



umweltbundesamt^U

**AUSTRIA'S NATIONAL
AIR EMISSION INVENTORY
1980 – 2003**

Submission under the Convention on
Long-range Transboundary Air Pollution (CLRTAP)

SERIES
BE-265

Vienna, 2005



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VORWORT

Der vorliegende Bericht präsentiert eine Zusammenfassung der Daten zur Erfüllung des UNECE-Übereinkommens über weiträumige grenzüberschreitende Luftverunreinigung (BGBl. Nr. 158/1983) für das Jahr 2003.

Zur Ermittlung der Daten wurde das Handbuch von EMEP/CORINAIR angewandt. Die Darstellung erfolgt im NFR-Format der UNECE.

Im Anschluß an dieses Vorwort wird der von der Republik Österreich an die Wirtschaftskommission der Vereinten Nationen für Europa (UNECE) zu übermittelnde Emissionsbericht in englischer Sprache wiedergegeben. Es handelt sich hierbei um eine Zusammenfassung der wichtigsten Daten mit Anführung der wesentlichsten methodischen Änderungen.

Dieser Bericht enthält im Anhang Überblickstabellen für die Schadstoffe SO₂, NO₂, NH₃, NMVOC, CO und Staub sowie für Schwermetalle und persistente organische Verbindungen (POPs). Der vollständige Datensatz wird der UNECE in digitaler Form übermittelt.

Das Umweltbundesamt wird noch in diesem Jahr eine detaillierte Darstellung der (in der diesjährigen Inventur) angewandten Methodik in einem eigenen Bericht ("Informative Inventory Report 2005 – Submission under the UNECE/ CLRTAP Convention") veröffentlichen.

Dieser Bericht baut auf den Umweltbundesamt Bericht BE-263 zur Erfüllung der NEC-Richtlinie (2001/81/EG) am 31. Dezember 2004 auf, in welchem die Emissionswerte von SO₂, NO₂, NH₃, NMVOC im Hinblick auf die im Emissionshöchstmengengesetz-Luft (BGBl. I Nr. 34/2003) festgesetzten jährlichen Emissionshöchstmengen beschrieben werden und ergänzt diese um die Schadstoffgruppen Staub, Schwermetalle, POPs und CO.

Der vorliegende Bericht wurde vom Umweltbundesamt auf Grundlage des Umweltkontrollgesetzes BGBl. Nr. 152/1998 erstellt. In § 6 (2) Z.15 wird der Umweltbundesamt GmbH unter anderem die Erstellung fachlicher Grundlagen zur Erfüllung des Übereinkommens über weiträumige grenzüberschreitende Luftverunreinigung, BGBl. Nr. 158/1983 einschließlich seiner Protokolle, übertragen. In § 6 (2) Z.20 werden die Entwicklung und Führung von Inventuren und Bilanzen zur Dokumentation des Zustandes und der Entwicklung der Umwelt sowie der Umweltbelastungen und ihrer Ursachen ausdrücklich als besondere Aufgaben des Umweltbundesamtes genannt.

Das Umweltbundesamt versteht den vorliegenden Bericht als Beitrag im Rahmen der Wahrnehmung seiner Funktion als Umweltschutzfachstelle des Bundes in Erfüllung der ihm im Umweltkontrollgesetz zugewiesenen Kompetenzen.

¹ EMEP/CORINAIR Emission Inventory Guidebook. Third edition. Prepared by the EMEP Task Force on Emission Inventories. October 2002 update. Internet site: <http://reports.eea.eu.int>

² Nomenclature For Reporting



Datengrundlage

Das Umweltbundesamt führt jährlich eine Inventur des Ausstoßes von Luftschadstoffen durch, die als Grundlage für die Erfüllung der nationalen und internationalen Berichtspflichten herangezogen wird. Diese Österreichische Luftschadstoff-Inventur (OLI) wird erforderlichenfalls auch für zurückliegende Jahre aktualisiert, um eine konsistente Zeitreihe zur Verfügung zu haben. Die in diesem Bericht dargestellten Emissionsdaten ersetzen somit die publizierten Daten vorhergehender Berichte.

Tabelle 1 fasst den Stand der Daten und das Berichtsformat des vorliegenden Berichtes zusammen.

Tabelle 1: Datengrundlage des vorliegenden Berichtes

Inventur	Datenstand	Berichtsformat
OLI 2004	Februar 2005	NFR-Format der UNECE



AUSTRIA'S NATIONAL AIR EMISSION INVENTORY 1980 - 2003

Submission under the Convention on
Long-range Transboundary Air Pollution (CLRTAP)

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1 INTRODUCTION

This report presents a summary of the inventory data in fulfilment of Austria's annual reporting obligation under the UNECE Convention on Long-range Transboundary Air Pollution (CLRTAP) and its Protocols for the year 2003. For this report the NFR-format of the UNECE was used. The inventory itself follows the EMEP/CORINAIR Emission Inventory Guidebook.

This report is based on the Austrian Air Emission Inventory 2004 (Österreichische Luftschadstoff-Inventur, OLI 2004) prepared by UMWELTBUNDESAMT for the years 1980 to 2003.

In 2002, the Executive Body adopted new guidelines for estimating and reporting emission data to further improve transparency, consistency, comparability, completeness and accuracy of reported emissions. The new guidelines define the format for reporting of emission data (Nomenclature For Reporting / NFR) and offer guidance on how to provide supporting documentation. They specify minimum and additional reporting obligations.

The "Informative Inventory Report 2005" to be published in October 2005 by the UMWELTBUNDESAMT will contain detailed and complete background information on the compilation of the 2004 inventory.

In the Annex of this report trend tables of SO₂, NO₂, NH₃, NMVOC, CO, particulate matter, heavy metals and persistent organic pollutants are reported. The complete tables of the NFR-Format, including in particular sectoral reports and sectoral background tables are submitted to the UNECE separately in digital form only (excel files).

³ EMEP/CORINAIR Emission Inventory Guidebook. Third edition. Prepared by the EMEP Task Force on Emission Inventories. October 2002 update. Internet site: <http://reports.eea.eu.int>



2 RELATION WITH EARLIER REPORTED DATA

As a result of the continuous improvement of Austria's National Air Emission Inventory, emissions of some sources have been recalculated based on updated data or revised methodologies, thus emission data for the years 1980 to 2002 submitted this year differ from previously reported data.

The figures presented in this report replace data reported earlier by the Umweltbundesamt under the reporting framework of the UNECE/LRTAP Convention and NEC-Directive of the European Union.

The most important revision with respect to data submitted last year is the update of emission factors for *1 A 3 b Road Transport* using the new handbook of emission factors (version 2.1). It resulted in lower emissions for NO_x and NMVOC in the base year, and higher emissions in 2002, respectively. Furthermore, the update resulted in higher NH₃ emissions for the whole time series.

Additionally, for NMVOC emissions a double counting of emissions from sector *2 A Mineral Products* with the solvents sector has been eliminated in this submission. Improved and corrected calculation of NH₃ emissions from *manure management* resulted in lower emissions from sector 4 B for the whole time series.

The main reasons for the decrease of reported SO₂ emissions are lower emissions from category *1 A 2 Manufacturing Industries and Construction* due to the availability of a more detailed energy balance concerning auto producers. This leads to a shift of emissions between subsectors of *1 A 2* and to an elimination of doublecounting SO₂ emissions from combustion of residual fuel oil and coal.

A description of these recalculations by sector is given in Chapter 4.

3 SOURCES OF DATA

The following table presents the main data sources used for activity data as well as information on who did the actual calculations:

Table 1: Main data sources for activity data and emission values

Sector	Data Sources for Activity Data	Emission Calculation
Energy	Energy Balance from STATISTIK AUSTRIA, Steam boiler database;	UMWELTBUNDESAMT, operator reports
Industry	National production statistics, import/export statistics, direct information from industry or associations of industry;	UMWELTBUNDESAMT, operator reports
Waste	Database on landfills	UMWELTBUNDESAMT
LUCF	National forest inventory obtained from the Austrian Federal Office and Research Centre for Forest	UMWELTBUNDESAMT
Solvent	Import/ export statistics, production statistics, consumption statistics;	Contractor: Forschungsinstitut für Energie und Umweltplanung, Wirtschaft und Marktanalysen GmbH and Institut für industrielle Ökologie ⁴
Agri-culture	National Studies, national agricultural statistics obtained from STATISTIK AUSTRIA;	Contractors: University of Natural Resources and Applied Life Sciences, Research Center Seibersdorf

The main sources for emission factors are:

- National studies for country specific emission factors
- plant specific data reported by plant operators
- EMEP/CORINAIR Guidebook

A complete list of data sources for activity and emission data or emission factors used by sector will be given in the "Informative Inventory Report 2005" to be published in October 2005.

⁴ Research Institute for Energy and Environmental Planning, Economy and Market Analysis Ltd. / Institute for Industrial Ecology



4 METHODOLOGICAL CHANGES WITH RESPECT TO THE PREVIOUS SUBMISSION

This chapter describes the methodological changes made to the inventory since the previous submission. Further background information and a complete description of the 2004 inventory will be given in the "Informative Inventory Report 2005" published in October 2005.

ENERGY (1A)

Update of activity data:

- 1 A 1 a Public Electricity and Heat Production:* Decrease of liquid and solid fuel consumption due to harmonisation with the energy statistics. In the previous submission activity data from the steam boiler database was taken which was higher than energy statistics. For the years 1990 and 1991 plant specific data is updated according to a publication from the "Bundeslastverteiler". As point source emissions kept constant this even leads to slightly higher NO_x and SO₂ emissions from residual fuel oil in plants < 50 MW_{th} for the relevant years.
- 1 A 1 b Petroleum Refining:* Shift of liquid fuel consumption for electricity and heat autoproduction to category 1 A 1 a. Increase of natural gas consumption due to shift of consumption for autoproduction from 1 A 2 f.
- 1 A 1 c Manufacture of Solid Fuels and Other Energy Industries:* Error correction of double counting emissions from liquid fuel transformation into gasworks gas. Increase of natural gas consumption due to shift of consumption for autoproduction from 1 A 2 f. Correction of natural gas consumption for oil/gas extraction and storage for 2001 and 2002 which is based on improved energy statistics.
- 1 A 2 a Iron and Steel:* Activity data is now fully taken from the energy balance which is consistent with plant operators information. In the previous submission information about activity data was partly taken from plant operator. Especially for the year 2002 coke oven coke consumption has been corrected and is now consistent with pig iron production.
- 1 A 2 b, c, d, e:* Each subcategory includes consumption for electricity and heat autoproduction which was included in category 1 A 2 f *Other* in the previous submission.
- 1 A 2 f Manufacturing Industries and Construction-Other-Stationary:* Now includes consumption for electricity and heat autoproduction not allocated to subcategories 1 A 1 b, 1 A 1 c, 1 A 2 a to 1 A 2 e, 1 A 4 a and 1 A 4 c.
- 1 A 3 e Other Transportation (Pipeline compressors):* Natural gas consumption is corrected from 1999 on.
- 1 A 4 a Commercial/Institutional-Stationary*
- 1 A 4 c Agriculture/Forestry/Fishing-Stationary:* Both subcategories include consumption for electricity and heat autoproduction which was included in category 1 A 2 f *Other* in the previous submission. Revision of final

energy consumption for space and warmwater heating based on new statistiacl surveys of STATISTIK AUSTRIA.

- 1 A 4 b *Residential-Stationary*: Revision of final energy consumption for space and warmwater heating.
- 1 A 2 f *Manufacturing Industries and Construction-Other-Stationary*: Update of activity data of off road machinery (mainly in construction sector)
- 1 A 4 c *Agriculture/Forestry/Fishing-Mobile*: Update of activity data of off road machinery (1990 mainly in forestry sector) due to a new study [Handler, Abschätzung des Dieserverbrauchs in der österreichischen Landwirtschaft, Bundesanstalt für Landtechnik, BLT-Wieselburg 2003]

Improvements of methodologies and emission factors:

- 1 A 1 a *Public Electricity and Heat Production*: For plants > 50 MW_{th} update of SO₂ and NO_x emissions for the year 2002 by means of the steam boiler database.
- 1 A 2 c *Chemicals*: Update of NO_x emission factor for coal combustion by means of emission declarations from the steam boiler database.
- 1 A 2 d *Pulp, Paper and Print*: Update of NO_x emission factors for combustion of coal and black liquor according to an internal study which is based on plant specific measurements.
- 1 A 3 a: *Calculation for 2001 – 2003*

The same emission factors and fuel allocation as in the year 2000 have been used. For the total fuel consumption, new data reported by STATISTIK AUSTRIA have been used.

In difference to the last submission the splitting of the energy data into national and international aviation of 2001 and 2002 has been updated according to the energy balance.

The splitting of the energy data of 2003 into national and international aviation has been done according to the flight numbers of arrival and departure flights (STATISTIK AUSTRIA)
- 1 A 3 b: The emission factors used in the inventory for have been updated using the updated handbook of emission factors (version 2.1). The handbook is the result of new measurements. (UMWELTBUNDESAMT: Handbuch Emissionsfaktoren des Strassenverkehrs Version 2.1 / Feb. 2004; Wien, 02/2004; Diverse Publikationen, Band 107, ISBN: 3-85457-734-6)

FUGITIVE EMISSIONS (1 B)

Update of activity data:

- 1 B 2 a *Refining/Storage*: Activity data for the whole time series have been updated with data from the national energy balance.



INDUSTRIAL PROCESSES (2)

Update of activity data:

2 C 1: Activity data for 2002 has been updated.

Improvements of methodologies and emission factors:

2 C 1: For electric arc furnaces new plant-specific emission factors (from one Austrian plant) became available, these were applied to total production in Austria.

2 B 5: The time series for SO₂ emission from *Chemical Industries* has been updated and revised using more detailed data.

NO_x emissions for 1993 and 1994 and NH₃ emissions for 1990-1994 from fertilizer production have been revised using data reported from industry (previously emissions were calculated using the IEF from the year after).

Activity data for ammonia nitrate production from 1990 to 1994 have been revised using data reported from industry.

2 D 1, 2 D 2: Activity data for 2002 for *Pulp and Paper* (chipboard production) and *Food Production* have been updated.

2 A 5, 2 A 6: Emissions from *Asphalt Roofing* and *Road Paving with Asphalt* are now reported as "IE", as emissions are already included in the Solvents Sector.

AGRICULTURE (4)

Update of activity data:

Animal Category *Other*

In Austria animals of category *Other* which mainly is deer (but not wild living animals) have been counted from 1993 on. To round off the time series, in this inventory for the years 1990 to 1992 the animal number of 1993 was used.

Animal Category *Soliped*

In the last submissions the number of soliped of the years 2000 to 2002 was based on expert judgement. For transparency reasons in this inventory the 1999 value was held constant until 2002. In the current inventory a new 2003 value of animal category *soliped* is available.

Improvements of methodologies and emission factors:

Synthetic fertilizer use

The previous submissions showed high inter-annual variations in NH₃ emissions of sector 4 D synthetic fertilizer use. These variations are caused by effects of storage as well as the difference between the calendar year and the agricultural economic year: the amounts of synthetic fertilizers over the years reflect the amounts sold in one calendar year. However, the economic year for the farmer does not

correspondend to the calendar year. Not the whole amount purchased is applied in the year of purchase.

Considering these effects, in this submission the arithmetic average of each two years was used as fertilizer application data.

4 B, 4 D: An error regarding activity data of non-dairy cattle for the year 1993 was identified and corrected.

4 B: In the last submissions, the Nex and VSex values from 2000 to 2002 were extrapolated on the basis of the published Nex and VSex data with a correspondending milk yield of 5000 kg. In this year's calculations also the correspondending Nex and VSex values of a milk yield of 6000 kg published in [GRUBER & STEINWIDDER, 1996] were considered. The values were calculated via interpolation.

Corrected excel-links in the calculation of N-losses from housing, grazing and storage led to smaller emissions from animal category *other cattle, sheep, goats, horses and other animals*.

4 F Field burning (Cereals):

Activity data were updated and the Corinair detailed methodology was used.

WASTE (6)

Update of activity data:

6 A 1 Managed Waste Disposal:

The Activity data for Residual Waste and Non Residual Waste was updated. According to the Landfill Ordinance the operators of landfill sites have to report their activity data annually. Due to reports after the due date there are minor changes of the activity data in this submission compared to previous submission.

6 D Compost production:

The activity data was updated and interpolated for years where no data was available.

Improvements of methodologies and emission factors:

6 A 1 Managed Waste Disposal

An error in the calculation of the formation potential of landfill gas was identified and corrected



5 METHOD OF REPORTING AND DATA BASIS

Emission data presented in this report was compiled according to the guidelines for estimating and reporting emission data (EB.AIR/GE.1/2002/7) approved by the Executive Body for the UNECE/ LRTAP Convention at its 20th session.

In Austria, emissions of air pollutants are estimated together with emissions of greenhouse gases in a data base based on the CORINAIR (CORe INventory AIR)/ SNAP (Selected Nomenclature for sources of Air Pollution) systematic. This nomenclature was designed by the EEA to estimate emissions of all kind of air pollutants. To comply with the reporting obligations under the UNECE/LRTAP Convention, emissions are transformed into the NFR (Nomenclature For Reporting) format.

The complete set of tables of the NFR-Format, including in particular Sectoral Reports and Sectoral Background Tables are submitted separately in digital form only (excel files). In this report the NFR-Summary Tables are presented in Annex 1.

The following table summarises the status of the present report:

Table 2: Status of the present report

Reporting Obligation	Format	Inventory	Version
UNECE/ LRTAP Convention	NFR-Format (UNECE)	OLI 2004	February 2005



ANNEX

This Annex contains trend tables of SO_x, NO_x, NMVOC, CO, NH₃, particulate matter, heavy metals and persistent organic pollutants. The complete tables of the NFR-Format, including in particular Sectoral Reports and Sectoral Background Tables are submitted separately in digital form only (excel files).

In this report the following notation keys are used for all tables:

NE (not estimated): for existing emissions by sources and removals by sinks of greenhouse gases which have not been estimated.

IE (included elsewhere): for emissions by sources and removals by sinks of greenhouse gases estimated but included elsewhere in the inventory instead of the expected source/sink category.

NO (not occurring): for emissions by sources and removals by sinks of greenhouse gases that do not occur for a particular gas or source/sink category.

NA (not applicable): for activities in a given source/sink category that do not result in emissions or removals of a specific gas.

C (confidential): for emissions which could lead to the disclosure of confidential information if reported at the most disaggregated level. In this case a minimum of aggregation is required to protect business information.

Trend Table 1: SO₂ [Gg] 1980-2003

NFR-Sectors											
	1	1 A	1 B	2	3	4	5	6	7		
	ENERGY	FUEL COMBUSTION ACTIVITIES	FUGITIVE EMISSIONS FROM FUELS	INDUSTRIAL PROCESSES	SOLVENT AND OTHER PRODUCT USE	AGRICULTURE	LAND USE CHANGE AND FORESTRY	WASTE	OTHER	NATIONAL TOTAL	International Bunkers
1980	332.84	330.28	2.56	13.14	NA	0.04	NE	0.41	NO	346.42	0.12
1981	290.43	288.54	1.89	13.02	NA	0.04	NE	0.41	NO	303.89	0.13
1982	276.09	274.34	1.75	12.89	NA	0.04	NE	0.41	NO	289.43	0.12
1983	200.79	199.20	1.59	12.77	NA	0.04	NE	0.41	NO	214.01	0.15
1984	183.31	181.64	1.67	12.65	NA	0.04	NE	0.41	NO	196.41	0.20
1985	167.50	165.97	1.53	12.07	NA	0.05	NE	0.41	NO	180.02	0.21
1986	148.94	147.48	1.46	11.28	NA	0.04	NE	0.41	NO	160.67	0.19
1987	128.33	126.81	1.52	10.28	NA	0.04	NE	0.41	NO	139.06	0.21
1988	101.20	99.55	1.65	3.92	NA	0.05	NE	0.21	NO	105.38	0.23
1989	91.25	89.52	1.73	3.31	NA	0.05	NE	0.13	NO	94.74	0.28
1990	73.89	71.89	2.00	2.22	NA	0.00	NE	0.06	NO	76.18	0.28
1991	69.22	67.92	1.30	1.90	NA	0.00	NE	0.05	NO	71.17	0.32
1992	55.35	53.35	2.00	1.67	NA	0.00	NE	0.03	NO	57.05	0.34
1993	53.56	51.46	2.10	1.42	NA	0.00	NE	0.04	NO	55.02	0.36
1994	47.28	46.00	1.28	1.42	NA	0.00	NE	0.05	NO	48.75	0.38
1995	46.79	45.26	1.53	1.37	NA	0.00	NE	0.05	NO	48.21	0.42
1996	44.93	43.73	1.20	1.29	NA	0.00	NE	0.05	NO	46.27	0.47
1997	40.81	40.75	0.07	1.27	NA	0.00	NE	0.05	NO	42.13	0.48
1998	36.02	35.98	0.04	1.18	NA	0.00	NE	0.05	NO	37.25	0.50
1999	34.91	34.76	0.14	1.12	NA	0.00	NE	0.05	NO	36.08	0.49
2000	31.92	31.77	0.15	1.09	NA	0.00	NE	0.05	NO	33.06	0.53
2001	32.95	32.80	0.16	1.21	NA	0.00	NE	0.05	NO	34.22	0.52
2002	31.74	31.61	0.14	1.21	NA	0.00	NE	0.05	NO	33.01	0.48
2003	32.87	32.72	0.15	1.21	NA	0.00	NE	0.05	NO	34.14	0.46

Trend Table 2: NO_x [Gg] 1980-2003

NFR-Sectors											
	1	1 A	1 B	2	3	4	5	6	7		
	ENERGY	FUEL COMBUSTION ACTIVITIES	FUGITIVE EMISSIONS FROM FUELS	INDUSTRIAL PROCESSES	SOLVENT AND OTHER PRODUCT USE	AGRICULTURE	LAND USE CHANGE AND FORESTRY	WASTE	OTHER	NATIONAL TOTAL	International Bunkers
1980	226.07	226.07	IE	13.98	NA	5.90	NE	0.19	NO	246.14	1.15
1981	212.86	212.86	IE	12.71	NA	5.87	NE	0.19	NO	231.63	1.25
1982	210.06	210.06	IE	11.45	NA	6.04	NE	0.19	NO	227.75	1.15
1983	213.54	213.54	IE	10.27	NA	6.12	NE	0.19	NO	230.12	1.44
1984	214.47	214.47	IE	9.07	NA	6.23	NE	0.19	NO	229.96	1.94
1985	219.75	219.75	IE	7.88	NA	6.26	NE	0.19	NO	234.08	2.11
1986	214.64	214.64	IE	6.68	NA	6.15	NE	0.19	NO	227.66	1.87
1987	212.89	212.89	IE	5.49	NA	6.40	NE	0.19	NO	224.97	2.07
1988	208.24	208.24	IE	5.27	NA	6.36	NE	0.11	NO	219.97	2.28
1989	203.13	203.13	IE	4.99	NA	6.14	NE	0.07	NO	214.34	2.79
1990	200.75	200.75	IE	4.80	NA	5.41	NE	0.04	NO	210.99	2.77
1991	211.14	211.14	IE	4.48	NA	5.64	NE	0.03	NO	221.30	3.12
1992	200.40	200.40	IE	4.55	NA	5.32	NE	0.02	NO	210.29	3.40
1993	195.58	195.58	IE	1.98	NA	5.10	NE	0.02	NO	202.67	3.61
1994	187.24	187.24	IE	1.92	NA	5.54	NE	0.02	NO	194.73	3.77
1995	185.09	185.09	IE	1.46	NA	5.56	NE	0.02	NO	192.13	4.23
1996	205.14	205.14	IE	1.42	NA	5.19	NE	0.02	NO	211.78	4.66
1997	192.28	192.28	IE	1.50	NA	5.32	NE	0.03	NO	199.12	4.85
1998	204.32	204.32	IE	1.46	NA	5.33	NE	0.03	NO	211.13	5.01
1999	192.62	192.62	IE	1.44	NA	5.07	NE	0.03	NO	199.16	4.92
2000	197.87	197.87	IE	1.54	NA	4.98	NE	0.03	NO	204.43	5.36
2001	207.02	207.02	IE	1.57	NA	5.05	NE	0.03	NO	213.67	5.27
2002	213.17	213.17	IE	1.63	NA	4.90	NE	0.03	NO	219.72	4.88
2003	222.58	222.58	IE	1.66	NA	4.76	NE	0.03	NO	229.03	4.64

Trend Table 3: NMVOC [Gg] 1980-2003

NFR-Sectors											
	1	1 A	1 B	2	3	4	5	6	7		
	ENERGY	FUEL COMBUSTION ACTIVITIES	FUGITIVE EMISSIONS FROM FUELS	INDUSTRIAL PROCESSES	SOLVENT AND OTHER PRODUCT USE	AGRICULTURE	LAND USE CHANGE AND FORESTRY	WASTE	OTHER	NATIONAL TOTAL	International Bunkers
1980	198.61	185.87	12.74	17.66	210.53	4.55	NE	0.20	NO	431.54	0.13
1981	198.75	186.52	12.23	17.04	187.39	4.48	NE	0.20	NO	407.86	0.14
1982	197.72	186.20	11.52	16.69	184.22	4.60	NE	0.20	NO	403.43	0.13
1983	199.91	188.57	11.34	16.17	181.11	4.51	NE	0.20	NO	401.90	0.16
1984	203.45	191.95	11.50	15.66	178.05	4.57	NE	0.19	NO	401.92	0.22
1985	202.93	191.40	11.53	15.14	172.82	4.61	NE	0.19	NO	395.69	0.24
1986	198.20	186.60	11.60	14.75	171.65	4.52	NE	0.19	NO	389.31	0.21
1987	196.77	185.00	11.76	14.29	170.50	4.54	NE	0.19	NO	386.30	0.23
1988	184.97	173.30	11.67	14.49	169.36	4.66	NE	0.19	NO	373.67	0.26
1989	173.69	161.78	11.91	14.50	148.42	4.61	NE	0.19	NO	341.42	0.32
1990	155.93	143.70	12.22	11.10	116.95	1.85	NE	0.19	NO	286.02	0.31
1991	158.49	145.32	13.17	12.58	100.08	1.84	NE	0.19	NO	273.18	0.35
1992	146.68	133.56	13.12	13.78	82.33	1.78	NE	0.18	NO	244.76	0.38
1993	139.64	126.79	12.85	15.05	82.43	1.75	NE	0.18	NO	239.05	0.41
1994	127.27	117.03	10.24	15.14	77.06	1.81	NE	0.17	NO	221.45	0.44
1995	122.50	113.70	8.81	15.08	81.75	1.82	NE	0.16	NO	221.31	0.48
1996	121.39	113.50	7.89	15.06	78.07	1.80	NE	0.16	NO	216.47	0.57
1997	103.57	96.24	7.34	15.18	82.93	1.88	NE	0.15	NO	203.72	0.63
1998	98.00	92.18	5.81	15.43	75.54	1.84	NE	0.15	NO	190.96	0.69
1999	92.75	87.66	5.09	15.42	69.96	1.88	NE	0.14	NO	180.15	0.67
2000	85.81	80.71	5.10	15.54	77.74	1.78	NE	0.14	NO	181.01	0.70
2001	85.03	81.78	3.26	15.60	82.63	1.86	NE	0.13	NO	185.26	0.69
2002	81.37	77.97	3.40	15.71	82.63	1.85	NE	0.13	NO	181.69	0.64
2003	82.08	78.63	3.45	15.71	82.63	1.76	NE	0.13	NO	182.30	0.61

Trend Table 4: CO [Gg] 1980-2003

NFR-Sectors											
	1	1 A	1 B	2	3	4	5	6	7		
	ENERGY	FUEL COMBUSTION ACTIVITIES	FUGITIVE EMISSIONS FROM FUELS	INDUSTRIAL PROCESSES	SOLVENT AND OTHER PRODUCT USE	AGRICULTURE	LAND USE CHANGE AND FORESTRY	WASTE	OTHER	NATIONAL TOTAL	International Bunkers
1980	1688.61	1688.61	IE	52.80	NA	31.13	NE	13.59	NO	1786.13	0.35
1981	1647.59	1647.59	IE	50.65	NA	28.61	NE	13.59	NO	1740.44	0.38
1982	1623.83	1623.83	IE	48.26	NA	32.93	NE	13.62	NO	1718.64	0.35
1983	1600.34	1600.34	IE	47.85	NA	32.76	NE	13.57	NO	1694.53	0.44
1984	1646.44	1646.44	IE	48.06	NA	35.06	NE	13.56	NO	1743.12	0.59
1985	1622.04	1622.04	IE	46.71	NA	36.28	NE	13.53	NO	1718.54	0.64
1986	1560.13	1560.13	IE	44.69	NA	33.23	NE	13.41	NO	1651.45	0.57
1987	1489.00	1489.00	IE	44.95	NA	34.17	NE	13.43	NO	1581.55	0.63
1988	1405.78	1405.78	IE	45.92	NA	38.16	NE	13.63	NO	1503.49	0.69
1989	1346.46	1346.46	IE	46.27	NA	36.40	NE	13.97	NO	1443.11	0.85
1990	1182.10	1182.10	IE	46.37	NA	1.20	NE	13.94	NO	1243.61	0.85
1991	1198.34	1198.34	IE	41.67	NA	1.19	NE	13.90	NO	1255.09	0.93
1992	1145.56	1145.56	IE	44.97	NA	1.13	NE	13.56	NO	1205.23	1.01
1993	1103.18	1103.18	IE	47.15	NA	1.12	NE	13.40	NO	1164.85	1.08
1994	1043.53	1043.53	IE	48.65	NA	1.17	NE	12.84	NO	1106.19	1.14
1995	959.44	959.44	IE	45.08	NA	1.18	NE	12.30	NO	1018.00	1.26
1996	979.81	979.81	IE	39.44	NA	1.16	NE	11.78	NO	1032.19	1.41
1997	911.47	911.47	IE	38.30	NA	1.24	NE	11.34	NO	962.35	1.52
1998	876.30	876.30	IE	34.86	NA	1.20	NE	11.00	NO	923.36	1.62
1999	833.20	833.20	IE	30.58	NA	1.24	NE	10.65	NO	875.66	1.59
2000	771.51	771.51	IE	27.38	NA	1.15	NE	10.25	NO	810.28	1.65
2001	768.68	768.68	IE	24.20	NA	1.22	NE	9.89	NO	804.00	1.62
2002	740.69	740.69	IE	23.87	NA	1.22	NE	9.67	NO	775.45	1.51
2003	767.35	767.35	IE	23.82	NA	1.12	NE	9.49	NO	801.78	1.43

Trend Table 5: NH₃ [Gg] 1980-2003

NFR-Sectors												
	1	1 A	1 B	2	3	4	5	6	7			
	ENERGY	FUEL COMBUSTION ACTIVITIES	FUGITIVE EMISSIONS FROM FUELS	INDUSTRIAL PROCESSES	SOLVENT AND OTHER PRODUCT USE	AGRICULTURE	LAND USE CHANGE AND FORESTRY	WASTE	OTHER	NATIONAL TOTAL	International Bunkers	
1980	1.40	1.40	IE	0.31	NA	49.83	NE	0.01	NO	51.55	0.00	
1981	1.32	1.32	IE	0.30	NA	50.59	NE	0.01	NO	52.22	0.00	
1982	1.30	1.30	IE	0.29	NA	51.04	NE	0.01	NO	52.64	0.00	
1983	1.27	1.27	IE	0.28	NA	52.00	NE	0.01	NO	53.57	0.00	
1984	1.31	1.31	IE	0.29	NA	52.45	NE	0.01	NO	54.05	0.00	
1985	1.35	1.35	IE	0.28	NA	52.18	NE	0.01	NO	53.82	0.00	
1986	1.37	1.37	IE	0.26	NA	51.51	NE	0.01	NO	53.14	0.00	
1987	1.36	1.36	IE	0.26	NA	51.98	NE	0.01	NO	53.61	0.00	
1988	1.34	1.34	IE	0.28	NA	50.83	NE	0.01	NO	52.46	0.00	
1989	1.36	1.36	IE	0.27	NA	50.82	NE	0.01	NO	52.46	0.00	
1990	2.04	2.04	IE	0.27	NA	54.47	NE	0.38	NO	57.15	0.00	
1991	2.49	2.49	IE	0.51	NA	55.23	NE	0.39	NO	58.61	0.00	
1992	2.68	2.68	IE	0.37	NA	53.38	NE	0.45	NO	56.88	0.00	
1993	2.96	2.96	IE	0.22	NA	53.53	NE	0.54	NO	57.24	0.00	
1994	3.05	3.05	IE	0.17	NA	54.72	NE	0.62	NO	58.57	0.00	
1995	3.09	3.09	IE	0.10	NA	55.59	NE	0.64	NO	59.42	0.00	
1996	3.14	3.14	IE	0.10	NA	53.77	NE	0.67	NO	57.67	0.00	
1997	3.04	3.04	IE	0.10	NA	54.36	NE	0.65	NO	58.15	0.00	
1998	3.05	3.05	IE	0.10	NA	54.49	NE	0.67	NO	58.32	0.00	
1999	2.93	2.93	IE	0.12	NA	52.83	NE	0.71	NO	56.59	0.00	
2000	2.73	2.73	IE	0.10	NA	51.40	NE	0.70	NO	54.93	0.00	
2001	2.75	2.75	IE	0.08	NA	51.51	NE	0.70	NO	55.04	0.00	
2002	2.69	2.69	IE	0.06	NA	50.38	NE	0.70	NO	53.83	0.00	
2003	2.74	2.74	IE	0.08	NA	50.95	NE	0.72	NO	54.49	0.00	



Trend Table 6: Cd [Mg] 1985-2003

NFR-Sectors											
	1	1 A	1 B	2	3	4	5	6	7	NATIONAL TOTAL	International Bunkers
	ENERGY	FUEL COMBUSTION ACTIVITIES	FUGITIVE EMISSIONS FROM FUELS	INDUSTRIAL PROCESSES	SOLVENT AND OTHER PRODUCT USE	AGRICULTURE	LAND USE CHANGE AND FORESTRY	WASTE	OTHER		
1985	1.98	1.98	NE	0.84	0.00	0.18	NE	0.14	NO	3.14	0.00
1986	1.75	1.75	NE	0.71	0.00	0.18	NE	0.12	NO	2.76	0.00
1987	1.33	1.33	NE	0.65	0.00	0.18	NE	0.10	NO	2.28	0.00
1988	1.14	1.14	NE	0.62	0.00	0.18	NE	0.08	NO	2.02	0.00
1989	1.01	1.01	NE	0.58	0.00	0.18	NE	0.06	NO	1.83	0.00
1990	0.98	0.98	NE	0.46	0.00	0.01	NE	0.06	NO	1.51	0.00
1991	1.01	1.01	NE	0.38	0.00	0.01	NE	0.05	NO	1.45	0.00
1992	0.96	0.96	NE	0.26	0.00	0.01	NE	0.01	NO	1.23	0.00
1993	0.93	0.93	NE	0.22	0.00	0.01	NE	0.00	NO	1.15	0.00
1994	0.86	0.86	NE	0.18	0.00	0.01	NE	0.00	NO	1.05	0.00
1995	0.79	0.79	NE	0.16	0.00	0.01	NE	0.00	NO	0.95	0.00
1996	0.83	0.83	NE	0.15	0.00	0.01	NE	0.00	NO	0.98	0.00
1997	0.80	0.80	NE	0.16	0.00	0.01	NE	0.00	NO	0.97	0.00
1998	0.74	0.74	NE	0.16	0.00	0.01	NE	0.00	NO	0.90	0.00
1999	0.75	0.75	NE	0.17	0.00	0.01	NE	0.00	NO	0.93	0.00
2000	0.71	0.71	NE	0.18	0.00	0.01	NE	0.00	NO	0.90	0.00
2001	0.75	0.75	NE	0.18	0.00	0.01	NE	0.00	NO	0.93	0.00
2002	0.79	0.79	NE	0.19	0.00	0.01	NE	0.00	NO	0.99	0.00
2003	0.83	0.83	NE	0.19	0.00	0.01	NE	0.00	NO	1.03	0.00

Trend Table 7: Hg [Mg] 1985-2003

NFR-Sectors											
	1	1 A	1 B	2	3	4	5	6	7		
	ENERGY	FUEL COMBUSTION ACTIVITIES	FUGITIVE EMISSIONS FROM FUELS	INDUSTRIAL PROCESSES	SOLVENT AND OTHER PRODUCT USE	AGRICULTURE	LAND USE CHANGE AND FORESTRY	WASTE	OTHER	NATIONAL TOTAL	International Bunkers
1985	2.98	2.98	NE	0.67	NA	0.02	NE	0.09	NO	3.76	0.00
1986	2.60	2.60	NE	0.63	NA	0.02	NE	0.08	NO	3.33	0.00
1987	2.15	2.15	NE	0.61	NA	0.02	NE	0.07	NO	2.85	0.00
1988	1.81	1.81	NE	0.59	NA	0.02	NE	0.06	NO	2.49	0.00
1989	1.61	1.61	NE	0.58	NA	0.02	NE	0.06	NO	2.27	0.00
1990	1.58	1.58	NE	0.53	NA	0.00	NE	0.05	NO	2.16	0.00
1991	1.50	1.50	NE	0.49	NA	0.00	NE	0.05	NO	2.04	0.00
1992	1.19	1.19	NE	0.44	NA	0.00	NE	0.02	NO	1.65	0.00
1993	0.97	0.97	NE	0.41	NA	0.00	NE	0.02	NO	1.40	0.00
1994	0.76	0.76	NE	0.40	NA	0.00	NE	0.02	NO	1.18	0.00
1995	0.72	0.72	NE	0.47	NA	0.00	NE	0.02	NO	1.21	0.00
1996	0.72	0.72	NE	0.43	NA	0.00	NE	0.02	NO	1.17	0.00
1997	0.69	0.69	NE	0.43	NA	0.00	NE	0.02	NO	1.14	0.00
1998	0.61	0.61	NE	0.33	NA	0.00	NE	0.01	NO	0.96	0.00
1999	0.65	0.65	NE	0.28	NA	0.00	NE	0.01	NO	0.94	0.00
2000	0.63	0.63	NE	0.24	NA	0.00	NE	0.01	NO	0.89	0.00
2001	0.70	0.70	NE	0.24	NA	0.00	NE	0.01	NO	0.96	0.00
2002	0.68	0.68	NE	0.26	NA	0.00	NE	0.01	NO	0.95	0.00
2003	0.72	0.72	NE	0.26	NA	0.00	NE	0.01	NO	0.99	0.00



Trend Table 8: Pb [Mg] 1985-2003

NFR-Sectors											
	1	1 A	1 B	2	3	4	5	6	7		
	ENERGY	FUEL COMBUSTION ACTIVITIES	FUGITIVE EMISSIONS FROM FUELS	INDUSTRIAL PROCESSES	SOLVENT AND OTHER PRODUCT USE	AGRICULTURE	LAND USE CHANGE AND FORESTRY	WASTE	OTHER	NATIONAL TOTAL	International Bunkers
1985	257.68	257.68	NE	62.45	0.06	0.94	NE	5.85	NO	326.97	0.00
1986	254.62	254.62	NE	52.38	0.06	0.94	NE	5.27	NO	313.26	0.00
1987	248.83	248.83	NE	47.85	0.06	0.94	NE	4.69	NO	302.38	0.00
1988	224.29	224.29	NE	45.16	0.07	0.94	NE	2.59	NO	273.04	0.00
1989	195.78	195.78	NE	41.74	0.07	0.94	NE	1.64	NO	240.16	0.00
1990	173.66	173.66	NE	32.09	0.07	0.03	NE	1.02	NO	206.87	0.00
1991	143.86	143.86	NE	27.09	0.06	0.03	NE	0.78	NO	171.82	0.00
1992	100.21	100.21	NE	18.61	0.06	0.03	NE	0.49	NO	119.39	0.00
1993	70.17	70.17	NE	15.15	0.05	0.03	NE	0.38	NO	85.78	0.00
1994	46.96	46.96	NE	12.03	0.05	0.03	NE	0.27	NO	59.33	0.00
1995	11.48	11.48	NE	4.68	0.04	0.03	NE	0.01	NO	16.24	0.00
1996	11.38	11.38	NE	4.25	0.04	0.03	NE	0.01	NO	15.71	0.00
1997	9.85	9.85	NE	4.79	0.04	0.03	NE	0.01	NO	14.72	0.00
1998	8.37	8.37	NE	4.71	0.04	0.03	NE	0.01	NO	13.16	0.00
1999	7.70	7.70	NE	4.91	0.04	0.03	NE	0.01	NO	12.68	0.00
2000	6.43	6.43	NE	5.47	0.04	0.03	NE	0.01	NO	11.97	0.00
2001	6.74	6.74	NE	5.34	0.04	0.03	NE	0.01	NO	12.16	0.00
2002	6.86	6.86	NE	5.65	0.04	0.03	NE	0.01	NO	12.59	0.00
2003	7.27	7.27	NE	5.69	0.04	0.03	NE	0.01	NO	13.04	0.00

Trend Table 9: PAH [Mg] 1985-2003

NFR-Sectors											
	1	1 A	1 B	2	3	4	5	6	7		
	ENERGY	FUEL COMBUSTION ACTIVITIES	FUGITIVE EMISSIONS FROM FUELS	INDUSTRIAL PROCESSES	SOLVENT AND OTHER PRODUCT USE	AGRICULTURE	LAND USE CHANGE AND FORESTRY	WASTE	OTHER	NATIONAL TOTAL	International Bunkers
1985	11.94	11.94	NE	7.88	0.15	7.07	NE	0.00	NO	27.05	NE
1986	11.28	11.28	NE	7.82	0.15	7.06	NE	0.00	NO	26.31	NE
1987	11.08	11.08	NE	7.91	0.15	7.06	NE	0.00	NO	26.21	NE
1988	10.29	10.29	NE	7.46	0.15	7.06	NE	0.00	NO	24.97	NE
1989	9.74	9.74	NE	7.57	0.15	7.06	NE	0.00	NO	24.52	NE
1990	9.64	9.64	NE	7.44	0.15	0.24	NE	0.00	NO	17.47	NE
1991	10.43	10.43	NE	7.18	0.15	0.24	NE	0.00	NO	18.00	NE
1992	9.56	9.56	NE	3.59	0.11	0.24	NE	0.00	NO	13.49	NE
1993	9.30	9.30	NE	0.52	0.07	0.24	NE	0.00	NO	10.14	NE
1994	8.36	8.36	NE	0.59	0.06	0.24	NE	0.00	NO	9.25	NE
1995	8.82	8.82	NE	0.49	0.04	0.24	NE	0.00	NO	9.58	NE
1996	9.55	9.55	NE	0.90	0.02	0.24	NE	0.00	NO	10.70	NE
1997	8.57	8.57	NE	0.47	0.01	0.23	NE	0.00	NO	9.27	NE
1998	8.21	8.21	NE	0.41	0.00	0.23	NE	0.00	NO	8.85	NE
1999	8.07	8.07	NE	0.25	0.00	0.23	NE	0.00	NO	8.55	NE
2000	7.50	7.50	NE	0.19	0.00	0.23	NE	0.00	NO	7.92	NE
2001	8.38	8.38	NE	0.18	0.00	0.23	NE	0.00	NO	8.80	NE
2002	8.01	8.01	NE	0.19	0.00	0.23	NE	0.00	NO	8.44	NE
2003	8.72	8.72	NE	0.19	0.00	0.23	NE	0.00	NO	9.14	NE

Trend Table 10: Dioxin [g] 1985-2003

NFR-Sectors											
	1	1 A	1 B	2	3	4	5	6	7		
	ENERGY	FUEL COMBUSTION ACTIVITIES	FUGITIVE EMISSIONS FROM FUELS	INDUSTRIAL PROCESSES	SOLVENT AND OTHER PRODUCT USE	AGRICULTURE	LAND USE CHANGE AND FORESTRY	WASTE	OTHER	NATIONAL TOTAL	International Bunkers
1985	109.72	109.72	NE	51.30	5.19	5.05	NE	15.90	NO	187.16	NE
1986	107.83	107.83	NE	51.02	6.20	5.05	NE	15.89	NO	186.00	NE
1987	115.65	115.65	NE	50.81	0.24	5.05	NE	15.89	NO	187.64	NE
1988	111.49	111.49	NE	41.60	1.06	5.05	NE	15.48	NO	174.68	NE
1989	102.86	102.86	NE	41.13	1.06	5.05	NE	15.29	NO	165.39	NE
1990	102.66	102.66	NE	39.00	1.06	0.18	NE	18.19	NO	161.09	NE
1991	80.96	80.96	NE	35.15	1.04	0.18	NE	17.75	NO	135.08	NE
1992	53.64	53.64	NE	21.88	0.02	0.18	NE	0.53	NO	76.25	NE
1993	49.52	49.52	NE	17.01	0.02	0.18	NE	0.22	NO	66.94	NE
1994	44.27	44.27	NE	11.26	0.00	0.18	NE	0.08	NO	55.79	NE
1995	45.69	45.69	NE	12.22	0.00	0.18	NE	0.08	NO	58.17	NE
1996	48.37	48.37	NE	11.17	0.00	0.18	NE	0.08	NO	59.80	NE
1997	47.14	47.14	NE	12.15	0.00	0.17	NE	0.08	NO	59.54	NE
1998	44.10	44.10	NE	11.45	0.00	0.17	NE	0.08	NO	55.80	NE
1999	40.13	40.13	NE	12.60	0.00	0.17	NE	0.08	NO	52.98	NE
2000	36.11	36.11	NE	14.05	0.00	0.17	NE	0.08	NO	50.41	NE
2001	39.35	39.35	NE	13.55	0.00	0.17	NE	0.08	NO	53.15	NE
2002	37.06	37.06	NE	3.24	0.00	0.17	NE	0.08	NO	40.54	NE
2003	39.51	39.51	NE	2.98	0.00	0.17	NE	0.08	NO	42.74	NE

Trend Table 11: HCB [kg] 1985-2003

NFR-Sectors											
	1	1 A	1 B	2	3	4	5	6	7	NATIONAL TOTAL	International Bunkers
	ENERGY	FUEL COMBUSTION ACTIVITIES	FUGITIVE EMISSIONS FROM FUELS	INDUSTRIAL PROCESSES	SOLVENT AND OTHER PRODUCT USE	AGRICULTURE	LAND USE CHANGE AND FORESTRY	WASTE	OTHER		
1985	83.46	83.46	NE	13.27	7.71	1.01	NE	1.11	NO	106.56	NE
1986	80.49	80.49	NE	13.21	8.12	1.01	NE	1.11	NO	103.94	NE
1987	83.02	83.02	NE	13.18	8.11	1.01	NE	1.11	NO	106.44	NE
1988	79.04	79.04	NE	11.16	8.22	1.01	NE	0.70	NO	100.13	NE
1989	74.45	74.45	NE	11.06	9.34	1.01	NE	0.52	NO	96.38	NE
1990	73.98	73.98	NE	9.71	9.05	0.04	NE	0.39	NO	93.17	NE
1991	70.13	70.13	NE	8.03	6.39	0.04	NE	0.28	NO	84.86	NE
1992	56.80	56.80	NE	4.94	7.49	0.04	NE	0.11	NO	69.38	NE
1993	53.98	53.98	NE	3.70	6.47	0.04	NE	0.04	NO	64.24	NE
1994	47.85	47.85	NE	2.45	1.25	0.04	NE	0.02	NO	51.60	NE
1995	50.28	50.28	NE	2.67	0.00	0.04	NE	0.02	NO	53.01	NE
1996	53.58	53.58	NE	2.44	0.00	0.04	NE	0.02	NO	56.08	NE
1997	49.28	49.28	NE	2.65	0.00	0.03	NE	0.02	NO	51.99	NE
1998	46.23	46.23	NE	2.50	0.00	0.03	NE	0.02	NO	48.78	NE
1999	44.08	44.08	NE	2.76	0.00	0.03	NE	0.02	NO	46.89	NE
2000	39.51	39.51	NE	3.07	0.00	0.03	NE	0.02	NO	42.64	NE
2001	43.65	43.65	NE	2.98	0.00	0.03	NE	0.02	NO	46.68	NE
2002	40.69	40.69	NE	3.17	0.00	0.03	NE	0.02	NO	43.91	NE
2003	43.59	43.59	NE	3.18	0.00	0.03	NE	0.02	NO	46.82	NE



Trend Table 12: TSP [Mg] 1990-2003

NFR-Sectors											
	1	1 A	1 B	2	3	4	5	6	7		
	ENERGY	FUEL COMBUSTION ACTIVITIES	FUGITIVE EMISSIONS FROM FUELS	INDUSTRIAL PROCESSES	SOLVENT AND OTHER PRODUCT USE	AGRICULTURE	LAND USE CHANGE AND FORESTRY	WASTE	OTHER	NATIONAL TOTAL	International Bunkers
1990	31 529	31 529	NE	23 897	NA	17 068	NE	166	NO	72 660	307
1995	31 768	31 768	NE	25 075	NA	16 775	NE	184	NO	73 803	456
1999	31 960	31 960	NE	28 356	NA	16 759	NE	75	NO	77 150	530
2000	30 861	30 861	NE	27 462	NA	15 870	NE	104	NO	74 298	576
2001	31 916	31 916	NE	27 262	NA	15 878	NE	87	NO	75 142	566
2002	31 924	31 924	NE	27 482	NA	15 852	NE	121	NO	75 380	524
2003	33 220	33 220	NE	27 519	NA	15 867	NE	69	NO	76 676	499

Trend Table 13: PM 10 [Mg] 1990-2003

NFR-Sectors											
	1	1 A	1 B	2	3	4	5	6	7		
	ENERGY	FUEL COMBUSTION ACTIVITIES	FUGITIVE EMISSIONS FROM FUELS	INDUSTRIAL PROCESSES	SOLVENT AND OTHER PRODUCT USE	AGRICULTURE	LAND USE CHANGE AND FORESTRY	WASTE	OTHER	NATIONAL TOTAL	International Bunkers
1990	24 477	24 477	NE	13 188	NA	7 689	NE	79	NO	45 432	307
1995	24 267	24 267	NE	12 893	NA	7 555	NE	87	NO	44 803	456
1999	23 967	23 967	NE	14 428	NA	7 553	NE	36	NO	45 984	530
2000	22 920	22 920	NE	14 016	NA	7 141	NE	49	NO	44 127	576
2001	23 861	23 861	NE	13 929	NA	7 148	NE	41	NO	44 979	566
2002	23 775	23 775	NE	14 086	NA	7 138	NE	57	NO	45 055	524
2003	24 801	24 801	NE	14 109	NA	7 146	NE	33	NO	46 088	499



Trend Table 14: PM 2.5 [Mg] 1990-2003

NFR-Sectors											
	1	1 A	1 B	2	3	4	5	6	7		
	ENERGY	FUEL COMBUSTION ACTIVITIES	FUGITIVE EMISSIONS FROM FUELS	INDUSTRIAL PROCESSES	SOLVENT AND OTHER PRODUCT USE	AGRICULTURE	LAND USE CHANGE AND FORESTRY	WASTE	OTHER	NATIONAL TOTAL	International Bunkers
1990	20 771	20 771	NE	5 067	NA	908	NE	25	NO	26 771	307
1995	20 511	20 511	NE	4 463	NA	868	NE	27	NO	25 870	456
1999	20 053	20 053	NE	4 935	NA	870	NE	11	NO	25 869	530
2000	19 097	19 097	NE	4 811	NA	804	NE	15	NO	24 728	576
2001	19 926	19 926	NE	4 789	NA	808	NE	13	NO	25 536	566
2002	19 822	19 822	NE	4 866	NA	805	NE	18	NO	25 511	524
2003	20 656	20 656	NE	4 879	NA	809	NE	10	NO	26 354	499