		0	204,969		0	108,155	
Sweden	NCV	1,590	1,447	-9.0	4,633	4,460	-3.7	53,418	53,734	0.6	9,116	9,359	2.7	55,007	55,181	0.3	13,749	13,819	0.5
Switzerland	NCV	NO	0		962	390	-59.5	NO	0		NO	520		NO	0		962	910	-5.4
United Kingdom	NCV	2,914	2,813	-3.5	34,309	39,793	16.0	48,386	47,384	-2.1	36,974	49,873	34.9	51,300	50,197	-2.1	71,283	89,666	25.8
United States	GCV	349,775	717	-99.8	548,756	0		516,692	844,623	63.5	119,065	299,776	151.8	866,467	845,340	-2.4	667,822	299,776	-55.1

^a Data from the International Energy Agency (conversion factors used: for residual oil 40.19 TJ/kt and for gas/diesel oil 43.33 TJ/kt; source of conversion factors: IPCC Guidelines, volume 3, page 1.23, tables 1-3). For those Parties using GCV, the above conversion factors were increased by 5 per cent.

Trends in CO₂ emissions 1990 to 1999

Gigagrams

	Base year ^a	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia		2,555									4,109
Austria		69	80	84	82	84	92	101	104	124	110
Belgium											
Bulgaria											35
Canada		10,385	9,239	9,426	9,125	9,772	10,527	11,558	12,054	12,582	13,168
Czech Republic											13
Denmark		184	171	168	168	170	175	190	193	172	150
Estonia											67
Finland		403	409	386	374	380	353	380	413	447	465
France		4,541	4,618	4,498	4,368	4,571	5,305	5,726	5,778	6,080	6,068
Germany											
Greece		1,458	1,461	1,524	1,600	1,341	1,215	1,278	1,228	1,149	1,679
Hungary											
Iceland											32
Ireland											NE
Italy										2,240	2,397
Japan		6,843	7,376	7,825	8,270	8,813	9,297	9,221	9,644	10,401	10,308
Latvia										88	89
Luxembourg											
Netherlands		492						300	321	578	420
New Zealand											757
Norway		682									1,121
Portugal		799	840	893	857	837	965	1,033	1,065	1,216	1,173
Slovakia											28
Spain		4,372	4,392	4,923	1,740	2,883	3,308	3,831	4,064	4,688	4,822
Sweden		818	793	758	770	780	814	755	745	784	795
Switzerland											255
United Kingdom		2,158	2,121	2,221	2,281	2,326	2,448	2,550	2,641	2,764	2,822
United States		127,534	117,721	119,723	121,582	124,338	129,402	133,225	138,183	141,591	148,345

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										60.8
Austria	15.3	4.6	-1.9	1.7	10.0	9.6	2.7	20.1	-11.3	58.8
Belgium										
Bulgaria										
Canada	-11.0	2.0	-3.2	7.1	7.7	9.8	4.3	4.4	4.7	26.8
Czech Republic										
Denmark	-7.4	-1.7	-0.1	1.5	3.0	8.2	1.7	-11.0	-12.6	-18.6
Estonia										
Finland	1.5	-5.6	-3.0	1.6	-7.0	7.7	8.6	8.3	4.0	15.4
France	1.7	-2.6	-2.9	4.6	16.1	7.9	0.9	5.2	-0.2	33.6
Germany										
Greece	0.2	4.3	5.0	-16.2	-9.4	5.2	-4.0	-6.4	46.2	15.2
Hungary										
Iceland										
Ireland										
Italy									7.0	
Japan	7.8	6.1	5.7	6.6	5.5	-0.8	4.6	7.9	-0.9	50.6
Latvia										
Luxembourg										
Netherlands							6.9	80.2	-27.4	-14.8
New Zealand										
Norway										64.4
Portugal	5.1	6.4	-4.1	-2.3	15.3	7.1	3.1	14.2	-3.6	46.7
Slovakia										
Spain	0.5	12.1	-64.6	65.7	14.7	15.8	6.1	15.3	2.9	10.3
Sweden	-3.1	-4.4	1.6	1.3	4.4	-7.2	-1.3	5.2	1.5	-2.8
Switzerland										
United Kingdom	-1.7	4.7	2.7	2.0	5.2	4.2	3.6	4.7	2.1	30.7
United States	-7.7	1.7	1.6	2.3	4.1	3.0	3.7	2.5	4.8	16.3

Trends in CO₂ emissions 1990 to 1999

Gigagrams

	Base year ^a	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia		4,345	4,520	4,796	5,199	5,354	5,858	6,312	6,501	7,233	7,268
Austria		941	1,101	1,172	1,143	1,201	1,332	1,471	1,522	1,835	1,615
Belgium										4,571	4,364
Bulgaria	892										319
Canada		2,729	2,483	2,685	2,472	2,461	2,604	3,074	2,992	2,878	3,032
Czech Republic											539
Denmark		1,795	1,661	1,719	1,681	1,844	1,890	1,986	2,030	2,181	2,314
Estonia											
Finland		974	917	811	762	802	867	957	965	990	1,058
France		8,618	8,336	9,831	10,244	10,605	10,513	11,240	11,634	12,255	13,753
Germany		11,589	11,367	12,200	12,892		13,880	14,401	15,095	15,442	16,656
Greece		2,452	2,131	1,869	2,907	2,787	2,613	2,503	2,421	1,829	2,266
Hungary											596
Iceland											363
Ireland											1,624
Italy										6,397	7,468
Japan		13,178	13,842	14,102	14,215	14,877	16,826	18,152	19,086	18,302	18,519
Latvia										NE	NE
Luxembourg											1,019
Netherlands		4,450	4,960	5,910	6,500	6,720	7,670	8,300	8,979	9,521	10,066
New Zealand											1,959
Norway		605									975
Portugal		883	872	917	856	900	853	770	792	843	874
Slovakia											
Spain		3,161	3,173	3,557	6,484	5,869	6,211	6,554	7,068	7,478	7,746
Sweden		1,826	1,910	2,133	1,820	1,811	1,849	1,940	1,929	2,103	2,103
Switzerland		3,200	3,100	3,300	3,440	3,550	3,770	3,900	4,050	4,230	4,520
United Kingdom		14,791	14,570	16,121	17,241	17,856	19,012	20,238	21,552	24,122	25,539
United States		46,728	46,682	47,143	47,615	48,327	51,093	52,135	55,899	54,988	60,970

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	4.0	6.1	8.4	3.0	9.4	7.8	3.0	11.3	0.5	67.3
Austria	17.0	6.5	-2.5	5.2	10.8	10.4	3.5	20.6	-12.0	71.6
Belgium									-4.5	
Bulgaria										64.2
Canada	-9.0	8.2	-7.9	-0.5	5.8	18.1	-2.7	-3.8	5.4	11.1
Czech Republic										
Denmark	-7.5	3.5	-2.2	9.7	2.5	5.1	2.2	7.5	6.1	29.0
Estonia										
Finland	-5.9	-11.6	-6.0	5.2	8.1	10.4	0.8	2.6	6.9	8.6
France	-3.3	17.9	4.2	3.5	-0.9	6.9	3.5	5.3	12.2	59.6
Germany	-1.9	7.3	5.7			3.8	4.8	2.3	7.9	43.7
Greece	-13.1	-12.3	55.5	-4.1	-6.2	-4.2	-3.3	-24.4	23.9	-7.6
Hungary										
Iceland										
Ireland										
Italy									16.7	
Japan	5.0	1.9	0.8	4.7	13.1	7.9	5.1	-4.1	1.2	40.5
Latvia										
Luxembourg										
Netherlands	11.5	19.2	10.0	3.4	14.1	8.2	8.2	6.0	5.7	126.2
New Zealand										
Norway										61.3
Portugal	-1.3	5.2	-6.6	5.1	-5.2	-9.7	2.9	6.4	3.6	-1.1
Slovakia										
Spain	0.4	12.1	82.3	-9.5	5.8	5.5	7.8	5.8	3.6	145.1
Sweden	4.6	11.7	-14.7	-0.5	2.1	4.9	-0.6	9.0	0.0	15.2
Switzerland	-3.1	6.5	4.2	3.2	6.2	3.4	3.8	4.4	6.9	41.3
United Kingdom	-1.5	10.6	6.9	3.6	6.5	6.4	6.5	11.9	5.9	72.7
United States	-0.1	1.0	1.0	1.5	5.7	2.0	7.2	-1.6	10.9	30.5

^a Base year refers to 1990, except for the following Parties with economies in transition which, in accordance with decision 9/CP.2, use base years other than 1990: Bulgaria (1988) and Hungary (average of 1985-1987).

Trends in CO₂ emissions 1990 to 1999

Gigagrams

	Base year ^a	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia		2,223.9									1,438.4
Austria		47.5	42.7	41.7	42.1	51.0	49.4	49.4	57.3	57.944	58.4
Belgium											
Bulgaria	874.0										8.2
Canada		4,732.6	4,935.4	4,787.6	4,187.9	4,351.8	4,064.0	4,158.4	4,215.6	4,826.925	4,831.1
Czech Republic											32.3
Denmark		536.3	634.5	577.4	626.0	589.3	618.6	640.6	563.2	468.368	426.2
Estonia											18.2
Finland		226.8	199.8	211.2	226.8	273.4	264.0	257.8	249.1	256.600	501.3
France		1,908.1	1,709.7	1,713.0	1,816.2	1,963.8	2,014.5	1,864.8	1,905.9	1,885.920	2,039.4
Germany											
Greece		1,824.8	1,851.2	1,899.4	1,738.1	1,830.8	1,743.6	1,493.4	1,812.5	2,793.460	2,760.8
Hungary											2.1
Iceland											18.1
Ireland											131.5
Italy										7,626.000	6,956.0
Japan		13,345.9	13,907.4	13,709.8	13,559.1	13,862.9	14,358.3	15,225.9	16,209.6	14,420.706	14,347.2
Latvia										72.241	71.0
Luxembourg											5.6
Netherlands		877.5						798.0	847.9	816.680	807.3
New Zealand											218.5
Norway		1,917.4									2,829.3
Portugal		486.5	454.8	430.1	431.0	363.3	337.4	340.6	340.6	552.429	511.5
Slovakia											141.9
Spain		1,884.6	2,258.3	2,505.2	2,752.2	3,157.6	2,938.8	3,573.3	2,994.2	3,416.674	3,612.9
Sweden		648.5	525.3	505.7	408.6	394.1	451.7	442.3	506.2	593.140	661.4
Switzerland											70.8
United Kingdom		3,460.9	3,717.5	3,557.1	3,537.5	3,282.1	3,102.4	3,414.5	3,252.2	3,001.376	2,710.0
United States		59,432.8	52,825.4	67,677.9	63,384.5	62,184.4	66,919.6	63,781.3	50,176.9	47,865.475	65,551.7

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										-35.3
Austria	-10.1	-2.4	1.0	21.2	-3.2	0.1	16.0	1.0	0.8	22.9
Belgium										
Bulgaria										99.1
Canada	4.3	-3.0	-12.5	3.9	-6.6	2.3	1.4	14.5	0.1	2.1
Czech Republic										
Denmark	18.3	-9.0	8.4	-5.9	5.0	3.6	-12.1	-16.8	-9.0	-20.5
Estonia										
Finland	-11.9	5.7	7.4	20.5	-3.4	-2.3	-3.4	3.0	95.4	121.0
France	-10.4	0.2	6.0	8.1	2.6	-7.4	2.2	-1.0	8.1	6.9
Germany										
Greece	1.4	2.6	-8.5	5.3	-4.8	-14.3	21.4	54.1	-1.2	51.3
Hungary										
Iceland										
Ireland										
Italy									-8.8	
Japan	4.2	-1.4	-1.1	2.2	3.6	6.0	6.5	-11.0	-0.5	7.5
Latvia										
Luxembourg										
Netherlands							6.2	-3.7	-1.1	-8.0
New Zealand										
Norway										47.6
Portugal	-6.5	-5.4	0.2	-15.7	-7.1	1.0	0.0	62.2	-7.4	5.1
Slovakia										
Spain	19.8	10.9	9.9	14.7	-6.9	21.6	-16.2	14.1	5.7	91.7
Sweden	-19.0	-3.7	-19.2	-3.5	14.6	-2.1	14.4	17.2	11.5	2.0
Switzerland										
United Kingdom	7.4	-4.3	-0.6	-7.2	-5.5	10.1	-4.8	-7.7	-9.7	-21.7
United States	-11.1	28.1	-6.3	-1.9	7.6	-4.7	-21.3	-4.6	36.9	10.3

Trends in CO₂ emissions 1990 to 1999

Gigagrams

	Base year ^a	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia		2,056	1,858	1,789	1,788	1,886	2,675	2,719	2,519	2,240	2,450
Austria		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Belgium										18,159	14,586
Bulgaria	874.0										26
Canada		2,995	3,099	3,181	2,838	3,189	3,312	3,086	3,046	3,776	3,549
Czech Republic											
Denmark		3,095	2,772	2,895	4,312	4,842	5,073	4,820	4,419	4,414	4,146
Estonia											362
Finland		1,800	2,898	2,164	1,695	1,318	1,044	1,181	1,286	1,658	1,764
France		8,137	8,441	8,157	7,860	7,002	7,217	7,568	8,379	9,166	9,311
Germany		7,980	6,735	5,618	7,025		6,533	6,472	6,479	6,479	6,479
Greece		8,028	7,368	8,464	9,869	10,470	11,214	9,864	9,891	11,058	9,838
Hungary											
Iceland											164
Ireland											543
Italy										2,397	3,046
Japan		17,348	18,882	19,669	22,107	22,246	20,164	14,029	17,258	18,384	17,322
Latvia										NE	NE
Luxembourg											
Netherlands		35,560	36,330	36,490	37,780	36,140	36,480	37,200	39,530	39,798	41,143
New Zealand											953
Norway		1,478									2,733
Portugal		1,173	1,191	1,210	987	944	1,021	1,093	1,139	1,180	1,208
Slovakia											
Spain		11,780	12,496	12,655	11,079	10,027	10,296	15,029	18,532	19,546	19,074
Sweden		2,163	2,560	2,920	2,932	3,452	3,394	3,596	4,218	4,855	4,750
Switzerland		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
United Kingdom		6,559	6,340	6,640	6,573	6,150	6,599	7,210	8,064	8,788	6,357
United States		67,272	73,337	62,822	52,270	49,690	49,921	50,062	53,889	57,783	46,376

Percentage change relative from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	-9.6	-3.8	0.0	5.5	41.8	1.6	-7.3	-11.1	9.4	19.2
Austria										
Belgium									-19.7	
Bulgaria										97.1
Canada	3.5	2.7	-10.8	12.4	3.9	-6.9	-1.3	24.0	-6.0	18.5
Czech Republic										
Denmark	-10.4	4.5	48.9	12.3	4.8	-5.0	-8.3	-0.1	-6.1	33.9
Estonia										
Finland	61.0	-25.3	-21.7	-22.2	-20.8	13.1	8.9	28.9	6.4	-2.0
France	3.7	-3.4	-3.7	-10.9	3.1	4.9	10.7	9.4	1.6	14.4
Germany	-15.6	-16.6	25.0			-0.9	0.1	0.0	0.0	-18.8
Greece	-8.2	14.9	16.6	6.1	7.1	-12.0	0.3	11.8	-11.0	22.5
Hungary										
Iceland										
Ireland										
Italy									27.1	
Japan	8.8	4.2	12.4	0.6	-9.4	-30.4	23.0	6.5	-5.8	-0.1
Latvia										
Luxembourg										
Netherlands	2.2	0.4	3.5	-4.3	0.9	2.0	6.3	0.7	3.4	15.7
New Zealand										
Norway										84.9
Portugal	1.5	1.6	-18.5	-4.3	8.1	7.0	4.2	3.6	2.4	3.0
Slovakia										
Spain	6.1	1.3	-12.4	-9.5	2.7	46.0	23.3	5.5	-2.4	61.9
Sweden	18.4	14.1	0.4	17.7	-1.7	6.0	17.3	15.1	-2.2	119.6
Switzerland										
United Kingdom	-3.3	4.7	-1.0	-6.4	7.3	9.3	11.9	9.0	-27.7	-3.1
United States	9.0	-14.3	-16.8	-4.9	0.5	0.3	7.6	7.2	-19.7	-31.1

^a Base year refers to 1990, except for the following Parties with economies in transition which, in accordance with decision 9/CP.2, use base years other than 1990: Bulgaria (1988) and Hungary (average of 1985-1987).

Activity data and emission factors

	1.B.1 Fugitive emissions from solid fuels (CH ₄)												
	Key source	Percentage of national total	Methods and EF used ^c		1.B.1.a Coal mining and handling								
			Methods	EF	Activity data					CH ₄ IEF			
					CRF			IEA ^a	Difference	Underground mines		Surface mines	
					Underground mines	Surface mines	Total	Total		Mining activities	Post-mining activities	Mining activities	Post-mining activities
	(%)			(Mt)				(%)	(kg/t)				
IPCC Default EF ^b										4.50-16.75	0.60-2.68	0.20-1.34	0-0.13
Australia	L	3.8	T2	CS	77.66	196.22	273.88	291.00	6.3	7.41	0.38	1.36	NA
Austria			C	CS	NO	1.14		1.14				0.01	
Belgium								0.00					
Bulgaria	L	1.5	T1	D	2.71	2.71	5.42	25.30	366.4	11.73	1.68	6.70	0.56
Canada			CS	CS	2.33	85.92	88.26	72.46	-17.9	8.18	IE	0.38	
Czech Republic	L	3.4	T3	CS	14.42	41.52	55.94	59.13	5.7	11.89	1.57	0.77	0.07
Denmark					0.00	0.00	0.00	0.00					
Estonia					5.70	4.99	10.69	10.69	0.0	1.34	0.13	0.20	0.07
Finland			CS	CS	NO	NO		0.00					
France			C	CS	4.23	0.86	5.09	5.09	0.0	26.18		0.83	
Germany								205.13					
Greece			T1	IPCC	NA	62.05	62.05	62.05	0.0	NO	NO	0.77	0.08
Hungary	L	2.2	D	D	6.12	8.57	14.68	14.55	-0.9	11.73	1.68	0.80	0.07
Iceland					NO	NO		0.00					
Ireland			NA	NA	NO	NO		0.00					
Italy						19.00	19.00	0.12	-99.4			0.00	
Japan			T2	CS	3.10	0.59	3.69	3.91	5.9	15.10	0.60	0.77	0.07
Latvia					NO	NO		0.00					
Luxembourg								0.00					
Netherlands					NO	NO		0.00					
New Zealand			T1	CS/D	0.95	2.77	3.90	3.71	-4.8	23.19	1.59	0.77	0.07
Norway			T1	D	0.40		0.40	0.49	21.1	0.54			
Portugal			C+T2	C	0.00	0.00	0.00	0.00					
Slovakia	L	1.1	T1	CS	3.75	NO	3.70	3.75		6.70	0.30	NO	NO
Spain			T2	CS				24.28					
Sweden			CS	CS				0.00					
Switzerland					NO	NO		0.00					
United Kingdom	L	1.0	T2	CS	20.89	15.28	36.16	36.16	0.0	13.45	1.16	0.34	IE
United States	L	0.9	T2,T3	CS	352.75	639.70	992.45	994.36	0.2	5.38	1.58	0.66	0.11

^a Data from the International Energy Agency (sum of total indigenous production of hard coal and brown coal).^b Range of default emission factors for the IPCC tier 1 approach (source: IPCC Guidelines, volume 3, pages 1.105-1.110).^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 factors for all subcategories within the category 1.B.1 Solid fuels.

Trends in CH₄ emissions 1990 to 1999

Gigagrams

	Base year ^a	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia		757.31	760.40	789.77	786.95	758.55	795.82	837.17	807.73	889.34	873.39
Austria		0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Belgium										0.65	0.65
Bulgaria	91.90										56.01
Canada		91.16	99.35	87.35	87.32	84.09	81.58	84.13	78.07	64.96	51.48
Czech Republic											228.96
Denmark		3.30	3.88	3.94	4.74	5.58	6.27	6.27	6.27	3.97	3.32
Estonia											9.74
Finland		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
France		206.26	191.52	199.88	208.50	212.93	211.03	160.81	137.45	133.10	126.55
Germany		1,227.00	1,121.00	1,074.00	920.00	811.00	838.00	740.30	713.00	614.00	572.00
Greece		44.11	44.79	46.79	46.58	48.17	49.03	50.81	50.02	51.75	52.74
Hungary	222.90										89.46
Iceland											NO
Ireland											NO
Italy										2.63	1.77
Japan		107.37	107.43	106.84	101.03	94.19	88.85	87.22	52.55	49.63	49.19
Latvia										NE	NO
Luxembourg											
Netherlands		IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
New Zealand											25.86
Norway		0.16									0.22
Portugal		3.14	3.04	2.84	2.64	1.97					
Slovakia											26.24
Spain		107.62	101.19	101.14	96.74	92.06	93.38	89.58	91.95	85.40	86.77
Sweden		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Switzerland		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
United Kingdom		819.20	838.26	803.85	724.34	456.59	504.25	473.63	445.57	372.34	310.88
United States		4,183.70	3,975.39	3,834.90	3,355.84	3,389.85	3,550.02	3,301.04	3,274.14	3,167.64	2,944.20

Percentage change from previous year

		1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia		0.41	3.86	-0.36	-3.61	4.91	5.20	-3.52	10.10	-1.79	15.33
Austria		-11.76	-20.00	0.00	-16.67	-10.00	-11.11	0.00	0.00	0.00	-52.94
Belgium										0.00	
Bulgaria											39.05
Canada		8.99	-12.08	-0.03	-3.70	-2.99	3.13	-7.20	-16.80	-20.74	-43.52
Czech Republic											
Denmark		17.57	1.73	20.12	17.85	12.35	0.00	0.00	-36.69	-16.35	0.73
Estonia											
Finland		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
France		-7.14	4.36	4.32	2.12	-0.89	-23.80	-14.52	-3.17	-4.92	-38.65
Germany		-8.64	-4.19	-14.34	-11.85	3.33	-11.66	-3.69	-13.88	-6.84	-53.38
Greece		1.54	4.47	-0.45	3.42	1.78	3.64	-1.57	3.47	1.92	19.57
Hungary											59.87
Iceland											
Ireland											
Italy										-32.57	
Japan		0.05	-0.55	-5.44	-6.77	-5.68	-1.83	-39.74	-5.57	-0.87	-54.18
Latvia											
Luxembourg											
Netherlands											
New Zealand											
Norway											33.95
Portugal		-3.21	-6.80	-7.02	-25.41						
Slovakia											
Spain		-5.98	-0.05	-4.35	-4.83	1.42	-4.07	2.65	-7.12	1.60	-19.38
Sweden		0.00	-33.33	0.00	100.00	-25.00	0.00	-33.33	50.00	0.00	0.00
Switzerland											
United Kingdom		2.33	-4.10	-9.89	-36.96	10.44	-6.07	-5.92	-16.44	-16.51	-62.05
United States		-4.98	-3.53	-12.49	1.01	4.72	-7.01	-0.81	-3.25	-7.05	-29.63

^a Base year refers to 1990, except for the following Parties with economies in transition which, in accordance with decision 9/CP.2, use base years other than 1990: Bulgaria (1988) and Hungary (average of 1985-1987).

Energy - Fugitive emissions from fuels: oil and natural gas (1999)

1.B.2 Fugitive emissions from oil and natural gas (CH ₄)																	
Key source	Percentage of national total	Methods and EF used ^a		1.B.2.a Oil						1.B.2.b Natural gas							
		Methods	EF	CH ₄ IEF						CH ₄ IEF							
				Production		Transport		Refining (R)/ Storage (S)		Production/Processing ^b		Transmission ^b		Distribution ^b		Other leakage ^b	
				value	unit	value	unit	value	unit	value	unit	value	unit	value	unit	value	unit
IPCC Default EF ^c				300-5,000	kg/PJ	745.00	kg/PJ	90-1,400 (R) 20-250 (S)	kg/PJ	46,000-314,000	kg/PJ	57,000-628,000	kg/PJ	57,000-288,000	kg/PJ	0-384,000	kg/PJ
Australia	L	1.2	T2	CS	210	kg/PJ	745	kg/PJ	1,236	kg/PJ	1,042	kg/PJ	9,282	kg/PJ	355,414	kg/PJ	
Austria			C	CS										698	kg/Mm ³ GAS		
Belgium																	
Bulgaria	L	2.0	T1	D	2,650	kg/PJ	745	kg/PJ	745	kg/PJ	227,000	kg/PJ	500,000	kg/PJ			
Canada	L	5.4	CS	CS	6,876	kg/10 ³ km ³				1,704	kg/10 ⁶ m ³	3,212	kg/km	744	kg/km		
Czech Republic			T1, T3	D, CS	5,287	kg/PJ		1,150	kg/PJ	51,940	kg/PJ	2,927	kg/PJ	103,617	kg/PJ		
Denmark										1	kg/10 ³ m ³	2	kg/10 ³ m ³				
Estonia	L	1.9			4,000	kg/PJ	745	kg/PJ		458,000	kg/PJ	458,000	kg/PJ				
Finland			CS	PS												1,000	kg/t
France			C	CS				66	kg/PJ	709	kg/PJ	71,313	kg/PJ				
Germany			CS	CS													
Greece			C	C	3	kg/GJ								21	kg/TJ		
Hungary	L	7.0	T1	D	2,600	kg/PJ		373	kg/PJ		kg/PJ	458,000	kg/PJ				
Iceland																	
Ireland			T1	CS										98,759	kg/PJ		
Italy	L	1.1			6,403	kg/PJ		22	kg/Gg	5,199	kg/PJ	12,527	kg/PJ	104,632	kg/PJ		
Japan			T1	D	2,650	kg/PJ	NO	880	kg/PJ	49,500	kg/PJ	95,000	kg/PJ	NO		NO	
Latvia	L	2.8										340,000	kg/PJ				
Luxembourg																	
Netherlands	L	1.3	CS	CS				111	kg/PJ	35,867	kg/PJ	1,474	kg/PJ	81,031	kg/PJ		
New Zealand	L	0.9	T1	CS/D								207,195	kg/PJ				
Norway	L	0.9	CS	CS			2,112	kg/PJ									
Portugal			C+T2	C				86,669	kg/Mt			100	kg/TJ				
Slovakia	L	1.4	D	D, CS	2,650	kg/PJ	1	not specified	745	kg/PJ	67,000	kg/PJ	2,000	kg/PJ		120,000	kg/PJ
Spain																	
Sweden			CS	CS												1	kg/TJ
Switzerland	L	0.5	C	CS				1,023	kg/PJ			118,977	kg/PJ				
United Kingdom	L	1.5	T3	CS	652	kg/PJ	74	kg/Gg	3	kg/PJ				119,158	kg/PJ		
United States	L	2.1	M	M	471,106	kg/MM Bbl/yr	2,593	kg/MM Bbl/yr	12,606	kg/MM Bbl/yr	115,840	kg/bill ft ³ /yr	99,783	kg/bill ft ³ /yr	70,333	kg/bill ft ³ /yr	

^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 factors used for all sub categories within the category 1.B.2 Oil and natural gas.

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

^c Source of default emission factors: IPCC Guidelines, vol. 3, pages 1.119 -1.121. Emission factors (in kg/PJ) for natural gas activities by regions are provided in the table below

	Basis	Western Europe	US & Canada	Former USSR, Central and Eastern Europe	Rest of the world
Fugitive and other maintenance emissions from gas production	Gas produced	15,000-27,000	46,000-84,000	140,000-314,000	46,000-96,000
Emissions from processing, distribution and transmission	Gas produced			288,000-628,000	288,000 (high)
	Gas consumed	72,000-133,000	57,000-118,000		118,000 (low)

Fugitive emissions from oil and natural gas (CH ₄)										
1.B.2.d Venting and flaring										
CH ₄ IEF										
Oil		Gas				Combined				
Venting ^a		Venting ^a		Flaring ^a		Venting ^a		Flaring ^a		
value	unit	value	unit	value	unit	value	unit	value	unit	
IPCC default EF ^b	1,000-3000	kg/PJ	6,000-209,000		kg/PJ	3,000-14,000		kg/PJ		
Australia			83,240.18	kg/PJ	NE	NA		10,059	kg/PJ	
Austria										
Belgium										
Bulgaria	2,000	kg/PJ	2,000	kg/PJ	NE	NE		NE		
Canada	NA		18,000	kg/PJ	NA	NA		145	kg/10 ⁶ m ³	
Czech Republic										
Denmark					0.16	kg/GJ				
Estonia	4,000	kg/PJ	18,000	kg/PJ						
Finland	NE									
France										
Germany										
Greece										
Hungary										
Iceland										
Ireland	NO		NE		NE	NO		NO		
Italy										
Japan	NO		NO		NO	NO		NO		
Latvia										
Luxembourg										
Netherlands										
New Zealand	NA		NA		NA	NA		NA		
Norway					23,999	kg/PJ	924	kg/PJ		
Portugal	340	kg/Mt								
Slovakia										
Spain										
Sweden										
Switzerland	227	kg/PJ								
United Kingdom	IE		IE		IE	IE		310,201	kg/PJ	
United States	IE		IE		IE	IE		IE		

	Basis	Former USSR, Central & Eastern Europe	Rest of the world
Venting & flaring	Gas Produced	6,000-30,000	175,000-209,000

^a The units for the IEF vary from Party to Party depending on the unit of activity data used.

^b Source of default emission factors: IPCC Guidelines, volume 3, pages 1.119-1.121. Emission factors (in kg/PJ) for venting & flaring from gas production by regions are provided in the table above.

Trends in CH₄ emissions from oil and natural gas 1990 to 1999

Gigagrams

	Base year ^a	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia		327.3	293.6	312.7	272.2	276.5	329.7	306.5	334.7	330.5	285.4
Austria		4.3	4.5	4.4	4.7	4.8	5.2	5.6	5.4	5.5	5.6
Belgium										39.8	39.8
Bulgaria	166.7										72.8
Canada		1,246.7	1,305.4	1,423.8	1,485.7	1,571.8	1,671.2	1,785.2	1,787.1	1,774.3	1,776.1
Czech Republic											28.8
Denmark		9.2	9.9	9.9	9.8	11.4	11.1	11.2	11.5	11.3	12.6
Estonia											17.8
Finland		0.2	0.2	0.2	0.2	0.2	0.2	0.6	0.4	0.6	0.4
France		104.7	112.0	107.1	105.5	97.0	98.6	102.4	93.2	97.1	90.7
Germany		334.0	351.0	389.0	429.0	408.0	359.0	374.3	361.0	359.0	355.0
Greece		0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.7	1.1
Hungary	225.4										289.2
Iceland											
Ireland											4.3
Italy										282.2	280.2
Japan		52.3	57.1	60.5	65.1	67.0	71.4	74.4	77.8	79.2	83.1
Latvia										22.6	14.9
Luxembourg											2.1
Netherlands		179.1	188.1	163.1	158.0	168.5	174.0	177.5	156.5	146.1	144.2
New Zealand											17.7
Norway		13.6									23.4
Portugal		1.7	1.5	1.8	1.7	2.2	2.1	1.9	2.3	3.8	4.1
Slovakia											35.5
Spain		50.0	55.3	58.3	56.5	61.3	71.6	81.5	106.5	113.0	129.7
Sweden		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Switzerland		14.6	14.5	14.2	13.8	13.3	12.8	12.7	12.6	12.5	12.4
United Kingdom		541.0	523.9	521.7	509.2	507.4	502.7	489.2	482.7	474.3	454.7
United States		7,066.5	7,150.4	7,190.7	7,254.7	7,113.2	7,080.2	7,135.5	6,982.7	6,921.8	6,842.9

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	-10.3	6.5	-13.0	1.6	19.2	-7.0	9.2	-1.3	-13.6	-12.8
Austria	5.7	-1.8	5.5	2.9	9.2	6.4	-3.6	2.7	2.2	32.3
Belgium									0.0	
Bulgaria										56.3
Canada	4.7	9.1	4.3	5.8	6.3	6.8	0.1	-0.7	0.1	42.5
Czech Republic										
Denmark	7.9	0.5	-1.9	16.6	-2.5	0.5	3.4	-2.3	12.1	37.7
Estonia										
Finland	17.6	0.0	0.0	0.0	0.0	194.0	-30.3	47.1	-41.6	107.1
France	7.0	-4.4	-1.5	-8.1	1.7	3.9	-9.0	4.2	-6.5	-13.4
Germany	5.1	10.8	10.3	-4.9	-12.0	4.3	-3.6	-0.6	-1.1	6.3
Greece	0.0	-12.6	-22.9	-29.7	-11.8	12.2	101.0	230.5	59.2	396.7
Hungary										-28.3
Iceland										
Ireland										
Italy									-0.7	
Japan	9.2	5.9	7.6	2.9	6.6	4.2	4.5	1.9	4.8	58.7
Latvia									-33.9	
Luxembourg										
Netherlands	5.0	-13.3	-3.1	6.6	3.3	2.0	-11.9	-6.6	-1.3	-19.5
New Zealand										
Norway										71.6
Portugal	-8.5	17.6	-4.1	24.8	-4.6	-8.6	20.3	65.5	9.3	144.1
Slovakia										
Spain	10.6	5.5	-3.2	8.6	16.7	13.8	30.7	6.1	14.8	159.4
Sweden										
Switzerland	-0.7	-2.1	-2.8	-3.6	-3.8	-0.8	-0.8	-0.8	-0.8	-15.1
United Kingdom	-3.2	-0.4	-2.4	-0.3	-0.9	-2.7	-1.3	-1.8	-4.1	-16.0
United States	1.2	0.6	0.9	-2.0	-0.5	0.8	-2.1	-0.9	-1.1	-3.2

^a Base year refers to 1990, except for the following Parties with economies in transition which, in accordance with decision 9/CP.2, use base years other than 1990: Bulgaria (1988) and Hungary (average of 1985-1987).

2. Industrial Processes

FCCC/WEB/SAI/2001

Industrial processes - Mineral products, CO₂ (1999)

	2.A Mineral products														
	Methods and EF used ^a		2.A.1 Cement production							2.A.2 Lime production			2.A.3 Limestone and dolomite use		
	Methods	EF	Key source	Percentage of national total	Activity data (production)				CO ₂ IEF	Key source	Percentage of national total	CO ₂ IEF	Key source	Percentage of national total	CO ₂ IEF
					Description ^b	CRF	UN ^c	Difference ^d							
				%		kt	kt	%	%		t / t				
IPCC default EF ^e									0.499 (cement)		0.79 - 0.91				0.44 -0.48
IPCC default EF ^e									0.507 (clinker)						
Australia	T2	CS			Clinker production	6,369	7,716	21.15	0.52		0.69				0.41
Austria ^f	C, CS	CS	L/T	3.0 / 4.5		3,624	3,768	3.97	0.66		0.37				
Belgium							9,252								
Bulgaria ^f	D	D	L	1.3		1,957	1,740	-11.07	0.52		0.79				0.48
Canada	T1	CS	L	0.9	Cement production	12,604	12,624	0.16	0.5		0.79				0.44
Czech Republic	T1	D	L	1.5	Cement production	4,241	4,236	-0.12	0.5						
Denmark			L/T	1.8 / 2.0		2,428	2,424	-0.16	0.53		0.21				
Estonia			L	1.6		645	360	-44.17	0.5		0.79				
Finland	D	PS/D	L/T	0.8/1.0	Cement production	1,310	1,164	-11.14	0.47	L	0.7	0.79			
France ^f	C	CS	L/T	1.5 / 2.5		15,990	18,444	15.35	0.5		0.44				
Greece	C	C	L/T	5.9 / 3.1	Cement production	14,700	13,908	-5.39	0.5		0.79				
Hungary	D	D	L	1.6	Clinker production	2,831	2,976	5.14	0.5		0.79				0.44
Iceland	D	D	L	1.8	Cement production	134			0.44						
Ireland ^f	D	D	L	1.7	Clinker production	2,250	2,000	-11.11	0.5		0.75				
Italy ^f			L	3.4	Cement production	36,827	35,512	-3.57	0.5		0.15				
Japan	D	D				IE	80,196		IE		IE	L / T	3.8 / 4.0		0.43
Latvia ^f	T1	D			Cement production	C	366		0.5		0.79				0.44
Luxembourg															
Netherlands ^f					Clinker production	800	3,300	312.50	0.47						
New Zealand ^f	T1	CS				1,077	976	-9.41	0.49		0.68				
Norway ^f	D	CS	L/T	1.6 / 1.6		C	1,690								
Portugal ^f	D+C	D+C	L	4.7	Cement production	9,340	9,780	4.71	0.4						0.32
Slovakia ^f	D	D	L	2.4		3,020	3,072	1.72	0.41		0.79	L	3.4		0.44
Spain ^f	CS,C,D	CS,C,D					27,860								
Sweden ^f	CS	CS	L/T	1.7 / 2.1	Use of limestone	3,109	2,372	-23.71	0.4		0.77				
Switzerland ^f	C	C	L	3.9	Cement production	3,500	4,000	14.29	0.59		0.37				
United Kingdom ^f	T2	D	L	1.0	Clinker production	11,816	15,000	26.95	0.52		0.44				0.44
United States	D,CS	D,CS			Clinker production	77,152	106,932	38.60	0.52		0.68				0.44

^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.

^c Cement production from Monthly Bulletin of Statistics, Department of Economic and Social Affairs, Statistics Division, United Nations, New York, volume LV, no.3, March 2001.

^d As the UN data given in this table are for cement production, the comparisons with the CRF data specified as clinker are likely to differ.

^e Source of default emission factors: IPCC Guidelines, volume 3, pages 2.6, 2.9 and 2.10.

^f Data for 1999 data were not available from the United Nations, 1998 data were used here.

Trends in CO₂ emissions 1990 to 1999

Gigagrams

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	4,828	4,503	4,389	4,598	5,238	5,123	5,147	5,078	5,470	5,401
Austria	3,803	3,676	3,745	3,572	3,709	3,068	3,065	3,140	3,055	2,947
Belgium								5,200	5,627	5,661
Bulgaria	4,264	2,472	1,979	1,746	1,917	2,328	2,446	2,044	1,410	1,878
Canada	8,161	6,981	6,636	6,875	7,507	7,691	8,034	8,184	8,365	8,666
Czech Republic									2,661	2,362
Denmark	1,005	1,178	1,300	1,311	1,318	1,311	1,388	1,539	1,436	1,402
Estonia										347
Finland	1,175	1,037	937	793	836	836	863	947	921	1,114
France	13,016	12,443	11,348	10,632	10,938	10,686	10,454	10,186	10,792	10,371
Greece	6,984	6,979	7,022	7,253	7,046	7,386	7,579	7,635	7,566	7,566
Hungary	3,568	1,265	1,118	1,267	1,397	1,438	1,548	1,587	1,971	2,053
Iceland	50	47	44	38	36	36	40	45	52	59
Ireland	941	924	962	932	1,085	1,068	1,080	1,190	1,192	1,279
Italy	21,305	21,211	21,586	17,939	17,407	17,949	17,665	17,857	18,743	19,414
Japan	55,418	57,055	57,643	57,150	57,913	57,909	57,626	56,135	50,967	49,997
Latvia	563	584	286	89	154	127	185	153	236	161
Luxembourg										520
Netherlands	747	700	750	1,050	1,050	1,130	900	1,087	1,048	1,075
New Zealand	448	437	501	553	566	586	581	599	574	635
Norway	683	629	688	874	886	922	915	983	926	920
Portugal	3,426	3,522	3,456	3,638	3,695	3,908	3,855	3,855	4,273	4,392
Slovakia	3,882	2,945	3,161	3,093	3,249	3,408	3,249	3,354	3,505	3,548
Spain	14,289	13,756	12,542	11,878	13,835	14,809	14,482	15,298	16,502	17,928
Sweden	1,765	1,622	1,522	1,537	1,629	1,801	1,709	1,642	1,645	1,590
Switzerland									2,071	2,100
United Kingdom	9,555	8,160	7,619	7,664	8,449	8,554	8,787	9,616	9,631	9,136
United States	53,777	52,479	52,774	54,370	57,321	60,948	62,153	64,770	65,571	65,829

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	-6.7	-2.5	4.8	13.9	-2.2	0.5	-1.3	7.7	-1.3	11.9
Austria	-3.3	1.9	-4.6	3.8	-17.3	-0.1	2.4	-2.7	-3.5	-22.5
Belgium								8.2	0.6	
Bulgaria	-42.0	-20.0	-11.8	9.8	21.5	5.0	-16.4	-31.0	33.2	-55.9
Canada	-14.5	-4.9	3.6	9.2	2.5	4.5	1.9	2.2	3.6	6.2
Czech Republic									-11.2	
Denmark	17.2	10.4	0.8	0.5	-0.5	5.9	10.9	-6.7	-2.4	39.4
Estonia										
Finland	-11.8	-9.6	-15.4	5.4	0.0	3.1	9.8	-2.7	20.9	-5.2
France	-4.4	-8.8	-6.3	2.9	-2.3	-2.2	-2.6	5.9	-3.9	-20.3
Greece	-0.1	0.6	3.3	-2.9	4.8	2.6	0.7	-0.9	0.0	8.3
Hungary	-64.6	-11.6	13.3	10.3	2.9	7.6	2.6	24.2	4.1	-42.5
Iceland	-7.0	-6.0	-13.3	-6.3	1.0	10.7	11.4	16.9	13.4	17.2
Ireland	-1.9	4.1	-3.1	16.4	-1.6	1.2	10.2	0.2	7.3	35.9
Italy	-0.4	1.8	-16.9	-3.0	3.1	-1.6	1.1	5.0	3.6	-8.9
Japan	3.0	1.0	-0.9	1.3	0.0	-0.5	-2.6	-9.2	-1.9	-9.8
Latvia	3.7	-51.0	-68.8	72.6	-17.5	45.8	-17.2	54.0		
Luxembourg										
Netherlands	-6.3	7.1	40.0	0.0	7.6	-20.4	20.8	-3.6	2.6	44.0
New Zealand	-2.5	14.5	10.5	2.3	3.5	-0.9	3.1	-4.1	10.6	41.6
Norway	-8.0	9.5	27.0	1.4	4.1	-0.9	7.5	-5.8	-0.7	34.7
Portugal	2.8	-1.9	5.3	1.5	5.8	-1.3	0.0	10.8	2.8	28.2
Slovakia	-24.1	7.3	-2.1	5.0	4.9	-4.7	3.2	4.5	1.2	-8.6
Spain	-3.7	-8.8	-5.3	16.5	7.0	-2.2	5.6	7.9	8.6	25.5
Sweden	-8.1	-6.2	1.0	6.0	10.6	-5.1	-3.9	0.2	-3.4	-9.9
Switzerland									1.4	
United Kingdom	-14.6	-6.6	0.6	10.2	1.2	2.7	9.4	0.2	-5.1	-4.4
United States	-2.4	0.6	3.0	5.4	6.3	2.0	4.2	1.2	0.4	22.4

Industrial processes - Mineral products: cement production**Trends in CO₂ emissions 1990 to 1999****Gigagrams**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	3,168	2,900	2,735	2,831	3,181	3,163	3,002	2,944	3,228	3,299
Austria	3,088	3,043	3,212	3,070	3,191	2,498	2,496	2,576	2,491	2,376
Belgium								3,398	3,710	3,410
Bulgaria									869	1,018
Canada	5,873	4,686	4,299	4,697	5,293	5,361	5,794	5,868	6,062	6,302
Czech Republic									2,430	2,114
Denmark	883	1,087	1,194	1,205	1,199	1,203	1,282	1,426	1,333	1,295
Estonia										321
Finland	777	633	534	394	407	428	460	543	581	618
France	10,427	9,902	8,908	8,191	8,366	8,233	8,042	7,733	8,281	7,995
Greece	6,760	6,770	6,849	7,004	6,780	7,129	7,328	7,278	7,328	7,328
Hungary									1,499	1,415
Iceland										59
Ireland									1,000	1,125
Italy									17,756	18,413
Japan	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Latvia									183	C
Luxembourg										
Netherlands	NE	NE	NE		368		251	376	376	376
New Zealand	367	343	405	461	487	503	503	503	479	528
Norway	653								882	876
Portugal	3,024	3,069	2,969	3,125	3,221	3,367	3,381	3,381	3,665	3,759
Slovakia									1,182	1,241
Spain	12,534	11,944	10,655	10,120	11,738	12,622	12,367	13,017	14,096	15,544
Sweden	1,366	1,221	1,168	1,169	1,195	1,399	1,313	1,192	1,224	1,230
Switzerland									2,036	2,065
United Kingdom	6,829	5,611	5,107	5,172	5,961	5,883	6,006	6,281	6,401	6,113
United States	33,278	32,535	32,792	34,624	36,087	36,847	37,079	38,323	39,218	39,896

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	-8.5	-5.7	3.5	12.3	-0.6	-5.1	-1.9	9.6	2.2	4.1
Austria	-1.5	5.6	-4.4	3.9	-21.7	-0.1	3.2	-3.3	-4.6	-23.1
Belgium								9.2		-8.1
Bulgaria									17.2	
Canada	-20.2	-8.3	9.3	12.7	1.3	8.1	1.3	3.3	4.0	7.3
Czech Republic									-13.0	
Denmark	23.2	9.9	0.9	-0.6	0.4	6.6	11.2	-6.5	-2.9	46.7
Estonia										
Finland	-18.6	-15.6	-26.2	3.3	5.0	7.5	18.1	7.0	6.3	-20.6
France	-5.0	-10.0	-8.0	2.1	-1.6	-2.3	-3.8	7.1	-3.5	-23.3
Greece	0.1	1.2	2.3	-3.2	5.1	2.8	-0.7	0.7	0.0	8.4
Hungary									-5.6	
Iceland										
Ireland									12.5	
Italy										
Japan										
Latvia										
Luxembourg										
Netherlands										
New Zealand	-6.4	18.1	13.7	5.6	3.4	-0.1	0.1	-4.9	10.3	44.0
Norway									-0.7	34.2
Portugal	1.5	-3.2	5.3	3.1	4.5	0.4	0.0	8.4	2.6	24.3
Slovakia									5.0	
Spain	-4.7	-10.8	-5.0	16.0	7.5	-2.0	5.3	8.3	10.3	24.0
Sweden	-10.6	-4.3	0.1	2.2	17.1	-6.1	-9.2	2.7	0.5	-9.9
Switzerland									1.4	
United Kingdom	-17.8	-9.0	1.3	15.3	-1.3	2.1	4.6	1.9	-4.5	-10.5
United States	-2.2	0.8	5.6	4.2	2.1	0.6	3.4	2.3	1.7	19.9

Trends in CO₂ implied emission factors 1990 to 1999

Tonnes per tonne

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Austria	0.66	0.63	0.67	0.63	0.67	0.65	0.66	0.66	0.66	0.66
Belgium										
Bulgaria									0.50	0.52
Canada	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Czech Republic									0.50	0.50
Denmark	0.55	0.54	0.54	0.54	0.53	0.53	0.53	0.53	0.53	0.53
Estonia										0.50
Finland	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
France	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Greece	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Hungary									0.50	0.50
Iceland										0.44
Ireland									0.50	0.50
Italy									0.50	0.50
Japan	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Latvia									0.50	0.50
Luxembourg										
Netherlands					0.43		0.43	0.54	0.47	0.47
New Zealand	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.49	0.50	0.49
Norway										
Portugal	0.42	0.41	0.41	0.41	0.42	0.42	0.40	0.40	0.40	0.40
Slovakia									0.41	0.41
Spain										
Sweden	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Switzerland									0.59	0.59
United Kingdom	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
United States	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Austria	-4.4	5.6	-5.1	6.0	-2.9	1.5	-0.7	0.0	0.0	-0.7
Belgium										
Bulgaria									4.4	
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Czech Republic									0.0	
Denmark	-0.2	-0.9	-0.4	-0.5	-1.0	0.2	0.0	-0.5	1.1	-2.1
Estonia										
Finland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
France	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Greece	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary									0.0	
Iceland										
Ireland									0.0	
Italy									0.0	
Japan										
Latvia									0.0	
Luxembourg										
Netherlands							26.1	-13.0	0.0	
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0	-3.3	1.6	-2.2	-3.9
Norway										
Portugal	-2.2	-1.1	0.2	1.8	1.0	-4.0	0.0	0.0	0.0	-4.3
Slovakia									0.0	
Spain										
Sweden	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Switzerland									0.0	
United Kingdom	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United States	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Industrial processes - Chemical industry, CO₂ and N₂O (1999)

	2.B Chemical industry																				
	Methods and EF used ^a		CO ₂						Methods and EF used ^a		N ₂ O										
			2.B.1 Ammonia production								2.B.2 Nitric acid production						2.B.3 Adipic acid production				
	Method	EF	Key source	Percentage of national total	Activity data (production)				CO ₂ IEF	Methods	EF	Key source	Percentage of national total	Activity data (production)				N ₂ O IEF	Key source	Percentage of national total	N ₂ O IEF
					CRF (1999) ^b	CRF (1997 or 1998) ^b	UN (1997 or 1998) ^{b,c}	Difference						CRF (1999) ^b	CRF (1998) ^b	U.N. (1998) ^{b,c}	Difference				
%				kt	kt	kt	%	t / t	%				kt	kt	kt	%	t / t	%		t / t	
IPCC default EF ^d								1.5 - 1.6									0.002 - 0.009			0.264 - 0.3	
Australia	NE	NA			NE		450		T1	D			398				0.006				
Austria	C	PS	L	0.6	266			1.8	C	PS			513	505			0.001				
Belgium							287														
Bulgaria	T1b	D			378		527	0.9	D	D	L	0.9	394	521	521	0.06	0.006				
Canada	T1	CS			4889	4737	4,737	0.00	0.8	NA	NA		1007	935	935	-0.05	0.003	T	11.50	0.30	
Czech Republic	IE				350		324		T2	PS	L	0.7	455	533	433	-18.69	0.006				
Denmark					0	0	1,449						0	0	13						
Estonia			L	1.1	145		175	1.5					0								
Finland	NO	NO			NO	NO	0		D	PS	L/T	1.7 / 1.7	453	452			0.009				
France	C	CS	L	0.5	1746	1823	1,508	-17.30	1.6	C	CS/PS	L/T	0.7 / 4.1	2750	2760		0.005	L/T	0.8 / 14.0	0.07	
Greece	C	C			NA				C	C			406	406			0.005				
Hungary	D	D	L	0.6	331		293	1.5	D	D			0	1							
Iceland	D	D					9		CS	CS											
Ireland	D,T1a	D	L	1.4	410		465	2.3	D	CS	L	1.2	260	260			0.010				
Italy					451		445	1.0					432	480			0.007	L	1.1	0.30	
Japan	D	CS			C	C	1,689	NE	D	CS, PS			631	631	631	0.03	0.003	T	2.6	0.03	
Latvia					NO								NO							NO	
Luxembourg																					
Netherlands							2,500				L/T	4.9 / 2.3									
New Zealand	T1	CS			163	163	80	-50.98	0.0	T1			NA	NA							
Norway	D	CS,D	L/T	0.6 / 5.3	C	C	279		CS3	PS	L/T	3.3									
Portugal ^e	MB+D+C	D+C	T	4.0	143	143	251	75.35	1.3	D+C	D+C	L / T	0.8 / 1.0	244	244		0.008				
Slovakia							311		D	CS	L	0.8	441	420			0.000				
Spain	C,D	C,D					579		C	C					465						
Sweden	CS	CS					0		C	CS	L/T	1.1 / 1.0			90						
Switzerland	C	C							C	C	L	0.2	65	65			0.005				
United Kingdom	T1	CS			42	35	642	1714.79	26.3	PS	CS	L	0.5	2438	2610		0.004	T	7.20	0.01	
United States	D	D			17200	16761	14,700	-12.29	1.5	D	CS,PS			8165	8423	8,423	0.00	0.008	T	2.10	0.03

^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 UN data for 1999 were not available 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 1998 (or 1997) from the CRF are provided together with the respective UN data for those years (1999 CRF data are given in a separate column as well). For the following countries 1997 data for ammonia were used, as 1998 UN data were not available: Australia, Iceland, Ireland, Italy, Netherlands, New Zealand, Norway, Sweden and United Kingdom.

^c Source of data: 1998 Industrial Commodity Statistics Yearbook, Production statistics 1989-1998, Department of Economic and Social Affairs, Statistics Division, United Nations, New York 2000.

^d Source of default emission factors: IPCC Guidelines, volume 3, pages 2.16, 2.18 and 2.19.

^e Mass balance is indicated by MB.

Trends in CO₂ emissions 1990 to 1999

Gigagrams

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Austria	396	408	371	403	381	468	465	457	501	472
Belgium								653	638	638
Bulgaria									454	326
Canada	3,127	3,219	3,317	3,562	3,700	4,051	4,128	4,142	3,898	4,049
Czech Republic										
Denmark										
Estonia										218
Finland	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
France	3,007	3,036	2,666	2,810	2,822	2,826	2,966	2,889	2,844	2,723
Greece	470	383	251	251		251	251	251	150	NO
Hungary									10	497
Iceland										
Ireland									1,058	943
Italy									497	451
Japan	3,377	3,327	3,356	3,183	3,391	3,328	3,453	3,366	2,989	3,236
Latvia									NO	NO
Luxembourg										
Netherlands	IE	IE	IE	IE	IE	NO	IE	IE	IE	IE
New Zealand	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Norway	646								500	358
Portugal	569	448	335	281	190	190	190	190	190	190
Slovakia										IE
Spain	550	624	540	400	505	505	519	546	512	487
Sweden										
Switzerland										NO
United Kingdom	1,358	1,358	1,379	1,379	1,379	1,379	1,379	888	1,111	1,108
United States	23,138	23,364	24,391	23,399	24,316	23,682	24,390	24,346	25,141	25,799

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										
Austria	3.0	-9.1	8.6	-5.3	22.8	-0.6	-1.8	9.7	-5.8	19.2
Belgium								-2.3	0.0	
Bulgaria									-28.2	
Canada	2.9	3.1	7.4	3.9	9.5	1.9	0.3	-5.9	3.9	29.5
Czech Republic										
Denmark										
Estonia										
Finland										
France	0.9	-12.2	5.4	0.4	0.2	5.0	-2.6	-1.5	-4.3	-9.4
Greece	-18.3	-34.5	0.0			0.0	0.0	-40.3		
Hungary									5092.5	
Iceland										
Ireland									-10.9	
Italy									-9.4	
Japan	-1.5	0.9	-5.1	6.5	-1.8	3.8	-2.5	-11.2	8.3	-4.2
Latvia										
Luxembourg										
Netherlands										
New Zealand										
Norway									-28.4	-44.6
Portugal	-21.2	-25.4	-15.9	-32.3	0.0	0.0	0.0	0.0	0.0	-66.5
Slovakia										
Spain	13.6	-13.5	-25.9	26.2	0.1	2.7	5.2	-6.2	-5.0	-11.4
Sweden										
Switzerland										
United Kingdom	0.0	1.5	0.0	0.0	0.0	0.0	-35.6	25.0	-0.3	-18.5
United States	1.0	4.4	-4.1	3.9	-2.6	3.0	-0.2	3.3	2.6	11.5

Trends in CO₂ implied emission factors 1990 to 1999

Tonnes per tonne

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia										
Austria	1.5	1.6	1.4	1.5	1.5	1.8	1.8	1.8	1.9	1.8
Belgium										
Bulgaria									0.9	0.9
Canada	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8
Czech Republic										
Denmark										
Estonia										1.5
Finland										
France	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Greece	1.5	1.5		1.5						
Hungary									1.5	1.5
Iceland										
Ireland									2.3	2.3
Italy									1.0	1.0
Japan	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Latvia										
Luxembourg										
Netherlands										
New Zealand										
Norway										
Portugal	3.1	2.4	2.7	2.5	2.7	1.0	1.3	1.3	1.3	1.3
Slovakia										
Spain										
Sweden										
Switzerland										
United Kingdom	31.7	31.2	31.5	31.5	31.5	31.5	31.5	25.1	28.6	26.3
United States	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										
Austria	3.0	-9.1	8.6	-5.3	22.8	-0.6	-1.8	9.7	-8.1	16.3
Belgium										
Bulgaria									0.0	
Canada	4.2	0.0	-2.3	2.0	-0.6	1.3	-1.7	-5.0	0.6	-1.7
Czech Republic										
Denmark										
Estonia										
Finland										
France	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Greece	0.0									
Hungary									0.0	
Iceland										
Ireland									0.0	
Italy									0.0	
Japan										
Latvia										
Luxembourg										
Netherlands										
New Zealand										
Norway										
Portugal	-20.7	12.0	-6.9	6.3	-62.5	31.3	0.0	0.0	0.0	-56.7
Slovakia										
Spain										
Sweden										
Switzerland										
United Kingdom	-1.6	0.7	0.0	0.0	0.0	0.0	-20.2	14.0	-8.2	-17.2
United States	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Trends in N₂O emissions 1990 to 1999

Gigagrams

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	1.6	1.5	1.8	1.6	1.4	1.4	1.6	1.6	1.7	2.2
Austria	0.6	0.6	0.5	0.6	0.6	0.5	0.6	0.6	0.6	0.6
Belgium								10.6	3.9	
Bulgaria									3.1	2.4
Canada	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.5	2.5	2.5
Czech Republic									3.6	3.0
Denmark										
Estonia										0.0
Finland	5.1	4.5	4.0	4.2	4.4	4.5	4.5	4.5	4.3	4.3
France	25.6	22.4	18.3	13.8	13.0	13.6	14.2	13.3	13.0	12.9
Greece	2.3	1.9	2.0	1.9	1.8	1.8	2.1	1.8	1.8	1.8
Hungary									0.0	0.0
Iceland										
Ireland									2.6	2.6
Italy									3.2	2.9
Japan	2.5	2.5	2.5	2.4	2.5	2.5	2.3	2.3	2.2	2.2
Latvia									NO	NO
Luxembourg										
Netherlands	31.5	32.3	30.4	30.0	31.6		31.7	35.0	36.0	36.1
New Zealand	NA	NA	NA	NA	NA	NA				
Norway	6.7								5.4	6.1
Portugal	1.9	1.9	2.0	1.6	1.2	2.0	2.0	2.0	2.0	2.0
Slovakia									0.2	0.2
Spain	9.3	8.3	7.1	5.9	7.0	7.4	7.9	7.5	7.0	7.6
Sweden	2.6	2.5	2.5	2.5	2.3	2.3	2.2	2.2	2.4	2.4
Switzerland									0.3	0.3
United Kingdom	13.3	13.5	13.7	13.8	14.2	9.9	10.2	9.7	11.1	9.6
United States	57.6	57.5	59.0	59.9	63.2	64.2	66.8	68.5	67.4	65.3

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	-6.6	21.2	-12.6	-13.1	0.7	11.4	0.0	5.8	32.6	35.3
Austria	0.9	-9.3	5.8	-2.1	-3.6	2.4	-1.3	3.2	1.5	-3.2
Belgium								-63.6		
Bulgaria									-24.4	
Canada	-1.4	1.3	0.1	-1.5	2.2	1.3	-0.8	-1.9	1.9	1.1
Czech Republic										
Denmark										
Estonia										
Finland	-12.1	-10.5	3.9	3.5	3.3	0.0	0.6	-5.8	0.3	-16.9
France	-12.4	-18.3	-24.5	-6.0	4.4	4.4	-6.0	-2.6	-0.4	-49.6
Greece	-17.6	4.6	-5.0	-2.8	-0.5	14.2	-12.0	-0.2	0.2	-20.4
Hungary										
Iceland										
Ireland									0.0	
Italy									-10.0	
Japan	-0.7	0.1	-1.3	2.5	-1.5	-5.0	-1.0	-5.8	0.4	-11.9
Latvia										
Luxembourg										
Netherlands	2.5	-5.9	-1.3	5.3			10.3	2.9	0.4	14.7
New Zealand										
Norway									11.2	-8.9
Portugal	0.0	0.8	-16.5	-24.9	59.2	0.0	0.0	0.0	0.0	0.6
Slovakia									-13.7	
Spain	-10.4	-14.9	-17.3	19.1	5.6	6.6	-5.4	-6.1	8.3	-18.6
Sweden	-4.8	0.0	0.0	-9.0	0.4	-4.0	-1.2	12.7	0.0	-7.0
Switzerland									0.0	
United Kingdom	1.1	1.8	0.4	3.3	-30.2	2.8	-5.4	15.2	-13.6	-27.8
United States	-0.1	2.6	1.5	1.4	4.1	4.1	2.5	-1.6	-3.1	13.5

Trends in N₂O emissions 1990 to 1999

Gigagrams

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	NO									NO
Austria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belgium									0.0	
Bulgaria									NO	NO
Canada	34.6	32.3	32.1	29.3	35.4	34.6	37.0	31.9	16.3	5.6
Czech Republic										NO
Denmark										
Estonia										0.0
Finland	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
France	57.5	57.5	57.0	53.9	56.6	57.9	56.7	59.2	31.4	14.7
Greece										
Hungary										0.0
Iceland										
Ireland									NO	NO
Italy									18.6	18.6
Japan	21.5	19.4	19.1	18.7	21.5	21.3	24.2	25.8	22.3	2.5
Latvia									NO	NO
Luxembourg										
Netherlands	NO		NO	NO	NO		NO	NO	NO	NO
New Zealand										
Norway										
Portugal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slovakia										NO
Spain	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sweden										
Switzerland										NO
United Kingdom	81.1	75.0	57.9	47.2	57.2	51.3	55.2	57.3	48.3	2.1
United States	59.0	61.9	56.9	61.5	65.5	65.6	67.1	55.2	23.4	28.9

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										
Austria										
Belgium										
Bulgaria										
Canada	-6.7	-0.5	-8.8	20.8	-2.2	6.9	-13.8	-48.8	-65.5	-83.7
Czech Republic										
Denmark										
Estonia										
Finland										
France	0.0	-1.0	-5.3	4.9	2.2	-1.9	4.4	-47.0	-53.2	-74.5
Greece										
Hungary										
Iceland										
Ireland										
Italy									0.0	
Japan	-9.6	-1.4	-2.0	14.9	-1.0	13.8	6.5	-13.7	-88.6	-88.1
Latvia										
Luxembourg										
Netherlands										
New Zealand										
Norway										
Portugal										
Slovakia										
Spain										
Sweden										
Switzerland										
United Kingdom	-7.5	-22.9	-18.3	21.1	-10.3	7.6	3.8	-15.8	-95.6	-97.4
United States	4.9	-8.2	8.1	6.5	0.2	2.3	-17.7	-57.6	23.5	-51.0

Trends in N₂O implied emission factors 1990 to 1999

Tonnes per tonne

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia										
Austria										
Belgium										
Bulgaria										
Canada			0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Czech Republic										
Denmark										
Estonia										
Finland										
France	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.29	0.17	0.07
Greece										
Hungary										
Iceland										
Ireland										
Italy									0.30	0.30
Japan	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.03
Latvia										
Luxembourg										
Netherlands										
New Zealand										
Norway										
Portugal										
Slovakia										
Spain										
Sweden										
Switzerland										
United Kingdom	0.31	0.28	0.28	0.30	0.33	0.33	0.36	0.37	0.29	0.01
United States	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.06	0.03	0.03

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										
Austria										
Belgium										
Bulgaria										
Canada			0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Czech Republic										
Denmark										
Estonia										
Finland										
France	0.0	0.0	0.0	0.0	0.0	0.0	-8.6	-40.6	-56.0	-76.1
Greece										
Hungary										
Iceland										
Ireland										
Italy									0.0	
Japan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-90.0	-90.0
Latvia										
Luxembourg										
Netherlands										
New Zealand										
Norway										
Portugal										
Slovakia										
Spain										
Sweden										
Switzerland										
United Kingdom	-8.0	0.0	8.5	9.2	0.2	8.9	0.9	-20.5	-94.9	-95.2
United States	0.0	0.0	0.0	0.0	0.0	0.0	-20.1	-57.9	-2.7	-67.3

Industrial processes - Metal production, CO₂ (1999)

	2.C Metal production																						
	Methods and EF used ^a		Key source	Percentage of national total	CO ₂ IEF	2.C.1 Iron & steel ^b										Key source	2.C.3 Aluminium production						
						2.C.1.1 Steel					2.C.1.2 Pig iron												
	Activity data (production)					CO ₂ IEF	Activity data (production)				CO ₂ IEF	Percentage of national total	Activity data (production)				CO ₂ IEF						
	CRF (1998) ^c	CRF (1999)					UN ^d	Difference	CRF (1998) ^c	CRF (1999)			UN ^d	Difference	CRF (1998) ^c			CRF (1999)	UN ^d	Difference			
Methods	EF	%	t / t	kt	kt	kt	%	t / t	kt	kt	kt	%	t / t	%	kt	kt	kt	%	t / t				
IPCC default EF ^e					1.5 - 1.6															1.5 - 1.8			
Australia ^{f,g}	T2	CS					7,674	8,088		NA		NA	7956				1686	1718		1.9	1.5		
Austria ^h	C	CS, PS	L/T	10.7 / 1.9			4,752	5,208	9.6	1.8		4752	3912	-17.68		C	C		94				
Belgium								10,908					8436										
Bulgaria ^{f,g}	D	D	L	2.1		2237.807	2,032	2,352	5.1	0.8	1390.233	1152	1512	8.76			4				1.7		
Canada ^{f,g}	CS	CS	L	1.2		NA	NA	15,804			NA	NA	9012		L	1.0		2401	2390		-0.5	1.6	
Czech Republic	IE						5,454	5,616	3.0			4008	4020	0.30			NO						
Denmark ^f								792				0					0						
Estonia																	0						
Finland	NO	NO					NA	3,960				NA	2952				NO						
France ^{f,h}	C	CS	L/T	0.5 / 1.3		20125	19,801	20,124	0.0	0.1		13932	13560	-2.67	0.09		421	452	424		0.7	1.6	
Greece	C	C					NA	960				NA					C		161				
Hungary	T1b	D						1,920					1272				89				1.8		
Iceland	D	D					NO					NO			L	10.7		222			1.6		
Ireland	NA	NA						336															
Italy ^h							24,780	24,732	-0.2	0.0		10665	10620	-0.42			187	187	187		0.1	1.6	
Japan							IE			IE		IE			IE			NE			NE		
Latvia	T1	D					C/IE					NO						NO					
Luxembourg ^f								2,472					0										
Netherlands ^h								6,072					5304						366				
New Zealand ^{f,h}	T1	CS	L	2.7	2.0	739.715	759	700	-5.4	2.0		NE					318	328	996	213.4		1.6	
Norway ^{g,h}	D, CS3	D, PS									C	C	1092		L	3.2		965	496	1058		9.7	3.6
Portugal	D+C	D+C			0.4		IE	1,032				NO	384					18				1.8	
Slovakia ^{f,h}	IE						NA	3,384				NA						NA		115			
Spain ^h	C	C						14,892					4056							360			
Sweden ^h	CS	CS	L/T	2.9 / 12.2				5,052				103	3816	3615.68	0.47733			51	51	96	87.2	3.7	
Switzerland ^{f,h}	C	C				760	765	1,000	31.6	0.1							27	35	32	18.9	1.6		
United Kingdom ^h	T2	CS					3,590	16,416	357.3	0.0		12139	12012	-1.05			258	272	258		-0.2	1.6	
United States	D	D,CS	L/T	1.1 / 4.7			IE	107,400				44900	51000	13.59	1.6			3779	3779		0.0	1.5	

^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 not reported by any Party; CO₂ emission estimates from coke (2.C.1.4) were reported by only Canada, Sweden and the United Kingdom.

^c As UN data for 1999 were not available for all Parties for the comparisons of UN and CRF data in this table, data for the years 1998 from the CRF are provided along with the respective UN data for 1998. For the Parties where 1998 UN data were used the respective CRF data for 1998 were included for those Parties that reported data for 1998.

^d Source of data: Monthly Bulletin of Statistics, Department of Economic and Social Affairs, Statistics Division, United Nations, New York, Vol.LV, No.3, March 2001 and 1998 Industrial Commodity Statistics Yearbook, Production statistics 1989-1998, Department of Economic and Social Affairs, Statistics Division, United Nations, New York 2000.

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

^f UN steel data is for 1998 not 1999.

^g UN pig iron data is for 1998 not 1999.

^h UN aluminium data is for 1998 not 1999.

Industrial processes - Metal production: iron and steel**Trends in CO₂ emissions 1990 to 1999****Gigagrams**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Austria	8,461	8,041	6,949	7,254	7,771	8,585	8,084	9,107	8,385	8,456
Belgium								1,500	1,616	1,498
Bulgaria									1,837	1,668
Canada	7,585	8,904	9,084	8,760	8,091	8,440	8,289	8,100	8,316	8,501
Czech Republic										
Denmark										
Estonia										
Finland	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
France	4,009	3,020	2,581	2,490	3,275	4,014	2,783	3,306	3,160	2,720
Greece										
Hungary										
Iceland										NO
Ireland									NE	NE
Italy									997	962
Japan	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Latvia									IE	IE
Luxembourg										
Netherlands	IE				IE		IE	IE	IE	IE
New Zealand										1,508
Norway	170									194
Portugal	15	16	20	22	21	17	15	15	20	22
Slovakia										
Spain	690	664	634	675	707	659	604	716	776	777
	1,105	1,726	1,938	2,044	2,093	2,237	2,332	2,242	2,053	2,021
Switzerland									75	75
United Kingdom	2,760	1,794	1,781	1,880	2,287	2,222	2,802	1,728	1,255	2,815
United States	87,600	70,560	75,840	77,120	79,040	81,440	79,040	79,360	77,120	71,840

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										
Austria	-5.0	-13.6	4.4	7.1	10.5	-5.8	12.7	-7.9	0.9	-0.1
Belgium								7.7	-7.3	
Bulgaria									-9.2	
Canada	17.4	2.0	-3.6	-7.6	4.3	-1.8	-2.3	2.7	2.2	12.1
Czech Republic										
Denmark										
Estonia										
Finland										
France	-24.7	-14.6	-3.5	31.6	22.6	-30.7	18.8	-4.4	-13.9	-32.1
Greece										
Hungary										
Iceland										
Ireland										
Italy									-3.5	
Japan										
Latvia										
Luxembourg										
Netherlands										
New Zealand										
Norway										13.8
Portugal	4.4	25.9	9.9	-3.7	-21.3	-11.1	0.0	32.7	12.3	45.2
Slovakia										
Spain	-3.7	-4.5	6.4	4.7	-6.9	-8.3	18.7	8.3	0.1	12.7
Sweden	56.1	12.3	5.5	2.4	6.9	4.3	-3.9	-8.4	-1.5	82.8
Switzerland									0.0	
United Kingdom	-35.0	-0.7	5.6	21.7	-2.9	26.1	-38.3	-27.4	124.3	2.0
United States	-19.5	7.5	1.7	2.5	3.0	-2.9	0.4	-2.8	-6.8	-18.0

Industrial processes - Metal production**Trends in CO₂ implied emission factors 1990 to 1999****Tonnes per tonne**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia										0.00
Austria										
Belgium										
Bulgaria										
Canada										
Czech Republic										
Denmark										
Estonia										
Finland										
France										
Greece										
Hungary										
Iceland										
Ireland										
Italy										
Japan	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Latvia										
Luxembourg										
Netherlands										
New Zealand	1.94		2.07			1.82	1.89	1.85	1.96	1.99
Norway										
Portugal	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04
Slovakia										
Spain										
Sweden										
Switzerland										
United Kingdom										
United States										

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										
Austria										
Belgium										
Bulgaria										
Canada										
Czech Republic										
Denmark										
Estonia										
Finland										
France										
Greece										
Hungary										
Iceland										
Ireland										
Italy										
Japan										
Latvia										
Luxembourg										
Netherlands										
New Zealand						3.8	-2.1	6.2	1.4	2.4
Norway										
Portugal	-0.9	-24.9	10.4	-9.5	4.5	0.9	0.0	-15.6	-5.0	-37.1
Slovakia										
Spain										
Sweden										
Switzerland										
United Kingdom										
United States										

Industrial processes - Metal production: aluminium**Trends in CO₂ emissions 1990 to 1999****Gigagrams**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	1,827	1,822	1,922	2,039	2,039	1,895	1,963	2,060	2,353	2,497
Austria	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Belgium										
Bulgaria									11	7
Canada	2,636	3,014	3,213	3,768	3,677	3,545	3,726	3,794	3,817	3,919
Czech Republic										
Denmark										
Estonia										
Finland	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
France	541	458	668	682	615	583	608	639	673	723
Greece	232	236	237	229	214	203	203	206	226	248
Hungary									171	159
Iceland										347
Ireland									NE	NE
Italy									290	290
Japan	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Latvia									NO	NO
Luxembourg										
Netherlands	IE				IE		IE	IE		IE
New Zealand	458	455	423	467	468	470	493	504	541	535
Norway	1,560									1,781
Portugal	17	15	22	21	21	26	27	27	30	32
Slovakia										IE
Spain	677	675	682	679	651	688	688	558	558	564
Sweden	179	180	135	162	161	174	184	184	187	188
Switzerland									43	56
United Kingdom	450	456	380	371	359	369	372	384	401	422
United States	5,951	6,058	5,942	5,432	4,850	4,961	5,258	5,296	5,458	5,555

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	-0.3	5.5	6.1	0.0	-7.1	3.6	4.9	14.2	6.1	36.7
Austria										
Belgium										
Bulgaria									-37.3	
Canada	14.3	6.6	17.3	-2.4	-3.6	5.1	1.8	0.6	2.7	48.7
Czech Republic										
Denmark										
Estonia										
Finland										
France	-15.4	46.0	2.0	-9.9	-5.1	4.3	5.1	5.4	7.4	33.7
Greece	1.8	0.5	-3.6	-6.5	-5.2	0.0	1.3	10.1	9.5	6.9
Hungary									-6.6	
Iceland										
Ireland										
Italy									0.1	
Japan										
Latvia										
Luxembourg										
Netherlands										
New Zealand	-0.6	-7.0	10.2	0.2	0.5	4.9	2.2	7.4	-1.2	16.8
Norway										14.2
Portugal	-13.6	49.6	-2.0	-2.0	23.5	2.9	0.0	13.7	6.0	90.0
Slovakia										
Spain	-0.3	1.0	-0.3	-4.2	5.7	0.0	-19.0	0.2	1.0	-16.6
Sweden	0.2	-25.0	20.5	-0.8	8.0	6.1	-0.5	2.1	0.6	5.1
Switzerland									30.2	
United Kingdom	1.3	-16.7	-2.3	-3.3	2.9	0.9	3.2	4.3	5.3	-6.3
United States	1.8	-1.9	-8.6	-10.7	2.3	6.0	0.7	3.1	1.8	-6.6

Industrial processes - Metal production: aluminium**Trends in CO₂ implied emission factors 1990 to 1999****Tonnes per tonne**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Austria										
Belgium										
Bulgaria									1.7	1.7
Canada	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Czech Republic										
Denmark										
Estonia										
Finland										
France	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Greece										
Hungary									1.9	1.8
Iceland										1.6
Ireland										
Italy									1.6	1.6
Japan	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Latvia										
Luxembourg										
Netherlands										
New Zealand	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.7	1.6
Norway	1.8									3.6
Portugal	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Slovakia										
Spain										
Sweden	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Switzerland									1.6	1.6
United Kingdom	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
United States	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	-0.1	0.1	-0.1	-0.1	0.0	-0.2	0.0	0.1	0.3	0.1
Austria										
Belgium										
Bulgaria									0.0	
Canada	-1.7	-0.4	-0.9	-0.1	0.0	0.0	-0.1	0.1	0.0	-3.0
Czech Republic										
Denmark										
Estonia										
Finland										
France	-3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-3.6
Greece										
Hungary										
Iceland										
Ireland										
Italy									0.0	
Japan										
Latvia										
Luxembourg										
Netherlands										
New Zealand	0.0	-0.1	-0.1	-0.1	0.0	0.1	-6.4	5.1	-4.3	-6.0
Norway										99.5
Portugal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slovakia										
Spain										
Sweden	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Switzerland									0.4	
United Kingdom	0.0	0.2	-0.3	0.0	0.0	0.0	0.0	0.0	0.0	-0.2
United States	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Industrial processes - Metal production: PFC and SF₆ emissions (1999)

	2.C Metal production (PFCs and SF ₆)																		
	2.C. Metal production - PFCs										2.C. Metal production - 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	Percentage of national total	Activity data (Aluminium production)				IEF		Ratio ^f IEF CF ₄ / IEF C ₂ F ₆	Methods	EF	Key source	Percentage of national total	Activity data		SF ₆ -IEF	Actual emissions SF ₆ ^h
					CRF (1998) ^c	CRF (1999) ^{c,d}	UN ^e	Difference	CF ₄ kg / t	C ₂ F ₆ kg / t						Description	Value		
%																		kt	kt
IPCC default EF ^g								0.02 - 1.19	0.001 - 0.14								1000 ^g		
Australia	T1c	CS	T	8.1		1686	1718	1.9	0.08	0.008	10.00	T2	CS			SF ₆ consumption	0.15	1000	0.2
Austria ⁱ					C	C	94							T	1.3	Magnesium	C		0.2
Belgium																	NO		NO
Bulgaria	D	D				4			1.40	100.000	0.01	NE	NE						
Canada			L/T	0.9 / 0.7		2401	2390	-0.5	0.35	0.030	11.83			T	1.8	Point Source SF ₆ Data from Magnesium Foundries	NA		70.0
Czech Republic						NO										Production			
Denmark						0													0.7
Estonia						0													
Finland	NO	NO				NO						T2	NA			SF ₆ consumption	C		C
France ⁱ			T	1.2	420.77	452	424		0.35	0.035	9.81					SF ₆ consumption	47.5	1000	47.5
Greece			T	2.1		C	161									SF ₆ consumption	NE		NE
Hungary	T1b	D	L	0.6		89			0.85	0.085	10.00	D	D			NE	NE		NE
Iceland	CS	CS	L	4.1		222			0.08	0.009	9.00								
Ireland	NA	NA										NA	NA			NO	NO		NO
Italy ⁱ					187	187	187	0.1	0.06	0.006	10.00								
Japan						NE			NE	NE							NE		NE
Latvia						NO										NE	NO		NO
Luxembourg																			
Netherlands ⁱ			L	1.1			366												
New Zealand ⁱ	CS	PS				328	996		0.03	0.003	8.99	T1	PS			SF ₆ consumption	0.12	1000	0.1
Norway ⁱ			L	2.0		496	1058							L	1.3				30.0
Portugal	D	D				18													
Slovakia ⁱ						NA	115		0.01	0.001	10.00						NA		NA
Spain ⁱ						360													
Sweden	T2	PS	T	1.7	51.121	51	96	87.2				T2	CS			SF ₆ consumption	1.3	1000	1.3
Switzerland ⁱ	T1c	M				35	32					T1c	M						0.5
United Kingdom ⁱ	T2/PS	CS			258.397	272	258	-0.2	0.11			T2/PS	CS			SF ₆ consumption	30	1000	30.0
United States ^j	CS	PS	T	2.1		3779	3779	0.0	0.37	0.031	11.95	CS	CS			Primary and secondary production and casting activity	C		255.2

Note

IEF for SF₆ used in aluminium foundries has not been reported by any Party. This category has therefore not been included in this table.

^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 UN data for 1999 were not available for all Parties for the comparisons of UN and CRF data in this table, data for the years 1998 from the CRF are provided together with the respective UN data for 1998. For the Parties where 1998 UN data were used, the respective CRF data for 1998 was included for those Parties reporting data for 1998.

^d This column includes aluminium production data provided for CF₄ and C₂F₆ in tables 2 (II). C, E of the CRF, complemented by that provided for CO₂ (Italy and Switzerland).

^e Source of data: Monthly Bulletin of Statistics, Department of Economic and Social Affairs, Statistics Division, United Nations, New York, volume LV, no.3, March 2001, and 1998 Industrial Commodity Statistics Yearbook, Production statistics 1989-1998, Department of Economic and Social Affairs, Statistics Division, United Nations, New York 2000.

^f For Greece, Italy, Spain and Switzerland, ratio of emissions is given.

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

^h IPCC Guidelines state that emissions equal consumption (IPCC Guidelines, volume 3, page 2.39).

ⁱ UN aluminium data are for 1998 not 1999.

^j The production data for aluminium provided by the United States for CF₄ was by a factor of 1000 lower than that provided for CO₂, due to different units in the CRF. This has been corrected here.

Trends in actual CF₄ emissions 1990 to 1999

Tonnes

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	655	655	481	429	276	193	173	153	191	135
Austria	129	130	75	0	0	0	0	0	0	0
Belgium						NO	NO	NO	NO	NO
Bulgaria									9	6
Canada	814	865	905	1,017	945	827	808	820	828	850
Czech Republic										
Denmark										
Estonia										
Finland	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
France	309	220	187	128	103	89	87	93	121	157
Greece	50	42	30	17	11	11	10	8	7	4
Hungary									79	76
Iceland										18
Ireland									NO	NO
Italy									11	11
Japan	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Latvia									NO	NO
Luxembourg										
Netherlands	301	301	258	260	228	223	247	261	296	308
New Zealand	80	86	85	30	31	24	24	28	8	10
Norway										164
Portugal	NE					20	20	20	20	20
Slovakia										2
Spain	114	108	108	109	107	108	103	106	100	91
Sweden	59	57	55	53	51	51	44	40	39	43
Switzerland									7	2
United Kingdom	300	230	110	70	60	55	44	35	33	31
United States	2,575	2,310	2,181	1,892	1,560	1,535	1,591	1,488	1,392	1,381

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	0.1	-26.6	-10.8	-35.7	-30.1	-10.4	-11.6	24.6	-29.3	-79.4
Austria	0.4	-42.3								
Belgium										
Bulgaria									-37.3	
Canada	6.3	4.6	12.4	-7.0	-12.6	-2.3	1.5	1.0	2.7	4.4
Czech Republic										
Denmark										
Estonia										
Finland										
France	-28.8	-15.0	-31.6	-19.5	-13.6	-2.2	6.9	30.1	29.8	-49.2
Greece	-14.2	-29.7	-41.5	-36.6	-5.2	-4.7	-20.5	-8.3	-40.9	-91.3
Hungary									-4.0	
Iceland										
Ireland										
Italy									0.1	
Japan										
Latvia										
Luxembourg										
Netherlands	0.0	-14.3	0.8	-12.3	-2.2	10.8	5.7	13.4	4.1	2.3
New Zealand	7.9	-2.1	-64.1	0.9	-20.6	0.0	14.4	-70.0	18.8	-87.6
Norway										
Portugal						0.0	0.0	0.0	0.0	
Slovakia										
Spain	-5.1	-0.7	1.1	-1.4	0.6	-4.6	2.6	-5.7	-8.5	-20.2
Sweden	-3.1	-3.2	-3.3	-3.4	-1.4	-13.2	-8.6	-3.1	10.0	-26.9
Switzerland									-78.4	
United Kingdom	-23.3	-52.2	-36.4	-14.3	-8.3	-20.0	-20.5	-5.7	-6.1	-89.7
United States	-10.3	-5.6	-13.3	-17.5	-1.6	3.7	-6.5	-6.4	-0.8	-46.4

Consistency check

The following check has been performed in order to verify the consistency of the data provided in various CRF tables (1999):

Activity data reported in different tables of the CRF:

Aluminum production			
	for CO ₂	for CF ₄	for C ₂ F ₆
CRF table:	2(I)A-G kt	2(II)C,E t	2(II)C,E t
Australia	1,686	1,686,000	1,686,000
Austria	C	NO	NO
Bulgaria	4	4,192	6
Canada	2,401	2,401,389	2,401,389
Czech Republic	NO		
Denmark	0		
Estonia	0		
Finland	NO	NO	NO
France	452	451,927	451,927
Greece	C	C	C
Hungary	89	88,546	88,546
Iceland	222	222,014	222,014

Aluminum production			
	for CO ₂	for CF ₄	for C ₂ F ₆
CRF table:	2(I)A-G kt	2(II)C,E t	2(II)C,E t
Ireland		NO	NO
Italy	187	187,200	187,200
Japan	NE		
Latvia	NO	NO	NO
New Zealand	328	327,800	327,800
Norway	496		
Portugal	18		
Slovakia	NA	109,200	109,200
Sweden	51		
Switzerland	35		
United Kingdom	272	272,211	272,211
United States	3,779	3,779,000	3,779,000

Industrial processes - Production of halocarbons and SF₆ (1999)

2.E Production of halocarbons and SF ₆											
2.E Production of halocarbons and SF ₆ - HFCs								2.E Production of halocarbons and SF ₆ - PFCs		2.E Production of Halocarbons and SF ₆ - SF ₆	
Methods and EF used ^a		2.E.1 By-product emissions, production of HCFC-22						Methods and EF used ^a		Methods and EF used	
Methods	EF	Key source	Percentage of national total	Activity data (HCFC-22 production)		IEF		Method	EF	Method	EF
				CRF	International ^b						
			%	t	t	kg / t					
IPCC default EF ^c						40					
Australia	NA	NA			NO			NA	NA	NA	NA
Austria					NO						
Belgium											
Bulgaria	NE	NE						NE	NE	NE	NE
Canada	NA	NA			NO			NA	NA	NA	NA
Czech Republic	NO							NO		NO	
Denmark											
Estonia											
Finland	NO	NO			NO	x		NO	NO	NO	NO
France	CS	CS	T	1.7	NA			CS	CS		
Greece	T1	D	L/T	3.0 / 13.5	C			CS	CS		
Hungary						x					
Iceland											
Ireland	NA	NA			NE			NA	NA	NA	NA
Italy						x					
Japan	CS	CS						CS	CS	CS	CS
Latvia					NO	x					
Luxembourg											
Netherlands			L / T	3.2 / 5.3							
New Zealand					NA	x					
Norway	-	-									
Portugal											
Slovakia	NO	NO			NO			NO	NO	NO	NO
Spain	T1	T2				x		T3	T3		
Sweden											
Switzerland											
United Kingdom ^d	T2/PS	CS			IE	x		T2/PS	CS	NO	NO
United States	M	M	T	1.5	C	x		M	M	CS	CS

^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 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 1998 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, activity data were 40,610 t for 1999 and the implied emission factor was 4.48.

Industrial processes - Production of halocarbons and SF₆ (1999)**By-product emissions: production of HCFC-22****Trends in HFC-23 emissions 1990 to 1999**

Tonnes

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	NO									NO
Austria										
Belgium										
Bulgaria										
Canada										
Czech Republic										
Denmark										
Estonia										
Finland										
France	166	103	63	39	24	15	10	10	19	28
Greece	80	95	78	137	183	278	320	338	320	320
Hungary										
Iceland										
Ireland									NE	NE
Italy										
Japan ^a	NE	NE	NE	NE	NE	1,450	1,333	1,256	1,178	1,205
Latvia	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Luxembourg										
Netherlands	436	412	388	433	536	536	573	573	631	631
New Zealand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Norway										
Portugal										
Slovakia										
Spain	247	220	245	193	332	478	524	530	466	558
Sweden										
Switzerland										NO
United Kingdom ^b										
United States	2,974	2,632	2,974	2,726	2,692	2,316	2,667	2,573	3,419	2,598

^a Japan provided estimates in tonnes of CO₂ equivalent in table 2(II)s1 of the CRF. Data presented in this table were obtained by dividing those estimates by the corresponding GWP for HFC-23 (11700).

^b The United Kingdom provided only aggregated HFC emissions from 2.E.1 By-product emissions and 2.E.2 Fugitive emissions.

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										
Austria										
Belgium										
Bulgaria										
Canada										
Czech Republic										
Denmark										
Estonia										
Finland										
France	-38.0	-38.8	-38.1	-38.5	-37.5	-33.3	0.0	90.0	47.4	-83.1
Greece	18.4	-17.9	76.9	33.4	51.7	15.2	5.7	-5.5	0.0	300.4
Hungary										
Iceland										
Ireland										
Italy										
Japan						-8.1	-5.8	-6.2	2.3	
Latvia										
Luxembourg										
Netherlands	-5.5	-5.8	11.6	23.8	0.0	7.0	0.0	10.1	0.0	44.8
New Zealand										
Norway										
Portugal										
Slovakia										
Spain	-11.0	11.5	-21.3	72.0	43.9	9.8	1.1	-12.1	19.7	125.6
Sweden										
Switzerland										
United Kingdom										
United States	-11.5	13.0	-8.3	-1.3	-14.0	15.1	-3.5	32.9	-24.0	-12.6

Industrial processes - HFC emissions from consumption of halocarbons and SF₆ (1999)

Method and EF used ^a		2.F. Consumption of halocarbons and SF ₆ - HFCs																									
		HFC-23			HFC-32			HFC-41			HFC-43-10mee			HFC-125			HFC-134			HFC-134a			HFC-152A				
		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	P	A	Ratio P/A		
		2.F.(p)	2.F.(a)		2.F.(p)	2.F.(a)		2.F.(p)	2.F.(a)		2.F.(p)	2.F.(a)		2.F.(p)	2.F.(a)		2.F.(p)	2.F.(a)		2.F.(p)	2.F.(a)		2.F.(p)	2.F.(a)		2.F.(p)	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.				
Australia	NE	NA	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		
Austria	CS	CS	304.2	5.5	54.9	6.5	0.6	10.9							601.6	45.3	13.3	95.9	782.6	0.1	1.3	0.1	13.6				
Belgium									NO					NO	139.7	24.2	5.8	NO				1,014.0	456.4	2.2	0.5	2.9	0.2
Bulgaria	T1a	D	7.4			0.2									20.2							73.8				0.2	
Canada	T2	D	1.7	1.6	1.0	0.4	0.1	3.0							39.2	118.0	0.3					1,720.4	679.5	2.5	2.6	4.4	0.6
Czech Republic	D		4.7			0.6									91.9							185.1				0.4	
Denmark							3.9	0.0								121.7	0.0						344.1	0.0		5.4	0.0
Estonia																											
Finland	T2&T1b	D	3.0	3.0	1.0	7.2	5.6	1.3							275.1	96.2	2.9					292.0	164.5	1.8	2.8	3.8	0.7
France	CS/ T2	CS		62.6	0.0		2.6	0.0					81.9			470.2	0.0						2,812.6	0.0			
Greece																											
Hungary	T1a, D	CS													30.8	12.9	2.4					277.2	120.6	2.3			
Iceland	T1	D				0.0									23.5							8.2			0.1		
Ireland	NA	NA	NE	NE	NE	NE	NE		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Italy				24.8	0.0		22.0	0.0							260.4	252.3	1.0					3,367.0	2,325.8	1.4			
Japan	CS	CS	18,064.8	5,293.9		288.0	IE		NE	IE		NE	IE		1,540.0	IE		NE	IE			18,398.9	IE		1.1	IE	
Latvia			NE	NO		NE	NO		NE	NO		NE	NO		NE	NO		NE	NO			NE	NO		NE	NO	
Luxembourg																											
Netherlands	T2/CS														543.2	124.6	4.4					1,366.3	984.4	1.4			
New Zealand	T1a		NA	NA		NE	4.8		NA	NA	NA	NA	NA	NA	NE	29.1		NA	NA			NE	133.5		NE	0.2	
Norway	T2	CS	0.8	0.8	1.0	4.2	0.4	10.0							221.5	55.6	4.0					357.0	65.3	5.5	6.8	0.8	8.1
Portugal																											
Slovakia	D	D, CS	0.5	0.6	0.9	0.3	0.1	4.1							10.0	2.1	4.7					102.4	57.8	1.8	0.5	0.1	5.6
Spain	T1,T2	T1,T2		184.3	0.0											83.1	0.0						2,146.1		0.0		
Sweden	T2, T1b	D, CS		0.5	0.0	20.6	0.4	51.1							250.0	13.2	19.0					742.6	328.7	2.3	-0.1	18.7	0.0
Switzerland	T2	M	1.2	NO		9.1	1.8	5.0	NO	NO	NO	0.3	NO		178.6	50.9	3.5	NO	NO			485.9	243.2	2.0	0.4	0.8	0.4
United Kingdom	T2	D/CS					IE			IE			IE			IE			IE				IE			IE	
United States	M	M	3,419.4	288.8	11.8	367.7	11.3	32.5	46511.6	9444.7	4.9				21,199.1	3,608.5	5.9					82,518.6	39,442.0	2.1			

2.F. Consumption of halocarbons and SF ₆ - HFCs																				
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		
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 equ.				Gg CO ₂ equ.				Gg CO ₂ equ.				Gg CO ₂ equ.				Gg CO ₂ equ.			Gg CO ₂ equ.	
Australia	NE	NE	NE	NE	NE	NE		NE	NE	NE		NE	NE	NE		NE	NE			
Austria				480.8	36.0	13.4		21.8	0.3	67.3						1 512.1	870.5	1.		
Belgium	NO			268.6	43.2	6.2						NO		NO		1 422.9	526.7	2.		
Bulgaria	0.9															102.7				
Canada				47.2	113.7	0.4		3.1								1 814.5	917.4	2.		
Czech Republic				126.1								3.2				411.9				
Denmark				146.2												146.2	475.0	0.		
Estonia																				
Finland				303.5	43.8	6.9		29.7	10.7	2.8						913.4	327.6	2.		
France					730.9	0.0			13.5	0.0							4 174.2	0.		
Greece																				
Hungary				49.9	20.7	2.4										357.9	154.3	2.		
Iceland				27.6												59.4				
Ireland	NE	NE	NE	NE	NE	NE		NE	NE	NE		NE	NE	NE		NE	NE			
Italy				266.0	235.5	1.1		40.6								3 934.0	2 860.3	1.		
Japan	NE	IE		429.4	IE			NE	IE			NE	IE			38 722.2	5 293.9	0.		
Latvia	NE	NO		NE	NO			NO	NO			NO	NO							
Luxembourg																				
Netherlands	50.7				159.6	0.0		57.0	48.6	1.2						2 017.2	1 317.2	1.		
New Zealand	NA	NA	NA	NE	41.8			NE	0.4			NA		NA			209.9	0.		
Norway				267.9	56.0	4.8		0.6	0.5	1.3						858.7	179.5	4.		
Portugal																				
Slovakia				14.1	3.1	4.6			2.3	0.0						127.8	66.0	1.		
Spain					130.8	0.0			24.3	0.0		0.9					2 569.5	0.		
Sweden				269.0	13.9	19.3		3.2	2.2	1.5						1 285.3	377.5	3.		
Switzerland	NO	NO	NO	212.7	66.7	3.2						NO	NO	NO	NO	888.0	363.4	2.		
United Kingdom					IE				IE				IE				IE			
United States				24 882.7	2 567.7	9.7						2 446.0	1 342.2	1.8		181 345.0	56 705.2	3.		

^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 Key source assessments here refer to categories including HFCs, PFCs and SF₆ rather than by individual gas species.

^c The percentage refers to the actual emissions where available; otherwise to potential emissions.

Key sources - HFCs, PFCs, SF ₆ ^{b, c}					
ODS substitutes (HFCs and PFCs)		Fugitive emissions (prod. halocarbons and SF ₆)		PFCs, HFCs, SF ₆ (semiconductor manufacturing)	
	Key source	Percentage of national total	Key source	Percentage of national total	Percentage of national total
		%		%	
Australia					
Austria	L/T	1.1 / 4.7			1.5
Belgium					
Bulgaria					
Canada					
Czech Republic					
Denmark	L	0.9			
Estonia					
Finland	T	2.3			
France	L	0.8	T	0.5	0.5
Greece					
Hungary					
Iceland					
Ireland					
Italy	L	0.5			
Japan	L	0.8			
Latvia					
Luxembourg					
Netherlands					
New Zealand					
Norway	T	2.5			
Portugal					
Slovakia					
Spain					
Sweden	L/T	0.5 / 5.1			
Switzerland	L	0.7			
United Kingdom	L/T	0.7 / 1.5			
United States	L/T	0.7 / 8.4			

Industrial processes - PFC and SF₆ emissions from consumption of halocarbons and SF₆ (1999)

	2.F. Consumption of halocarbons and SF ₆ - PFCs ^a																												
	Method and EF used ^b			CF ₄			C ₂ F ₆			C ₃ F ₈			C ₄ F ₁₀			C ₄ F ₈			C ₅ F ₁₂			C ₆ F ₁₄			Total				
	Method	EF	Ratio P/A	P	A	Ratio P/A	P	A	Ratio P/A	P	A	Ratio P/A	P	A	Ratio P/A	P	A	Ratio P/A	P	A	Ratio P/A	P	A	Ratio P/A	P	A	Ratio P/A		
				2.F.(p)	2.F.(a)		2.F.(p)	2.F.(a)		2.F.(p)	2.F.(a)		2.F.(p)	2.F.(a)		2.F.(p)	2.F.(a)		2.F.(p)	2.F.(a)		2.F.(p)	2.F.(a)		2.F.(p)	2.F.(a)		2.F.(p)	2.F.(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.		
Australia	NE	NA	NE	NE	NE		NE	NE	NE		NE	NE		NE	NE		NE	NE		NE	NE		NE	NE					
Austria	CS	CS		9.74				15.58																			25.32		
Belgium			NO										NO				NO			NO			NO						
Bulgaria	NE	NE																											
Canada	T2	PS	5.46	3.12	1.75	29.49	11.75	2.51	18.88	1.67	11.32	0.12	0.00	340.00	0.00	0.07	0.01	0.15	0.08	1.85	2.23	2.42	0.92	56.34	19.12	2.95			
Czech Republic	D		0.39						2.31																2.70				
Denmark										30.10																30.10			
Estonia																													
Finland	T2&T1b/T1a	D/NA	0.77	0.77	1.00	0.06	0.06	1.00	25.35	25.35	1.00										2.38	2.38	1.00	28.55	28.55	1.00			
France	CS/ T2	CS		167.59			359.79			0.02												134.72				662.11			
Greece																													
Hungary	T1a	CS																				26.64	13.32	2.00	26.64	13.32	2.00		
Iceland																													
Ireland	NA	NA	NE	NE	NE	NE	NE		NE	NE		NE	NE		NE	NE		NE	NE		NE	NE							
Italy				40.94			47.42							0.15												88.52			
Japan ^a	CS	CS	2,710.50	9,770.20		5,989.20	IE		378.00	IE		NE	IE		849.12	IE		7,470.00	IE		NE	IE		17,396.82	9,770.20	0.56			
Latvia			NO	NO		NO	NO		NO	NO		NO	NO		NO	NO		NO	NO		NO	NO							
Luxembourg																													
Netherlands ^c																													
New Zealand	T1a		NA	NA	NA	NA	NA		NE	NE			NA					NA			NA								
Norway									7.00	0.39	18.10														7.00	0.39	18.10		
Portugal																													
Slovakia	D	D/ CS		2.59																									
Spain	T1, T2	T1, T2								27.86			1.99													2.59			
Sweden	T2, T1b	CS	3.25	0.78	4.17	11.04	6.81	1.62																	14.29	7.59	1.88		
Switzerland	T2	M	2.60	2.69	0.97	22.08	11.69	1.89	0.07	1.94	0.04	NO	NO		NO	NO		NO	NO		NO	NO		24.75	16.33	1.52			
United Kingdom	T2	D/CS					IE			IE			IE			IE			IE			IE							
United States	M	M	61.68	3.52	17.51		6,800.00																	61.68	6,803.52	0.01			

^a An assessment of key sources is provided in a separate table presented together with the table on HFC emissions from consumption of halocarbons and SF₆

^b 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

^c The Netherlands reported aggregated emissions of all PFCs for the industrial processes sector. These aggregated emissions are a key source.

2.F. Consumption of halocarbons and SF ₆ - SF ₆ ^a				
Method and EF used ^b		P		Ratio P/A
Method	EF	2.F.(p)	2.F.(a)	
		Gg CO ₂ equ.		
Australia	NE	NA	NE	NE
Austria	CS	CS	8,875.84	707.68
Belgium			478.00	2,485,600.00
Bulgaria	NE	NE		
Canada	T3	PS		
Czech Republic	D		110.85	
Denmark				48.04
Estonia				
Finland	T2&T1b/T1a	D/NA	29.16	32.33
France	CS/ T2	CS		1,275.40
Greece				
Hungary	D	CS	177.34	101.20
Iceland	D	D		
Ireland	NA	NA	NE	NE
Italy			3,465.50	385.85
Japan	CS	CS	34,057.50	6,823.50
Latvia			0.09	NO
Luxembourg				
Netherlands			CBI	136.71
New Zealand	CS		68.12	30.45
Norway				57.46
Portugal	D	D		0.99
Slovakia	D	D/ CS		12.68
Spain	T1,T2	T1,T2		224.54
Sweden	T2, T1b	CS	466.05	65.25
Switzerland	T2	M	478.17	101.41
United Kingdom	T2	CS	2,729.53	597.17
United States	CS	CS	67,142.94	25,700.00

Industrial processes - Consumption of halocarbons and SF₆ (HFCs)**Trends in actual HFC-134a emissions 1990 to 1999****Tonnes**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Austria	1	2	3	5	7	414	458	509	568	602
Belgium									351	351
Bulgaria										
Canada						285	543	406	523	523
Czech Republic										
Denmark			2	20	37	70	135	146	231	265
Estonia										
Finland					5	15	38	89	92	127
France					118	523	1,174	1,708	1,887	2,164
Greece										
Hungary										93
Iceland										
Ireland										NE
Italy									554	1,789
Japan	NE	NE	NE	NE	NE	IE	IE	IE	IE	IE
Latvia										NO
Luxembourg										
Netherlands					63	177	392	608	704	757
New Zealand										103
Norway										50
Portugal										
Slovakia										44
Spain						2	168	437	993	1,651
Sweden	1	2	3	13	34	68	97	160	202	253
Switzerland										187
United Kingdom										
United States	564	564	626	2,885	6,284	14,345	18,962	23,478	26,854	30,340

Note

The trend in HFC-134a emissions is presented here, since HFC-134a is the most commonly used HFC.

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										
Austria	57.51	47.87	45.96	46.18	6,059.60	10.49	11.17	11.54	6.05	44,374.05
Belgium									0.00	
Bulgaria										
Canada						90.74	-25.30	28.87	0.00	
Czech Republic										
Denmark			706.45	84.79	88.26	93.92	8.00	58.85	14.33	
Estonia										
Finland					208.02	158.80	136.59	2.56	38.08	
France					344.50	124.35	45.45	10.46	14.68	
Greece										
Hungary										
Iceland										
Ireland										
Italy									222.87	
Japan										
Latvia										
Luxembourg										
Netherlands					180.63	121.89	54.88	15.90	7.53	
New Zealand										
Norway										
Portugal										
Slovakia										
Spain						10,254.01	160.28	127.46	66.24	
Sweden	118.60	64.36	309.06	170.33	100.09	41.30	65.22	26.78	24.95	29,300.00
Switzerland										
United Kingdom										
United States	0.00	11.06	360.46	117.84	128.27	32.18	23.81	14.38	12.98	5,278.46

Industrial processes - Consumption of halocarbons and SF₆ (SF₆)Trends in actual SF₆ emissions 1990 to 1999

Tonnes

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Austria	11.06	16.97	19.75	22.83	27.61	30.61	26.59	33.43	33.08	29.61
Belgium									8.63	8.63
Bulgaria										
Canada										
Czech Republic										
Denmark	0.50	1.25	2.42	3.65	3.21	2.99	2.15	2.46	1.79	2.01
Estonia										
Finland	2.97	2.00	1.36	1.10	1.10	0.58	0.58	0.67	0.49	1.35
France	44.34	45.23	46.15	47.14	48.22	49.32	52.39	54.75	53.15	53.36
Greece										
Hungary										4.23
Iceland										
Ireland										NE
Italy									15.59	16.14
Japan	NE	NE	NE	NE	NE	503.01	543.86	496.00	448.56	285.50
Latvia										0.09
Luxembourg										
Netherlands	6.05		4.45	4.60	6.19	7.30	6.71	7.61	5.54	5.72
New Zealand										1.27
Norway										2.40
Portugal						0.04	0.04	0.04	0.04	0.04
Slovakia										0.53
Spain	3.25	3.50	3.60	3.75	4.11	4.96	5.31	6.31	7.33	9.40
Sweden	3.40	3.44	3.42	2.95	2.95	4.00	3.01	4.41	2.56	2.73
Switzerland										4.24
United Kingdom	10.30	12.48	14.84	17.20	19.40	22.43	23.16	22.83	23.95	24.99
United States	857.74	901.26	944.77	988.28	1,031.80	1,075.31	1,075.31	1,075.31	1,075.31	1,075.31

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										
Austria	53.43	16.37	15.58	20.96	10.86	-13.14	25.71	-1.02	-10.50	167.66
Belgium									0.00	
Bulgaria										
Canada										
Czech Republic										
Denmark	150.00	93.68	50.64	-12.06	-6.70	-28.07	14.22	-27.30	12.48	302.00
Estonia										
Finland	-32.76	-32.05	-19.07	-0.25	-46.85	0.00	15.33	-26.46	173.66	-54.50
France	2.01	2.03	2.16	2.28	2.29	6.23	4.50	-2.93	0.41	20.36
Greece										
Hungary										
Iceland										
Ireland										
Italy									3.54	
Japan						8.12	-8.80	-9.56	-36.35	
Latvia										
Luxembourg										
Netherlands			3.37	34.57	17.93	-8.08	13.41	-27.20	3.25	-5.45
New Zealand										
Norway										
Portugal						2.15	0.00	4.24	2.04	
Slovakia										
Spain	7.47	2.83	4.28	9.49	20.68	7.25	18.67	16.16	28.26	188.72
Sweden	1.18	-0.58	-13.74	0.00	35.59	-24.75	46.51	-41.95	6.64	-19.71
Switzerland										
United Kingdom	21.14	18.97	15.84	12.84	15.58	3.26	-1.42	4.91	4.34	142.59
United States	5.07	4.83	4.61	4.40	4.22	0.00	0.00	0.00	0.00	25.37

Industrial processes: Activity data from international sources**Aluminium production in thousands of metric tons (1998)**

Source	Monthly Bulletin of Statistics			ICS 1998 ^a	
	Type	Monthly average	in 1998	Primary	Total
Australia	A	134.8	1,617.6	1,617.6	1,721.6
Austria	B	7.8	93.6	0.0	126.4
Belgium					0.0
Bulgaria					
Canada	A	197.8	2,373.6	2,374.1	2,485.1
Czech Republic					
Finland					
Greece	A	12.2	146.4	146.4	146.4
Hungary	A	2.8	33.6	92.2	92.2
Ireland					
Italy	A	15.5	186.0	187.0	689.6
Japan	A	25.8	309.6	51.4	1,206.8
Latvia					
Lithuania					
Netherlands	A+B	34.4	412.8	263.7	365.7
New Zealand	A	26.5	318.0	317.5	325.5
Norway	A+B	88.2	1,058.4	995.5	1,057.9
Slovakia				114.9	120.7
Spain	A	29.9	358.8	360.4	570.4
Sweden				95.7	122.7
Switzerland				32.1	47.2
United Kingdom	A	21.5	258.0	258.4	533.2
United States	A	309.4	3,712.8	3,713.0	7,153.0
	Type A: primary (virgin) aluminium from domestic and imported ores.			Unwrought primary	Unwrought total
	Type B: secondary, i.e. derived from scrap.				

Total HFC-134a sales by region (metric tons)

	Northern hemisphere		Southern hemisphere	
Year	30-90 degrees north	0-30 degrees north	0-90 degrees south	TOTAL
	(plus fugitive emissions)			
1990	189	-----	-----	189
1991	2,197	1	-----	2,198
1992	6,343	47	14	6,404
1993	25,955	287	284	26,526
1994	46,726	2,507	1,167	50,400
1995	67,020	4,744	2,005	73,769
1996	75,148	5,876	2,650	83,674
1997	92,257	5,668	4,012	101,937
1998	98,174	8,351	5,710	112,235
1999	117,784	9,578	6,300	133,662
TOTAL	531,793	37,059	22,142	590,994

Source: AFEAS
(www.afeas.org)

Aluminium production in thousands of metric tons (1998)

HFC-134a	
1990	189
1991	2,198
1992	6,404
1993	26,526
1994	50,400
1995	73,769
1996	83,674
1997	101,937
1998	112,235
1999	133,662

Source: AFEAS
(www.afeas.org)

Monthly Bulletin of Statistics, United Nations Statistics Division, vol. LIV, no. 12, December 2000, ST/ESA/STAT/SER.Q/336.

1998 Industrial Commodity Statistics Yearbook, Production statistics 1989-1998, Department of Economic and Social Affairs, Statistics Division, United Nations, New York, 2000.

^a For a comparison of aluminium production data as reported in the CRF by Parties please refer to table Industrial processes - PFC and SF₆ emissions from metal production (1999).

Solvent and other product use, CO₂, N₂O and NMVOC (1999)

	Solvent and other product use															
	Methods and EF used, CO ₂		Methods and EF used, N ₂ O		3. A Paint application						3. B. Degreasing and dry cleaning					
					CO ₂			N ₂ O			CO ₂			N ₂ O		
	Method	EF	Method	EF	Key source	Percentage of national total	CO ₂ IEF	Key source	Percentage of national total	N ₂ O IEF	Key source	Percentage of national total	CO ₂ IEF	Key source	Percentage of national total	N ₂ O IEF
						%	t / t		%	t / t		%	t / t		%	t / t
Australia	NE	NE	NE	NE			0.000			0.000						
Austria	C, CS	CS	CS	CS			2.649									
Belgium																
Bulgaria	NE	NE	NE	NE												
Canada	NA	NA	CS	CS												
Czech Republic	C	C, CS	D	D			1.356						2.534			
Denmark																
Estonia																
Finland	NO	NO	CS	CS												
France	C	CS					2.961						2.423			
Greece	C	C					0.003						0.001			
Hungary	CS	CS					0.311						0.063			
Iceland																
Ireland	CS, C	CS, C	NA	NA												
Italy							0.737						2.454			
Japan			CS	CS			NO			NO			NO			NO
Latvia	T1	D					NO			NO			NO			NO
Luxembourg																
Netherlands	CS	CS	CS	CS												
New Zealand							NE			NE			NE			NO
Norway	M	CS	CS				3.000						3.000			
Portugal	MB						0.756						3.117			
Slovakia			NO	NO												
Spain			CS	CS												
Sweden	CS	CS														
Switzerland	CS	CS	CS	CS			NO			NO			NO			NO
United Kingdom	T2	CS	NE													
United States	NE	NE	NE	NE												

3. Agriculture

FCCC/WEB/SAI/2001

Agriculture - Enteric fermentation, CH₄ (1999)

	4.A Enteric fermentation (CH ₄)																
	Methods and EF used ^a		Key source	Per centage of national total	4.A.1 Cattle					4.A.3 Sheep				4.A.8 Swine			
					Activity data (population size)			Dairy cattle	Non-dairy cattle	Activity data (population size)			CH ₄ IEF	Activity data (population size)			CH ₄ IEF
	Methods	EF			CRF	FAO ^b	Difference	CH ₄ IEF		CRF	FAO ^b	Difference	kg CH ₄ /head/yr	CRF	FAO ^b	Difference	kg CH ₄ /head/yr
					%	(1,000 head)	%	kg CH ₄ /head/yr		(1,000 head)	%	(1,000 head)		%			
IPCC default EF ^c								56 - 118 ^d	44 - 56 ^d			8				1.5	
Australia	CS	CS	LT	12.4	26,693	26,578	-0.4	107.2	74.5	115,925	115,456	-0.4	6.6	2,685	2,626	-2.2	1.1
Austria	C	CS	LT	3.4	2,153	2,172	0.9	92.0	38.0	352	361	2.4	8.0	2,570	3,810	48.2	1.5
Belgium ^e						3,186											
Bulgaria	T1	D	L	2.2	677	671	-0.8	81.0	56.0	2,661	2,774	4.2	8.0	1,617	1,721	6.4	1.5
Canada	T1	D	L	2.6	13,675	12,902	-5.7	99.6	54.1	433	649	49.9	13.3	12,317	12,409	0.7	1.5
Czech Republic	T2	CS	L	1.3	1,657	1,657	0.0	68.2	23.6	86	86	0.1	5.0	4,001	4,001	0.0	3.4
Denmark			LT	3.7	1,887	1,887	0.0	104.0	37.0	69	143	107.7	8.0	9,305	11,626	24.9	1.5
Estonia			L	2.0	267	308	15.0	81.0	56.0	31	31	-0.3	8.0	286	326	14.2	1.5
Finland	T2	CS/D	LT	2.0	1,087	1,087	0.0	107.6	42.1	107	107	0.0	8.0	1,351	1,351	0.0	1.5
France	C	CS	LT	5.1	20,532	20,265	-1.3	82.0	50.5	10,169	10,240	0.7	6.0	7,107	14,682	106.6	1.0
Germany	CS	CS	L	2.0													
Greece	T1	D	LT	2.5	600	577	-3.8	81.0	56.0	9,195	8,756	-4.8	8.0	1,424	933	-34.5	1.5
Hungary	D	D	L	1.9	857	873	1.9	100.0	48.0	934	909	-2.7	8.0	5,335	5,479	2.7	1.5
Iceland	D	D	L	6.7	75	75	0.0	100.0	48.0	491	491	0.0	8.0	4	43	994.1	1.5
Ireland	D	CS, D	L	15.5	7,216	7,093	-1.7	100.0	50.0	6,756	5,624	-16.8	8.0	1,786	1,801	0.8	1.5
Italy			L	2.5	7,261	7,150	-1.5	117.6	53.6	11,089	10,770	-2.9	8.0	8,290	8,225	-0.8	1.5
Japan	D	CS			4,589	4,658	1.5	90.3	54.1	16	12	-26.4	4.1	9,823	9,879	0.6	1.1
Latvia ^f	T1	D	L	5.2	378,000	434	-99.9	81.0	56.0	27,000	27	-99.9	8.0	405,000	421	-99.9	1.5
Luxembourg ^e			L	5.5		3,186											
Netherlands	cattle 90: T2; rest: T1	cattle: CS; rest: D	LT	3.0	4,206	4,206	0.0	81.3	46.5	1,401	1,401	0.0	8.0	13,567	13,418	-1.1	1.5
New Zealand	T1	CS	L	38.3	9,034	8,960	-0.8	76.8	67.5	45,754	45,680	-0.2	15.1	372	369	-0.8	NE
Norway	T1	D	LT	3.5	1,033	1,042	0.8	100.0	48.0	2,715	2,400	-11.6	8.0	631	690	9.3	1.5
Portugal	T1	D	LT	3.0	1,255	1,267	1.0	100.0	48.0	3,472	5,850	68.5	8.0	2,254	2,341	3.8	1.5
Slovakia	T1,T2; CS	D; CS	L	2.2	570	705	23.6	96.0	56.0	340	326	-4.1	8.0	1,562	1,593	2.0	1.5
Spain	T1,T2	T1,T2	L	3.5		5,965					23,751				22,597		
Sweden	T1, CS	D, CS	LT	4.4	1,713	1,713	0.0	154.0	49.1	438	437	-0.2	8.0	2,114	2,115	0.0	1.6
Switzerland	CS	CS	L	4.6	1,609	1,609	0.0	98.9	43.2	424	424	-0.1	6.8	1,453	1,452	-0.1	1.0
United Kingdom	T2	D/CS	LT	2.9	11,423	11,423	0.0	93.9	45.7	44,656	44,656	0.0	4.7	7,284	7,284	0.0	1.5
United States of America	M, T1	M, D	LT	1.9	103,058	99,115	-3.8	94.7	68.0	7,215	7,235	0.3	8.0	60,310	62,206	3.1	1.5
Average								95.5	50.8				7.9				1.5
Maximum								154.0	74.5				15.1				3.4
Minimum								68.2	23.6				4.1				1.0

^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 the various livestock types within the category CH₄ from 4.A Enteric fermentation.

^b Source of international statistics: FAO, <http://apps.fao.org>: then click in "Agriculture" and then, in "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, 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

^e In the FAO statistics, Belgium and Luxembourg are aggregated.

^f Information on methods and emission factors used was provided for the agriculture sector as a whole, not for the source category.

Agriculture - Enteric fermentation**Trends in CH₄ emissions 1990 to 1999****Gigagrams**

	Base year ^a	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	3,065	3,065	3,072	3,021	2,962	2,902	2,876	2,865	2,881	2,876	2,869
Austria	154	154	151	144	142	141	135	133	131	131	128
Belgium										212	210
Bulgaria	193	180	165	135	104	87	82	79	76	82	83
Canada	762	762	769	789	795	834	861	867	875	855	849
Czech Republic ^c										86	85
Denmark	150	150	149	146	148	143	143	142	138	138	128
Estonia											19
Finland	87	87	83	81	81	81	76	76	77	75	74
France	1,431	1,431	1,405	1,370	1,355	1,352	1,359	1,358	1,341	1,330	1,331
Germany	1,248	1,248	1,103	1,043	1,024	1,024	1,018	1,016	983	970	949
Greece	142	142	140	139	139	139	140	142	144	145	145
Hungary	157	126	122	105	90	85	84	82	79	81	80
Iceland	11	11	11	10	10	10	10	10	10	10	10
Ireland	453	453	457	458	460	462	468	477	488	494	483
Italy	648	648	658	630	618	626	637	629	640	638	638
Japan	345	345	350	351	348	344	339	335	331	328	324
Latvia	98	98	95	79	49	41	39	37	35	32	28
Luxembourg											16
Netherlands	402	402	412	401	393	382	377	365	353	339	332
New Zealand	1,474	1,474	1,441	1,418	1,416	1,422	1,420	1,406	1,395	1,396	1,398
Norway	87	87	87	89	88	91	92	92	93	94	94
Portugal	124	124	126	121	119	119	119	118	118	116	115
Slovakia	116	116	101	87	74	69	71	68	62	56	54
Spain	589	589	577	580	591	578	575	620	624	623	638
Sweden	153	153	148	154	155	155	152	152	152	149	147
Switzerland ^b	130	130	132	131	130	127	128	126	124	120	118
United Kingdom	913	913	900	900	900	907	897	905	893	895	892
United States	6,166	6,166	6,143	6,289	6,160	6,447	6,492	6,295	6,172	6,072	6,057
Average	764	762	752	747	734	743	744	736	729	679	631
Maximum	6,166	6,166	6,143	6,289	6,160	6,447	6,492	6,295	6,172	6,072	6,057
Minimum	11	11	11	10	10	10	10	10	10	10	10

^a Base year refers to 1990, except for the following Parties with economies in transition which, in accordance with decision 9/CP.2, use base years other than 1990: Bulgaria (1988) and Hungary (average of 1985-1987).

^b Calculated as average of three years.

^c Values other than for 1999 were taken from the 2000 submission, as no trend tables were provided and no recalculations were reported in the 2001 submission.

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	0.2	-1.7	-1.9	-2.0	-0.9	-0.4	0.5	-0.2	-0.2	-6.4
Austria	-2.1	-4.6	-1.8	-0.8	-3.8	-1.8	-1.1	-0.4	-2.1	-17.2
Belgium										-1.3
Bulgaria	-8.4	-17.9	-23.0	-16.3	-5.5	-4.0	-4.1	7.7	1.4	-57.0
Canada	1.0	2.6	0.8	4.8	3.3	0.7	1.0	-2.2	-0.8	11.4
Czech Republic										-0.8
Denmark	-1.0	-1.5	1.2	-3.7	-0.1	-0.1	-3.1	0.1	-7.3	-14.8
Estonia										
Finland	-4.8	-2.3	0.1	-0.2	-5.9	0.4	1.1	-2.3	-1.7	-14.8
France	-1.9	-2.5	-1.1	-0.2	0.5	0.0	-1.3	-0.9	0.1	-7.0
Germany	-11.6	-5.4	-1.8	0.0	-0.6	-0.2	-3.2	-1.3	-2.2	-24.0
Greece	-1.2	-0.6	-0.2	0.4	0.5	1.1	1.4	0.9	0.0	2.3
Hungary	-2.7	-14.0	-13.9	-5.8	-2.0	-2.0	-3.7	2.8	-1.3	-48.9
Iceland	-1.5	-2.9	-0.8	0.4	-2.6	0.9	1.1	0.9	-1.1	-5.4
Ireland	0.9	0.1	0.5	0.5	1.2	2.1	2.2	1.2	-2.2	6.7
Italy	1.6	-4.3	-1.9	1.3	1.7	-1.2	1.7	-0.3	0.1	-1.5
Japan	1.2	0.3	-0.7	-1.2	-1.4	-1.2	-1.1	-1.1	-1.2	-6.2
Latvia	-3.5	-16.2	-38.3	-17.0	-3.2	-5.6	-6.4	-8.8	-13.1	-71.9
Luxembourg										
Netherlands	2.5	-2.7	-2.0	-2.8	-1.4	-3.0	-3.5	-3.8	-2.2	-17.4
New Zealand	-2.3	-1.6	-0.1	0.4	-0.1	-1.0	-0.8	0.1	0.1	-5.1
Norway	0.5	1.8	-1.2	3.9	1.0	0.4	0.2	1.7	0.0	8.6
Portugal	1.7	-4.0	-1.9	-0.2	0.3	-1.1	0.0	-1.1	-1.1	-7.2
Slovakia	-13.3	-13.9	-14.8	-6.4	2.3	-4.2	-8.1	-10.2	-4.3	-53.9
Spain	-2.1	0.4	2.0	-2.2	-0.5	7.8	0.6	-0.1	2.4	8.3
Sweden	-3.1	3.8	0.9	-0.2	-2.2	0.1	0.2	-2.4	-1.2	-4.2
Switzerland	1.1	-0.8	-0.6	-1.9	0.3	-1.3	-1.5	-3.0	-2.4	-9.7
United Kingdom	-1.4	-0.1	0.0	0.8	-1.1	0.9	-1.3	0.2	-0.3	-2.3
United States	-0.4	2.4	-2.1	4.7	0.7	-3.0	-2.0	-1.6	-0.2	-1.8

Agriculture - Enteric fermentation: dairy cattle**Trends in CH₄ emissions 1990 to 1999**

Gigagrams

Party	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia ^b	263.5	261.5	262.1	271.3	280.8	292.0	302.1	315.4	322.9	336.8
Austria	83.2	80.6	77.4	76.2	74.5	65.0	64.2	66.3	67.0	64.2
Belgium ^{a,b}								198.2	204.6	201.9
Bulgaria										34.5
Canada	196.4	190.0	186.9	179.4	180.3	181.1	181.4	175.6	173.1	165.7
Czech Republic ^b									43.9	43.8
Denmark	78.3	77.1	74.0	74.3	72.8	73.1	72.9	69.7	69.6	66.6
Estonia										11.2
Finland	47.6	43.7	42.1	42.3	42.3	41.0	40.5	41.2	40.5	40.1
France	639.6	616.5	589.3	575.5	572.8	571.4	569.2	561.4	555.0	552.6
Germany										
Greece	20.0	19.6	19.3	19.1	18.9	18.7	19.1	19.2	19.4	19.4
Hungary ^b									40.7	39.9
Iceland									3.2	2.8
Ireland ^b									129.2	127.8
Italy									241.1	247.7
Japan	182.5	182.7	181.2	177.6	174.1	171.4	169.4	166.6	163.2	159.7
Latvia									19.6	16.7
Luxembourg							262.2	252.1	247.8	241.6
Netherlands	290.7									341.7
New Zealand ^b	262.6	266.1	272.7	285.9	301.7	314.7	323.2	330.2	334.1	341.7
Norway	33.8									35.0
Portugal	40.3	40.4	38.1	37.5	35.6	36.4	36.2	36.2	35.5	35.1
Slovakia ^b									26.1	26.3
Spain ^a	351.0	345.6	337.2	336.0	346.4	357.2	379.1	376.8	383.4	395.5
Sweden	88.7	81.3	81.0	80.9	78.4	74.2	71.8	72.1	69.1	69.1
Switzerland ^b									73.1	71.7
United Kingdom	295.9	288.8	285.2	285.8	291.4	283.5	284.6	280.8	278.6	280.6
United States	1,368.9	1,370.0	1,367.6	1,307.1	1,307.0	1,308.4	1,240.6	1,239.7	1,234.2	1,245.2
Average	265.2	276.0	272.4	267.8	269.8	270.6	267.8	262.6	199.0	180.5
Maximum	1,368.9	1,370.0	1,367.6	1,307.1	1,307.0	1,308.4	1,240.6	1,239.7	1,234.2	1,245.2
Minimum	20.0	19.6	19.3	19.1	18.9	18.7	19.1	19.2	3.2	2.8

^a For Belgium and Spain the values included in this table refer to "cattle" as a whole, as disaggregated data for dairy and non-dairy cattle emissions were not provided.^b The following data are from the 2000 inventory submission: Australia (1991-1998), Belgium (1997), Czech Republic (1998), Hungary (1998), Ireland (1998), New Zealand (1990-1998), Slovakia (1998) and Switzerland (1998).**Trends in CH₄ implied emission factors 1990 to 1999**

kg/head/yr

Party	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia ^a	102.7	103.4	104.5	105.6	106.0	106.5	106.5	107.0	107.1	107.2
Austria	92.0	92.0	92.0	92.0	92.0	92.0	92.0	92.0	92.0	92.0
Belgium										
Bulgaria										81.0
Canada	98.7	98.4	98.2	98.8	99.1	99.1	99.1	99.3	99.3	99.6
Czech Republic ^a									68.2	68.2
Denmark	104.0	104.0	104.0	104.0	104.0	104.0	104.0	104.0	104.0	104.0
Estonia										81.0
Finland	97.1	98.0	98.2	99.2	101.5	102.8	103.2	105.3	105.8	107.6
France	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
Germany										
Greece	81.0	81.0	81.0	81.2	81.0	81.0	81.0	81.0	81.0	81.0
Hungary										100.0
Iceland									100.0	100.0
Ireland ^a									100.0	100.0
Italy										117.6
Japan	88.2	88.2	88.1	88.2	88.6	89.0	89.4	89.7	90.0	90.3
Latvia									81.0	81.0
Luxembourg										
Netherlands	80.6						80.0	80.0	80.9	81.3
New Zealand ^a	76.8	76.8	76.8	76.8	76.8	76.8	76.8	76.8	76.8	76.8
Norway	100.0									100.0
Portugal	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Slovakia ^a									92.0	96.0
Spain										
Sweden	154.0	154.0	154.0	154.0	154.0	154.0	154.0	154.0	154.0	154.0
Switzerland ^a									99.2	98.9
United Kingdom	87.6	87.4	88.3	88.3	89.1	89.5	89.1	91.3	92.8	93.9
United States	96.8	97.5	98.7	94.6	95.7	96.1	91.9	93.0	93.6	94.7
Average	96.1	97.1	97.4	97.3	97.7	97.9	96.4	96.8	95.0	95.5
Maximum	154.0	154.0	154.0	154.0	154.0	154.0	154.0	154.0	154.0	154.0
Minimum	76.8	76.8	76.8	76.8	76.8	76.8	76.8	76.8	68.2	68.2

^a The following data are from the 2000 inventory submission: Australia (1991-1998), Czech Republic (1998), Ireland (1998), New Zealand (1990-1998), Slovakia (1998) and Switzerland (1998).**Percentage change from previous year**

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	-0.8	0.2	3.5	3.5	4.0	3.5	4.4	2.4	4.3	27.8
Austria	-3.1	-3.9	-1.6	-2.2	-12.8	-1.3	3.3	1.2	-4.2	-22.8
Belgium								3.2	-1.3	
Bulgaria										
Canada	-3.3	-1.6	-4.0	0.5	0.4	0.2	-3.2	-1.4	-4.3	-15.7
Czech Republic									-0.3	
Denmark	-1.5	-4.0	0.3	-2.0	0.4	-0.3	-4.3	-0.2	-4.3	-15.0
Estonia										
Finland	-8.2	-3.7	0.6	-0.1	-3.1	-1.2	1.7	-1.5	-1.2	-15.8
France	-3.6	-4.4	-2.3	-0.5	-0.2	-0.4	-1.4	-1.1	-0.4	-13.6
Germany										
Greece	-2.0	-1.4	-0.9	-1.2	-1.0	2.3	0.6	0.8	0.0	-3.0
Hungary									-2.0	
Iceland									-12.3	
Ireland									-1.1	
Italy									2.7	
Japan	0.1	-0.8	-2.0	-2.0	-1.6	-1.2	-1.7	-2.0	-2.2	-12.5
Latvia									-14.9	
Luxembourg										
Netherlands							-3.8	-1.7	-2.5	-16.9
New Zealand	1.3	2.5	4.8	5.5	4.3	2.7	2.2	1.2	2.3	30.1
Norway										3.6
Portugal	0.2	-5.7	-1.6	-5.1	2.2	-0.5	0.0	-1.9	-1.1	-12.9
Slovakia									0.7	
Spain	-1.5	-2.4	-0.4	3.1	3.1	6.1	-0.6	1.8	3.1	12.7
Sweden	-8.3	-0.4	-0.2	-3.0	-5.3	-3.3	0.4	-4.1	0.0	-22.0
Switzerland									-2.0	
United Kingdom	-2.4	-1.3	0.2	2.0	-2.7	0.4	-1.4	-0.8	0.7	-5.2
United States	0.1	-0.2	-4.4	0.0	0.1	-5.2	-0.1	-0.4	0.9	-9.0

Percentage change from previous year

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	0.7	1.0	1.1	0.4	0.5	0.1	0.5	0.0	0.1	4.4
Austria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belgium										
Bulgaria										
Canada	-0.3	-0.3	0.6	0.3	0.0	0.0	0.1	0.0	0.3	0.9
Czech Republic									0.0	
Denmark	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Estonia										
Finland	0.9	0.2	1.0	2.3	1.3	0.4	2.0	0.5	1.6	10.7
France	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Germany										
Greece	0.0	0.0	0.2	-0.2	0.0	0.0	0.0	0.0	0.0	0.0
Hungary										
Iceland									0.0	
Ireland									0.0	
Italy										
Japan	0.0	0.0	0.1	0.4	0.5	0.4	0.3	0.4	0.3	2.4
Latvia									0.0	
Luxembourg										
Netherlands							0.0	1.1	0.4	0.9
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Norway										0.0
Portugal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slovakia									4.3	
Spain										
Sweden	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Switzerland									-0.4	
United Kingdom	-0.2	1.0	0.0	0.9	0.4	-0.4	2.5	1.7	1.1	7.2
United States	0.7	1.2	-4.1	1.1	0.5	-4.4	1.2	0.7	1.1	-2.1

Agriculture - Enteric fermentation: non-dairy cattle**Trends in CH₄ emissions 1990 to 1999****Gigagrams**

Party	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia ^b	1,664.1	1,700.7	1,713.8	1,720.9	1,720.4	1,735.4	1,744.7	1,761.6	1,765.7	1,755.0
Austria	63.8	63.0	59.2	57.2	57.7	61.5	59.8	56.1	54.8	55.3
Belgium ^a										
Bulgaria										14.0
Canada	537.7	551.0	573.5	587.1	624.3	649.7	652.6	667.7	649.9	650.3
Czech Republic ^b									24.7	24.0
Denmark	55.6	54.8	54.7	54.8	52.0	51.4	51.5	49.4	48.4	46.1
Estonia										7.2
Finland	35.5	35.3	35.0	34.8	34.6	30.7	31.5	31.5	30.6	30.1
France	703.2	701.7	695.1	694.8	695.4	703.7	705.8	697.3	692.5	696.5
Germany										
Greece	21.3	20.4	19.7	19.4	19.4	19.6	19.9	20.0	20.2	20.2
Hungary ^b									22.4	22.0
Iceland									2.0	2.2
Ireland ^b									304.6	296.9
Italy									283.3	276.5
Japan	149.6	154.0	157.0	158.2	157.7	156.0	154.2	153.3	152.9	152.6
Latvia									10.8	9.6
Luxembourg										
Netherlands	74.9						66.1	63.0	59.2	57.4
New Zealand ^b	312.0	315.5	321.6	331.6	338.3	336.7	325.4	314.3	308.4	309.5
Norway	30.1									32.8
Portugal	46.7	48.6	46.3	45.5	46.1	46.1	45.6	45.6	43.8	43.4
Slovakia ^b									23.6	16.6
Spain ^a										
Sweden	48.6	51.1	56.7	57.6	59.7	61.1	63.4	63.6	63.4	62.1
Switzerland ^b									38.9	38.2
United Kingdom	396.1	391.3	393.1	391.0	393.4	394.2	403.7	392.0	388.4	385.5
United States	4,511.0	4,484.9	4,628.5	4,564.8	4,850.7	4,902.5	4,781.3	4,657.7	4,561.4	4,544.0
Average	576.7	659.4	673.4	670.6	696.1	703.7	650.4	640.9	434.1	381.9
Maximum	4,511.0	4,484.9	4,628.5	4,564.8	4,850.7	4,902.5	4,781.3	4,657.7	4,561.4	4,544.0
Minimum	21.3	20.4	19.7	19.4	19.4	19.6	19.9	20.0	2.0	2.2

^a Belgium and Spain provided emission estimates for "cattle" as a whole, without disaggregating into dairy and non-dairy cattle. Estimates from these Parties were included in the table on dairy cattle.

^b The following data are from the 2000 inventory submission: Australia (1991-1998), Czech Republic (1998), Hungary (1998), Ireland (1998), New Zealand (1990-1998), Slovakia (1998) and Switzerland (1998).

Trends in CH₄ implied emission factors 1990 to 1999**kg/head/yr**

Party	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia ^a	75.0	75.1	75.2	75.3	74.9	74.5	74.2	74.3	74.2	74.5
Austria	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0
Belgium										
Bulgaria										56.0
Canada	54.3	54.4	54.4	54.5	54.6	54.6	54.5	54.3	54.3	54.1
Czech Republic ^a									23.6	23.6
Denmark	37.4	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0
Estonia										56.0
Finland	40.9	40.9	41.4	42.1	42.4	40.9	41.8	41.9	41.7	42.1
France	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5
Germany										
Greece	56.0	56.0	56.0	55.9	56.0	56.0	56.0	56.0	56.0	56.0
Hungary									48.0	48.0
Iceland									48.0	48.0
Ireland ^a									50.0	50.0
Italy										53.6
Japan	53.4	53.4	53.4	53.4	53.5	53.7	53.8	53.8	53.9	54.1
Latvia									56.0	56.0
Luxembourg										
Netherlands	56.8						51.8	50.0	48.5	46.5
New Zealand ^a	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5
Norway	48.0									48.0
Portugal	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0
Slovakia ^a									56.0	56.0
Spain										
Sweden	42.6	43.4	45.4	44.9	45.3	47.2	47.9	48.5	49.2	49.1
Switzerland ^a									43.0	43.2
United Kingdom	44.9	45.0	45.2	45.4	45.3	45.4	45.6	45.8	45.7	45.7
United States	71.5	71.7	71.6	70.9	70.3	70.2	69.5	69.1	69.1	68.0
Average	52.3	52.4	52.6	52.6	52.6	52.6	52.6	52.5	50.5	50.8
Maximum	75.0	75.1	75.2	75.3	74.9	74.5	74.2	74.3	74.2	74.5
Minimum	37.4	37.0	37.0	37.0	37.0	37.0	37.0	37.0	23.6	23.6

^a The following data are from the 2000 inventory submission: Australia (1991-1998), Czech Republic (1998), Ireland (1998), New Zealand (1990-1998), Slovakia (1998) and Switzerland (1998).

Percentage change from previous year

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	2.2	0.8	0.4	0.0	0.9	0.5	1.0	0.2	-0.6	5.5
Austria	-1.3	-6.0	-3.4	0.9	6.6	-2.8	-6.2	-2.3	0.8	-13.4
Belgium										
Bulgaria										
Canada	2.5	4.1	2.4	6.3	4.1	0.5	2.3	-2.7	0.1	20.9
Czech Republic										-3.0
Denmark	-1.5	-0.1	0.2	-5.1	-1.2	0.3	-4.2	-1.9	-4.7	-17.0
Estonia										1.7
Finland	-0.6	-0.9	-0.6	-0.5	-11.4	2.6	0.2	-3.0	-1.7	-15.4
France	-0.2	-0.9	-0.1	0.1	1.2	0.3	-1.2	-0.7	0.6	-0.9
Germany										
Greece	-4.5	-3.1	-1.6	0.2	0.7	1.7	0.7	0.7	0.0	-5.3
Hungary										-1.7
Iceland										8.4
Ireland										-2.5
Italy										-2.4
Japan	3.0	1.9	0.8	-0.3	-1.1	-1.1	-0.6	-0.3	-0.2	2.0
Latvia										-10.4
Luxembourg										
Netherlands							-4.6	-6.0	-3.1	-23.4
New Zealand	1.1	1.9	3.1	2.0	-0.5	-3.3	-3.4	-1.9	0.4	-0.8
Norway										9.0
Portugal	4.1	-4.7	-1.7	1.4	-0.1	-1.1	0.0	-3.9	-0.9	-7.0
Slovakia										-29.7
Spain										
Sweden	5.1	11.0	1.6	3.6	2.4	3.7	0.4	-0.3	-2.1	27.8
Switzerland										-1.9
United Kingdom	-1.2	0.5	-0.5	0.6	0.2	2.4	-2.9	-0.9	-0.7	-2.7
United States	-0.6	3.2	-1.4	6.3	1.1	-2.5	-2.6	-2.1	-0.4	0.7

Percentage change from previous year

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	0.1	0.2	0.1	-0.5	-0.5	-0.4	0.1	-0.1	0.4	-0.6
Austria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belgium										
Bulgaria										
Canada	0.1	0.0	0.2	0.3	0.0	-0.3	-0.4	0.1	-0.3	-0.3
Czech Republic										0.0
Denmark	-1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.1
Estonia										3.0
Finland	0.0	1.3	1.7	0.6	-3.5	2.1	0.4	-0.7	1.0	0.0
France	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Germany										
Greece	0.0	0.0	-0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Hungary										
Iceland									0.0	
Ireland									0.0	
Italy										
Japan	-0.1	0.0	0.0	0.3	0.2	0.2	0.1	0.2	0.3	1.3
Latvia									0.0	
Luxembourg										
Netherlands							-3.6	-3.1	-3.9	-18.0
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Norway										0.0
Portugal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slovakia									0.0	
Spain										
Sweden	1.9	4.7	-1.2	0.9	4.2	1.4	1.3	1.5	-0.1	15.4
Switzerland									0.4	
United Kingdom	0.1	0.5	0.4	-0.2	0.2	0.6	0.3	-0.2	0.0	1.7
United States	0.2	-0.1	-1.0	-0.8	-0.1	-1.1	-0.6	0.0	-1.6	-4.9

**Agriculture - Enteric fermentation: sheep and swine
Sheep**

Trends in CH₄ emissions 1990 to 1999
Gigagrams

Party	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia ^a	1,124.5	1,097.4	1,032.0	957.2	890.1	838.1	808.4	793.1	786.9	766.5
Austria	2.5	2.6	2.5	2.7	2.7	2.9	3.0	3.1	2.9	2.9
Belgium ^a								0.8	0.9	0.9
Bulgaria									21.3	
Canada	5.7	6.0	6.2	6.3	5.6	5.7	6.0	5.8	5.8	5.8
Czech Republic ^a									0.5	0.4
Denmark	1.3	1.5	1.5	1.3	1.2	1.2	1.4	1.1	1.2	0.6
Estonia									0.2	
Finland	0.8	0.9	0.9	1.0	1.0	1.3	1.2	1.2	1.0	0.9
France	69.3	67.1	65.8	64.7	64.0	63.6	63.0	62.1	61.7	61.0
Germany										
Greece	69.5	69.4	69.5	69.8	70.3	70.8	71.6	72.8	73.6	73.6
Hungary ^a									7.6	7.5
Iceland										3.9
Ireland ^a									55.6	54.1
Italy									87.2	88.7
Japan	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Latvia									0.2	0.2
Luxembourg										
Netherlands	13.6						13.0	11.7	11.2	11.2
New Zealand ^a	853.6	814.4	781.1	757.3	740.5	727.0	714.1	702.0	696.7	690.9
Norway	17.8								21.7	
Portugal	26.9	27.0	26.8	26.4	27.3	27.4	27.0	27.0	28.2	27.8
Slovakia ^a									2.6	2.7
Spain	189.2	183.9	193.7	206.1	181.5	167.8	188.8	195.6	190.4	188.6
Sweden	3.2	3.4	3.6	3.8	3.9	3.7	3.8	3.5	3.4	3.5
Switzerland ^a									2.9	2.9
United Kingdom	205.2	204.0	204.9	205.7	204.6	202.1	199.5	201.8	209.5	209.7
United States	90.9	89.4	86.4	81.6	78.6	71.9	67.7	64.1	62.5	57.7
Average	167.1	183.4	176.8	170.3	162.2	156.0	144.6	134.1	99.7	85.4
Maximum	1,124.5	1,097.4	1,032.0	957.2	890.1	838.1	808.4	793.1	786.9	766.5
Minimum	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

^a The following data are from the 2000 inventory submission: Australia (1991-1998), Belgium (1997), Czech Republic (1998), Hungary (1998), Ireland (1998), New Zealand (1990-1998), Slovakia (1998), Switzerland (1998).

Trends in CH₄ implied emission factors, 1990 to 1999 (kg/head/yr)

Party	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia ^a	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Austria	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Belgium										
Bulgaria										
Canada	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9
Czech Republic ^a										
Denmark	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Estonia										
Finland	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
France	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Germany										
Greece	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Hungary										
Iceland										
Ireland ^a										
Italy										
Japan	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
Latvia										
Luxembourg										
Netherlands	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
New Zealand ^a	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
Norway	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Portugal	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Slovakia ^a										
Spain										
Sweden	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Switzerland ^a										
United Kingdom	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
United States	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Average	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
Maximum	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
Minimum	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1

^a The following data are from the 2000 inventory submission: Australia (1991-1998), Czech Republic (1998), Ireland (1998), New Zealand (1990-1998), Slovakia (1998), Switzerland (1998).

Percentage change from previous year

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	-2.4	-6.0	-7.3	-7.0	-5.8	-3.5	-1.9	-0.8	-2.6	-31.8
Austria	6.4	-4.3	7.0	2.5	6.8	4.3	0.7	-6.0	-2.4	13.9
Belgium								10.6	-4.4	
Bulgaria										
Canada	5.6	2.2	2.0	-10.2	1.7	3.9	-2.6	0.6	-1.2	1.1
Czech Republic									-8.5	
Denmark	18.8	-3.5	-13.5	-7.9	0.2	17.2	-16.3	9.6	-55.9	-56.6
Estonia										
Finland	3.3	1.6	11.1	0.6	31.0	-5.7	0.4	-14.5	-16.9	3.2
France	-3.1	-1.9	-1.7	-1.1	-0.6	-1.0	-1.5	-0.6	-1.1	-12.0
Germany										
Greece	-0.2	0.2	0.4	0.8	0.7	1.1	1.6	1.1	0.0	5.8
Hungary									-3.9	
Iceland										
Ireland									-2.8	
Italy									1.8	
Japan	-3.9	-6.2	-8.9	-10.8	-13.0	-10.0	-5.6	0.0	0.0	-45.8
Latvia									-6.9	
Luxembourg										
Netherlands							-9.8	-4.9	0.5	-17.6
New Zealand	-4.6	-4.1	-3.0	-2.2	-1.8	-1.8	-1.7	-0.8	-0.8	-19.1
Norway									21.7	
Portugal	0.6	-0.9	-1.3	3.4	0.4	-1.4	0.0	4.1	-1.4	3.3
Slovakia									4.3	
Spain	-2.8	5.3	6.4	-11.9	-7.5	12.5	3.6	-2.7	-0.9	-0.3
Sweden	3.2	6.7	5.4	2.8	-4.8	1.7	-5.8	-4.8	4.0	7.9
Switzerland									-1.0	
United Kingdom	-0.6	0.5	0.4	-0.5	-1.2	-1.3	1.2	3.8	0.1	2.2
United States	-1.6	-3.4	-5.5	-3.7	-8.6	-5.8	-5.2	-2.5	-7.7	-36.5

Percentage change from previous year

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Austria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belgium										
Bulgaria										
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Czech Republic									#DIV/0!	
Denmark	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Estonia										
Finland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
France	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Germany										
Greece	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary										
Iceland										
Ireland									#DIV/0!	
Italy										
Japan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Latvia									#DIV/0!	
Luxembourg										
Netherlands							0.0	0.0	0.0	0.0
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Norway										
Portugal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slovakia									#DIV/0!	
Spain										
Sweden	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Switzerland									#DIV/0!	
United Kingdom	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United States	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Agriculture - Enteric fermentation: sheep and swine**Swine****Trends in CH₄ emissions 1990 to 1999**

Party	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia ^a	2.9	2.9	2.9	3.0	3.0	2.9	2.8	2.9	2.9	2.9
Austria	3.8	3.8	3.9	4.2	4.1	4.1	4.1	4.1	4.3	3.9
Belgium ^a								5.5	6.0	6.0
Bulgaria									2.4	
Canada	15.3	15.5	16.1	16.1	16.9	17.9	18.1	17.4	18.2	18.5
Czech Republic ^a									13.6	13.6
Denmark	14.2	14.7	15.7	17.4	16.4	16.6	16.3	17.1	18.1	14.0
Estonia										0.4
Finland	2.1	2.0	1.9	1.9	1.9	2.1	2.1	2.2	2.1	2.0
France	6.1	6.1	6.4	6.7	6.7	6.8	7.1	7.1	7.1	7.1
Germany										
Greece	1.5	1.5	1.5	1.5	1.5	1.5	1.7	1.9	2.1	2.1
Hungary ^a									8.2	8.0
Iceland									0.005	0.01
Ireland ^a									2.6	2.7
Italy									12.4	12.4
Japan	12.5	12.1	11.8	11.6	11.2	11.0	10.8	10.8	10.8	10.8
Latvia									0.6	0.6
Luxembourg										
Netherlands	20.9						21.6	22.8	20.2	20.4
New Zealand ^a	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Norway	1.1									0.9
Portugal	4.0	3.8	3.8	3.4	3.6	3.6	3.5	3.5	3.5	3.4
Slovakia									2.4	2.3
Spain	23.9	25.6	27.3	27.3	27.4	27.2	27.9	29.2	29.1	33.5
Sweden	3.4	3.4	3.5	3.7	3.7	3.6	4.2	4.1	3.9	3.4
Switzerland ^a									1.6	1.5
United Kingdom	11.3	11.5	11.6	11.8	11.8	11.4	11.4	12.1	12.2	10.9
United States	80.9	84.7	87.8	87.0	89.9	88.3	84.3	88.1	93.1	89.1
Minimum	13.6	14.4	14.9	15.0	15.3	15.2	15.4	15.3	12.0	10.5
Maximum	80.9	84.7	87.8	87.0	89.9	88.3	84.3	88.1	93.1	89.1
Minimum	1.1	1.5	1.5	1.5	1.5	1.5	1.7	1.9	0.005	0.01

^a The following data are from the 2000 inventory submission: Australia (1991-1998), Belgium (1997), Czech Republic (1998), Hungary (1998), Ireland (1998), New Zealand (1990-1998), Slovakia (1998), Switzerland (1998).

Trends in CH₄ implied emission factors 1990 to 1999

kg/head/yr

Party	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia ^a	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Austria	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Belgium										1.5
Bulgaria										
Canada	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Czech Republic ^a									3.4	3.4
Denmark	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Estonia										1.5
Finland	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
France	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Germany										
Greece	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Hungary										1.5
Iceland										1.5
Ireland ^a										1.5
Italy										1.5
Japan	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Latvia										1.5
Luxembourg										
Netherlands	1.5						1.5	1.5	1.5	1.5
New Zealand										NE
Norway	1.5									1.5
Portugal	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Slovakia ^a										1.5
Spain										
Sweden	1.5	1.5	1.5	1.6	1.6	1.6	1.8	1.8	1.7	1.6
Switzerland ^a										1.0
United Kingdom	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
United States	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Average	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5
Maximum	1.5	1.5	1.5	1.6	1.6	1.6	1.8	1.8	3.4	3.4
Minimum	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

^a The following data are from the 2000 inventory submission: Australia (1991-1998), Czech Republic (1998), Ireland (1998), Slovakia (1998), Switzerland (1998).

Percentage change from previous year

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	-1.2	-0.3	2.4	0.0	-1.7	-2.7	1.4	1.7	0.7	0.1
Austria	-1.2	1.9	9.8	-2.1	-0.2	-1.7	0.6	4.2	-9.6	0.6
Belgium								9.5	1.0	
Bulgaria										
Canada	1.3	3.7	0.2	4.8	6.0	1.1	-3.8	4.8	1.3	20.6
Czech Republic									0.1	
Denmark	3.0	6.9	10.6	-5.6	1.5	-2.2	5.0	6.3	-23.1	-2.0
Estonia										
Finland	-3.6	-3.5	-1.9	2.0	7.9	-0.3	5.1	-4.5	-3.5	-3.1
France	0.3	4.7	3.8	0.4	1.7	3.7	0.1	0.7	-0.4	16.0
Germany										
Greece	0.1	0.6	-0.1	0.5	-0.9	14.6	12.0	11.4	0.0	43.3
Hungary										-2.6
Iceland										25.3
Ireland										1.6
Italy										0.4
Japan	-3.0	-2.2	-2.3	-2.7	-2.6	-1.2	-0.2	-0.1	-0.4	-13.7
Latvia										-3.8
Luxembourg										
Netherlands							5.5	-11.5	0.9	-2.6
New Zealand										
Norway										-11.1
Portugal	-3.8	-0.7	-11.1	6.7	-0.6	-2.4	0.0	-0.1	-3.7	-15.4
Slovakia										-2.0
Spain	6.9	6.7	-0.1	0.6	-1.0	2.5	5.0	-0.5	15.2	40.1
Sweden	-0.9	2.7	7.1	0.0	-1.7	15.1	-1.5	-5.2	-13.7	-0.6
Switzerland										-2.3
United Kingdom	1.9	0.2	1.9	0.5	-3.4	-0.5	6.4	0.7	-10.4	-3.5
United States	4.7	3.6	-0.9	3.3	-1.8	-4.5	4.5	5.6	-4.2	10.1

Percentage change from previous year

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.46	-0.79
Austria	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Belgium										
Bulgaria										
Canada	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Czech Republic										0.00
Denmark	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Estonia										
Finland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
France	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Germany										
Greece	0.05	0.00	-0.81	0.77	0.02	0.00	0.01	-0.03	0.00	0.01
Hungary										
Iceland										0.00
Ireland										0.06
Italy										
Japan	0.00	0.00	-0.09	0.09	0.00	0.00	-0.09	0.00	0.00	-0.09
Latvia										0.00
Luxembourg										
Netherlands							0.11	0.02	-0.01	-0.13
New Zealand										
Norway										0.00
Portugal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Slovakia										-0.05
Spain										
Sweden	1.84	-0.74	7.18	-2.19	-1.02	13.38	-1.66	-2.49	-6.72	6.38
Switzerland										0.00
United Kingdom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
United States	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Agriculture - Manure management: emissions of CH₄ (1999)

	4.B Manure management (CH ₄)									
	Methods and EF used ^a		Key source	Percentage of national total	4.B.1 Cattle		4.B.3 Sheep	4.B.8 Swine		
					Dairy cattle	Non-dairy cattle				
	Methods	EF			CH ₄ IEF					
					kg CH ₄ /head/yr					
			%	6 to 81 ^b	1 to 38 ^b	0.19 to 0.37 ^b	3 to 20 ^b			
IPCC default EF ^b										
Australia	CS	CS, D		0.4	8.03	0.03		18.08		
Austria	C	CS	L	0.7	8.70	4.30	0.22	4.30		
Belgium										
Bulgaria	T1, T2	D, CS		0.8	18.27	12.21	0.28	9.95		
Canada	T1	D	L	0.7	36.00	1.00	0.32	10.00		
Czech Republic	T2	CS		0.5	3.29	1.01	0.23	7.87		
Denmark			L	1.2	21.80	1.60	0.46	2.54		
Estonia				0.7	19.00	13.00	0.16	7.00		
Finland	T2	CS/D		0.3	7.47	2.28	0.19	3.37		
France	CS/ T2	CS	L	0.7	5.85	3.48	0.28	7.62		
Germany	CS	CS	L	1.1						
Greece	T1	D		0.5	19.00	13.00	0.28	7.00		
Hungary	D	D	L	0.8	14.00	6.00	0.19	4.00		
Iceland	D	D		0.6	14.00	6.00	0.19	3.00		
Ireland	D	CS, D	L	2.2	15.90	6.40		5.40		
Italy			L	0.7	20.05	11.82	0.19	7.88		
Japan	D, CS	D, CS			8.68	3.23	0.28	0.30		
Latvia ^c	T1	D		0.7	6.00	4.00	0.19	4.00		
Luxembourg										
Netherlands	CS	CS (=D,corrected)	L	0.8	7.01	12.68	0.49	3.25		
New Zealand	T1	CS		0.5	0.89	0.91	0.18	NE		
Norway	T2	D, CS		0.6	14.41	8.59	0.63	2.00		
Portugal	T2	D (CS)	LT	3.8	25.73	1.88	1.60	54.85		
Slovakia	D; CS	D; CS		0.4	6.00	4.00	0.19	4.00		
Spain	T1,T2	T1,T2	L	2.1						
Sweden	T1, T2	D, CS		0.4	11.52	1.85	0.19	2.32		
Switzerland	CS	CS	L	0.7	13.94	3.38	0.13	3.54		
United Kingdom	T2	D/CS		0.4	10.56	4.48	0.11	3.00		
United States	M	M	T	0.5	45.53	1.77	0.26	12.07		
Average					14.46	5.16	0.31	7.81		
Maximum					45.53	13.00	1.60	54.85		
Minimum					0.89	0.03	0.11	0.30		

^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 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.

^c Information on methods and emission factors used was provided for the agriculture sector as a whole, not for the source category.

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						

Agriculture - Manure management: emission of N₂O (1999)

	4.B Manure management (N ₂ O)														
	Methods and EF used ^a		Key source	Percentage of national total	Animal waste management systems (AWMS)				N - excretion rates						
					Anaerobic lagoons 4.B.10	Liquid systems 4.B.11	Solid storage and dry lot 4.B.12	Other 4.B.13	Dairy cattle 4.B.1.1	Non-dairy Cattle 4.B.1.2	Swine 4.B.8	Sheep 4.B.3	Poultry 4.B.9		
	N ₂ O IEF														
	kg N ₂ O-N / kg N													kg N / head / yr	
Methods	EF	%	0.001 (<0.002) ^b	0.001 (<0.001) ^b	0.02 (0.005-0.03) ^b	0.005 ^b	60 to 100 ^c	40 to 70 ^c	16 to 20 ^c	12 to 20 ^c	0.6 ^c				
IPCC default EF ^b															
Australia	CS	D		0.1	0.0009	0.0009	0.0190	0.0048	115.62	41.23	9.47	6.48	NA		
Austria									NE	NE	NE	NE	NE		
Belgium															
Bulgaria	D	D		0.6	0.0010	0.0010	0.0200	0.0050	70.00	50.00	20.00	16.00	0.60		
Canada	T1	D		0.6		1,589.8871	53,998.7421	9,984.7122	70.50	56.40	15.00	6.80	0.45		
Czech Republic	D	D		0.3		0.0010	0.0200	0.0050	100.00	70.00	20.00	20.00	1.00		
Denmark				0.6											
Estonia				0.0		0.0010	0.0200	0.0050	0.07	0.05	0.02	0.02	0.001		
Finland	D	D/CS	T	0.5		0.0010	0.0200		96.00	35.02	9.60	16.20	0.40		
France	T2	T2	L	0.6		0.0007	0.0119	0.0019	100.00	70.00	20.00	20.00	0.60		
Germany	NE														
Greece	T1	D		0.1		0.0010	0.0200	0.0050	70.00	50.00	16.00	12.00	0.60		
Hungary	D	D		0.6	0.0010	0.0010	0.0200	0.0050	0.07	0.05	0.02	0.02	0.00		
Iceland									0.07	0.02	0.02	0.00	0.00		
Ireland	D	CS, D		1.1	0.0010	0.0010	0.0200		92.50	50.00	12.00	8.00	0.60		
Italy			L	0.7		1.0000	1.0000	1.0000	111.09	46.49	14.22	16.20	0.57		
Japan	D	CS			0.0000	0.0000	0.0000	2,674.9377	0.19	0.37	0.10	NE	0.00		
Latvia ^d	T1	D	L	1.4	0.0010	0.0010	0.0200	0.0050	70.00	50.00	20.00	16.00	0.60		
Luxembourg															
Netherlands	CS	CS		0.1				0.0011							
New Zealand				0.2	0.0010		0.0200	0.0050	86.70	63.10	16.00	11.80	0.60		
Norway	D	D, CS													
Portugal	T2	D (CS)	L	1.6	0.0032	0.0028	0.0216		108.07	54.03	17.05	40.93	0.74		
Slovakia	D; CS	D; CS		1.0		0.0010	0.0200		90.00	56.00	20.00	16.00	0.60		
Spain	T1,T2	T1,T2	L	4.2											
Sweden			LT	0.9		0.0010	0.0200		118.00	41.59	8.64	5.76	0.40		
Switzerland			L	0.8		0.0010	0.0200		109.10			16.00	0.52		
United Kingdom	T1	D/CS		0.3		0.0010	0.0200	0.0049	109.51	48.55	10.05	6.85	0.70		
United States	M	M		0.3	0.0055	0.0062	0.0169	0.0143	84.14	48.12	7.14	4.14	0.45		
Average					0.00163	83.73209	2700.00358	844.04746	76.26811	41.55100	11.76653	11.95993	0.47130		
Maximum					0.00552	1589.88707	53998.74211	9984.71224	118.00000	70.00000	20.00000	40.93495	1.00000		
Minimum					0.00000	0.00000	0.00000	0.00109	0.07000	0.02400	0.01500	0.00152	0.00055		

Notes:

^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 4.B from 4.B Manure management.^b Source of default emission factors: IPCC Guidelines, volume 3, table 4-22 (page 4-104). See also IPCC Good Practice Guidance, table 4.12 (page 4.43).^c 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:

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

^d Information on methods and emission factors used was provided for the agriculture sector as a whole, not for the source category.

Agriculture - Agricultural soils: emission of N₂O (1999)

	4.D. Agricultural soils (N ₂ O)																		
	Methods and EF used ^a		Key source ^b	Percentage of national total ^b	4.D.1 Direct soil emissions						4.D.2 Animal production			key source	Percentage of national total	4.D.3 Indirect soil emissions			
					Synthetic fertilizers		Animal wastes applied to soils	N-fixing crops	Crop residue	Cultivation of histosols	Key source	Percentage of national total	Pasture range and paddock (grazing)			Atmospheric deposition		Nitrogen reaching and run-off	
	Activity data	N ₂ O IEF			N ₂ O IEF	Activity data										N ₂ O IEF	Activity data	N ₂ O IEF	
	Use of synthetic fertilizers						N ₂ O IEF	Activity data	N ₂ O IEF										
	Methods	EF				%				kgN / yr	kg N ₂ O-N / kg N	kg N ₂ O-N / kg dry biomass ^c	kg N ₂ O-N / ha			kg N ₂ O-N / kg N	kg N / year	kg N ₂ O-N / kg N	kg N/year
IPCC default EF ^c						0.0125 (0.0025 - 0.0225) ^c				5, 10 (2-15) ^d			0.02 (0.005-0.03) ^e			0.01 (0.002-0.2) ^f		0.025 (0.002-0.12) ^f	
Australia	CS	CS	LT	2.6	890,588,667	0.01250	0.01800			0.29000	LT	0.9	0.0043		NE		NE		
Austria ^b	CS	CS	L	1.3	NE										NE		NE		
Belgium																			
Bulgaria	NE	NE	L	16.9	105,640,873	0.0100	0.0046	0.0287	0.0000	5.0000	L	1.0	0.0200	L	1.6	44,200,274	0.01000	83,907,222	0.02500
Canada	T1	D	LT	3.4	1,624,411	11.2500	0.0092	0.0018	0.0002	5.0000		0.4	0.0200	LT	1.0	382,030,175	0.01000	57,304,526	0.17815
Czech Republic	D	D	L	1.9	182,638,800	0.0125	0.0125	0.0125	0.0125	4.8807		0.2	0.0200	L	1.4	67,460,740	0.01000	131,630,910	0.02500
Denmark			LT	6.8	256,900,000	0.0123	0.0090			4.9996		0.3	0.0186	LT	3.8	75,882,000	0.01000	196,000,000	0.02500
Estonia			L	1.0	17,905,500	0.0125	0.0125	0.0008	0.0002			0.0	0.0200			2,468,962	0.01000	6,687,694	0.02500
Finland	D	D/CS	LT	3.4	161,723,800	0.0125	0.0125	0.0125	0.0125	8.0000		0.3	0.0200	LT	0.8	27,507,783	0.01000	37,242,863	0.02500
France ^k	T2	T2	LT	5.1	2,505,254,406	0.0113	0.0096	0.0008	0.0001		L	1.1	0.0200	L	3.3			1,413,998,532	0.02596
Germany ^b	CS	CS	L	2.5															
Greece	T1	D	LT	1.8	306,354,000	0.0113	0.9569	0.0300			LT	3.0	0.0200						
Hungary	D	D	L	9.1	235,800,000	0.0125	0.0125	0.0125	0.0000	2.0000		0.5	0.0200	L	2.3	64,599,220	0.01000	136,198,830	0.02500
Iceland	D	D	L	4.5	14,126,661	0.0200	2.0000								NE		NE		
Ireland	D	CS, D	L	4.7	425,642,276	0.0125	0.0124				L	4.7	0.0200	L	1.5	102,923,110	0.00991	39,516,345	0.02506
Italy			L	1.8	759,486,480	0.0125	0.0125	0.0125	0.0125	5.0000		0.4	1.0000	L	1.4	2,660,101	1.00000	13,139,904	1.00000
Japan	D	CS			342,374,283	0.0059	NE	NE	NE	NE			NE		NE	NE	NE	NE	NE
Latvia ^l	T1	D	L	5.8	17,100,000	0.0125	0.0125	0.0125	0.0125	5.0000		0.4	0.0200	L	1.8	7,177,472	0.01000	13,331,208	0.02500
Luxembourg																			
Netherlands	CS	CS	LT	2.3	392,420,000	0.0110	0.0195	0.0098				0.5	0.0160						
New Zealand	D	CS/D	L	2.5	161,437,500	0.0125	0.0125	0.0007	0.0002	4.9836	L	7.7	0.0100	L	5.3	277,325,000	0.01000	221,446,875	0.02500
Norway	D	D, CS	LT	3.3	106,017,000	0.0119	0.0099			5.0000		0.3	0.0194	L	0.9	18,527,885	0.01000	35,192,505	0.02500
Portugal	D	D	LT	2.0	147,053,190	0.0113	0.0150	0.0016			LT	2.1	0.0000	LT	2.2	35,301	0.01000	126,088	0.02500
Slovakia ^h	D, CS	D, CS	L	3.1	65,393,000	0.0113	0.0080	0.0125	0.0125			0.1	0.0200			24,836,188	0.00100	11,593,243	0.02500
Spain ^b	T1	T1	L	4.9															
Sweden	D, C	CS	LT	3.2	179,200,000	0.0079	0.0250	0.0006	0.0001	3.2488	LT	0.7	0.0166			41,641,406	0.00200	74,169,000	0.00250
Switzerland					57,058,000	0.0125	0.0125	0.0004	0.0000	5.0000			0.0200			52,135,692	0.01005	38,596,561	0.02546
United Kingdom	T1a/T1b	D	L	2.1	1,283,053,500	0.0125	0.0125	0.0003	0.0002	500.0000	L	0.8	0.0200	L	1.4	338,669,888	0.01000	609,245,641	0.02500
United States	D	D	LT	2.6	11,424,051,753	0.0112	0.0100	0.0004	0.1887	8.0000	T	0.6	0.0200	L	1.2	2,581,620,005	0.01000	5,561,702,210	0.02500
Average						0.4801	0.1400	0.0084	0.0168	37.7602			0.0620			0.0641		0.0833	
Maximum						11.2500	2.0000	0.0300	0.1887	500.0000			1.0000			1.0000		1.0000	
Minimum						0.0059	0.0046	0.0003	0.0000	0.2900			0.0000			0.0010		0.0025	

^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 N₂O from 4.D Agricultural soils.

^b Information on key sources and the percentage of national total refers to subcategory 4.D.1 Direct soil emissions, except for Austria, Germany and Spain, where the information refers to the entire category 4.D Agricultural soils.

^c Source of default emission factors: IPCC Guidelines, volume 3; table 4-18, page 4.89. (See also 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).

^d 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).

^e 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.

^f Source of default emission factor: IPCC Guidelines, volume 3, table 4-23, page 4.105 (Default Emission Factors for Indirect Emissions). See also Good Practice Guidance, table 4.12, page 4.43.

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

ⁱ Information on methods and emission factors used was provided for the agriculture sector as a whole, not for the source category.

^k France: indirect emissions: using 1998 inventory submitted in 2001.

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

	FracBURN	FracFUEL	FracGRAZ	FracNCRBF	FracNCRO	FracR	FracGASF	FracGASM	FracLEACH
	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^a	0.25	no default^b	no default	0.03	0.015	0.45	0.1	0.2	0.3 (0.1 - 0.8)
Australia	NA	NA	NA	NA	NA	NA	NA	NA	NA
Austria									
Belgium									
Bulgaria	0.1000	0.0000	0.0200	0.0300	0.0150	0.1000	0.1000	0.2000	0.3000
Canada	0.0000	0.0000	0.0000	0.0300	0.0150	0.4500	0.1000	0.2000	0.3000
Czech Republic									
Denmark	0.0000	0.0000					0.0200	0.2830	
Estonia	0.9000	0.0000	0.2000	0.0150	0.0300	0.5500	0.1000	0.2000	0.3000
Finland	NZ	0.0000	0.2367	0.0151	0.0415	0.4324	0.0060	0.3100	0.1500
France									
Germany									
Greece	0.1000	0.0000		0.0300	0.0150	0.5000	0.1000	0.2000	
Hungary	0.2500	0.2500	0.2000	0.0150	0.0300	0.4500	0.1000	0.2000	0.3000
Iceland									
Ireland	NO	NO	0.6500	NA	NA	NA	0.0380	0.1700	0.0400
Italy	0.1000	0.0000	0.2500	0.0300	0.0150	0.4500	0.1000	0.2000	0.3000
Japan									
Latvia	NO	NO	0.0200	0.0300	0.0150	0.4500	0.1000	0.2000	0.3000
Luxembourg									
Netherlands									
New Zealand	0.0500	0.0000		0.0300	0.0150	0.4500	0.1000	0.2000	0.1500
Norway	0.0000	NO	0.2308	NE	NE	NE	0.0458	0.2000	0.1800
Portugal	0.4409	0.0000	0.5120	0.0040	0.0200	0.5652	0.1000	0.1148	0.3029
Slovakia			0.0570				0.1000	0.3000	0.0739
Spain									
Sweden	0.0000	0.0000	0.3725	0.0100	0.0200	0.1910	0.0078	0.3686	0.2225
Switzerland	0.0000	0.0000	0.1275				0.0750	0.3403	0.2000
United Kingdom	0.0000	0.0000	0.4790	0.0300	0.0150	0.4500	0.1000	0.2000	0.3000
United States	NA	NO	0.01 - 0.92	0.0300	0.0048 - 0.023	0.0000	0.1000	0.2000	0.3000
Abbreviations of fractions:									
FracFUEL							Fraction of livestock N excretion in excrements burned for fuel		
FracGRAZ							Fraction of livestock N excreted and deposited onto soil during grazing		
FracNCRBF							Fraction of N in non-N-fixing crop		
FracNCRO							Fraction of N in N-fixing crop		
FracR							Fraction of crop residue removed from the field as crop		
FracBURN							Fraction of crop residue burned		
FracGASF							Fraction of synthetic fertilizer N applied to soils which volatilizes as NH ₃ and NO _x		
FracGASM							Fraction livestock N excretion that volatilizes as NH ₃ and NO _x		
FracLEACH							Fraction of N input to soils which is lost through leaching and runoff		

^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. All Parties providing a numerical value reported "0" for this parameter.

Agriculture - Agricultural soils**Trends in N₂O emissions 1990 to 1999****Gigagrams**

Party	base year ^a	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	46.9	46.9	47.3	46.9	47.7	48.0	47.1	46.7	49.7	52.3	54.6
Austria	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
Belgium										11.3	11.3
Bulgaria	53.9	54.0	49.2	41.9	37.8	36.3	37.0	35.6	35.6	33.7	48.8
Canada	88.3	88.3	86.0	87.4	90.9	96.0	97.9	103.5	103.6	105.2	107.6
Czech Republic ^b										15.9	15.7
Denmark	31.6	31.6	30.8	28.8	29.0	28.1	27.9	27.0	25.9	26.1	26.0
Estonia											1.0
Finland	14.1	14.1	13.1	11.8	12.1	12.0	12.3	11.9	11.6	11.4	11.0
France	170.6	170.6	168.2	163.1	158.7	160.3	161.7	164.2	166.5	166.2	165.0
Germany	85.0	85.0	78.0	74.0	73.0	77.0	76.6	76.0	77.0	80.0	79.0
Greece	20.7	20.7	20.5	19.5	19.2	19.3	18.5	18.8	19.0	19.0	19.1
Hungary	4.6	4.1	1.7	1.6	1.5	1.8	1.6	1.7	1.7	32.9	33.2
Iceland	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.5
Ireland	20.8	20.8	20.8	20.5	21.0	21.6	22.2	22.5	21.7	23.0	22.9
Italy	65.2	65.2	68.1	68.6	69.4	68.6	67.4	66.1	68.7	68.4	68.9
Japan	3.8	3.8	3.6	3.6	3.5	3.5	3.3	3.1	3.1	3.1	3.1
Latvia	9.7	9.7	7.0	6.5	4.5	3.8	3.2	3.1	3.2	2.8	2.9
Luxembourg											
Netherlands	21.5	21.5	22.2	25.5	25.4	25.6	26.8	26.8	25.3	24.5	25.0
New Zealand	36.8	36.8	36.4	36.4	36.8	37.3	37.4	37.2	37.2	37.3	38.3
Norway	8.6	8.6	8.6	8.3	8.5	8.3	8.5	8.4	8.4	8.4	8.3
Portugal	14.8	14.8	15.9	15.5	15.2	15.2	15.4	15.4	15.4	16.0	16.1
Slovakia	12.6	12.6	10.2	8.9	7.3	6.7	7.0	7.0	7.1	6.8	6.0
Spain	58.2	58.2	57.6	53.9	46.6	53.5	50.9	61.1	55.3	56.6	59.6
Sweden	12.2	12.2	11.7	11.4	11.9	12.1	11.9	11.9	12.3	12.3	11.7
Switzerland	7.8	7.8	7.7	7.6	7.6	7.5	7.3	7.3	7.1	7.1	7.0
United Kingdom	95.1	95.1	94.6	89.2	87.5	89.9	90.4	90.9	93.9	93.4	90.3
United States	867.7	867.7	876.8	902.2	887.0	959.4	920.5	950.3	967.2	968.7	962.2
Average	70.2	70.2	69.6	69.5	68.2	71.8	70.3	72.0	72.8	69.9	67.8
Maximum	867.7	867.7	876.8	902.2	887.0	959.4	920.5	950.3	967.2	968.7	962.2
Minimum	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.5

^a Base year refers to 1990, except for the following Parties with economies in transition which, in accordance with decision 9/CP.2, use base years other than 1990: Bulgaria (1988) and Hungary (average of 1985-1987).

^b Values other than for 1999 were taken from the 2000 submission, as no trend tables were provided and no recalculations were reported in the 2001 submission.

Percentage change from previous year

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	0.8	-0.8	1.7	0.6	-1.8	-1.0	6.5	5.3	4.4	16.4
Austria	0.3	0.3	0.3	-1.0	-1.0	0.0	0.0	0.0	0.0	-1.2
Belgium										-0.2
Bulgaria	-8.8	-14.8	-9.8	-3.9	1.8	-3.7	0.0	-5.5	45.0	-9.4
Canada	-2.6	1.7	4.0	5.6	2.0	5.6	0.1	1.5	2.3	22.0
Czech Republic										-1.5
Denmark	-2.4	-6.7	0.8	-3.1	-0.7	-3.4	-3.8	0.8	-0.6	-17.8
Estonia										
Finland	-7.3	-9.5	2.2	-0.4	2.2	-3.2	-2.4	-2.2	-3.4	-22.1
France	-1.4	-3.1	-2.7	1.0	0.9	1.5	1.4	-0.2	-0.7	-3.3
Germany	-8.2	-5.1	-1.4	5.5	-0.5	-0.8	1.3	3.9	-1.3	-7.1
Greece	-0.6	-5.1	-1.5	0.5	-4.1	1.6	1.2	0.0	0.0	-7.8
Hungary	-59.0	-3.0	-10.4	23.3	-10.6	4.3	-0.4	1,865.9	0.8	697.5
Iceland	-2.9	-10.0	4.4	0.7	-1.6	3.1	-11.0	3.7	29.7	11.5
Ireland	0.2	-1.5	2.3	2.8	2.9	1.3	-3.4	5.7	-0.4	10.1
Italy	4.3	0.8	1.2	-1.2	-1.7	-1.9	3.9	-0.4	0.6	5.5
Japan	-5.8	-0.1	-0.3	-1.7	-6.3	-4.3	-0.6	0.5	0.8	-16.8
Latvia	-27.6	-7.5	-30.9	-15.1	-15.4	-2.8	1.2	-12.0	4.0	-70.1
Luxembourg										
Netherlands	3.1	14.9	-0.4	0.8	4.7	0.0	-5.7	-3.1	2.2	16.2
New Zealand	-1.1	0.0	1.2	1.2	0.3	-0.5	0.1	0.2	2.7	3.9
Norway	0.1	-3.4	2.3	-2.1	2.0	-1.8	0.7	0.4	-1.5	-3.3
Portugal	7.2	-2.8	-1.7	0.3	1.1	0.0	0.0	3.7	0.5	8.3
Slovakia	-18.9	-12.4	-18.5	-7.6	4.4	-0.1	0.5	-3.7	-12.2	-52.6
Spain	-1.1	-6.4	-13.5	14.8	-4.9	20.0	-9.4	2.3	5.3	2.4
Sweden	-4.1	-2.6	4.3	1.5	-1.7	0.3	2.6	0.0	-4.8	-4.6
Switzerland	-0.7	-1.1	-0.8	-1.2	-1.6	-1.1	-1.8	-1.2	-1.4	-10.3
United Kingdom	-0.5	-5.8	-1.9	2.7	0.6	0.5	3.3	-0.5	-3.4	-5.1
United States	1.0	2.9	-1.7	8.2	-4.1	3.2	1.8	0.2	-0.7	10.9

Agriculture - Agricultural soils: CO₂ emissions/removals^a

Trends in CO₂ emissions^b 1990 to 1999

Gigagrams

	4.D Agricultural soils - CO ₂													
	Methods and emission factors used		Key sources	Percentage of national total	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
	Methods	EF												
				%										
Australia	NA	NA			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Austria	NE	NE			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Belgium														
Bulgaria	NE	NE												
Canada	CS	CS	T	0.03	7,255	6,652	5,777	4,662	4,224	3,166	1,784	1,241	713	177
Czech Republic	NE													
Denmark														
Estonia														
Finland	D	D/CS	LT	2.64	3,215	2,815	2,321	2,230	2,069	1,726	1,825	2,065	2,031	2,016
France														
Germany	NE				NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Greece														
Hungary														
Iceland	CS	D			4.2	4.1	4.2	4.6	4.2	4.5	4.7	4.4	4.9	5.2
Ireland	NA	NA												IE
Italy														
Japan	-	-			NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Latvia														
Luxembourg														
Netherlands	NE				IE									
New Zealand														
Norway	CS	CS	T	0.23	217								170	129
Portugal					NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Slovakia														
Spain														
Sweden														
Switzerland					NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
United Kingdom	IE	IE			IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
United States	IE	IE			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

^a According to the IPCC Guidelines (volume 3. Reference Manual, pp. 4.2, 4.87), CO₂ emissions from agricultural soils are to be included under Land-use change and forestry (LUCF). At the same time, the Summary Report 7A (volume 1. Reporting Instructions, tables 27) allows for reporting CO₂ emissions or removals from agricultural soils, either in the Agriculture sector, under 4.D. Agricultural soils or in the Land-use change and forestry sector under 5.D. Emissions and removals from soil. Parties may choose either way to report emissions or removals from this source in the common reporting format, but the way they have chosen to report should be clearly indicated, by inserting explanatory comments to the corresponding cells of Summary 1.A and Summary 1.B. (See footnote 4 of Summary 1.As 2 of the CRF.)

^b This part of the table displays information as reported by Parties in table Summary 1.A of the CRF under the column CO₂ emissions or in the trend table of the CRF (table 10s1). Information as reported under the column CO₂ removals of table Summary 1.A is not included here, as numerical information was not available for any Party.

Agriculture - Rice cultivationRice cultivation (CH₄)

	4.C Rice cultivation (CH ₄)						Percentage of national total	4.C.1 Irrigated	
	Methods and emission factors used		Key source	Continuously flooded	Intermittently flooded - single aeration				
						CH ₄ IEF			
	Methods	EF		%	g CH ₄ / m ²				
Australia	CS	CS, D			22.50				
Austria									
Belgium									
Bulgaria	D	D			40.00				
Canada	NA	NA							
Czech Republic	NO								
Denmark									
Estonia									
Finland	NO	NO							
France	C	CS			36.00				
Germany	NO								
Greece	T1	D			0.29				
Hungary	D	D				20.00			
Iceland									
Ireland	NA	NA							
Italy					34.00				
Japan	CS	CS			NO	18.13			
Latvia									
Luxembourg									
Netherlands	NO								
New Zealand									
Norway	-	-							
Portugal	D	D (CS)	T	0.21	36.00				
Slovakia	NO	NO							
Spain	CS	CS							
Sweden									
Switzerland									
United Kingdom	NO								
United States	D	CS			32.43				

Trends in CH₄ emissions 1990 to 1999

Gigagrams

Party	base year ^a	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia		23.4	24.9	25.5	28.5	28.9	30.9	33.4	34.3	34.3	31.8
Austria											
Belgium											
Bulgaria	5.6	4.2	3.3	1.8	1.2	0.3	0.6	1.0	1.5	1.3	0.9
Canada											
Czech Republic											
Denmark											
Estonia											
Finland											
France		8.6	8.9	9.9	10.7	11.3	10.5	9.5	9.1	8.3	7.7
Germany		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Greece		4.8	4.3	4.3	5.9	6.8	7.6	8.4	8.6	7.6	7.6
Hungary	3.70	3.10	3.76	2.09	2.09	2.09	2.09	1.25	0.92	0.57	0.45
Iceland											
Ireland											NO
Italy		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	75.8	75.1
Japan		372.6	373.5	377.9	388.0	388.8	379.1	363.7	344.8	333.4	322.5
Latvia											NO
Luxembourg											
Netherlands		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
New Zealand		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Norway											
Portugal		12.0	12.0	7.6	4.8	8.3	7.8	8.1	8.1	8.1	8.1
Slovakia											
Spain		10.8	11.2	10.3	5.7	8.0	6.5	12.6	13.6	13.5	13.5
Sweden		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Switzerland		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
United Kingdom		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
United States		414.4	403.9	458.5	416.4	485.3	452.2	418.8	454.8	480.5	509.2

^a Base year refers to 1990, except for the following Parties with economies in transition which, in accordance with decision 9/CP.2, use base years other than 1990: Bulgaria (1988) and Hungary (average of 1985-1987).

Percentage change from previous year

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	6.8	2.3	11.7	1.3	7.0	8.1	2.7	0.2	-7.3	36.3
Austria										
Belgium										
Bulgaria	-22.5	-44.8	-31.1	-73.5	66.9	88.8	45.6	-13.9	-31.2	-78.8
Canada										
Czech Republic										
Denmark										
Estonia										
Finland										
France	4.4	11.1	7.6	5.5	-6.4	-9.7	-4.7	-8.9	-6.3	-9.4
Germany										
Greece	-10.3	-0.4	37.6	14.8	12.4	10.7	2.7	-12.6	0.0	57.7
Hungary	21.3	-44.4	0.0	0.0	0.0	-40.2	-26.4	-38.0	-20.8	-87.8
Iceland										
Ireland										
Italy										
Japan	0.3	1.2	2.7	0.2	-2.5	-4.1	-5.2	-3.3	-3.3	-13.4
Latvia										
Luxembourg										
Netherlands										
New Zealand										
Norway										
Portugal	0.7	-36.9	-37.5	75.2	-6.4	3.4	0.0	0.0	0.0	-32.7
Slovakia										
Spain	3.7	-8.6	-44.2	39.2	-18.3	93.0	8.1	-0.8	-0.5	24.0
Sweden										
Switzerland										
United Kingdom										
United States	-2.5	13.5	-9.2	16.6	-6.8	-7.4	8.6	5.7	6.0	22.9

Consistency checks performed in the agriculture sector

The following checks have been performed in order to verify the consistency of the data provided in various CRF tables (1999).

All consistency checks described below have been performed on 1999 inventory data.

Note that only Parties providing numerical information, and for which differences in the data or any other inconsistencies were found, have been included in the tables below.

1. Comparison of activity data (livestock population size) reported in tables 4.A and 4.B(a). This comparison was made for dairy and non-dairy cattle, swine and sheep.

	Dairy cattle			Non-dairy cattle			Swine			Sheep			Poultry		
	Table 4.A	Table 4.B(a)		Table 4.A	Table 4.B(a)		Table 4.A	Table 4.B(a)		Table 4.A	Table 4.B(a)		Table 4.A	Table 4.B(a)	
	4.A.1.1	4.B.1.1		4.A.1.2	4.B.1.2		4.A.8	4.B.8		4.A.3	4.B.3		4.A.9	4.B.9	
	Population size		Difference	Population size		Difference	Population size		Difference	Population size		Difference	Population size		Difference
	1,000 head		%	1,000 head		%	1,000 head		%	1,000 head		%	1,000 head		%
Denmark	640	640	0.0	1,247	1,247	0.0	9,305	9,305	0.0	69	69	0.0	0	19,645	-100.0
France	6,739	6,739	0.0	13,793	13,793	0.0	7,107	7,107	0.0	10,169	10,169	0.0		328,577	-
Japan	1,769	1,769	0.0	2,820	2,820	0.0	9,823	9,823	0.0	16	16	0.0	NA	297,286	
United States	13,148.3	13,025.9	0.9	66,812.02	90,031.60	-25.8	59,407.00	60,309.90	-1.5	7,215.00	7,215.00	0.0	NE	2,007,516.73	

Some minor inconsistency: Australia (camels & lamas).

Bulgaria reported different population size data for non-dairy cattle in table 4.B(b) as compared to data reported in tables 4.A and 4.B(a).

2. Comparison of total nitrogen (N) (kg N/yr) reported for Pasture range and paddock in table 4.B(b) with N excretion on Pasture range and paddock reported under category 4.D.2, Animal production, in table 4.D.

	Pasture range and paddock			
	N excretion			
	Table 4.B(b)	Table 4.D	Difference	
			A - B	(B-A)/A*100
	kg N / yr	kg N / yr	kg N / yr	%
	A	B	C	D
Australia	2,046,978,183	2,100,719,744	-53,741,562	2.63
Canada	107	275,674,932	-275,674,825	257,640,023.26
Czech Republic ^a	31,808,000	31,809,564	-1,564	0.00
Denmark		27,930,000	no data reported in table 4B(b)	
France	1,613,386,486	588,817,602	1,024,568,884	-63.50
Greece	383,051,000	383,052,000	-1,000	0.00
Italy		4,522,597	no data reported in table 4B(b)	
Latvia	0.04	5,019,682	-5,019,682	12,727,272,627.27
Netherlands		133,400,000	no data reported in table 4B(b)	
Norway		20,501,417	no data reported in table 4B(b)	
Sweden		57,424,489	no data reported in table 4B(b)	
United States	4,245,539,653	4,245,622,897	-83,244	0.00

^a For the Czech Republic, activity data from table 4B(b) had to be converted into kg N/yr, as data were reported in t N/yr.

3. Comparison of data provided in table 4.B(b) per livestock type:

Multiplication of livestock population size with the corresponding nitrogen (N) excretion rate (in kg/head/yr) compared to the sum of N excretion from all animal waste management systems (AWMS)

This comparison has been performed for dairy cattle, non-dairy cattle and sheep based on 1999 inventory data.

Note that only Parties providing numerical information, and for which differences in the data or any other inconsistencies were found have been included in the tables below.

Party	Population size * N excretion	Sum N excretion all AWMS	Difference (B-A)/A*100
	kt	kt	%
	A	B	C
Dairy cattle			
Canada	117.28	0.0001	-100.00
Czech Republic ^a	64.20	48.79	-24.00
Estonia	0.01	0.97	9900.00
Greece	16.73	13.72	-18.00
Hungary	27.93	27,650.70	98900.00
Italy	233.97	2.77	-98.82
Latvia	14,420,000	14,275.80	-99.90
Slovakia	24.66	24.61	-0.20
Sweden	52.98	32.66	-38.36
United Kingdom	327,338.24	261,870.59	-20.00
Non-dairy cattle			
Australia	970.92	950.28	-2.13
Canada	677.43	0.00	-100.00
Czech Republic ^a	71.05	85.75	20.68
Estonia	0.01	0.64	9900.00
France	966	956	-1.00
Greece	18.02	14.78	-18.00
Hungary	0.02	22.90	99900.00
Italy	239.64	2.97	-98.76
Latvia	8,600.00	8.60	-99.90
Slovakia	16.58	21.85	31.83
Sweden	52.57	30.10	-42.74
United Kingdom	409.48	327.58	-20.00
Sheep			
Canada	2.94	0.00	-100.00
Czech Republic ^a	1.72	1.72	-0.06
Estonia	0.00	0.05	9900.00
France	203	669	228.70
Hungary	0.01	14.94	99900.00
Italy	179.64	0.36	-99.80
Latvia	432.00	0.43	-99.90
Slovakia	5.44	6.19	13.75
Sweden	2.52	1.26	-50.00
United Kingdom	305.88	244.70	-20.00

^a With regard to some of the data to be reported in table 4.B(b) of the CRF, the Czech Republic did not report data in the units required by the CRF. In these cases, data were reconverted to CRF units in order to facilitate data comparison across Parties.

4. Land-use change and forestry

FCCC/WEB/SAI/2001

1. Methods and emission factors used and provision of activity data (land-use change and forestry)

1.1 CO₂ emissions and removals

Party	5.A Changes in forest and other woody biomass stocks			5.B Forest/grassland conversion			5.C Abandonment of lands			5.D CO ₂ emissions/removals from soils			5.E Others		
	Methods	EF	Provision of activity data in CRF or NIR*	Methods	EF	Provision of activity data in CRF or NIR	Methods	EF	Provision of activity data in CRF or NIR	Methods	EF	Provision of activity data in CRF or NIR	Methods	EF	Provision of activity data in CRF or NIR
Australia	CS	CS	NIR	CS	CS	NIR	CS	CS	no	CS	CS	NIR	CS	CS	NIR
Austria	D	CS	CRF			no			no			no			no
Belgium			no			no			no			no			no
Bulgaria	CS	CS	CRF	NE	NE	no	NE	NE	no	NE	NE	no	NE	NE	no
Canada	CS/D	CS	CRF	CS/D	CS	CRF	D	CS	CRF	CS/D	CS	CRF	CS	CS	NIR
Czech Republic	CS	CS	CRF	no		no	no		no	NE		no			no
Denmark			NIR			no			no			no			no
Estonia			CRF			CRF	np	np	CRF			CRF			no
Finland	CS	CS	NIR	no	no	no	no	no	no	D	D	no			no
France	CS	CS	CRF	CS	CS	CRF	CS	CS	NIR	CS	CS	NIR			no
Greece			CRF			CRF			no			CRF			no
Hungary	D	D	CRF	D	D	CRF			no	D	D	CRF			no
Iceland			no			no			no			no			no
Ireland	D	CS	CRF	NA	NA	no	NA	NA	no	D	D	CRF	NA	NA	no
Italy			CRF			CRF			CRF			CRF			no
Japan	D	D, CS	CRF	D	D, CS	no			no			no			no
Latvia	T1	D	CRF			no			no	T1	D	CRF			no
Luxembourg			no			no			no			no			no
Netherlands	T1	CS	NIR	NE		no	NE		no	NE		no	no		no
New Zealand	CS/M	CS/M	NIR	CS/D	CS/D	NIR	NE	NE	no	NE	NE	no			no
Norway	CS	D, CS	NIR			no			no			no			no
Portugal	D	D	no	D	D	no			no			no			no
Slovakia	D; CS	D; CS	CRF	D; CS	D; CS	CRF	D; CS	D; CS	CRF	D; CS	D; CS	CRF			no
Spain	CS		NIR			no			no			no			no
Sweden	D	CS	NIR			no			no	D, CS	CS	CRF			no
Switzerland	CS	CS	CRF			no			no			no			no
United Kingdom	M	M	NIR	no	no	no	NE	NE	no	D/CS/M	CS/CS/CS	NIR	CS	CS	NIR
United States	CS	CS	NIR	IE	IE	no	IE	IE	no	CS, D	CS, D	NIR	CS	CS	NIR

* If activity data are reported in the CRF, this does not necessarily mean that they are not reported in the NIR.

2. Changes in forest and other woody biomass stocks (5.A)**

2.1 Temperate forests

Average annual growth rates (t dm/ha/yr) and implied carbon uptake factors (t C/ha/yr)

Party	Species as specified by parties	Temperate forests							
		Plantations		Commercial evergreen		Commercial deciduous		Other	
		Average annual growth rate t dm/ha/yr (4,0-6,0)	Implied carbon uptake 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
Default ^a									
Australia									
Austria				4.91	2.41	5.15	2.49		
Belgium									
Bulgaria				different	1.10	different	0.95		
Canada								1.26	0.63
Czech Republic ^b				4.51	2.03	4.51	2.03		
Denmark									
Estonia									
Finland									
France		5.21	2.61	10,884,000	0.28	7,864,000	0.30		
Greece	Fir			0.84	0.42				
	Red Fir			5.90	2.95				
	Pine sp.			0.71	0.36				
	Other			1.26	0.63				
	Dris					1.58	0.79		
	Oxia					0.27	0.14		
	Other					1.26	0.63		
Hungary		3.80	0.00	3.80	1.71	4.20	1.89	3.50	0.00
		2.90	0.00						
Iceland									
Ireland				5.92	3.31	2.20	1.29		
Italy								5.08	1.40
Japan									
Latvia				5.76	0.50	5.83	0.50	0.95	0.50
Luxembourg									
Netherlands									
New Zealand									
Norway									
Portugal									
Slovakia	Abies alba							2.69	1.35
	Acer sp.							3.16	1.55
	Alnus sp.							1.76	0.86
	Betulus sp.							1.01	0.50
	Breeding poplars							2.42	1.18
	Carpinus betulus							2.40	1.18
	Fagus sylvatica							4.42	2.16
	Fraxinus excelsior							3.22	1.58
	Larix dedicua							2.58	1.29
	Other bradleaves							1.64	0.81
	Other coniferous							1.10	0.55
	Picea abies							2.55	1.28
	Pinus sp.							2.39	1.20
	Populus sp.							2.69	1.32
	Quercus cerris							3.74	1.83
	Quercus ruber., petr.							3.89	1.90
	Robinia pseudo ac.							2.76	1.35
	Salix sp.							2.65	1.30
	Tilia sp.							1.93	0.95
	Ulmus sp.							2.99	1.47
Spain									
Sweden									
Switzerland				5.06	2.53	7.33	3.66		
United Kingdom									
United States									
Minimum		2.90	0.00	0.71	0.28	0.27	0.14	0.95	0.00
Maximum		5.21	2.61	10,884,000.00	3.31	7,864,000.00	3.66	5.08	2.16
Average		3.97	0.87	989,458.06	1.52	786,403.23	1.33	2.62	1.17

** Tropical and boreal forest data were excluded from this table since only France reported on tropical forests (AAGR=8.34) and Estonia for boreal forests (AAGR=4.28) (AAGR = Annual Average Growth Rate).

^a IPCC default values (taken from volume 2: workbook, table 5.3; Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories).

^b Czech Republic reported evergreen & broadleaf in one category.

3. Changes in forest and other woody biomass stocks (5.A)

Temperate forests

Trends in area of forest/biomass stocks (ha) and average annual growth rates (t dm/ha/yr)

3.1 Temperate forests - Plantations

Area of forest/biomass stocks; average annual growth rate (per year)

Party	Specie (as reported by Parties)	IPCC default growth rate	Plantations																					
			Base year		1990		1991		1992		1993		1994		1995		1996		1997		1998		1999	
			Area	Growth rate	Area	Growth rate	Area	Growth rate	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	k ha	t dm/ha/yr	k ha	t dm/ha/yr	k ha	t dm/ha/yr
France			14,851	6.24	14,851	6.24															14,884	6.67	14,955	5.21

Note

This table includes only one Party, as no other Party provided numerical information for temperate forests plantations in its CRF.

3.2 Temperate forests - Commercial: evergreen and deciduous

Area of forest/biomass stocks; average annual growth rate (per year)

Party	evergreen/ deciduous ²	IPCC default growth rate	Base year ^{1,2}		Commercial: evergreen and deciduous																		Statistics by party growth rate t dm/ha/yr				
					1990		1991		1992		1993		1994		1995		1996		1997		1998					1999	
			Area k ha	Growth rate t dm/ha/yr	Area k ha	Growth rate t dm/ha/yr	Area k ha	Growth rate t dm/ha/yr	Area k ha	Growth rate t dm/ha/yr	Area k ha	Growth rate t dm/ha/yr	Area k ha	Growth rate t dm/ha/yr	Area k ha	Growth rate t dm/ha/yr	Area k ha	Growth rate t dm/ha/yr	Area k ha	Growth rate t dm/ha/yr	Area k ha	Growth rate t dm/ha/yr	Area k ha	Growth rate t dm/ha/yr	min	max	average
Australia																											
Austria	Evq Dec		2561.35867 776.64133	5.95 6.22	2561.35867 776.64133	5.95 6.22	2554.5 786.92325	5.47 5.73	2547.775 797.225	4.77 4.99	2540.95342 807.54658	4.81 5.04	2534.112 817.888	5.17 5.41	2534.112 817.888	4.91 5.15	2534.112 817.888	4.91 5.15	2534.112 817.888	4.91 5.15	2534.112 817.888	4.91 5.15	2534.112 817.888	4.91 5.15	4.77 4.99	5.95 6.22	5.07 5.31
Belgium																											
Bulgaria	Evq Dec																				different different	1135.867 2234.2	different different				
Canada																											
Czech Republic																											
Denmark																											
Estonia																											
Finland																											
France	Evq Dec		19197 16039	10,700,000 9,470,000	19197 16039	10,700,000 9,470,000														19568 13091	10,884,000 7,864,000	19568 13091	10,884,000 7,864,000	10700000.00 7864000.00	10884000.00 9470000.00	10822666.67 8399333.33	
Greece	Evq-Fir Evq-Red Fir Evq-Pine sp. Evq-Other Dec-Dris Dec-Pcia Dec-Other			0.84 5.90 0.71 1.26 0.27 1.58 1.26		0.84 5.90 0.71 1.26 0.27 1.58 1.26	0.84 5.90 0.71 1.26 0.27 1.58 1.26		0.84 5.90 0.71 1.26 0.27 1.58 1.26	0.84 5.90 0.71 1.26 0.27 1.58 1.26		0.84 5.90 0.71 1.26 0.27 1.58 1.26	0.84 5.90 0.71 1.26 0.27 1.58 1.26		0.84 5.90 0.71 1.26 0.27 1.58 1.26	0.84 5.90 0.71 1.26 0.27 1.58 1.26		0.84 5.90 0.71 1.26 0.27 1.58 1.26	0.84 5.90 0.71 1.26 0.27 1.58 1.26		0.84 5.90 0.71 1.26 0.27 1.58 1.26	0.84 5.90 0.71 1.26 0.27 1.58 1.26	1.26 0.27 1.58 1.26	1.26 0.27 1.58 1.26	1.26 0.27 1.58 1.26		
Hungary	Evq Dec																				3.80 1474.291	244.564 4.20	3.80 4.20	3.80 4.20	3.80 4.20	3.80 4.20	
Iceland																											
Ireland	Evq Dec																				5.92 2.20	543.583 106.108	5.92 2.20	5.92 2.20	5.92 2.20	5.92 2.20	
Italy																											
Japan																											
Latvia	Evq Dec																						1582.5 1145.5	5.76 5.83	5.76 5.83	5.76 5.83	
Luxembourg																											
Netherlands																											
New Zealand																											
Norway																											
Portugal																											
Slovakia																											
Spain																											
Sweden	Dec																						7.24	7.24	7.24	7.24	
Switzerland	Evq Dec																						4762 2810	789 325	5.06 7.33	5.06 7.33	2383.53 1408.67
United Kingdom																											
United States																											
Minimum				0.27	776.64	0.27	786.92	0.27	797.23	0.27	807.55	0.27	817.89	0.27	817.89	0.27	817.89	0.27	817.89	0.27	817.89	0.27	106.11	0.27			
Maximum				10,700,000.00	19,197.00	10,700,000.00	2,554.50	5.90	2,547.78	5.90	2,540.95	5.90	2,534.11	5.90	2,534.11	5.90	2,534.11	5.90	2,534.11	5.90	19,568.00	10,884,000.00	19,568.00	10,884,000.00			
Average				2.67	1,669.00	2.67	1,670.71	2.56	1,672.50	2.40	1,674.25	2.41	1,676.00	2.49	1,676.00	2.43	1,676.00	2.43	1,676.00	2.43	1,676.00	2.43	507.54	1,077.72	3.65		

^{1,2} Base year refers to 1990, except for the following Parties with economies in transition which, in accordance with decision 9/CP.2, use base years other than 1990: Bulgaria (1988) and Hungary (average of 1985-1987).³ Evq. for Evergreen; Dec. for Deciduous. Taken from 2000 submission.

3.1.1 Annual change of average annual growth rate, t dm/ha/yr (Temperate forests: Plantations)

Party	Other									Percentage change from 1990 to 1999
	1991	1992	1993	1994	1995	1996	1997	1998	1999	
France								-	-1.5	-16.5

3.2.1 Annual change of average annual growth rate, t dm/ha/yr (Temperate forests/commercial: Evergreen and deciduous)

Party	Other									
	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										
Austria	0.00	-0.70	0.04	0.35	-0.25	0.00	0.00	0.00	0.00	-17.4
	-0.49	-0.73	0.05	0.37	-0.26	0.00	0.00	0.00	0.00	-17.2
Belgium										
Bulgaria										
Canada										
Czech Republic										
Denmark										
Estonia										
Finland										
France								-	0.0	1.7
								-	0.0	-17.0
Greece	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary								-	0.0	
Iceland										
Ireland									0.0	
									0.0	
Italy										
Latvia										
Luxembourg										
Netherlands										
New Zealand										
Norway										
Portugal										
Slovakia										
Spain										
Sweden										
Switzerland									-4756.9	
									-2802.7	
United Kingdom										
United States										

3.3 Temperate forests - Other

Area of forest/biomass stocks; average annual growth rate (per year)

Party	Species as reported by Parties	IPCC default growth rate	Base year ^{1,2}		Temperate forests: Other																		Statistics by party growth rate t dm/ha/yr				
					1990		1991		1992		1993		1994		1995		1996		1997		1998					1999	
			Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	Area	Growth rate	min	max	average		
			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	k ha	t dm/ha/yr	k ha	t dm/ha/yr	k ha	t dm/ha/yr			
Australia																											
Austria																											
Belgium																											
Bulgaria																											
Canada	Other		122,840	1	122,840	1	122,840	1	122,840	1	122,840	1	122,840	1	122,840	1	122,840	1	122,840	1	122,840	1	122,840	1	1.26	1.26	1.26
Czech Republic	Other																						5	4.51	4.51	4.51	
Denmark																											
Estonia																											
Finland																											
France																											
Greece			3,154		3,154		3,154		3,154		3,154		3,154		3,154		3,154		3,154		3,154		3,154				
Hungary	Other																							3	2.90	2.90	
	Other																							4	3.80	3.80	
Iceland																											
Ireland																											
Italy	Other																										
Japan	Other		25,336	33	25,336	33	25,306	33	125,994	2	25,259	39	25,243	39	25,285	39	NE	NE	NE	NE	6,581	5	6,589	5	5.06	5.08	5.07
Latvia	Other																							1	0.95	0.95	0.95
Luxembourg																											
Netherlands			347		347								347		347												
New Zealand																											
Norway																											
Portugal																											
Slovakia	Other																										
	Abies alba																								80.61	2.69	2.69
	Acer sp.																								34.55	3.16	3.16
	Alnus sp.																								11.52	1.76	1.76
	Betulus sp.																								24.95	1.01	1.01
	Breeding poplars																								11.52	2.42	2.42
	Carpinus betulus																								109.69	2.40	2.40
	Fagus sylvatica																								594.34	4.42	4.42
	Fraxinus excelsior																								24.95	3.22	3.22
	Larix decidua																								44.14	2.58	2.58
	Other coniferous																								5.76	1.10	1.10
	Other broadleaf																								19.19	1.64	1.64
	Picea abies																								513.50	2.55	2.55
	Pinus sp.																								126.70	2.39	2.39
	Populus sp.																								7.70	2.69	2.69
	Quercus robur, petr.																								220.72	3.89	3.89
	Quercus cerris																								47.98	3.74	3.74
	Robinia pseudoac.																								34.55	2.76	2.76
	Salix sp.																								1.92	2.65	2.65
	Tilia sp.																								5.76	1.93	1.93
	Ulmus sp.																								1.92	2.99	2.99
Spain																											
Sweden																											
Switzerland																											
United Kingdom																											
United States																											
Minimum			347.00	1.26	347.00	1.26	3,154.00	1.26	3,154.00	1.26	3,154.00	1.26	347.00	1.26	347.00	1.26	3,154.00	1.26	3,154.00	1.26	3,154.00	1.26	1.92	0.95			
Maximum			122,839.58	33.08	122,839.58	33.08	122,839.58	32.90	125,993.58	2.00	122,839.58	39.20	122,839.58	39.20	122,839.58	39.20	122,839.58	1.26	122,839.58	1.26	122,839.58	5.06	122,839.58	5.08			
Average			37,919.05	17.17	37,919.05	17.17	50,433.04	17.08	83,995.72	1.63	50,417.67	20.23	37,895.85	20.23	37,906.43	20.23	62,996.79	1.26	62,996.79	1.26	44,191.59	3.39	5,848.03	2.71			

^{1,2} Base year refers to 1990, except for the following Parties with economies in transition which, in accordance with decision 9/CP.2, use base years other than 1990: Bulgaria (1988) and Hungary (average of 1985-1987).

4. Changes in forest and other woody biomass stocks (5.A): CO₂ emissions and removals4.1 Trends in gross CO₂ emissionsGg CO₂/yr

Party	Base year ^{1,2}											statistics by party		
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	min	max	average
Australia ³	46,751.5	46,751	47,266	46,968	47,356	48,331	49,427	50,403	51,197	51,781	52,764	46,751	52,764	49,224
Austria														
Belgium									1,506	4,668		1,506	4,668	3,614
Bulgaria ¹									6,091	5,716		5,716	6,091	5,904
Canada	222,195.3	222,195	219,184	234,686	242,811	252,230	259,721	262,351	264,361	258,425	258,468	219,184	264,361	247,443
Czech Republic										15,287	16,048	15,287	16,048	15,667
Denmark														
Estonia														
Finland	72,141.3	72,141	58,630	66,657	70,425	80,557	83,129	76,969	85,934	90,424	90,447	58,630	90,447	77,531
France	66,167.0	66,167	72,645	68,433	65,184	64,640	67,622	68,131	68,101	70,066	70,066	64,640	72,645	68,106
Greece	3,831.7	3,832	3,831	3,657	3,721	3,923	3,228	3,503	3,585	2,824	3,986	2,824	3,986	3,609
Hungary ²										5,460	5,559	5,460	5,559	5,510
Iceland														
Ireland														
Italy														
Japan														
Latvia												NO		
Luxembourg														
Netherlands														
New Zealand ³														
Norway														
Portugal														
Slovakia										8,551	9,171	8,551	9,171	8,861
Spain														
Sweden														
Switzerland														
United Kingdom														
United States														
Minimum	3,831.7	3,831.7	3,830.5	3,656.9	3,720.8	3,923.4	3,227.9	3,503.1	1,506.3	2,823.9	3,986.1			
Maximum	222,195.3	222,195.3	219,183.9	234,685.7	242,811.5	252,229.6	259,721.2	262,351.5	264,360.9	258,425.4	258,468.5			
Average	82,217.4	82,217.4	80,311.0	84,080.0	85,899.6	89,936.3	92,625.5	92,271.5	79,114.0	51,357.7	47,513.2			

Percentage change from previous year

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999	percentage change from 1990 to 1999
Australia	1.1	-0.6	0.8	2.1	2.3	2.0	1.6	1.1	1.9	12.9
Austria										
Belgium										
Bulgaria										-6.2
Canada	-1.4	7.1	3.5	3.9	3.0	1.0	0.8	-2.2	0.0	16.3
Czech Republic									5.0	
Denmark										
Estonia										
Finland	-18.7	13.7	5.7	14.4	3.2	-7.4	11.6	5.2	0.0	25.4
France	9.8	-5.8	-4.7	-0.8	4.6	0.8	0.0	2.9	0.0	5.9
Greece	0.0	-4.5	1.7	5.4	-17.7	8.5	2.3	-21.2	41.2	4.0
Hungary									1.8	
Iceland										
Ireland										
Italy										
Japan										
Latvia										
Luxembourg										
Netherlands										
New Zealand										
Norway										
Portugal										
Slovakia									7.3	
Spain										
Sweden										
Switzerland										
United Kingdom										
United States										

^{1,2} Base year refers to 1990, except for the following Parties with economies in transition which, in accordance with decision 9/CP.2, use base years other than 1990: Bulgaria (1988) and Hungary (average of 1985-1987).³ Taken from 2000 submission.

4.2 Trends in gross CO₂ removalsGg CO₂/yr

Party	Base year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	min	max	average
Australia ³	-71,349.9	-71,350	-71,343	-71,343	-71,343	-71,343	-71,865	-72,386	-72,908	-73,430	-75,833	-75,833	-71,343	-72,314
Austria	-9,214.8	-9,215	-13,504	-8,656	-8,982	-7,862	-7,254	-5,385	-7,633	-7,633	-7,633	-13,504	-5,385	-8,376
Belgium										-6,513	-6,513	-6,513	-6,513	-6,513
Bulgaria ¹										-12,324	-12,324	-12,324	-12,324	-12,324
Canada	-290,264.3	-290,264	-290,231	-290,261	-290,294	-290,323	-290,363	-290,396	-289,582	-289,494	-289,410	-290,396	-289,410	-290,062
Czech Republic										-19,044	-19,449	-19,449	-19,044	-19,247
Denmark	-916.0	-916	-918	-921	-924	-928	-931	-941	-951	-964	-976	-976	-916	-937
Estonia											-12,245	-12,245	-12,245	-12,245
Finland	-95,939.1	-95,939	-96,837	-98,550	-99,542	-97,817	-97,817	-98,001	-98,571	-100,137	-101,268	-101,268	-95,939	-98,448
France	-141,497.0	-141,497	-144,665	-145,311	-146,690	-147,464	-148,871	-151,126	-151,981	-153,814	-154,927	-154,927	-141,497	-148,635
Greece	-4,004.9	-4,005	-4,005	-4,005	-4,005	-4,005	-4,005	-4,005	-4,005	-4,005	-4,005	-4,005	-4,005	-4,005
Hungary ²										-11,562	-11,750	-11,750	-11,562	-11,656
Iceland												0		0
Ireland	-5,381.4	-5,381	-5,484	-5,685	-5,880	-6,098	-6,330	-6,532	-6,695	-6,872	-7,097	-7,097	-5,381	-6,205
Italy	-25,106.8	-25,107	-24,913	-24,169	-24,733	-24,060	-24,366	-24,940	-25,314	-24,969	-25,315	-25,315	-24,060	-24,789
Japan	-84,461.2	-84,461	-84,751	-86,456	-90,979	-94,445	-97,618	NE	NE	NE	NE	NE	-84,461	-89,785
Latvia	-10,960.0	-10,960	-10,960	-10,960	-10,960	-10,960	-10,600	-10,600	-10,600	-10,600	-10,758	-10,960	-10,600	-10,796
Luxembourg												0		0
Netherlands	-1,500.0	-1,500	-1,600	-1,600	-1,600	-1,700	-1,700	-1,700	-1,700	-1,700	-1,700	-1,700	-1,500	-1,650
New Zealand ³	-22,307.0	-22,307	-21,495	-20,003	-18,570	-18,166	-18,060	-18,548	-19,946	-21,831	-23,245	-23,245	-18,060	-20,217
Norway	-9,590.0	-9,590	-11,700	-13,250	-13,510	-15,680	-13,640	-17,611	-16,499	-17,588	-17,742	-17,742	-9,590	-14,681
Portugal	-2,082.0	-2,082	-2,206	-2,331	-2,455	-2,580	-2,704	-2,717	-2,717	-2,744	-2,758	-2,758	-2,082	-2,529
Slovakia										-8,487	-9,980	-9,980	-8,487	-9,233
Spain	-29,252.2	-29,252	-29,252	-29,252	-29,252	-29,252	-29,252	-29,252	-29,252	-29,252	-29,252	-29,252	-29,252	-29,252
Sweden	-24,100.0	-24,100	-33,100	-27,100	-33,100	-30,100	-25,100	-26,100	-31,100	-28,100	-28,100	-33,100	-24,100	-28,600
Switzerland	-3,188.0	-3,188	-3,257	-3,355	-4,325	-4,340	-4,310	-4,460	-4,636	-4,570	-4,226	-4,636	-3,188	-4,067
United Kingdom	-7,304.0	-7,304	-7,396	-7,671	-7,982	-8,191	-8,518	-8,426	-8,316	-8,184	-8,122	-8,518	-7,304	-8,011
United States	-750,200.0	-750,200	-738,100	-711,300	-712,300	-719,000	-711,600	-716,000	-718,700	-712,500	-720,900	-750,200	-711,300	-721,060
Minimum	-750,200.0	-750,200	-738,100	-711,300	-712,300	-719,000	-711,600	-716,000	-718,700	-712,500	-720,900			
Maximum	-916.0	-916	-918	-921	-924	-928	-931	-941	-951	-964	-976			
Average	-79,430.9	-79,431	-79,786	-78,109	-78,871	-79,216	-78,745	-78,375	-79,006	-64,847	-63,421			

^{1,2} Base year refers to 1990, except for the following Parties with economies in transition which, in accordance with decision 9/CP.2, use base years other than 1990: Bulgaria (1988) and Hungary (average of 1985-1987)

³ Taken from 2000 submission.

Percentage change from previous year

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	3.3	6.3
Austria	46.5	-35.9	3.8	-12.5	-7.7	-25.8	41.7	0.0	0.0	-17.2
Belgium									0.0	
Bulgaria									0.0	
Canada	0.0	0.0	0.0	0.0	0.0	0.0	-0.3	0.0	0.0	-0.3
Czech Republic									2.1	
Denmark	0.2	0.3	0.3	0.4	0.3	1.1	1.1	1.4	1.2	6.6
Estonia										
Finland	0.9	1.8	1.0	-1.7	0.0	0.2	0.6	1.6	1.1	5.6
France	2.2	0.4	0.9	0.5	1.0	1.5	0.6	1.2	0.7	9.5
Greece	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary									1.6	
Iceland										
Ireland	1.9	3.7	3.4	3.7	3.8	3.2	2.5	2.6	3.3	31.9
Italy	-0.8	-3.0	2.3	-2.7	1.3	2.4	1.5	-1.4	1.4	0.8
Japan	0.3	2.0	5.2	3.8	3.4					
Latvia	0.0	0.0	0.0	0.0	-3.3	0.0	0.0	0.0	1.5	-1.8
Luxembourg										
Netherlands	6.7	0.0	0.0	6.3	0.0	0.0	0.0	0.0	0.0	13.3
New Zealand	-3.6	-6.9	-7.2	-2.2	-0.6	2.7	7.5	9.5	6.5	4.2
Norway	22.0	13.2	2.0	16.1	-13.0	29.1	-6.3	6.6	0.9	85.0
Portugal	6.0	5.6	5.3	5.1	4.8	0.5	0.0	1.0	0.5	32.4
Slovakia										
Spain	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sweden	37.3	-18.1	22.1	-9.1	-16.6	4.0	19.2	-9.6	0.0	16.6
Switzerland	2.2	3.0	28.9	0.3	-0.7	3.5	3.9	-1.4	-7.5	32.6
United Kingdom	1.3	3.7	4.1	2.6	4.0	-1.1	-1.3	-1.6	-0.8	11.2
United States	-1.6	-3.6	0.1	0.9	-1.0	0.6	0.4	-0.9	1.2	-3.9

4.3 Trends in net CO₂ emissions/removals

Gg CO₂/yr

FCCC/WEB/SAI/2001

Party	Base year 1,2	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	min	max	average
Australia ³	-24,598	-24,598	-24,084	-24,544	-24,155	-23,173	-22,380	-22,432	-22,485	-22,327	-23,069	-24,598	-22,327	-23,325
Austria	-9,215	-9,215	-13,504	-8,656	-8,982	-7,862	-7,254	-5,385	-7,633	-7,633	-7,633	-13,504	-5,385	-8,376
Belgium										-1,845	-1,845	-1,845	-1,845	-1,845
Bulgaria ²	-4,657	-5,801	-7,880	-7,636	-7,022	-6,974	-7,520	-7,190	-5,852	-6,233	-6,608	-7,880	-5,801	-6,871
Canada	-68,069	-68,069	-71,047	-55,575	-47,482	-38,093	-30,642	-28,045	-25,221	-31,069	-30,942	-71,047	-25,221	-42,619
Czech Republic										3,757	-3,401	-3,401	3,757	178
Denmark	-916	-916	-918	-921	-924	-928	-931	-941	-951	-964	-976	-976	-916	-937
Estonia											-6,493	-6,493	-6,493	-6,493
Finland	-23,798	-23,798	-38,207	-31,894	-29,116	-17,259	-14,687	-21,032	-12,637	-9,713	-10,821	-38,207	-9,713	-20,916
France	-75,330	-75,330	-72,020	-76,878	-81,506	-82,824	-81,249	-82,995	-83,880	-83,748	-84,861	-84,861	-72,020	-80,529
Greece	-173	-173	-174	-348	-284	-81	-777	-502	-420	-1,181	-19	-1,181	-19	-396
Hungary ³	-3,097	-4,467	-4,747	-5,336	-6,194	-6,271	-6,200	-5,421	-5,703	-6,102	-6,191	-6,271	-4,467	-5,663
Japan	230,629	230,629	226,899	228,645	233,205	236,705	239,910	NE	NE	NE	NE	226,899	239,910	232,665
Iceland														
Ireland	-5,381	-5,381	-5,484	-5,685	-5,880	-6,098	-6,330	-6,532	-6,695	-6,872	-7,097	-7,097	-5,381	-6,205
Italy	-25,107	-25,107	-24,913	-24,169	-24,733	-24,060	-24,366	-24,940	-25,314	-24,969	-25,315	-25,315	-24,060	-24,789
Latvia	-10,960	-10,960	-10,960	-10,960	-10,960	-10,960	-10,600	-10,600	-10,600	-10,600	-10,758	-10,960	-10,600	-10,796
Luxembourg											-295	-295	-295	-295
Netherlands	-1,500	-1,500	-1,600	-1,600	-1,600	-1,700	-1,700	-1,700	-1,700	-1,700	-1,700	-1,700	-1,500	-1,650
New Zealand ³	-22,307	-22,307	-21,495	-20,003	-18,570	-18,166	-18,060	-18,548	-19,946	-21,831	-23,245	-23,245	-18,060	-20,217
Norway	-9,590	-9,590	-11,700	-13,250	-13,510	-15,680	-13,640	-17,611	-16,499	-17,588	-17,742	-17,742	-9,590	-14,681
Portugal	-2,082	-2,082	-2,206	-2,331	-2,455	-2,580	-2,704	-2,717	-2,717	-2,744	-2,758	-2,758	-2,082	-2,529
Slovakia	-401	-401	-401	-401	-401	-1,056	-1,056	-2,149	-2,245	64	-809	-2,245	64	-885
Spain	-29,252	-29,252	-29,252	-29,252	-29,252	-29,252	-29,252	-29,252	-29,252	-29,252	-29,252	-29,252	-29,252	-29,252
Sweden	-24,100	-24,100	-33,100	-27,100	-33,100	-30,100	-25,100	-26,100	-31,100	-28,100	-28,100	-33,100	-24,100	-28,600
Switzerland	-3,188	-3,188	-3,257	-3,355	-4,325	-4,340	-4,310	-4,460	-4,636	-4,570	-4,226	-4,636	-3,188	-4,067
United Kingdom	-7,304	-7,304	-7,396	-7,671	-7,982	-8,191	-8,518	-8,426	-8,316	-8,184	-8,122	-8,518	-7,304	-8,011
United States	-750,200	-750,200	-738,100	-711,300	-712,300	-719,000	-711,600	-716,000	-718,700	-712,500	-720,900	-750,200	-711,300	-721,060
min	-750,200	-750,200	-738,100	-711,300	-712,300	-719,000	-711,600	-716,000	-718,700	-712,500	-720,900			
max	230,629	230,629	226,899	228,645	233,205	236,705	239,910	-502	-420	3,757				
average	-37,852	-37,961	-38,937	-36,531	-36,414	-35,563	-34,303	-47,408	-47,386	-43,163	-40,891			

^{1,2} Base year refers to 1990, except for the following Parties with economies in transition which, in accordance with decision 9/CP.2, use base years other than 1990: Bulgaria (1988) and Hungary (average of 1985-1987).

³ Taken from 2000 submission.

Percentage change from previous year

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	-2.1	1.9	-1.6	-4.1	-3.4	0.2	0.2	-0.7	3.3
Austria	46.5	-35.9	3.8	-12.5	-7.7	-25.8	41.7	0.0	0.0
Belgium									
Bulgaria	35.8	-3.1	-8.0	-0.7	7.8	-4.4	-18.6	6.5	6.0
Canada	4.4	-21.8	-14.6	-19.8	-19.6	-8.5	-10.1	23.2	-0.4
Czech Republic									-190.5
Denmark	0.2	0.3	0.3	0.4	0.3	1.1	1.1	1.4	1.2
Estonia									
Finland	60.5	-16.5	-8.7	-40.7	-14.9	43.2	-39.9	-23.1	11.4
France	-4.4	6.7	6.0	1.6	-1.9	2.1	1.1	-0.2	1.3
Greece	0.6	99.6	-18.4	-71.3	853.5	-35.4	-16.3	181.2	-98.4
Hungary	6.3	12.4	16.1	1.2	-1.1	-12.6	5.2	7.0	1.5
Japan	-1.6	0.8	2.0	1.5	1.4				
Iceland									
Ireland	1.9	3.7	3.4	3.7	3.8	3.2	2.5	2.6	3.3
Italy	-0.8	-3.0	2.3	-2.7	1.3	2.4	1.5	-1.4	1.4
Latvia	0.0	0.0	0.0	0.0	-3.3	0.0	0.0	0.0	1.5
Luxembourg									
Netherlands	6.7	0.0	0.0	6.3	0.0	0.0	0.0	0.0	0.0
New Zealand	-3.6	-6.9	-7.2	-2.2	-0.6	2.7	7.5	9.5	6.5
Norway	22.0	13.2	2.0	16.1	-13.0	29.1	-6.3	6.6	0.9
Portugal	6.0	5.6	5.3	5.1	4.8	0.5	0.0	1.0	0.5
Slovakia	0.0	0.0	0.0	163.5	0.0	103.5	4.4	-102.8	-1,373.5
Spain	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sweden	37.3	-18.1	22.1	-9.1	-16.6	4.0	19.2	-9.6	0.0
Switzerland	2.2	3.0	28.9	0.3	-0.7	3.5	3.9	-1.4	-7.5
United Kingdom	1.3	3.7	4.1	2.6	4.0	-1.1	-1.3	-1.6	-0.8
United States	-1.6	-3.6	0.1	0.9	-1.0	0.6	0.4	-0.9	1.2

Percentage change from previous year

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	-2.1	-0.2	-1.8	-5.8	-9.0	-8.8	-8.6	-9.2	-6.2
Austria	46.5	-6.1	-2.5	-14.7	-21.3	-41.6	-17.2	-17.2	-17.2
Belgium									
Bulgaria	69.2	64.0	50.8	49.8	61.5	54.4	25.7	33.8	41.9
Canada	4.4	-18.4	-30.2	-44.0	-55.0	-58.8	-62.9	-54.4	-54.5
Czech Republic									
Denmark	0.2	0.5	0.9	1.3	1.6	2.7	3.8	5.2	6.6
Estonia									
Finland	60.5	34.0	22.3	-27.5	-38.3	-11.6	-46.9	-59.2	-54.5
France	-4.4	2.1	8.2	9.9	7.9	10.2	11.4	11.2	12.7
Greece	0.6	100.9	64.0	-53.0	348.5	189.7	142.4	581.8	-89.1
Hungary	53.3	72.3	100.0	102.5	100.2	75.0	84.1	97.0	99.9
Japan	-1.6	-0.9	1.1	2.6	4.0				
Iceland									
Ireland	1.9	5.6	9.3	13.3	17.6	21.4	24.4	27.7	31.9
Italy	-0.8	-3.7	-1.5	-4.2	-3.0	-0.7	0.8	-0.5	0.8
Latvia	0.0	0.0	0.0	0.0	-3.3	-3.3	-3.3	-3.3	-1.8
Luxembourg									
Netherlands	6.7	6.7	6.7	13.3	13.3	13.3	13.3	13.3	13.3
New Zealand	-3.6	-10.3	-16.8	-18.6	-19.0	-16.9	-10.6	-2.1	4.2
Norway	22.0	38.2	40.9	63.5	42.2	83.6	72.0	83.4	85.0
Portugal	6.0	12.0	17.9	23.9	29.9	30.5	30.5	31.8	32.4
Slovakia	0.0	0.0	0.0	163.5	163.5	436.1	459.9	-115.8	101.7
Spain	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sweden	37.3	12.4	37.3	24.9	4.1	8.3	29.0	16.6	16.6
Switzerland	2.2	5.2	35.7	36.1	35.2	39.9	45.4	43.4	32.6
United Kingdom	1.3	5.0	9.3	12.1	16.6	15.4	13.9	12.0	11.2
United States	-1.6	-5.2	-5.1	-4.2	-5.1	-4.6	-4.2	-5.0	-3.9

5. Forest/grassland conversion (5.B)

Average annual net loss of biomass

5.1 Tropical ecosystems

Party	Original natural ecosystem: Tropical, wet/very moist						
	On- & off-site burning			Decay			Difference in annual net loss of biomass
	Area converted annually	Average annual net loss of biomass	Annual net loss of biomass	Average area converted	Average annual net loss of biomass	Annual net loss of biomass	
	kha/yr	t dm/ha/yr	kt dm/yr	kha/yr	t dm/ha/yr	kt dm/yr	
Default ¹		(225-300)			(225-300)		
France	0.80	285.0	228.0				-

¹ Taken from table 5-6 (Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, volume 2: workbook).

Note

This table includes only one Party, as no other Party provided numerical information in its CRF regarding temperate forests plantations.

5.2 Temperate ecosystems

	Original natural ecosystem: Temperate - coniferous							Original natural ecosystem: Temperate - broadleaf							Original natural ecosystem: Temperate - mixed broadleaf / coniferous						
	On- & off-site burning			Decay			Difference in annual net loss of biomass	On- & off-site burning			Decay			Difference in annual net loss of biomass	On- & off-site burning			Decay			Difference in annual net loss of biomass
	Area converted annually	Average annual net loss of biomass	Annual net loss of biomass	Average area converted	Average annual net loss of biomass	Annual net loss of biomass		Area converted annually	Average annual net loss of biomass	Annual net loss of biomass	Average area converted	Average annual net loss of biomass	Annual net loss of biomass		Area converted annually	Average annual net loss of biomass	Annual net loss of biomass	Average area converted	Average annual net loss of biomass	Annual net loss of biomass	
	kha/yr	t dm/ha/yr	kt dm/yr	kha/yr	t dm/ha/yr	kt dm/yr		kha/yr	t dm/ha/yr	kt dm/yr	kha/yr	t dm/ha/yr	kt dm/yr		kha/yr	t dm/ha/yr	kt dm/yr	kha/yr	t dm/ha/yr	kt dm/yr	
Default ¹		(220-295)			(220-295)				(175-250)			(175-250)				(175-295)			(175-295)		
Australia																					
Austria																					
Belgium																					
Bulgaria																					
Canada															16.00	102.3	1637.00	NE	NE		
Czech Republic																					
Denmark																					
Estonia																					
Finland																					
France											6,488.10	0.25	1,611.90	-0.2	80.10	81.2	6,508.00	80.10	81.00	6,488.10	0.2
Greece	3.20	33.9	108.34	0.00	na			1.20	19.7	23.66					8.40	19.7	165.66		na		
Hungary	135.70	1.0	135.70	114.20	114.20	13041.64	-113.2	673.60	1.0	673.60											
Iceland																					
Ireland																					
Italy	4.83	9.4	45.51					3.28	9.4	30.71		11.00		-1.6	23.71	11.0	260.73				
Japan																					
Latvia																					
Luxembourg																					
Netherlands																					
New Zealand																					
Norway																					
Portugal																					
Slovakia	NA		853.29	NA	NA					1,179.60											
Spain																					
Sweden																					
Switzerland																					
United Kingdom																					
United States																					
Minimum	3.20	1.00	45.51	0.00	114.20	13,041.64	-113.20	1.20	1.00	23.66	6,488.10	0.25	1,611.90	-1.62	8.40	11.00	165.66	80.10	81.00	6,488.10	0.25
Maximum	135.70	33.86	853.29	114.20	114.20	13,041.64	-113.20	673.60	19.72	1,179.60	6,488.10	11.00	1,611.90	-0.25	80.10	102.31	6,508.00	80.10	81.00	6,488.10	0.25
Average	47.91	14.76	285.71	57.10	114.20	13,041.64	-113.20	226.03	10.03	476.89	6,488.10	5.62	1,611.90	-0.94	32.05	53.57	2,142.85	80.10	81.00	6,488.10	0.25

¹ Taken from table 5-6 (Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, volume 2: workbook).

5.3 Grasslands

Party	Original natural ecosystem: Grasslands						
	On- & off-site burning			Decay			Difference in annual net loss of biomass
	Area converted annually	Average annual net loss of biomass	Annual net loss of biomass	Average area converted	Average annual net loss of biomass	Annual net loss of biomass	
	kha/yr	t dm/ha/yr	kt dm/yr	kha/yr	t dm/ha/yr	kt dm/yr	
Default ¹							
Canada	65.2	1.1	70.0	NE	NE		-
Greece	2.40		na			0.0	-
Hungary	8.20	-1.0	-8.20	6.25	-6.25	-39.1	5.3
Minimum	2.4	-1.0	-8.2	6.3	-6.3	-39.1	
Maximum	65.2	1.1	70.0	6.3	-6.3	0.0	
Average	25.3	0.0	30.9	6.3	-6.3	-19.5	

5.4 Boreal: mixed broadleaf / coniferous

	Original natural ecosystem: Boreal, mixed coniferous/broadleaf						
	On- & off-site burning			Decay			Difference in annual net loss of biomass
	Area converted annually	Average annual net loss of biomass	Annual net loss of biomass	Average area converted	Average annual net loss of biomass	Annual net loss of biomass	
	kha/yr	t dm/ha/yr	kt dm/yr	kha/yr	t dm/ha/yr	kt dm/yr	
Default ¹		(40-87)			(40-87)		
Canada	10.80	39.9	431.00	NE	NE		-
Estonia	0.06	144.8	8.69	0.42	60.82	25.5	84.0
Finland				0	0	0.0	
Minimum	0.06	39.91	8.69	0.00	0.00	0.00	
Maximum	10.80	144.80	431.00	0.42	60.82	25.54	
Average	5.43	92.35	219.84	0.21	30.41	12.77	

6. Forest/grassland conversion (5.B)

Temperate forests (including coniferous, broadleaf, mixed coniferous/broadleaf)

Trends in area converted annually, kha/yr

Area converted annually (kha/yr)

Party	Type ³	Biomass end point ⁴	Base year ^{1,2}	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia			0.0										
Austria	Brd	Oosb	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
	Con	Oosb	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Belgium			0.0										
Bulgaria													
Canada	Brd	Oosb	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Brd	Dec	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
	Con	Oosb	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Con	Dec	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Czech Republic			0.0										
Denmark			0.0										
Estonia			0.0										
Finland			0.0										
France			0.0										
Greece	Brd	Oosb	5.0	4.98	1.81	3.83	7.22	7.76	1.17	1.86	1.10	12.50	1.20
	Brd	Dec	0.0						na	na	na	na	na
	Con	Oosb	13.6	13.61	1.21	19.45	12.33	8.59	4.89	4.09	4.90	33.50	3.20
	Con	Dec	0.0				ne		na	na	na	na	na
Hungary	Brd	Oosb										673.60	673.60
	Brd	Dec										803.10	803.10
	Con	Oosb										135.70	135.70
	Con	Dec										114.20	114.20
Iceland													
Ireland	Brd	Oosb	0.0									NE	NE
	Brd	Dec	0.0									NE	NE
	Con	Oosb	0.0									NE	NE
	Con	Dec	0.0									NE	NE
Italy	Brd	Oosb	0.0									12.01	3.28
	Con	Oosb	0.0									11.62	4.83
Latvia			0.0										
Luxembourg			0.0										
Netherlands			0.0										
New Zealand			0.0										
Norway			0.0										
Portugal			0.0										
Slovakia	Brd	Oosb	0.0									NA	NA
	Brd	Dec	0.0										NA
	Con	Oosb	0.0									NA	NA
	Con	Dec	0.0										NA
Spain			0.0										
Sweden			0.0										
Switzerland			0.0										
United Kingdom			0.0										
United States	Brd	Oosb	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Brd	Dce	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Con	Oosb	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Con	Dec	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Percentage change from previous year and base year

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										
Austria										
Belgium										
Bulgaria										
Canada										
Czech Republic										
Denmark										
Estonia										
Finland										
France										
Greece	-63.7	111.6	88.5	7.5	-84.9	59.0	-40.9	1036.4	-90.4	-75.9
Hungary									0.0	
Iceland										
Ireland										
Italy									-72.7	
Latvia										
Luxembourg										
Netherlands										
New Zealand										
Norway										
Portugal										
Slovakia										
Spain										
Sweden										
Switzerland										
United Kingdom										
United States										

^{1,2} Base year refers to 1990, except for the following Parties with economies in transition which, in accordance with decision 9/CP.2, use base years other than 1990: Bulgaria (1988) and Hungary (average of 1985-1987).³ Con- and off-site burning on for coniferous; Brd for broadleaf; Mix for mixed coniferous and broadleaf (also for mixed evergreen and broadleaf).⁴ Oosb, for On- and Off-site biomass burning; Dec, for biomass left to decay.

7. Forest/grassland conversion (5.B)

Trends in CO₂ emissions

Gigagrams

Party	Base year 1,2	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	min	max	average
Australia	98,752	98,752	71,739	68,541	65,678	63,131	62,038	64,153	62,484	68,731	68,060	62,038.24	98,751.65	69,330.61
Austria														
Belgium														
Bulgaria														
Canada	1,419	1,419	1,393	1,420	1,699	2,056	2,381	2,840	3,694	3,924	4,154	1,393	4,154	2,498
Czech Republic														
Denmark														
Estonia											35	35.12	35.12	35.12
Finland														
France	11,710	11,710	11,710	11,987	12,066	12,165	12,343	12,343	12,540	12,540	12,540	11,710	12,540	12,194.4
Greece	1,423	1,423	609	2,277	1,721	1,403	660	684	656	3,682	552	552.42	3,682.2	1,366.631
Hungary		NA	1,509	1,514	1,497	1,452	1,403	1,490	1,498	1,488	1,488	1,402.52	1,513.93	1,481.882
Iceland														
Ireland											NO			
Japan	579.15	579.15	907.83	914.76	921.69	928.62	942.48	NE	NE	NE	NE	579.15	942.48	865.755
Italy	2,152	2,152	1,256	820	1,751	1,076	790	422	803	1,192	995	422.0505	2,152.252	1,125.868
Latvia											NO			
Luxembourg														
Netherlands	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO			
New Zealand	669	669	1,015	1,586	2,094	2,331	1,753	1,930	1,732	872	1,127	669.236	2,330.768	1,510.919
Norway	0													
Portugal	-1,912	-1,912	-1,913	-1,914	-1,914	-1,915	-1,916	-1,921	-1,921	-1,930	-1,934	-1,934.4	-1,912	-1,918.94
Slovakia	141	141	141	141	141	126	126	111	111	131	265	110.6	265.33	143.313
Spain														
Sweden														
Switzerland											NO			
United Kingdom														
United States														
Minimum	-1,912.00	-1,912.00	-1,912.80	-1,913.60	-1,914.40	-1,915.20	-1,916.00	-1,920.60	-1,920.60	-1,929.80	-1,934.40			
Maximum	98,751.65	98,751.65	71,738.58	68,541.29	65,677.56	63,130.84	62,038.24	64,152.57	62,484.05	68,730.83	68,060.48			
Average	11,493.26	12,770.29	8,836.51	8,728.73	8,565.35	8,275.28	8,052.09	9,116.95	9,066.39	10,070.00	8,728.24			

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	-27.4	-4.5	-4.2	-3.9	-1.7	3.4	-2.6	10.0	-1.0	-31.1
Austria										
Belgium										
Bulgaria										
Canada	-1.8	1.9	19.6	21.0	15.8	19.3	30.1	6.2	5.9	192.7
Czech Republic										
Denmark										
Estonia										
Finland										
France	0.0	2.4	0.7	0.8	1.5	0.0	1.6	0.0	0.0	7.1
Greece	-57.2	274.2	-24.4	-18.5	-53.0	3.6	-4.1	461.4	-85.0	-61.2
Hungary		0.3	-1.1	-3.0	-3.4	6.3	0.5	-0.7	0.0	
Iceland										
Ireland										
Japan	56.8	0.8	0.8	0.8	1.5					
Italy	-41.7	-34.7	113.6	-38.6	-26.5	-46.6	90.4	48.4	-16.5	-53.8
Latvia										
Luxembourg										
Netherlands										
New Zealand	51.6	56.3	32.1	11.3	-24.8	10.1	-10.3	-49.7	29.2	68.3
Norway										
Portugal	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.5	0.2	1.2
Slovakia	0.0	0.0	0.0	-10.2	0.0	-11.9	-0.6	18.4	102.7	88.7
Spain										
Sweden										
Switzerland										
United Kingdom										
United States										

^{1,2} Base year refers to 1990, except for the following Parties with economies in transition which, in accordance with decision 9/CP.2, use base years other than 1990: Bulgaria (1988) and Hungary (average of 1985-1987).

8. Abandonment of managed lands (5.C)

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

8.1 Temperate forest - above ground biomass

Party	Temperate: Mixed coniferous / broadleaf						Temperate, broadleaf						Temperate, coniferous					
	Annual rate of biomass growth		C fraction of biomass		Rate of biomass C uptake		Annual rate of biomass growth		C fraction of biomass		Rate of biomass C uptake		Annual rate of biomass growth		C fraction of biomass		Rate of biomass C uptake	
	<20 yrs t dm/ha/yr	> 20 yrs t dm/ha/yr	<20 yrs	> 20 yrs	<20 yrs t C/ha/yr	> 20 yrs t C/ha/yr	<20 yrs t dm/ha/yr	> 20 yrs t dm/ha/yr	<20 yrs	> 20 yrs	<20 yrs t C/ha/yr	> 20 yrs t C/ha/yr	<20 yrs t dm/ha/yr	> 20 yrs t dm/ha/yr	<20 yrs	> 20 yrs	<20 yrs t C/ha/yr	> 20 yrs t C/ha/yr
Default ¹	(2.0-3.0)	(2.0-3.0)					(2.0)	(2.0)					(3.0)	(3.0)				
Australia																		
Austria																		
Belgium																		
Bulgaria																		
Canada	0.95	0.95	0.50	0.50	0.48	0.48												
Czech Republic																		
Denmark																		
Estonia																		
Finland																		
France																		
Greece																		
Hungary																		
Iceland																		
Ireland																		
Italy	2.00		0.50		0.00	0.00	2.00		0.50		0.00	0.00	2.00		0.50		0.00	0.00
Japan																		
Latvia																		
Luxembourg																		
Netherlands																		
New Zealand																		
Norway																		
Portugal																		
Slovakia							1.50	2.50	0.50	0.50	0.75	1.25	1.00	2.00	0.49	0.49	0.49	0.98
Spain																		
Sweden																		
Switzerland																		
United Kingdom																		
United States																		
Minimum	0.95	0.95	0.50	0.50	0.00	0.00	1.50	2.50	0.50	0.50	0.00	0.00	1.00	2.00	0.49	0.49	0.00	0.00
Maximum	2.00	0.95	0.50	0.50	0.48	0.48	2.00	2.50	0.50	0.50	0.75	1.25	2.00	2.00	0.50	0.49	0.49	0.98
Average	1.48	0.95	0.50	0.50	0.24	0.24	1.75	2.50	0.50	0.50	0.38	0.63	1.50	2.00	0.50	0.49	0.25	0.49

¹ Taken from Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, volume 2. Workbook.

8.2 Boreal forests and grasslands**

Party	Boreal, mixed broadleaf / coniferous						Grasslands					
	Annual rate of aboveground biomass growth		C fraction of aboveground biomass		Rate of aboveground biomass C uptake		Annual rate of aboveground biomass growth		C fraction of aboveground biomass		Rate of aboveground biomass C uptake	
	<20 yrs t dm/ha/yr	> 20 yrs t dm/ha/yr	<20 yrs	> 20 yrs	<20 yrs t C/ha/yr	> 20 yrs t C/ha/yr	<20 yrs t dm/ha/yr	> 20 yrs t dm/ha/yr	<20 yrs	> 20 yrs	<20 yrs t C/ha/yr	> 20 yrs t C/ha/yr
Default ¹	(0,7-2,0)	(0,7-6,4)										
Australia												
Austria												
Belgium												
Bulgaria												
Canada	0.21	0.21	0.50	0.50	0.10	0.11			0.50	0.50	0.00	0.00
Czech Republic												
Denmark												
Estonia	4.28	4.28	0.45	0.45	1.93	0.00						
Finland												
France												
Greece												
Hungary												
Iceland												
Ireland												
japan												
Italy												
Latvia												
Luxembourg												
Netherlands												
New Zealand												
Norway												
Portugal												
Slovakia												
Spain												
Sweden												
Switzerland												
United Kingdom												
United States												

¹ Taken from Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, volume 2. Workbook.

** Tropical forests were omitted from the present table given that no party reported data.

9. Abandonment of managed lands (5.C)

9.1 CO₂ removals, trends, Gg CO₂/yr

Party	Base year ^{1,2}	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia											
Austria											
Belgium											
Bulgaria ¹											
Canada	-3,245.00	-3,245	-3,304	-3,271	-3,242	-3,216	-3,183	-3,157	-3,913	-3,913	-4,103
Czech Republic											
Denmark											
Estonia											-2,296
Finland											
France	-48.00	-48	-48	-48	-48	-48	-48	-48	-48	-48	-48
Greece											
Hungary ²											
Iceland											
Ireland											NO
Japan											
Italy	-74.10	-74	-114	-123	-142	-144	-150	-152	-153	-153	-154
Latvia											NO
Luxembourg											
Netherlands	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
New Zealand											
Norway											
Portugal											
Slovakia	-1,351.50	-1,352	-1,352	-1,352	-1,352	-1,371	-1,371	-1,391	-1,405	-1,407	-1,415
Spain											
Sweden											
Switzerland											IE
United Kingdom											
United States											
Minimum	-3,245.00	-3,245	-3,304	-3,271	-3,242	-3,216	-3,183	-3,157	-3,913	-3,913	-4,103
Maximum	-48.00	-48	-48	-48	-48	-48	-48	-48	-48	-48	-48
Average	-1,179.65	-1,180	-1,204	-1,198	-1,196	-1,195	-1,188	-1,187	-1,380	-1,380	-1,603

Percentage change from previous year

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										
Austria										
Belgium										
Bulgaria										
Canada	1.8	-1.0	-0.9	-0.8	-1.0	-0.8	23.9	0.0	4.9	26.4
Czech Republic										
Denmark										
Estonia										
Finland										
France	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Greece										
Hungary										
Iceland										
Ireland										
Japan										
Italy	54.5	7.1	16.2	0.9	4.5	1.1	0.6	0.0	1.1	108.3
Latvia										
Luxembourg										
Netherlands										
New Zealand										
Norway										
Portugal										
Slovakia	0.0	0.0	0.0	1.4	0.0	1.4	1.0	0.1	0.6	4.7
Spain										
Sweden										
Switzerland										
United Kingdom										
United States										

^{1,2} Base year refers to 1990, except for the following Parties with economies in transition which, in accordance with decision 9/CP.2, use base years other than 1990: Bulgaria (1988) and Hungary (average of 1985-1987).

9. Abandonment of managed lands (5.C)

9.2 Area trends for total area abandoned

Kha (first twenty years)*

Party	Category ¹	Base year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Canada	Brdl/conif (temp)	883.5	884	781	718	656	593	531	469	853	869	886
	Mix/brdl (boreal)	130.5	131	113	102	93	83	73	63	129	132	136
	Grasslands	300.5	301	264	242	221	199	178	156	290	296	303
Estonia	Mix/brdl (boreal)											325
Slovakia	Broadleaf (temp)											153
	Coniferous (temp)											160
	Brdl/conif (temp)											NO
Minimum		130.5	131	113	102	93	83	73	63	129	132	136
Maximum		883.5	884	781	718	656	593	531	469	853	869	886
Average		438.17	438	386	354	323	292	261	229	424	432	327

* Only parties reporting data under this category were included in the table.

¹ Brdl: Broadleaf, Conif: coniferous.

Percentage change from previous year*

Party	Category ¹	1991	1992	1993	1994	1995	1996	1997	1998	1999
Canada	Brdl/conif (temp)	-11.7	-8.1	-8.6	-9.5	-10.5	-11.7	81.8	1.9	2.0
	Mix/brdl (boreal)	-13.8	-9.3	-8.8	-11.3	-11.5	-13.7	104.0	2.7	2.7
	Grasslands	-12.1	-8.3	-8.9	-9.8	-10.6	-12.4	85.9	2.1	2.4
Estonia	Mix/brdl (boreal)									
Slovakia	Broadleaf (temp)									
	Coniferous (temp)									
	Brdl/conif (temp)									

* Only parties reporting data under this category were included in the table.

¹ Brdl: Broadleaf, Conif: coniferous.

10. CO₂ emissions and removals from soils (5.D)

10.1 Cultivation of mineral soils

Party	Average annual rate of soil C uptake/removal, T C/ha/yr					
	High activity	Low activity	Sandy	Volcanic	Wetland	Other
Default						
Australia						
Austria						
Belgium						
Bulgaria						
Canada						
Czech Republic						
Denmark						
Estonia	-0.100	-0.317	0.143			
Finland	-0.054	-0.054	-0.014			
France						
Greece	2.313	2.313		0.000	0.000	
Hungary						
Iceland						
Ireland						
Japan						
Italy						
Latvia						
Luxembourg						
Netherlands						
New Zealand						
Norway						
Portugal						
Slovakia						
Spain						
Sweden						
Switzerland						
United Kingdom						
United States						
Minimum	-0.10	-0.32	-0.01			
Maximum	2.31	2.31	0.14			
Average	0.72	0.65	0.06			

10.2 Cultivation of organic soils

Party	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	ha
Default	(1.0)	(0.25)	(10.0)	(2.5)	(20.0)	(5.0)		
Australia							46,085.5	
Austria							NE	NO
Belgium								
Bulgaria							4,804.7	
Canada							29.8	IE
Czech Republic							1.7	
Denmark							18.4	
Estonia		4.302						1.9
Finland	1.202	1.103					303.0	303.0
France								
Greece	0.000	0.000	0.000	0.000	0.000	0.000		na
Hungary			10.000	5.441			6,194.6	6.5
Iceland							NO	
Ireland							NE	NO
Japan								
Italy			0.073	0.123			9.0	23,672.2
Latvia	1.000						129.6	24.8
Luxembourg								
Netherlands								
New Zealand							166.0	
Norway							175.0	
Portugal							NE	
Slovakia							4.9	NO
Spain								
Sweden	5.441	2.813					247.0	250.0
Switzerland							7.0	NE
United Kingdom							0.4	
United States							973.3	NA
Minimum	0.00	0.00	0.00					
Maximum	5.44	4.30	10.00					
Average	1.91	2.05	3.36					

9.3 Liming of agricultural soils

Party	C conversion factor	
	Limestone	Dolomite
Default		
Australia		
Austria		
Belgium		
Bulgaria		
Canada		
Czech Republic		
Denmark		
Estonia		
Finland	0.120	0.130
France		
Greece		
Hungary	0.120	
Iceland		
Ireland		
Japan		
Italy		
Latvia		
Luxembourg		
Netherlands		
New Zealand		
Norway		
Portugal		
Slovakia	0.120	0.122
Spain		
Sweden	0.120	0.122
Switzerland		
United Kingdom		
United States		
Minimum	0.12	0.12
Maximum	0.12	0.13
Average	0.12	0.12

11. CO₂ Emissions and removals from soils (5.D)

FCCC/WEB/SAI2001

11.1 CO₂ net emission/removal

11.1.1 Trends, Gg CO₂/yr

Party	Base year ^{1,2}	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Statistics by Party		
												Min	max	avg
Australia	-4,224	-4,224	-4,224	-4,224	-4,224	-4,224	-4,224	-4,224	-4,224	-4,224	-4,224	-4,224	-4,224	-4,224
Austria														
Belgium														
Bulgaria														
Canada	3,525	3,525	3,776	3,137	2,841	2,630	2,391	2,636	5,270	1,254	5,262	1,254	1,254	1,254
Czech Republic														
Denmark														
Estonia											646	646	646	646
Finland														
France	4,051	4,051	3,870	3,693	3,623	3,212	3,803	3,503	3,298	3,232	3,374	3,212	3,212	3,212
Greece						-169	-253	-253	-508	-84	-339	-508	-508	-508
Hungary										203	203	203	203	203
Iceland														
Ireland	361	361	309	309	294	374	416	467	423	379	362	294	294	294
Italy	2,808	2,808	7,280	6,614	7,347	7,672	7,866	7,815	9,645	8,634	8,374	2,808	2,808	2,808
Japan														
Latvia	134	134	134	85	92	114	116	104	92	92	93	85	85	85
Luxembourg														
Netherlands	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE			
New Zealand	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE			
Norway														
Portugal														
Slovakia	-814	-814	-814	-814	-814	-934	-934	-804	-547	-592	-669	-934	-934	-934
Spain	0	0	0	0	0	0	0	0	0	0	0			
Sweden	3,808	3,808	3,772	3,747	3,768	3,795	3,807	3,831	3,812	3,769	3,795	3,747	3,747	3,747
Switzerland	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE			
United Kingdom	13,287	13,287	13,482	13,263	11,906	10,817	10,422	10,729	10,514	10,753	10,346	10,346	10,346	10,346
United States	-291,900	-291,900	-291,200	-569,067	-296,600	-295,900	-295,400	-295,400	-253,800	-262,100	-261,800	-569,067	-569,067	-569,067
Minimum	-291,900	-291,900	-291,200	-569,067	-296,600	-295,900	-295,400	-295,400	-253,800	-262,100	-261,800			
Maximum	13,287	13,287	13,482	13,263	11,906	10,817	10,422	10,729	10,514	10,753	10,346			
Average	-24,451	-24,451	-23,965	-49,387	-24,706	-22,718	-22,666	-22,633	-18,835	-18,360	-16,755			

^{1,2} Base year refers to 1990, except for the following Parties with economies in transition which, in accordance with decision 9/CP.2, use base years other than 1990: Bulgaria (1988) and Hungary (average of 1985-1987).

11.2 Cultivation of mineral soils

11.2.1 Trends of net CO₂ emission/removals

Party	Base year ^{1,2}	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Statistics by Party		
												Min	max	avg
Australia	NA	NA									NA			
Austria														
Belgium														
Bulgaria														
Canada														
Czech Republic														
Denmark														
Estonia											616	616	616	616
Finland											-2	-2	-2	-2
France														
Greece							-253	-253	-508	-84	-339	-508	-508	-508
Hungary														
Iceland														
Ireland											NE			
Italy										8,634	8,374	8,374	8,374	8,374
Latvia														
Luxembourg														
Netherlands														
New Zealand														
Norway														
Portugal														
Slovakia											-669	-669	-669	-669
Spain														
Sweden														
Switzerland											NE			
United Kingdom	14186.61	14,187	14,145	13,880	13,231	13,439	12,810	12,843	12,316	12,106	12,102	12,102	12,102	12,102
United States	-71900.00	-71,900	-71,900	-71,900	-100,100	-100,100	-100,100	-100,100	-100,100	-109,300	-109,300	-109,300	-109,300	-109,300
Minimum	-71900.00	-71,900	-71,900	-71,900	-100,100	-100,100	-100,100	-100,100	-100,100	-109,300	-109,300			
Maximum	14186.61	14,187	14,145	13,880	13,231	13,439	12,810	12,843	12,316	12,106	12,102			
Average	-28856.7	-28,857	-28,878	-29,010	-43,434	-43,331	-29,181	-29,170	-29,431	-22,161	-12,745			

^{1,2} Base year refers to 1990, except for the following Parties with economies in transition which, in accordance with decision 9/CP.2, use base years other than 1990: Bulgaria (1988) and Hungary (average of 1985-1987).

Percentage change from previous year

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999	To base year
Australia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Austria										
Belgium										
Bulgaria										
Canada	7.1	-16.9	-9.4	-7.4	-9.1	10.3	99.9	-76.2	319.4	49.3
Czech Republic										
Denmark										
Estonia										
Finland										
France	-4.5	-4.6	-1.9	-11.3	18.4	-7.9	-5.9	-2.0	4.4	-16.7
Greece										
Hungary										
Iceland										
Ireland	-14.6	0.2	-4.9	27.1	11.3	12.3	-9.4	-10.5	-4.4	0.3
Italy	159.3	-9.1	11.1	4.4	2.5	-0.6	23.4	-10.5	-3.0	198.2
Japan										
Latvia	0.0	-36.6	8.2	23.9	1.8	-10.7	-11.7	0.0	1.8	-30.5
Luxembourg										
Netherlands										
New Zealand										
Norway										
Portugal										
Slovakia	0.0	0.0	0.0	14.6	0.0	-13.9	-32.0	8.3	13.0	-17.8
Spain										
Sweden	-0.9	-0.7	0.6	0.7	0.3	0.6	-0.5	-1.1	0.7	-0.4
Switzerland										
United Kingdom	1.5	-1.6	-10.2	-9.1	-3.7	3.0	-2.0	2.3	-3.8	-22.1
United States	-0.2	95.4	-47.9	-0.2	-0.2	0.0	-14.1	3.3	-0.1	-10.3

Percentage change from previous year

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										
Austria										
Belgium										
Bulgaria										
Canada										
Czech Republic										
Denmark										
Estonia										
Finland										
France										
Greece						0.0	100.7	-83.4	302.2	
Hungary										
Iceland										
Ireland										
Italy									-3.0	
Latvia										
Luxembourg										
Netherlands										
New Zealand										
Norway										
Portugal										
Slovakia										
Spain										
Sweden										
Switzerland										
United Kingdom	-0.3	-1.9	-4.7	1.6	-4.7	0.3	-4.1	-1.7	0.0	-14.7
United States	0.0	0.0	39.2	0.0	0.0	0.0	0.0	9.2	0.0	52.0

11.3 Cultivation of organic soils

11.3.1 Net CO₂ emission/removal trends, Gg CO₂/yr

Party	Base year ^{1,2}	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Statistics by Party		
Australia	NA	NA									NA	Min	max	avg
Austria														
Belgium														
Bulgaria														
Canada										-3.868		-3.868	-3.868	-3.868
Czech Republic														
Denmark														
Estonia											30			
Finland											352,099	352,099	352,099	352,099
France														
Greece						-169						-169	-169	-169
Hungary											189	189	189	189
Iceland														
Ireland											NE			
Italy														
Latvia											91	91	91	91
Luxembourg														
Netherlands														
New Zealand														
Norway														
Portugal														
Slovakia														
Spain														
Sweden	3638.25	3,638	3,638	3,638	3,638	3,638	3,638	3,638	3,638	3,638	3,638	3,638	3,638	3,638
Switzerland											NE			
United Kingdom														
United States	22000.00	22,000	22,000	22,000	22,400	22,400	22,400	22,400	22,400	22,400	22,400	22,000	22,000	22,000
Minimum	3638.3	3,638	3,638	3,638	3,638	-169	3,638	3,638	3,638	-3.868	30			
Maximum	22000.0	22,000	22,000	22,000	22,400	22,400	22,400	22,400	22,400	22,400	352,099			
Average	12819.1	12,819	12,819	12,819	13,019	8,623	13,019	13,019	13,019	7,390	63,075			

^{1,2} Base year refers to 1990, except for the following Parties with economies in transition which, in accordance with decision 9/CP.2, use base years other than 1990: Bulgaria (1988) and Hungary (average of 1985-1987).

11.4 Liming of agricultural soils

11.4.1 Net CO₂ emission/removal trendsGg CO₂/yr

Party	Base year ^{1,2}	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Statistics by Party		
Australia	NA	NA									NA	Min	max	avg
Austria														
Belgium														
Bulgaria														
Canada										-139		-139	-139	-139
Czech Republic														
Denmark														
Estonia														
Finland											119,483	119,483	119,483	119,483
France														
Greece														
Hungary											15	15	15	15
Iceland														
Ireland											362	362	362	362
Italy														
Latvia											2	2	2	2
Luxembourg														
Netherlands														
New Zealand														
Norway														
Portugal														
Slovakia											0			
Spain														
Sweden	169.79	170	134	109	130	156	169	193	174	131	156	109	109	109
Switzerland											NO			
United Kingdom	1430.45	1,430	1,772	1,810	1,130	1,270	1,529	1,515	1,346	1,027	859	859	859	859
United States	9500.00	9,500	10,200	9,000	7,700	8,400	8,900	8,900	8,700	9,600	9,900	7,700	7,700	7,700
Minimum	169.8	170	134	109	130	156	169	193	174	-139	0.4			
Maximum	9500.0	9,500	10,200	9,000	7,700	8,400	8,900	8,900	8,700	9,600	119,483			
Average	3700.1	3,700	4,035	3,639	2,987	3,275	3,533	3,536	3,407	2,655	16,347			

^{1,2} Base year refers to 1990, except for the following Parties with economies in transition which, in accordance with decision 9/CP.2, use base years other than 1990: Bulgaria (1988) and Hungary (average of 1985-1987).

Percentage change from previous year

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										
Austria										
Belgium										
Bulgaria										
Canada										
Czech Republic										
Denmark										
Estonia										
Finland										
France										
Greece					-100.0					
Hungary										
Iceland										
Ireland										
Italy										
Latvia										
Luxembourg										
Netherlands										
New Zealand										
Norway										
Portugal										
Slovakia										
Spain										
Sweden	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Switzerland										
United Kingdom										
United States	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	1.8

Percentage change from previous year

Party	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										
Austria										
Belgium										
Bulgaria										
Canada										
Czech Republic										
Denmark										
Estonia										
Finland										
France										
Greece										
Hungary										
Iceland										
Ireland										
Italy										
Latvia										
Luxembourg										
Netherlands										
New Zealand										
Norway										
Portugal										
Slovakia										
Spain										
Sweden	-21.0	-19.0	19.3	20.6	8.1	14.0	-9.6	-24.9	19.6	-7.9
Switzerland										
United Kingdom	23.9	2.1	-37.5	12.3	20.4	-0.9	-11.1	-23.7	-16.3	-39.9
United States	7.4	-11.8	-14.4	9.1	6.0	0.0	-2.2	10.3	3.1	4.2

12. CO₂ Area trends of emissions from mineral soils in mha (5.D)

Party	Category	Base year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Estonia	High act.											0.40
	Low act.											0.53
	Sandy											0.28
	High act.	0.28	0.28	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.26
	Low act.	1.06	1.06	1.01	1.01	1.00	1.00	1.01	1.01	0.99	0.99	0.98
Finland	Sandy	0.85	0.85	0.82	0.81	0.80	0.81	0.81	0.81	0.80	0.80	0.79
Greece	High act.						0.02	0.03	0.03	0.06	0.01	0.04
Hungary	High act.											3.16
	Low act.											2.75
	Wetland											1.54
	Volcanic											0.02
	Sandy											0.94
Minimum		0.28	0.28	0.27	0.27	0.27	0.02	0.03	0.03	0.06	0.01	0.02
Maximum		1.06	1.06	1.01	1.01	1.00	1.00	1.01	1.01	0.99	0.99	3.16
Average		0.73	0.73	0.70	0.70	0.69	0.53	0.53	0.53	0.53	0.52	1.08

Percentage change from previous year

Party	Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Estonia	High act.										
	Low act.										
	Sandy										
	High act.	-4.0	-0.3	-1.2	0.5	0.3	0.4	-1.8	-0.4	-0.4	-89.10
	Low act.	-4.0	-0.3	-1.2	0.5	0.3	0.4	-1.8	-0.4	-0.4	-89.15
Finland	Sandy	-4.0	-0.3	-1.2	0.5	0.3	0.4	-1.8	-0.4	-0.4	-89.13
Greece	High act.					50.0	0.0	100.0	-83.3	300.0	
Hungary	High act.										
	Low act.										
	Wetland										
	Volcanic										
	Sandy										

13. CO₂ Emissions and removals from others (5.E)

Add as many rows as sources are reported per Party

13.1 Net emission/removal of greenhouse gases in gigagrams, trends**

Party	Specification ³	gas	Base year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	Prescribed burning and wildfire in forests	CH ₄	58	58									53
	"	CO	1,706	1,706									1,569
	"	N ₂ O	1	1									1
	"	NO _x	44	44									40
Belgium	Not specified		0										-3,360
Canada	Anthropogenic fires outside wood production forest	CO ₂	4,872	4,872	4,710	6,358	7,191	2,053	11,407	2,106	1,115	8,346	5,351
	"	CH ₄	9	9	9	12	13	4	21	4	2	15	10
	"	NO ₂	1	1	1	1	1	0	2	0	0	1	1
	Other anthropogenic fires in the wood production forest	CH ₄	11	11	18	10	23	73	83	22	7	43	31
	"	NO ₂	1	1	1	1	2	6	7	2	1	3	2
	Prescribed burning	CH ₄	47	47	60	46	42	16	12	13	13	13	17
	"	NO ₂	2	2	2	2	2	1	0	1	1	1	1
	Changes in crop biomass	CO ₂	-1,100	-1,100	-1,100	-1,100	-1,100	-1,100	-1,100	-1,100	-1,100	-1,100	-1,100
United Kingdom	Peat extraction	CO ₂	792	792	803	792	781	889	950	869	815	704	821
	Lowland drainage	CO ₂	1,650	1,650	1,613	1,577	1,540	1,503	1,467	1,430	1,393	1,357	1,320
	Upland drainage	CO ₂	1,467	1,467	1,467	1,467	1,467	1,467	1,467	1,467	1,467	1,467	1,467
	Land yard trimming	CO ₂	-17,800	-17,800	-17,500	-17,100	-15,300	-13,600	-12,000	-10,000	-9,400	-8,800	-7,700

** Only parties reporting net emissions/removals under sector 5.E were included in this table.

Percentage change from previous year

Party	Specification ³	gas	1991	1992	1993	1994	1995	1996	1997	1998	1999	To base year
Australia	Prescribed burning and wildfire in forests	CH ₄										-8
	"	CO										-8
	"	N ₂ O										-8
	"	NO _x										-8
Belgium	Not specified											
Canada	Anthropogenic fires outside wood production forest	CO ₂	-3	35	13	-71	456	-82	-47	649	-36	10
	"	CH ₄	-3	35	13	-71	456	-82	-47	649	-36	10
	"	NO ₂	-3	35	13	-71	456	-82	-47	649	-36	10
	Other anthropogenic fires in the wood production forest	CH ₄	70	-45	127	220	13	-74	-66	483	-28	184
	"	NO ₂	70	-45	127	220	13	-74	-66	483	-28	184
	Prescribed burning	CH ₄	29	-23	-10	-62	-24	9	0	0	26	-64
	"	NO ₂	29	-23	-10	-62	-24	9	0	0	26	-64
	Changes in crop biomass	CO ₂	0	0	0	0	0	0	0	0	0	0
United Kingdom	Peat extraction	CO ₂	1	-1	-1	14	7	-9	-6	-14	17	4
	Lowland drainage	CO ₂	-2	-2	-2	-2	-2	-3	-3	-3	-3	-20
	Upland drainage	CO ₂	0	0	0	0	0	0	0	0	0	0
	Land yard trimming	CO ₂	-2	-2	-11	-11	-12	-17	-6	-6	-13	-57
United States	"	N ₂ O										-8
	"	N ₂ O										-8

** Only Parties reporting net emissions/removals under sector 5.E were included in this table.

5. Waste

FCCC/WEB/SAI2001

Waste - Solid waste disposal on land, waste-water handling and waste incineration (1999)

	6. Waste																									
	Activity data		6.A Solid waste disposal on land								6.B Waste-water handling										6.C Waste incineration					
			CH ₄								CH ₄								N ₂ O from human sewage		CO ₂ from non-biogenic waste					
			Methods and EF used		Key source	Percentage of national total	Emissions per capita ^c	CH ₄ IEF		Methods and EF used	Key source	Percentage of national total	Emissions per capita ^c	CH ₄ IEF				Emissions per capita ^c	N ₂ O IEF	Methods and EF used		Key source ^b	percent of national total	IEF		
														Domestic/commercial		Industrial										
	CRF	IEA ^a	Methods	EF										Managed	Unmanaged										Waste-water	Sludge
						%	kg	t/t	t/t			%	kg	kg / kg DC				kg	kg N ₂ O -N/kg sewage N						kg/t	
IPCC default EF ^d																			0.01 (0.002-0.12)							
Australia	19	19.0	T2	M	L/T	3.0/2.4	37	0.06		T2	D			3.48	NE	NE	NE	NE	NE	NE	T2	CS				
Austria	8	8.1	CS	CS	L/T	5.58/6.68	26	0.06		C	CS			1.78							C	CS				2904.0
Belgium		10.2					12							0.03					0.00							2916.0*
Bulgaria	8	8.2	D	D,CS	L	5.3	24	0.07		D	D,CS	L	1.00	4.49	0.063	0.0625	0.038	0.04	0.03	0.010	NE	NE				
Canada	30	30.5	T1	CS	L	3.1	34			CS	CS			0.62					0.10		CS	CS				
Czech Republic		10.3	T1, T3	CS		1.2	8	0.05		D	D, CS			2.85	0.098	0.024	0.011	0.02	0.06	25.003						3500.0
Denmark		5.3			L	2.0	10	0.04																		
Estonia		1.4			L	5.2	34					L	1.41	9.25	0.120		0.12									
Finland	5	5.2	D	D/CS	L	2.1	15	0.05		D	D/CS			0.31	0.006		0.001		0.05		NO	NO				
France	61	60.3	CS/ T2	CS/ T2	L	3.3	13	0.03		C	CS			0.22					0.34		C	CS/ PS				
Greece	11	10.5	T1	D	L	2.7	15	0.04	0.044	T1	D			0.74	0.250				NE	NE						
Hungary	10	10.1	CS	CS, D	L	2.5	10	0.03		D, CS	CS, D	L	1.29	5.29	0.250		0.25				CS	CS	L	0.69		
Iceland		0.3	CS	CS	L	1.4	8	0.01		D	CS			0.07												956.4
Ireland	4	3.7	D	CS, D	L	2.3	19	0.07		NA	NA			0.00							NA	NA				
Italy	58	57.6			L	1.7	7	0.02				L	0.50	2.40			0.25									855.0
Japan		126.7	M, CS	CS	L	0.6	3	0.37	NO	CS	CS			0.06	0.000	NE	NE	NE	NE	NE	CS	CS	L, T	1.8		2565.6
Latvia	2	2.4			L	11.0	24	0.00	0			L	1.14	2.48			0		0.10	0.010						
Luxembourg		0.4					6							0.50					0.05							
Netherlands	16	15.8			L	3.9	27	0.09						0.24					0.04		NO (IE)					
New Zealand	4	3.8	D/CS	D	L	3.2	31	0.03		D/CS	D/CS			1.79					0.13			NE				NE
Norway		4.5	M4	CS	L	7.0	42	0.12		-	-			0.09					0.75							
Portugal	10	10.0	D	D (CS)	L/T	7.69/4.9	29	0.01	0.047	D	D (CS)	L	0.62	2.24	0.103	0.0565	3E-04		0.15	0.020	MB					1117.8
Slovakia	5	5.4	T1	D, CS	L	1.9	9			T1	D, CS	L	1.61	7.43	0.253	0.3043	0.025	0.18	0.01		IE	IE				
Spain		39.4	T2	T2	L		18			D	D			1.40					0.00		C	C				
Sweden	NE	8.9	T2	D, CS	L	3.0	12	0.06						NE	NE	NE	NE	NE	NE							
Switzerland	7	7.1	CS	CS	L	2.4	9			CS	CS			0.22					0.01		CS	CS	L	2.40		530.4
United Kingdom	60	59.5	M	CS	L	3.2	12	9.05		M	CS			0.61					0.05	0.067	T2	CS				
United States	273	273.0	M	M	L	3.6	37	28.87		D	D			2.13	0.090				0.10	0.009	CS	CS	T	1.14		2806.3*

Notes

MB: mass balance (used by Portugal).

For Switzerland, CO₂ emissions from SWDL and N₂O emissions from waste incineration are also key sources, contributing about 0.25% and 0.44% respectively to national total emissions.

* This value of IEF is provided for incineration of corps. Austria provided two more IEFs in this category: IEF for incineration of waste oil and IEF for incineration of municipal solid waste.

** This value of IEF is provided for incineration of plastics. The United States of America provided four more IEFs for incineration of different types of waste in this category.

Waste - Solid waste disposal on land**Trends in CH₄ emissions per capita* 1990 to 1999****(kg CH₄ per capita and annual percentage change)**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	37.96	38.41	38.39	38.88	38.29	36.87	36.63	36.77	35.84	36.64
Austria	33.55	32.44	31.79	30.59	29.76	28.95	28.33	27.35	26.07	26.03
Belgium									12.95	12.36
Bulgaria	80.50	87.60	83.97	77.14	48.08	47.58	42.67	38.70	34.42	23.84
Canada	31.75	32.44	32.68	32.99	33.00	32.74	32.78	33.20	33.60	34.13
Czech Republic										7.93
Denmark	12.40	12.37	12.53	12.47	12.57	11.99	11.81	11.19	10.45	9.93
Estonia										33.82
Finland	34.76	32.09	29.30	25.53	22.15	21.46	19.46	17.65	15.90	14.94
France	15.04	15.93	16.78	17.37	17.92	18.57	18.29	15.08	14.69	12.99
Greece	11.40	11.62	11.92	12.30	12.72	13.13	13.53	13.82	14.31	14.88
Hungary		6.60	6.58	6.62	6.67	6.66	6.69	6.71	7.16	10.14
Iceland	7.10	7.12	6.67	7.10	7.57	8.03	8.63	8.64	7.37	7.70
Ireland	24.21	24.50	24.94	24.98	25.14	25.24	25.25	23.95	20.46	19.31
Italy	7.68	7.78	6.93	7.07	8.01	8.16	8.14	8.06	7.88	7.50
Japan	3.14	3.04	2.96	2.92	2.91	2.92	2.88	2.84	2.84	2.80
Latvia	7.27	8.50	8.86	9.27	9.76	10.16	10.48	10.97	21.67	23.90
Luxembourg										6.10
Netherlands	37.60	36.90	35.58	34.15	32.84	30.98	30.71	29.72	28.31	27.10
New Zealand	40.63	39.23	36.92	38.30	37.85	35.82	35.36	32.42	31.37	30.81
Norway	42.85	43.22	42.89	43.50	43.60	44.00	44.38	44.01	42.97	42.13
Portugal	26.78	27.16	27.52	27.81	28.15	28.26	28.58	28.52	28.68	29.12
Slovakia	9.52	9.52	9.47	9.43	9.40	9.55	11.16	9.48	8.50	8.62
Spain	10.61	11.31	11.81	12.82	13.76	14.20	15.58	16.65	17.61	18.45
Sweden	14.21	14.35	14.32	13.74	13.05	12.94	12.76	12.57	12.29	11.54
Switzerland	9.97	9.58	9.46	9.45	9.29	9.20	9.02	8.86	8.71	8.52
United Kingdom	19.41	18.68	17.77	16.88	16.18	15.56	14.83	14.00	13.07	12.03
United States	41.40	41.00	41.07	41.02	40.70	40.33	39.30	38.87	37.80	37.44

* Emissions per capita have been calculated using population data from the International Energy Agency.

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	1.2	-0.1	1.3	-1.5	-3.7	-0.7	0.4	-2.5	2.2	-3.5
Austria	-3.3	-2.0	-3.8	-2.7	-2.7	-2.1	-3.5	-4.7	-0.2	-22.4
Belgium										-4.6
Bulgaria	8.8	-4.1	-8.1	-37.7	-1.0	-10.3	-9.3	-11.1	-30.7	-70.4
Canada	2.2	0.7	0.9	0.0	-0.8	0.1	1.3	1.2	1.6	7.5
Czech Republic										
Denmark	-0.2	1.3	-0.5	0.8	-4.6	-1.5	-5.2	-6.6	-5.0	-19.9
Estonia										
Finland	-7.7	-8.7	-12.9	-13.2	-3.1	-9.3	-9.3	-9.9	-6.0	-57.0
France	5.9	5.3	3.5	3.2	3.6	-1.5	-17.6	-2.6	-11.6	-13.6
Greece	1.9	2.6	3.2	3.4	3.2	3.0	2.1	3.5	4.0	30.5
Hungary		-0.3	0.6	0.8		0.5	0.3	6.7	41.6	
Iceland	0.3	-6.3	6.4	6.6	6.1	7.5	0.1	-14.7	4.5	8.5
Ireland	1.2	1.8	0.2	0.6	0.4	0.0	-5.1	-14.6	-5.6	-20.2
Italy	1.3	-11.0	2.0	13.4	1.9	-0.3	-0.9	-2.2	-4.9	-2.3
Japan	-3.2	-2.6	-1.4	-0.3	0.3	-1.4	-1.4	0.0	-1.4	-10.8
Latvia	16.9	4.3	4.6	5.4	4.0	3.2	4.7	97.5	10.3	228.9
Luxembourg										
Netherlands	-1.9	-3.6	-4.0	-3.8	-5.7	-0.9	-3.2	-4.7	-4.3	-27.9
New Zealand	-3.4	-5.9	3.8	-1.2	-5.4	-1.3	-8.3	-3.2	-1.8	-24.2
Norway	0.9	-0.8	1.4	0.2	0.9	0.9	-0.8	-2.4	-2.0	-1.7
Portugal	1.4	1.3	1.1	1.2	0.4	1.1	-0.2	0.6	1.5	8.7
Slovakia	0.0	-0.6	-0.4	-0.4	1.6	16.9	-15.1	-10.3	1.4	-9.5
Spain	6.6	4.4	8.6	7.3	3.2	9.7	6.9	5.8	4.8	73.9
Sweden	1.0	-0.2	-4.1	-5.0	-0.8	-1.4	-1.5	-2.2	-6.1	-18.8
Switzerland	-3.9	-1.3	0.0	-1.7	-0.9	-2.0	-1.8	-1.7	-2.1	-14.5
United Kingdom	-3.8	-4.9	-5.0	-4.1	-3.8	-4.7	-5.6	-6.6	-8.0	-38.0
United States	-1.0	0.2	-0.1	-0.8	-0.9	-2.6	-1.1	-2.8	-1.0	-9.6

Waste - Waste-water handlingTrends in CH₄ emissions per capita* 1990 to 1999(kg CH₄ per capita and annual percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	3.47	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48
Austria	1.78	1.77	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78
Belgium									0.03	0.03
Bulgaria	18.78	15.19	14.05	12.97	10.44	16.74	23.92	10.24	9.44	4.49
Canada	0.61	0.61	0.61	0.61	0.61	0.61	0.62	0.62	0.62	0.62
Czech Republic										2.85
Denmark										
Estonia										9.25
Finland	0.34	0.31	0.30	0.31	0.32	0.32	0.31	0.30	0.31	0.31
France	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.23	0.22
Greece	0.71	0.71	0.71	0.71	0.71	0.72	0.72	0.73	0.74	0.74
Hungary		18.29	18.22	18.23	18.23	18.22	18.17	18.28	5.87	5.29
Iceland	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.06	0.06
Ireland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Italy	1.98	1.99	2.01	2.01	2.09	2.14	2.35	2.22	2.24	2.40
Japan	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06
Latvia										2.48
Luxembourg	0.50									
Netherlands	0.42	0.42	0.42	0.41	0.33	0.10	0.04	0.08	0.24	0.24
New Zealand	1.83	1.77	1.78	1.84	1.84	1.80	1.80	1.80	1.78	1.79
Norway	0.09	0.09	0.09	0.09	0.09	0.09	0.07	0.09	0.09	0.09
Portugal	1.95	2.03	2.12	2.20	2.20	2.21	2.22	2.23	2.22	2.24
Slovakia	9.13	8.62	8.23	7.50	7.55	7.50	7.55	7.27	7.35	7.43
Spain	1.13	1.16	1.17	1.19	1.26	1.29	1.31	1.36	1.39	1.40
Sweden	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Switzerland	0.20	0.20	0.20	0.21	0.21	0.21	0.21	0.22	0.22	0.22
United Kingdom	0.58	0.54	0.60	0.59	0.62	0.59	0.60	0.61	0.63	0.61
United States	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.14	2.15	2.13

* Emissions per capita have been calculated using population data from the International Energy Agency.

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Austria	-0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belgium										0.0
Bulgaria	-19.1	-7.5	-7.7	-19.5	60.3	42.9	-57.2	-7.8	-52.4	-76.1
Canada	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	1.6
Czech Republic										
Denmark										
Estonia										
Finland	-8.8	-3.2	3.3	3.2	0.0	-3.1	-3.2	3.3	0.0	-8.8
France	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	-4.3	0.0
Greece	0.0	0.0	0.0	0.0	1.4	0.0	1.4	1.4	0.0	4.2
Hungary		-0.4	0.1	0.0	-0.1	-0.3	0.6	-67.9	-9.9	-71.1
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	200.0	0.0	200.0
Ireland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Italy	0.5	1.0	0.0	4.0	2.4	9.8	-5.5	0.9	7.1	21.2
Japan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	20.0
Latvia										
Luxembourg										
Netherlands	0.0	0.0	-2.4	-19.5	-69.7	-60.0	100.0	200.0	0.0	-42.9
New Zealand	-3.5	0.6	3.5	-0.2	-2.2	0.0	0.0	-0.8	0.4	-2.4
Norway	0.0	0.0	0.0	0.0	0.0	-22.2	28.6	0.0	0.0	0.0
Portugal	4.1	4.4	3.8	0.0	0.5	0.5	0.5	-0.4	0.9	14.9
Slovakia	-5.6	-4.5	-8.9	0.7	-0.7	0.7	-3.7	1.1	1.1	-18.6
Spain	2.7	0.9	1.7	5.9	2.4	1.6	3.8	2.2	0.7	23.9
Sweden										
Switzerland	-1.2	0.7	2.9	0.9	1.1	1.6	1.7	1.7	-0.4	9.3
United Kingdom	-6.9	11.1	-1.7	5.1	-4.8	1.7	1.7	3.3	-3.2	5.2
United States	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	-0.9	0.0

Waste - Waste-water handlingTrends in N₂O emissions per capita* 1990 to 1999(kg N₂O per capita and annual percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Austria										
Belgium										0.0002
Bulgaria										0.029
Canada	0.100	0.100	0.100	0.100	0.100	0.100	0.101	0.101	0.109	0.101
Czech Republic										0.063
Denmark										
Estonia										
Finland	0.070	0.068	0.065	0.061	0.061	0.061	0.058	0.056	0.054	0.050
France	0.032	0.032	0.033	0.033	0.034	0.034	0.034	0.034	0.035	0.034
Greece	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Hungary	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ireland	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Italy										
Japan	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Latvia	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.100	0.101
Luxembourg										0.005
Netherlands	0.033	0.033	0.033	0.033	0.033	0.032	0.036	0.036	0.034	0.032
New Zealand	0.131	0.125	0.124	0.129	0.127	0.126	0.127	0.125	0.124	0.126
Norway	0.069									0.074
Portugal	0.136	0.142	0.149	0.155	0.155	0.156	0.157	0.158	0.157	0.159
Slovakia										0.011
Spain									0.000	0.000
Sweden	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Switzerland	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.010	0.010	0.010
United Kingdom	0.058	0.057	0.057	0.057	0.057	0.058	0.060	0.059	0.059	0.058
United States	0.092	0.093	0.093	0.095	0.096	0.101	0.095	0.096	0.097	0.097

* Emissions per capita have been calculated using population data from the International Energy Agency.

Percentage change from previous year

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Percentage change from 1990 to 1999
Australia										
Austria										
Belgium										
Bulgaria										
Canada	-0.11	-0.07	-0.38	0.31	-0.20	0.84	-0.11	8.35	-7.69	0.29
Czech Republic										
Denmark										
Estonia										
Finland	-3.24	-3.52	-6.62	-0.39	-0.39	-3.60	-3.52	-3.64	-7.41	-28.23
France	0.51	1.52	0.50	1.98	0.49	-0.97	2.44	0.48	-0.47	6.60
Greece										
Hungary										
Iceland										
Ireland										
Italy										
Japan										
Latvia	-0.08	0.10	-0.36	0.01	0.01	0.41	0.01	-0.71	0.78	0.16
Luxembourg										
Netherlands	0.00	0.00	0.00	0.00	-3.03	12.50	0.00	-5.56	-5.88	-3.03
New Zealand	-4.27	-1.13	4.33	-1.42	-1.41	0.80	-1.33	-0.79	1.56	-3.82
Norway										7.25
Portugal	4.41	4.93	4.03	0.00	0.65	0.64	0.64	-0.63	1.27	16.91
Slovakia										
Spain										
Sweden										
Switzerland	0.00	0.00	0.00	0.00	0.00	0.00	11.11	0.00	0.00	11.11
United Kingdom	-1.72	0.00	0.00	0.00	1.75	3.45	-1.67	0.00	-1.69	0.00
United States	1.09	0.00	2.15	1.05	5.21	-5.94	1.05	1.04	0.00	4.93