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CONFERENCE OF THE PARTIES

First session

Berlin, 28 March - 7 April 1995

Agenda item 5 (a) (i)

MATTERS RELATING TO COMMITMENTS

FIRST REVIEW OF INFORMATION COMMUNICATED BY EACH PARTY  
INCLUDED IN ANNEX I TO THE CONVENTION

Preliminary information from national communications  
not addressed in document A/AC.237/81

Note by the interim secretariat

**Introduction**

1. The compilation and synthesis of national communications <sup>1/</sup> contained in document A/AC.237/81\* presents information submitted by 15 Parties included in Annex I to the Convention. By 20 March 1995, additional communications had been received from the following Parties:

Finland	Liechtenstein <sup>2/</sup>
France	Monaco <sup>3/</sup>
Hungary	Poland
Ireland	Portugal
Italy	Romania

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\* See also document A/AC.237/81/Corr.1.

<sup>1/</sup> The term "national communications" includes communications from the regional economic integration organization included in Annex I to the Convention and should also be interpreted as including any supplementary information provided to the interim secretariat by Parties.

<sup>2/</sup> Liechtenstein is not included in Annex I to the Convention and did not notify the Depositary that it intends to be bound by Article 4.2(a) and (b).

<sup>3/</sup> Monaco is not listed in Annex I to the Convention but has notified the Depositary that it intends to be bound by Article 4.2(a) and (b). Its communication does not include the detailed data on inventories and projections requested in the "Guidelines for the preparation of communications by Annex I Parties".

Furthermore, an "overview" of the communication received from the European Community, containing information concerning the 12 countries that were member States at the time of submission, has been submitted by the Commission of the European Community on an informal basis. Belgium, although not yet a Party, has submitted an executive summary of its communication. The national communication from Greece was received by the interim secretariat after 20 March 1995. Therefore it was not possible to include information from this communication in the present document.

2. The purpose of this information note is to present preliminary information from these communications. However, it should be borne in mind that **the information in this paper is of a different character from that in the compilation and synthesis document -- it has not been subject to an initial technical analysis by experts but is simply reproduced from the national submissions.** These additional communications will be reviewed and incorporated in the second compilation and synthesis of national communications from Annex I Parties to be prepared for the second session of the Conference of the Parties.

3. Data on inventories of emissions and removals as well as data on projections are included in the tables below. These tables are structured in the same way as the tables on the same subjects in the synthesis document. The balance of this paper seeks to highlight a few key points about which the Conference of the Parties may wish to be informed, including any implications for the summary conclusions made in the synthesis (A/AC.237/81).

### **Inventories**

4. Inventory data are presented in tables A.1 to A.8. As these data have not been subject to any technical analysis, they should not be compared and/or aggregated to the figures presented in document A/AC.237/81. In some cases only partial information was available.

5. The inventory data submitted do not appear to change the conclusions presented in document A/AC.237/81. For these additional Parties, CO<sub>2</sub>\* also appears to be the most important greenhouse gas, with fuel combustion being the largest source of such emissions. Four of the Parties reported 1990 estimates from land use and forestry including CO<sub>2</sub> removals; one Party provided 1988 estimates. Four Parties referred to global warming potentials (GWPs), and one Party provided information on greenhouse gases other than CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O and ozone precursors. These Parties (excluding the European Community in order to avoid double-counting) contribute an additional 5 per cent of global CO<sub>2</sub> emissions from fuel combustion.

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\*Please see explanatory notes in document A/AC.237/81 for explanation of symbols and abbreviations used in the present note.

### Policies and measures

6. These additional communications all report that policies and measures to mitigate climate change are being implemented.

### Projections

7. Projection data are presented in tables 1, 2, 3, 4, 6 and 7, which correspond to similar tables in document A/AC.237/81. One of the communications did not include any projections. Furthermore, one Party provided projections for "other gases", which are included in tables 6 and 7 only; consequently, there is no table 5. These projections may change some of the conclusions in the corresponding section of document A/AC.237/81. Three Parties with economies in transition asked for special consideration under Article 4.6 of the Convention for using base years other than 1990 (see paragraph 10 below).

8. Two Parties with economies in transition projected lower emissions in 2000 than in their base years. Their projections follow the same pattern as that for the country in transition in document A/AC.237/81 -- a major reduction until the mid-1990s and growth thereafter. Projections from eight communications show a growth in CO<sub>2</sub> emissions. Three Parties projected emissions (removals) from the land use change and forestry sector: two projected increasing removals and one decreasing removals. Four Parties projected major reductions in CH<sub>4</sub> emissions, while another projected stable emissions. Four Parties projected a growth in their N<sub>2</sub>O emissions, while one Party projected a decline for part of its emissions. When estimates are aggregated using 1994 GWPs, two countries show declining emissions, while eight show increasing emissions both with and without land use change and forestry.

### Finance and technology

9. Belgium, the European Community, Finland, France, Ireland, Italy and Portugal are included in Annex II to the Convention. Six of these communications address finance, technology and capacity building to assist developing countries in the implementation of the Convention; five mention contributions to the Global Environment Facility (GEF) and five discuss bilateral and other multilateral programmes. In addition, four communications discuss assistance to countries with economies in transition. The GEF secretariat reports the following contributions to the replenished GEF:

- Ireland: US\$2.4 million
- Italy: US\$114 million
- Finland: US\$21 million
- France: US\$143 million
- Portugal: US\$5.6 million

Belgium and the European Community are not yet contributors to the replenished GEF, although Belgium, Finland, France, Italy and Portugal have contributed to the pilot phase.

**Other issues**

10. In their communications, three Parties designated in Annex I to the Convention as countries undergoing the process of transition to a market economy made requests under Article 4.6 for a certain degree of flexibility in implementing their commitments. In particular, this included requests for the use of different emission base years (or, in one case, period), instead of the 1990 level (although estimates for 1990 were also provided).

## **INVENTORIES OF ANTHROPOGENIC EMISSIONS AND REMOVALS IN 1990: TABLES**

### General footnotes to the tables

The figures presented in the following tables of this document have not been subject to any technical analysis and verification in the manner of those presented in document A/AC.237/81; the respective inventory data has therefore not been aggregated. The data presented will be reviewed and synthesized in the second compilation and synthesis which will be prepared before COP 2.

The differences between the figures presented in the tables and those found in the communications are the result of rounding for the purposes of data input and processing.

Blanks in the tables refer to either the absence of quantitative information or the fact that only qualitative information was provided. The interim secretariat has chosen to leave the spaces blank in order not to complicate the reading of the tables. The figure "zero" appears in the tables only when reported as such by the Parties.

It should be borne in mind that the data for the European Community includes data that is also covered by the communications of those Parties which are members of the European Community.

**Table A.1. Anthropogenic CO<sub>2</sub> emissions, excluding land use change and forestry, 1990 (Gigagrams)**

	Energy		Industrial Processes	Other**	Waste	Total
	Fuel combustion*	Fugitive fuel emissions				
Belgium	106 298		7 198		914	114 410
Finland	52 600	100	1 200			53 900
France	349 660	181	16 695	a)	b)	366 536 c)
Hungary	68 105 d)	e)	3 568 f)			71 673 g)
Ireland	29 038	0	1 627		54	30 719
Italy	401 350		27 591	0	b)	428 941 c)
Liechtenstein h)						208
Poland j)	k)	l)	m)	n)	o)	414 930 p)
Portugal	38 686		3 462			42 148
Romania q)						171 103 r)
European Community	2 991 000 s)	7 600 t)	124 270		31 850	3 154 720

\* See notes to table A.2. \*\* Includes source/sink categories *solvent use* and *agriculture*. In the light of the different ways of reporting used by Parties, emissions from *land use change and forestry* were excluded from this table for purposes of comparison and consistency.

#### Notes

- a) Estimate of 4 Gg provided for emissions from agricultural waste burning but not included in national total.
- b) Estimate of 9 284.8 Gg provided for emissions from *waste* but not included in national total.
- c) These Parties originally included *land use change and forestry* in their CO<sub>2</sub> estimates.
- d) Emissions for base period (1986-1987): 80 089 Gg.
- e) No emission factors available.
- f) Emissions for base period (1986-1987) : 3 587 Gg.
- g) Total emissions for base period (1986-1987): 83 676 Gg.
- h) Estimate of 7 282 Gg provided for emissions from *waste* but not included in national total.
- i) Parties did not provide inventory data according to IPCC reporting format.
- j) The secretariat chose to report the emission total only, as the Party provided its 1990 inventory data using the CORINAIR reporting format.

- <sup>b)</sup> Emissions for base year (1988): 483 700 Gg.
- <sup>b)</sup> Emissions for base year (1988): 462 820 Gg.
- <sup>c)</sup> Emissions for base year (1988): 10 650 (10 450 - 10 850) Gg.
- <sup>c)</sup> Emissions for base year (1988): 1 750 (1 200 - 2 300) Gg.
- <sup>c)</sup> Emissions for base year (1988): 8 480 Gg.
- <sup>d)</sup> Party provided the following estimate for *agriculture* for base year (1988): removals by crop plants during vegetation: 222 630 Gg. emissions resulting from biological oxidation: 208 300 Gg. with partial retention of 11 750 Gg.
- <sup>e)</sup> Estimates calculated by the secretariat using the per capita emission and population figures provided by the Party, as well as emissions or base year (1989): 198 247 Gg.
- <sup>f)</sup> Excludes emissions from final non-energy consumption (including feedstocks).

### Comments

Fuel combustion was the largest source of CO<sub>2</sub> emissions for these Parties, representing over 90 per cent of the total CO<sub>2</sub> emissions.

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

	Energy and transformation industries		Industry		Residential, institutional / commercial		Transport		Other		Total
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)
Belgium	21 795	21	25 458	24	26 519	25	20 567	19	11 959	11	106 298
Finland	19 500 <sup>a)</sup>	37	13 700	26	5 800	11	11 500	22	2 100	4	52 600
France	60 813	17	71 056	20	81 845	24	128 124	37	7 822	2	349 660
Hungary	29 746 <sup>b)</sup>	44	7 893 <sup>c)</sup>	12	18 415 <sup>d)</sup>	27	8 208 <sup>e)</sup>	12	3 843 <sup>f)</sup>	6	68 105 <sup>g)</sup>
Ireland	10 863	37	5 431	19	7 199	25	4 885	17	660	2	29 038
Italy	138 291	35	91 345	22	67 473	17	95 624	24	8 617	2	401 350
Liechtenstein <sup>h)</sup>											
Poland <sup>i)</sup>											
Portugal	19 386	50	6 079	16	1 936	5	9 947	26	1 338	3	38 686
Romania <sup>h)</sup>											
European Community	1 029 800	34	661 700	22			665 500	22	634 000 <sup>j)</sup>	21	2 991 000 <sup>m)</sup>

#### Notes

- <sup>a)</sup> Emissions equivalent to electricity imports of 11 000 Gg was also provided.  
<sup>b)</sup> Emissions for base period (1985-1987): 36 928 Gg.  
<sup>c)</sup> Emissions for base period (1985-1987): 10 893 Gg.  
<sup>d)</sup> Emissions for base period (1985-1987): 20 042 Gg.  
<sup>e)</sup> Emissions for base period (1985-1987): 7 741 Gg.  
<sup>f)</sup> Emissions for base period (1985-1987): 4 485 Gg.  
<sup>g)</sup> Total emissions from fuel combustion for base period (1985-1987): 80 089 Gg.



- <sup>a)</sup> Parties did not provide inventory data according to the IPCC reporting format.
- <sup>b)</sup> Party provided its 1990 inventory data using the CORINAIR reporting format.
- <sup>c)</sup> Emissions for base year (1988): 34 100 Gg.
- <sup>d)</sup> Emissions for base year (1988): 462 820 Gg.
- <sup>e)</sup> Includes residential, commercial/institutional.
- <sup>f)</sup> Excludes emissions from final non energy consumption (including feedstocks).

### Comments

For six Parties, emissions from energy and transformation industries were the largest source of CO<sub>2</sub> emissions from fuel combustion, representing more than 34 per cent of total emissions. Transport represented more than 17 per cent of emissions from fuel combustion for seven of the Parties, with the exception of one Party with an economy in transition.

**Table A.3. Anthropogenic emissions and removals from land use change and forestry and impact on total CO<sub>2</sub> emissions, 1990 (Gigagrams)**

	Emissions	Removals	Land use change and forestry	National CO <sub>2</sub> emissions without land use change and forestry *	National CO <sub>2</sub> emissions with land use change and forestry
	A	B	C = A + B	D	E = C + D
Belgium					
Finland	72 000 <sup>a)</sup>	-103 000	-31 000 <sup>b)</sup>	53 900	22 900 <sup>c)</sup>
France	13 974 <sup>d)</sup>	-44 675 <sup>e)</sup>	-32 168 <sup>f)</sup>	366 536	334 368
Hungary	7 543 <sup>g)</sup>	-12 010 <sup>b)</sup>	-4 467 <sup>d)</sup>	71 673 <sup>d)</sup>	67 206 <sup>b)</sup>
Ireland			0	30 719	30 719 <sup>c)</sup>
Italy	14 070 <sup>d)</sup>	-50 800	-36 730	428 941	392 211
Liechtenstein					
Poland <sup>m)</sup>	<sup>a)</sup>	<sup>o)</sup>	<sup>p)</sup>	<sup>q)</sup>	<sup>r)</sup>
Portugal					
Romania					
European Community			<sup>s)</sup>	3 154 720	3 154 720

\* See table A.1.

This table summarizes information on the *land use change and forestry* source/sink category. It aims to present the data provided in a consistent and coherent manner, taking into account the different ways in which Parties have reported information for this category. The presentation of this table should improve as the availability of related data increases.

#### Notes

- <sup>a)</sup> Emission estimates from cultivated peatlands (3 000 - 10 000 Gg) and non-viable drainage areas (1 000 - 5 000 Gg) were also provided but not included in this table.
- <sup>b)</sup> *Land use change and forestry* estimate including cultivated peatlands and non-viable drainage areas would amount to 16 000 - 27 000 Gg.
- <sup>c)</sup> These Parties originally excluded *land use change and forestry* in their total CO<sub>2</sub> estimates.
- <sup>d)</sup> Includes emissions from forest clearing and on-site burning (4 374 Gg) and grassland conversion (9 240 Gg).
- <sup>e)</sup> Includes sequestration from abandonment of managed lands (-1 797 Gg) and managed forests (-42 878 Gg).

- <sup>o</sup> Takes account of double-counting of 1 467 Gg between forest clearing and grassland conversion.
- <sup>a)</sup> Emissions for base period (1985-1987): 8 868 Gg.
- <sup>a)</sup> Emissions for base period (1985-1987): -11 965 Gg.
- <sup>a)</sup> Emissions for base period (1985-1987): -3 097 Gg.
- <sup>a)</sup> Emissions for base period (1985-1987): 83 676 Gg.
- <sup>a)</sup> Emissions for base period (1985-1987): 80 579 Gg. This Party originally excluded *land use change and forestry* in its total CO<sub>2</sub> estimate.
- <sup>a)</sup> Includes emissions from forest clearing and on-site burning (3 670 Gg.)
- <sup>a)</sup> Party did not provide *land use change and forestry* estimates for 1990.
- <sup>a)</sup> Emissions for base year (1988): 14 920 Gg.
- <sup>a)</sup> Removals for base year (1988): 33 200 Gg.
- <sup>a)</sup> *Land use change and forestry* estimates for base year period (1988): 18 280 Gg.
- <sup>a)</sup> National CO<sub>2</sub> emissions without *land use change and forestry* for base year (1988): 483 700 Gg.
- <sup>a)</sup> National CO<sub>2</sub> emissions with *land use change and forestry* for base year (1988): 465 420 Gg.
- <sup>a)</sup> CO<sub>2</sub> emissions and/or removals from *land use change and forestry* not known for many member States, hence not included.

#### Comments:

Four Parties reported estimates from *land use change and forestry*, including a net carbon removal in the "managed forest" sub-source/sink category. For three of these Parties, the removals offset CO<sub>2</sub> emissions (excluding *land use change and forestry*) by 6 to 9 per cent and for one of them, by 58 per cent.

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

	Energy		Agriculture				Waste		Other***		Total (G)		
	Fuel combustion		Fugitive fuel emissions		Livestock*		Other**						
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%			
Belgium													
Finland	19	8	<sup>a)</sup>		94	37			139	55	2520		
France	184	6	311	11	1 612	56	37	1	749	26	3	2 896	
Hungary	6	<sup>b)</sup> 1	366	<sup>c)</sup> 67	170	<sup>d)</sup> 31	3	<sup>e)</sup> 1		<sup>f)</sup>		545	<sup>g)</sup>
Ireland	5	1	10	1	603	76	41	5	136	17	0	796	
Italy	66	2	348	9	1 541	40	319	8	1 611	41	16	3 901	
Liechtenstein <sup>b)</sup>												0.7	
Poland <sup>i)</sup>		<sup>j)</sup>		<sup>k)</sup>		<sup>l)</sup>		<sup>m)</sup>		<sup>n)</sup>		6 100	<sup>o)</sup>
Portugal	13	6	2	1	163	72	13	6	35	15	0	226	
Romania <sup>b)</sup>												2 355	<sup>p)</sup>
European Community	717	3	4 689	20			10 891	<sup>q)</sup> 45	7 617	32	50	23 964	

\* Includes enteric fermentation and animal wastes. \*\* Includes rice cultivation, agricultural soils, agricultural waste burning and savannah burning. \*\*\* Includes solvent use, industrial processes and land use change and forestry.

#### Notes

- <sup>a)</sup> Methane emissions from refineries were included in NMVOC emission estimates.
- <sup>b)</sup> Emissions for base period (1985-1987): 8 Gg.
- <sup>c)</sup> Emissions for base period (1985-1987): 448 Gg.
- <sup>d)</sup> Emissions for base period (1985-1987): 205 Gg.
- <sup>e)</sup> Emissions for base period (1985-1987): 4 Gg.
- <sup>f)</sup> No activity/production data available.
- <sup>g)</sup> Total emissions for base period (1985-1987): 665 Gg.
- <sup>h)</sup> Parties did not provide inventory data according to the IPCC reporting format.

- <sup>1)</sup> The secretariat chose to report the emission total only, as the Party provided its 1990 inventory data using the CORINAIR reporting format.
- <sup>2)</sup> Emissions for base year (1988): 9 Gg.
- <sup>3)</sup> Emissions for base year (1988): 3 870 (3 800-3 940) Gg.
- <sup>4)</sup> Emissions for base year (1988): 1 450 Gg.
- <sup>5)</sup> Emissions for base year (1988): 90 (40-130) Gg.
- <sup>6)</sup> Emissions for base year (1988): 640 (436-835) Gg.
- <sup>7)</sup> Emissions for base year (1988): 6 060 Gg.
- <sup>8)</sup> Estimate calculated by the secretariat using the per capita emission and population figures provided by the Party, as well as emissions for base year (1989): 2 354 Gg.
- <sup>9)</sup> Includes livestock.

### Comments

For five of the Parties, *agriculture* followed by *waste* were the most important sources of CH<sub>4</sub> emissions. For one of the Parties, fugitive fuel was the largest source of CH<sub>4</sub> emissions, followed by *agriculture*. However, this Party did not provide estimates for the *waste* category.

**Table A.5. Anthropogenic emissions of N<sub>2</sub>O, 1990**  
(Gigagrams and percentage of total by Party)

	Energy				Industrial processes		Agriculture		Waste		Other*		Total (Gg)
	Transport		Other		(Gg)	(Gg)	(Gg)	(Gg)	(Gg)	(Gg)	(Gg)		
	(Gg)	%	(Gg)	%								%	
Belgium													
Finland	5.0	23	2.0	9	3.0	13	12.0	55					22.0
France	4.0	2	8.0	5	103.0	58	61.0	34	1.0				177.0
Hungary			7.3 <sup>a)</sup>	64			4.1 <sup>b)</sup>	36					11.4 <sup>c)</sup>
Ireland	0.2	1	2.6	6	0.0		39.5	93	0.0		0.0		42.3
Italy	3.5	3	38.2	31	14.8	12	58.7	49	0.1		5.0	4	120.3
Liechtenstein <sup>d)</sup>													0.1
Poland <sup>e)</sup>		<sup>f)</sup>		<sup>g)</sup>				<sup>h)</sup>					156.0 <sup>i)</sup>
Portugal	0.4	4	4.6	44	1.9	18	36	34					10.5
Romania <sup>d)</sup>													106.8 <sup>j)</sup>
European Community			152.0 <sup>k)</sup>	17	324.0	37	387.0	44	11.0	1	6	1	880.0

\* Includes solvent use and land use change and forestry.

#### Notes

<sup>a)</sup> Emissions for base period (1985-1987): 8.4 Gg. Includes transport.

<sup>b)</sup> Emissions for base period (1985-1987): 4.6 Gg.

<sup>c)</sup> Total emissions for base period (1985-1987): 13.0 Gg.

<sup>d)</sup> Parties did not provide inventory data according to the IPCC reporting format.

<sup>e)</sup> The secretariat chose to report the emission total only, as the Party provided its 1990 inventory data using the CORINAIR reporting format.

- <sup>a)</sup> Emissions for base year (1988): >0.3 Gg.
- <sup>a)</sup> Emissions for base year (1988): >0.3 Gg.
- <sup>a)</sup> Emissions for base year (1988): 73 (1 - 145) Gg.
- <sup>a)</sup> Emissions for base year (1988): 73 Gg.
- <sup>b)</sup> Estimate calculated by the secretariat using per capita emission and population figures provided by the Party, as well as emissions for base year (1989): 122.7 Gg.
- <sup>b)</sup> Includes transport.

#### Comments

For five Parties, *agriculture* and *energy* were the largest sources of N<sub>2</sub>O emissions. For one Party, *industrial processes* represented the largest source of N<sub>2</sub>O emissions; for another, Party it represented the second largest source of N<sub>2</sub>O emissions after *agriculture*.

**Table A.6. Anthropogenic emissions from international bunkers, 1990 <sup>a)</sup>  
(Gigagrams)**

	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO	NO <sub>x</sub>	NMVOC
Finland	2 800	1.00	1.00		22.00	
France	8 586	0.10	0.20	20.80	110.50	5.30
Ireland	1 172	0.10	0.16	2.19	5.35	0.36
Italy	12 451	0.70	2.44	23.22	250.02	1.22
Poland <sup>b)</sup>	<sup>c)</sup>	<sup>d)</sup>	<sup>e)</sup>	<sup>f)</sup>	<sup>g)</sup>	<sup>h)</sup>
Portugal	3 938	0.60	0.20	243.20	43.00	32.20
European Community	195 800					

#### Notes

- <sup>a)</sup> Belgium, Hungary, Liechtenstein and Romania did not report emissions from bunker fuels.
- <sup>b)</sup> Party did not provide 1990 emission estimates from bunker fuels.
- <sup>c)</sup> Emissions for base year (1988): 530 Gg.
- <sup>d)</sup> Emissions for base year (1988): 0.1 Gg.
- <sup>e)</sup> Emissions for base year (1988): 0.001 Gg.
- <sup>f)</sup> Emissions for base year (1988): 25 Gg.
- <sup>g)</sup> Emissions for base year (1988): 10 Gg.
- <sup>h)</sup> Emissions for base year (1988): 0.6 Gg.

#### Comments

Six Parties reported emissions from bunker fuels in accordance with the guidelines. For these Parties, emissions from bunker fuels represented between 2 and 9 per cent of national CO<sub>2</sub> emissions, excluding *land use change and forestry*.



**Table A.7. Anthropogenic emissions of other greenhouse gases, 1990  
(Gigagrams)**

	HFCs			PFCs		SF <sub>6</sub>
	HFC 134a	HFC 23a	HFC 152a	CF <sub>4</sub>	C <sub>2</sub> F <sub>6</sub>	
Belgium						
Finland						
France						
Hungary						
Ireland						
Italy	0	0	0	0.014	0.0014	
Liechtenstein						
Poland						
Portugal						
Romania						
European Community						

**Comments**

One Party reported information on other greenhouse gases.

**Table A.8. Anthropogenic emissions of precursor gases, 1990  
(Gigagrams)**

	CO	NO <sub>x</sub>	NM VOC
Belgium			
Finland	487	295	219
France	10 952	1 722	2 424
Hungary	734 <sup>a)</sup>	200 <sup>b)</sup>	143 <sup>c)</sup>
Ireland	429	115	197
Italy	9 333	2 128	2 401
Liechtenstein <sup>d)</sup>	2	1	2 <sup>e)</sup>
Poland	7 400 <sup>f)</sup>	1 450 <sup>g)</sup>	13 367 <sup>h)</sup>
Portugal	1 083	214	200
Romania <sup>d)</sup>	3 179 <sup>i)</sup>	520 <sup>j)</sup>	1 084 <sup>k)</sup>
European Community	12 743	48 022	13 367

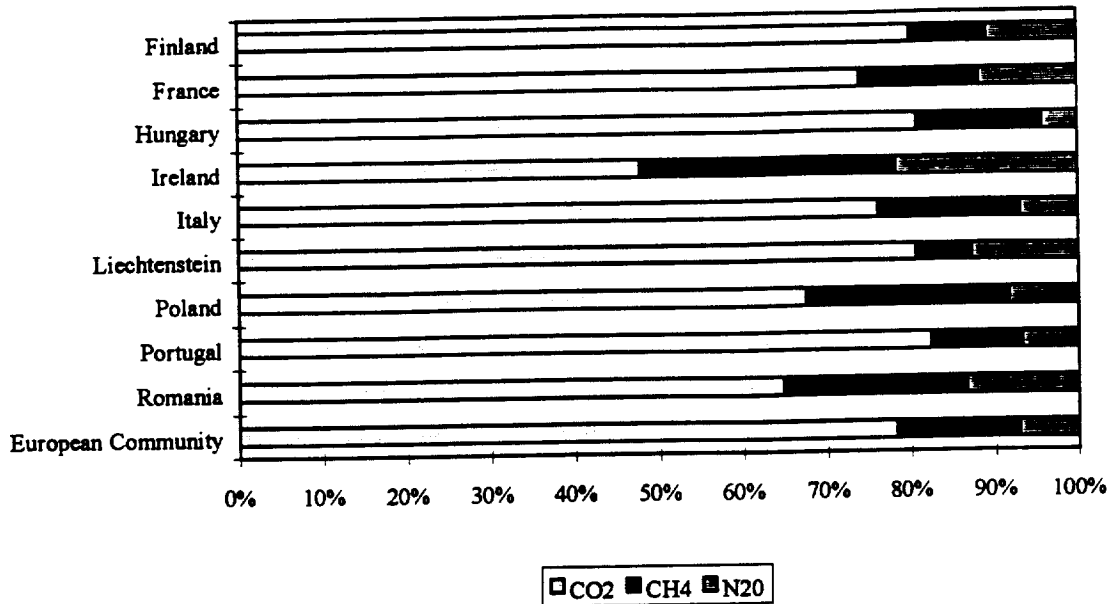
#### Notes

- <sup>a)</sup> Emissions for base period (1985-1987): 743 Gg.  
<sup>b)</sup> Emissions for base period (1985-1987): 231 Gg.  
<sup>c)</sup> Includes methane VOCs. Figures given for 1991. Emissions for base period (which in this case is 1988): 205 Gg.  
<sup>d)</sup> Parties did not provide inventory data according to the IPCC reporting format.  
<sup>e)</sup> Corresponds to VOC emissions.  
<sup>f)</sup> Emissions for base year (1988): 2 730 Gg.  
<sup>g)</sup> Emissions for base year (1988): 600 Gg.  
<sup>h)</sup> Emissions for base year (1988): >352 Gg.  
<sup>i)</sup> Estimate calculated by the secretariat using the per capita emission and population figures provided by the Party, as well as emissions for base year (1989): 3 311 Gg.  
<sup>j)</sup> Estimate calculated by the secretariat using the per capita emission and population figures provided by the Party, as well as emissions for base year (1989): 544 Gg.  
<sup>k)</sup> Estimate calculated by the secretariat using the per capita emission and population figures provided by the Party, as well as emissions for base year (1989): 1 121 Gg.

#### Comments

Fuel combustion was the largest source of emissions of precursor gases for the Parties that reported such emissions.

Figure A.1. Relative contribution of different greenhouse gases by Party \*



**Notes**

\* Excludes *land use change and forestry*

Other gases were reported by one Party but represented too small a contribution to appear on this graph.

IPCC - 1994 GWP values with a time-horizon of 100 years, previously unavailable, were used by the secretariat for purposes of comparison.

**Comments:**

For all Parties, CO<sub>2</sub> was the largest contributor to total greenhouse gas emissions.

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

	<u>Data from inventory</u>		<u>Data from projection</u>		<u>Variations</u>	
	1990 level	1990 level <sup>a)</sup>	2000 level <sup>b)</sup>	from inventory	from projection	
	(Gg)		(Gg)	(Percentage)		
Belgium	114 410	106 300	118 630 - 123 095	3.6 - 7.6	11.6 - 15.8	
Finland	53 900	54 200	70 200	30.5	29.5	
France	366 536	350 000	403 333	10.0	11.5	
Hungary	71 673	69 116	68 741	-4.1	-0.6	
Hungary	81 534 <sup>c)</sup>	81 534 <sup>c)</sup>	68 741	-15.7	-15.7	
Ireland	30 719	30 719	36 988	20.4	20.4	
Italy	428 941	423 776	482 440	12.5	13.8	
Liechtenstein	208	208	245	18.1	18.1	
Poland	414 930	-	338 000 - 455 000	-18.5 - 9.7	-	
Poland	483 700 <sup>d)</sup>	458 000 <sup>d)</sup>	338 000 - 455 000	-	(-26.2) - (-0.7)	
Portugal	42 148	38 689	54 274	28.8	40.3	
Romania	171 103	..	..	-	-	
European Community	3 154 720	..	..	5.0 - 8.0	5.0 - 8.0	

<sup>a)</sup> Minor differences in 1990 levels between inventories and projections are, for example, due to late revisions of inventories, rounding, calibration of models, or that only a subset of the sources were projected.

<sup>b)</sup> "With measures" levels for 2000.

<sup>c)</sup> Average of emissions in 1985-1987.

<sup>d)</sup> Base year 1988.

#### Notes\*

**Belgium:** Two different projection approaches resulted in 11.6 per cent and 15.8 per cent growth, respectively. The projection figures only reflect energy-related emissions (table 2.3.3, p.12).

**European Community:** Only the variation level was reported, "CO<sub>2</sub> emissions could grow overall between 5 and 8 per cent in the remaining years of this decade" (p.19), (that is, from a level that could be similar to the 1990 level).

**Finland:** The projection allows for the construction of Finnish electricity production capacity to replace current imports (p.19), which in 1990 were equivalent to 11 Mt CO<sub>2</sub>. The projection figure is considered the most likely option and takes into account energy cuts brought about by taxation, energy conservation, more use of bioenergy and the adoption of new technology.

\* All references in parentheses are to the national communication.

**France:** The central scenario is chosen. The figures are for energy related emissions only. It includes measures such as a CO<sub>2</sub> tax equivalent to 70 ECU per ton of carbon.

**Hungary:** Hungary has asked for special consideration under Article 4.6 to use 1985-1987 as the base period. The average emissions comparable with the projections figures in these years were 81.534 Gg. The projections only include fuel related emissions. The figures assume implementation of the National Energy Efficiency and Energy Improvement Programme (2000 S scenario, table 6.6, p.78). Figures based on other methodologies for emission calculations are also given (pp.73-74).

**Ireland:** A continuation of existing policies would indicate a greater increase ("20 per cent, or an increase of 11 per cent if account is taken of increased carbon capacity" (p.2)).

**Italy:** Business-as-usual scenario was chosen (table 4.4 and 4.5), noting that "with measures" scenarios for net emissions were given (in table 4.8), giving lower estimates for 2000. If the projection for

*land use change and forestry* is used to adjust the figures in table 4.8, the "2000 projection" figures would be 438 440 - 459 440 Gg, and the "variations from projection", 3.5 - 8.4 per cent.

**Poland:** Poland has asked for special consideration under Article 4.6 to use 1988 as the base year. Poland presented a set of different projections for 2000 based on two approaches. "The presented assessments of future greenhouse gas emissions do not take into account the currently undertaken actions, ... which lead to the further emission reductions" (p.44). These projections are for the energy sector only. The 1988 inventory figure corresponding to the energy section projections would be 462 820 Gg.

**Portugal:** Projections are for emissions from fuel combustion only.

**Romania:** No projections were provided.

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

	<u>Data from inventory</u>	<u>Data from projection</u>		<u>Variations</u>
	1990 level (Gg)	1990 level	2000 level <sup>b)</sup> (Gg)	from projection (Percentage)
Belgium	..	..	..	-
Finland	-31 000	-30 600	-23 500	23.2
France	-32 168	..	..	-
Hungary	-4 467	..	..	-
Ireland	..	-5 133	-8 066	- 57.1
Italy	-36 730	-36 730	-46 730	-27.2
Liechtenstein	..	..	..	-
Poland	..	..	..	-
Portugal	..	..	..	-
Romania	..	..	..	-
European Community	..	..	..	-

<sup>a)</sup> Negative values in Gg denote removal of CO<sub>2</sub>. Positive values denote net source of emission. Negative values in percentage denote more removals in 2000 than in 1990, or a decrease in net emissions. Figures given in tonnes of carbon have been converted.

<sup>b)</sup> "With measures" levels for 2000.

#### Notes\*

**Ireland:** Information from Part 4 (p.16). No information was submitted in the inventory section.

**Hungary:** 1985-1987 level was -3 097 Gg.

**Finland:** "Increased wood use" scenario for the forest sector is seen as the most likely for this category (p.21). It should be noted that an interval reflecting other scenarios was given in table 11 (p.24), also including intervals for cultivated peatland and emissions from non-viable drainage areas. The addition of these emissions gives a total estimate of 16 - 27 MtCO<sub>2</sub> as a net sink in 1990 and 17 - 39 MtCO<sub>2</sub> in 2000.

**France:** No projection corresponding to the inventory was found, though the future development of a fraction of the sources and sinks in this sector was discussed in annex 4 of the communication.

**Poland:** Poland reports increasing forested area, but does not convert this to CO<sub>2</sub> estimates.

**Romania:** No projections were provided.

\* All references in parentheses are to the national communication.

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

	<u>Data from inventory</u>		<u>Data from projection</u>		<u>Variations</u>
	1990 level (Gg)	1990 level <sup>a)</sup>	1990 level <sup>b)</sup>	2000 level <sup>b)</sup>	from projection (Percentage)
Belgium	..	..	..	..	-
Finland	252.0	252.0	252.0	204.0	-19.0
France	2 896.0	735.0	735.0	965.0	-
Hungary	544.6	492.0	492.0	278.0	- 43.5
Ireland	795.8	795.8	795.8	798.6	0.4
Italy	3 901.3	3 900.2	3 900.2	2 965.1	-24.0
Liechtenstein	0.7	..	..	..	-
Poland	6 107.0	6 107.0	6 107.0	1 780.0	-70.9
Poland	6 060.0 <sup>c)</sup>	6 060.0 <sup>c)</sup>	6 060.0 <sup>c)</sup>	1 780.0	-70.6
Portugal	226.7	..	..	..	-
Romania	2 355.0	..	..	..	-
European Community	23 964.0	..	..	..	-

<sup>a)</sup> Differences in 1990 levels between inventories and projections are, for example, due to late revisions of inventories, rounding, calibration of models, or that only a subset of the sources was projected.

<sup>b)</sup> "With measures" levels for 2000.

<sup>c)</sup> Base year 1988.

**Notes\***

**Hungary:** Corresponding 1985-1987 figures were 604.9 Gg. The figures do not include emissions from *waste* (fig. 6.6, p. 78). The decline reflects "the collapse of domestic coal mining and ... the significant changes in animal livestock" (p.78). The 2000 S scenario is used.

**Poland:** The 1990 figure is calculated using a different methodology from that used for the 1988 figure.

**France:** France only projected gross emissions from *waste* (annex 5).

**Italy:** Slightly higher projections were given in table 4.8.

**Romania:** No projections were provided.

\* All references in parentheses are to the national communication.

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

	<u>Data from inventory</u>	<u>Data from projection</u>		<u>Variations</u>
	1990 level (Gg)	1990 level <sup>a)</sup>	2000 level <sup>b)</sup>	from projection (Percentage)
Belgium	..	..	..	-
Finland	22.0	23.0	28.0	21.8
France	177.0	..	..	-
Hungary	11.4	7.3	6.2	-14.3
Ireland	42.3	42.3	43.7	3.3
Italy	120.2	119.4	123.6	3.5
Liechtenstein	0.1	..	..	-
Poland	156.0	..	..	-
Poland	73.0	73.0 <sup>c)</sup>	61.8	-15.3
Portugal	10.5	..	..	-
Romania	106.8	..	..	-
European Community	880.0	..	..	-

<sup>a)</sup> Differences in 1990 levels between inventories and projections are, for example, due to late revisions of inventories, rounding, calibration of models, or that only a subset of the sources were projected.

<sup>b)</sup> "With measures" levels for 2000.

<sup>c)</sup> Base year 1988.

#### Notes\*

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

**Poland:** Different methods were used for calculating 1988 and 1990 figures. The communication states that the methodology

used for 1990 overestimates the emissions and this, rather than real increase, explains the difference. Therefore a comparison with the 1990 figures appears non-applicable.

**Romania:** No projections were provided.

\* All references in parentheses are to the national communication.



**Table 6. Projected anthropogenic emissions of all greenhouse gases<sup>a)</sup> (excluding land use change and forestry)  
(CO<sub>2</sub> equivalent in Gigagrams, using 1994 GWPs, time-horizon = 100 years)**

	<u>Data from inventory</u>	<u>Data from projection</u>		<u>Variations</u>
	1990 level (CO <sub>2</sub> equivalent in Gg)	1990 level <sup>b)</sup> (CO <sub>2</sub> equivalent in Gg)	2000 level	from projection (Percentage)
Belgium	114 410	106 300	118 630 - 123 093	11.6 - 15.8
Finland	67 400	67 800	84 200	24.2
France	494 128	368 008	426 976	16.0
Hungary	88 764	83 629	77 601	-7.2
Ireland	64 169	64 169	70 968	10.6
Italy	563 943	557 643	597 200	7.1
Liechtenstein	259	208	245	18.1
Poland <sup>c)</sup>	655 530	629 830	401 386 - 518 386	(-36.3) - (-17.7)
Portugal	51 062	38 689	54 274	40.3
Romania	262 977	..	..	..
European Community	3 469 084	3 154 720	..	5.0 - 8.0

<sup>a)</sup> Figures from tables 1, 3 and 4 have been used as the starting point for these projections. Only gases and sources that were projected are included.

<sup>b)</sup> Major differences between inventory figures and projection figures for 1990 reflect that projections were not given for all gases reported in the inventories or for all sectors.

<sup>c)</sup> 1988 is used as the base year both in inventories and projections.

#### Notes

**Italy:** The "business as usual" scenario was used, noting that seemingly lower 2000 figures were given in table 4.8 (see note to table 1). The figures include HFCs and PFCs.

**Romania:** No projections were provided.

**Table 7. Projected anthropogenic emissions and removals of all greenhouse gases<sup>a)</sup>  
(CO<sub>2</sub> equivalent in Gigagrams, using 1994 GWPs, time-horizon = 100 years)**

	<u>Data from inventory</u>	<u>Data from projection</u>		<u>Variations</u>
	1990 level (CO <sub>2</sub> equivalent in Gg)	1990 level <sup>b)</sup> (CO <sub>2</sub> equivalent in Gg)	2000 level	from projection (Percentage)
Belgium <sup>d)</sup>	114 410	106 300	118 630 - 123 093	11.6 - 15.8
Finland	23 600	24 000	45 500	89.5
France <sup>d)</sup>	461 960	368 008	426 976	16.0
Hungary <sup>d)</sup>	84 294	83 629	77 601	- 7.2
Ireland	64 169	59 036	62 902	6.6
Italy	526 364	520 913	550 470	5.6
Liechtenstein <sup>d)</sup>	259	208	245	18.1
Poland <sup>e)</sup>	655 530	629 830	401 386 - 518 386	(-36.3) - (-17.7)
Portugal <sup>d)</sup>	51 062	38 689	54 274	40.3
Romania <sup>d)</sup>	262 977	..	..	-
European Community <sup>d)</sup>	3 469 084	3 154 720	..	5.0 - 8.0

<sup>a)</sup> Figures from tables 1, 2, 3 and 4 have been used as the starting point for these projections. Only gases and sources and removals that were projected are included.

<sup>b)</sup> Major differences between inventory figures and projection figures for 1990 reflect that projections were not given for all gases reported in the inventories or for all sectors.

<sup>c)</sup> 1988 is used as base year both in inventories and projections. Projection for *land use change and forestry* was not provided.

<sup>d)</sup> Projection for *land use change and forestry* not provided.

#### Notes

**Finland:** Inclusion of the emissions from cultivated peatland and non-viable drainage areas would reduce the growth rate substantially, as these emissions are expected to decline (see note to table 2).

**Italy:** The "business as usual" scenario was used, noting that seemingly lower 2000 figures were given in table 4.8 (see note to table 1). The figures include HFCs and PFCs.