

---

# NATIONAL GREENHOUSE GASES INVENTORY REPORT 2007

## 2009 SUBMISSION

Under Article 3(1)  
of Decision No 280/2004/EC of the European Parliament and of the Council  
concerning a mechanism for monitoring Community greenhouse gas emissions and for  
implementing the Kyoto Protocol

---

# CYPRUS

MINISTRY OF AGRICULTURE, NATURAL RESOURCES AND ENVIRONMENT

ENVIRONMENT SERVICE  
APRIL, 2009

Title of inventory	<b>Cyprus national greenhouse gas inventory 1990 – 2007</b>
Contact names	Nicoletta Kythreotou Theodoulos Mesimeris
Organisation	Environment Service Ministry of Agriculture, Natural Resources and Environment
Address	Ministry of Agriculture, Natural Resources and Environment 1411 Nicosia Cyprus
Fax	(+357) 22 774 945
Telephone	(+357) 22 408 900
E-mail	nkythreotou@environment.moa.gov.cy tmesimeris@environment.moa.gov.cy

# Table of Contents

---

1. Introduction .....	1
1.1. Background information on greenhouse gas inventories – for 3(1)h.....	1
1.2. Institutional arrangement for inventory preparation – for 3(1)f .....	2
1.3. Inventory preparation process.....	2
1.4. Methodology and data source used .....	3
1.5. Key sources and sinks categories (Annex I tables).....	3
1.6. QA/QC plan – for 3(1)f .....	11
1.7. General uncertainty evaluation – for 3(1)f.....	11
1.8. General assessment of completeness .....	12
1.9. Geographical Coverage .....	12
2. Trends in Greenhouse Gas Emissions – for 3(1)f.....	13
2.1. Emission trends for aggregated greenhouse gas emissions – for 3(1)a .....	13
2.2. Emission trends by gas – for 3(1)a.....	14
2.3. Emission trends by source – for 3(1)a.....	19
2.4. Emission trends for indirect greenhouse gases and sulphur dioxide – for 3(1)b.....	20
2.5. Trends compared to 1990 emissions as submitted in 2008 .....	21
3. Energy (CRF sector 1) .....	23
3.1. Overview of sector.....	23
3.2. Source categories .....	24
3.3. Memo items - International Bunkers (1C).....	26
3.4. Methodological Issues – for 3(1)f .....	27
3.5. Explanations and justifications for recalculations – for 3(1)f .....	30
3.6. Changes in previously submitted data – for 3(1)e.....	30
3.7. Comparison between sectoral and reference approach.....	37
3.8. Planned improvements to the inventory – for 3(1)i.....	39
4. Industrial Processes (CRF sector 2) .....	40
4.1. Overview of sector.....	40
4.2. Source categories .....	41
4.3. Methodological Issues – for 3(1)f .....	42
4.4. Explanations and justifications for recalculations – for 3(1)f .....	47
4.5. Changes in previously submitted data – for 3(1)e.....	47
4.6. Planned improvements to the inventory – for 3(1)i.....	47
5. Solvent and other Product Use (CRF sector 3).....	49
5.1. Overview of sector.....	49
5.3. Methodological Issues – for 3(1)f .....	50
5.4. Explanations and justifications for recalculations – for 3(1)f .....	51
5.5. Changes in previously submitted data – for 3(1)e.....	51
5.6. Planned improvements to the inventory – for 3(1)i.....	51
6. Agriculture (CRF sector 4).....	53
6.1. Overview of sector.....	53
6.2. Source categories .....	54
6.3. Methodological Issues – for 3(1)f .....	60
6.4. Explanations and justifications for recalculations – for 3(1)f .....	63

6.5. Changes in previously submitted data – for 3(1)e.....	63
6.6. Planned improvements to the inventory – for 3(1)i.....	63
7. LULUCF (CRF sector 5) – for 3(1)c and 3(1)d.....	69
7.1. Overview of sector.....	69
7.2. Source categories .....	69
7.3. Methodological Issues – for 3(1)f .....	70
7.4. Explanations and justifications for recalculations – for 3(1)f/ Changes in previously submitted data – for 3(1)e .....	71
7.5. Planned improvements to the inventory – for 3(1)i.....	71
8. Waste (CRF sector 6).....	72
8.1. Overview of sector.....	72
8.2. Source categories .....	73
8.3. Methodological Issues – for 3(1)f .....	74
8.4. Explanations and justifications for recalculations – for 3(1)f .....	79
8.5. Changes in previously submitted data – for 3(1)e.....	79
8.6. Planned improvements to the inventory – for 3(1)i.....	79
9. Indicators – for 3(1)j .....	81
References.....	86
ANNEX I: Common Reporting Format (CRF) Summary tables.....	88
ANNEX II: Uncertainty Tier I Table.....	107

## List of Tables

---

Table 1.1.	Information required under Article 3(1) and information submitted by Cyprus for 2009 submission .....	1
Table 1.2.	Data sources per IPCC sector .....	4
Table 1.3.	Community summary report for methods, activity data and emission factors used for Energy (Annex I Reporting Template) .....	5
Table 1.4.	Community summary report for methods, activity data and emission factors used for Industrial Processes (Annex I Reporting Template) .....	7
Table 1.5.	Community summary report for methods, activity data and emission factors used for Solvent and Other product use, Agriculture (Annex I Reporting Template) .....	9
Table 1.6.	Community summary report for methods, activity data and emission factors used for Land-use Change and Forestry, Waste, Other (Annex I Reporting Template) .....	10
Table 1.7.	Summary of uncertainties according to Tier I methodology for 1990 to 2007 (2006 NIR compared to 2007 NIR) .....	12
Table 2.1.	Overview of source categories changes between 2006-2007 and 1990-2007 (excluding LULUCF) .....	13
Table 2.2	Overview of GHG emissions and removals from 1990 to 2007 in CO <sub>2</sub> equivalents .....	14
Table 2.3.	CO <sub>2</sub> emissions per sector for 2007, 2006 and 1990 .....	15
Table 2.4.	CH <sub>4</sub> emissions per sector for 2007, 2006 and 1990 .....	16
Table 2.5.	N <sub>2</sub> O emissions per sector for 2007, 2006 and 1990 .....	18
Table 2.6.	Fluorinated gas emissions per gas for 2007, 2006 and 1990 .....	19
Table 2.7.	Overview of GHG emissions in the main source and sink categories 1990 to 2007 in CO <sub>2</sub> equivalents (Gg) .....	19
Table 2.8.	Total indirect GHG and SO <sub>2</sub> emissions in Cyprus between 1990 –2007, Gg .....	21
Table 2.9.	Comparison of 2007 emissions to 1990 emissions submitted in 2008 submission .....	22
Table 3.1.	Differences between 1990 to 2007 and 2006 to 2007 emissions for the fuel combustion source categories .....	24
Table 3.2.	Differences between 1990 to 2007 and 2006 to 2007 emissions for the source categories of other sectors (Gg CO <sub>2</sub> equiv.) .....	25
Table 3.3.	Emissions changes between 1990-2007 and 2006-2007 for bunkers, Gg CO <sub>2</sub> equiv. ....	26
Table 3.4.	Activity data used for the estimation of GHG emissions from the sector of Energy, TJ .....	28
Table 3.5.	Emission factors for the estimation of CO <sub>2</sub> , CH <sub>4</sub> and N <sub>2</sub> O for the sector of Energy, including fugitive emissions (1B) and memo items (1C) .....	29
Table 3.6.	Activity data and GHG emissions for the sector of Energy as submitted in 2009 and 2008, the top row in each parameter is the 2008 submission and the row below the 2009 submission .....	31
Table 3.7.	Apparent energy consumption from fossil fuel combustion 1990 to 2007 .....	37
Table 3.8.	CO <sub>2</sub> emissions for energy as calculated with the IPCC reference approach and the sectoral approach, 1990 to 2007 .....	38

Table 4.1.	GHG from Mineral Products for Cyprus in 1990 and 2007, Gg CO <sub>2</sub> equiv. ....	41
Table 4.2.	Actual and potential emissions from consumption of Halocarbons and SF <sub>6</sub> for 1990-2007, Gg CO <sub>2</sub> equivalent .....	42
Table 4.3.	Activity data used for the estimation of GHG from the sector of Mineral Products .....	43
Table 4.4.	Emission factor for the estimation of CO <sub>2</sub> from the sector of industrial processes.....	43
Table 4.5.	Activity data and corresponding emissions used for estimation of HFCs, PFCs and SF <sub>6</sub> emissions, 1994-2007 (no data available for 1990-1993).....	45
Table 4.6.	Activity data and GHG emissions for the sector of Industrial Processes in 2009 and 2008, the top row in each parameter is the 2008 submission and the row below the 2009 submission .....	48
Table 5.1.	GHG from solvent and other product use, 1990-2007, Gg CO <sub>2</sub> .....	50
Table 5.2.	Population .....	50
Table 5.3.	Changes in previously submitted data for sector 3, Solvent and other product Use in 2009 and 2008, the top row in each parameter is the 2008 submission and the row below the 2009 submission .....	52
Table 6.1.	Methane emissions from enteric fermentation for 1990-2007, Gg CH <sub>4</sub> .....	55
Table 6.2.	Methane emissions from manure management for 1990-2007, Gg CH <sub>4</sub> .....	56
Table 6.3.	N <sub>2</sub> O emissions from manure management systems for 1990-2007, Gg N <sub>2</sub> O.....	57
Table 6.4.	N <sub>2</sub> O emissions from Direct Soil emissions (4D1), Gg.....	58
Table 6.5.	N <sub>2</sub> O emissions from Agricultural Soils (4D), Gg .....	59
Table 6.6.	Animal population 1990 and 2007 .....	60
Table 6.7.	Nitrogen excretion rate, kg N/head/year .....	61
Table 6.8.	Nitrogen in nitrogen in excretion according to treatment system, kg N/ kg Nex.....	61
Table 6.9.	Animal waste distribution according to waste management system .....	61
Table 6.10.	N in fertilizers for 2007 .....	61
Table 6.11a.	Emission ratio for GHG and secondary GHG for Field burning of agricultural residues (4F) .....	62
Table 6.11b.	Information associated with Field burning of agricultural residues (4F) .....	62
Table 6.12.	CH <sub>4</sub> EF for enteric fermentation and manure management .....	63
Table 6.13.	Activity data and GHG emissions for the sector of agriculture as submitted in 2009 and 2008, the top row in each parameter is the 2008 submission and the row below the 2009 submission .....	64
Table 7.1.	CO <sub>2</sub> emissions (Gg) from carbon stock change and wildfires - forest remaining forest .....	70
Table 7.3.	Carbon Stock Change, 1990-2007 in Gg .....	71
Table 7.1.	CORINAIR emission coefficients for forests in the area of Mediterranean [2] .....	71
Table 8.1.	GHG emissions for the sector of Solid Waste Disposal on Land (6A) for 1990-2007 .....	73
Table 8.2.	GHG emissions for the sector of Wastewater Handling (6B) for 1990-2007 .....	74
Table 8.3.	Solid waste disposal on land activity data .....	75
Table 8.4.	Activity data used for Domestic and Commercial wastewater.....	76
Table 8.5.	Volume of industrial wastewater produced and Chemical oxygen demand (COD) for industrial wastewaters for 2007 .....	77

Table 8.4.	Indicators used for the estimation of volume and organic loading of industrial wastewaters .....	78
Table 8.5.	Activity data and GHG emissions for the sector of waste as submitted in 2009 and 2008, the top row in each parameter is the 2008 submission and the row below the 2009 submission .....	80
Table 9.1.	Priority Indicators according to Annex II table of the Decision, 1990-2007 (change on the economic variables).....	82
Table 9.2.	Additional Indicators according to Annex II table of the Decision, 1990-2007 .....	82
Table 9.3.	Supplementary Indicators according to Annex II table of the Decision, 1990-2007 .....	83

## List of Figures

---

Figure 2.1.	GHG emissions 1990–2006 (excl. LULUCF).....	13
Figure 2.2.	Total emissions without LULUCF 1990 to 2007 in CO <sub>2</sub> equivalents (Gg) and share of source categories in 2007 .....	14
Figure 2.3.	Changes in CO <sub>2</sub> emissions for 1990 to 2007 without LULUCF in comparison to 1990 (1990=100).....	15
Figure 2.4.	Increases in % between 1990 and 2007 of the sectors producing considerable emissions of CO <sub>2</sub> (without LULUCF).....	16
Figure 2.5.	Changes in CH <sub>4</sub> emissions for 1990 to 2007 without LULUCF in comparison to 1990 (1990=100).....	17
Figure 2.6.	Increases in % between 1990 and 2007 of the sectors producing considerable emissions of CH <sub>4</sub> (without LULUCF).....	17
Figure 2.7.	Changes in N <sub>2</sub> O emissions for 1990 to 2007 without LULUCF in comparison to 1990 (1990=100).....	18
Figure 2.8.	Increases in % between 1990 and 2007 of the sectors producing considerable emissions of N <sub>2</sub> O (without LULUCF).....	18
Figure 2.9.	Changes in each sector compared to 1990, %.....	20
Figure 2.10.	Changes in each sector between 1990 and 2007, % - LULUCF excluded .....	20
Figure 2.11.	Changes in indirect GHG and SO <sub>2</sub> emissions in Cyprus between 1990 – 2007, %.....	21
Figure 3.1.	GHG emissions from the energy sector and sub-sectors for 1990 to 2007, Gg CO <sub>2</sub> equivalents .....	23
Figure 3.2.	Increase in GHG emissions between 1990-2007, Gg CO <sub>2</sub> equivalents .....	23
Figure 3.3.	Difference between 1990 and 2007, in total emissions and the sources of the emissions, Gg CO <sub>2</sub> equiv. ....	25
Figure 3.4.	Contribution of the energy sector to the total emissions of Cyprus for 1990-2007 .....	25
Figure 3.5.	Correlation between energy consumption (TJ) and total GHG emissions 1990-2007 (Gg CO <sub>2</sub> equiv.) .....	26
Figure 3.6.	Total GHG emissions from bunkers and energy sector, Gg CO <sub>2</sub> equiv. ....	27
Figure 3.7.	Comparison of relative GHG emissions from bunkers and relative total GHG emissions without LULUCF 1990-2007, 1990 = 100.....	27
Figure 3.8.	Change in liquid, solid and total fuels between 1990 - 2007 .....	37
Figure 3.9.	Comparison of CO <sub>2</sub> emissions for energy as calculated with the IPCC reference approach and the sectoral approach, 1990 - 2007 .....	38
Figure 4.1.	GHG emissions from the industrial processes sector and sub-sectors for 1990 to 2007, Gg CO <sub>2</sub> equivalents .....	40
Figure 4.2.	Increase in GHG emissions between 1990-2007 for industrial processes, Gg CO <sub>2</sub> equivalents .....	40
Figure 4.3.	GHG caused by Consumption and possible consumption of Halocarbons and SF <sub>6</sub> in 1990-2007, CO <sub>2</sub> equiv. ....	42
Figure 5.1.	GHG emissions from the sector Solvent and other product use for 1990 to 2007, Gg CO <sub>2</sub> equivalents .....	49
Figure 5.2.	Absolute increase in GHG emissions between 1990-2007 for sector 3, Gg CO <sub>2</sub> equivalents .....	49



Figure 6.1.	GHG emissions from the agriculture sector and sub-sectors for 1990 to 2007, Gg CO <sub>2</sub> equivalents .....	53
Figure 6.2.	Relative change comparing 2007 to 1990 for the emissions sources from the sector of agriculture, (%).....	54
Figure 6.3.	Methane emissions from enteric fermentation for 1990-2007, in CO <sub>2</sub> equiv. ....	55
Figure 6.4.	Relative change in methane emissions from enteric fermentation comparing 2007 to 1990, (%) .....	55
Figure 6.5.	Methane emissions from enteric fermentation for 1990-2007, in CO <sub>2</sub> equiv. ....	56
Figure 6.6.	Relative change in nitrous oxide emissions from manure management systems comparing 2007 to 1990, (%).....	57
Figure 6.7.	N <sub>2</sub> O emissions from agricultural soils between 1990 and 2007, CO <sub>2</sub> equiv. ....	58
Figure 6.8.	Change in N <sub>2</sub> O emissions from agricultural soils between 1990 and 2007 and between 2006 and 2007 (purple source total, yellow sub-source total) .....	59
Figure 6.9.	Comparison of composition of N <sub>2</sub> O emissions from agricultural soils between 1990 and 2007 .....	60
Figure 7.1.	GHG emissions from the LULUCF for 1990 to 2007, Gg CO <sub>2</sub> equivalents .....	69
Figure 7.2.	CO <sub>2</sub> emissions (Gg) from harvested wood product .....	70
Figure 8.1.	GHG emissions for the sector of waste for 1990-2007, Gg CO <sub>2</sub> equiv.....	72
Figure 8.2.	Relative increase of GHG emissions for the sector of waste for 1990-2007 and 2006-2007, % .....	72
Figure 8.3.	Relative change of GHG emissions for the sector of Solid Waste Disposal on Land (6A) for 1990-2007 and 2006-2007. ....	73
Figure 8.4.	GHG emissions for the sector of Wastewater Handling (6B) for 1990-2007 and 2006-2007, Gg CO <sub>2</sub> equiv.....	74

# 1. Introduction

---

This report is submitted under the requirements of Article 3(1) of Decision No. 280/2004/EC of the European Parliament and of the Council concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol, stating that Member States shall, for the assessment of actual progress and to enable the preparation of annual reports by the Community, in accordance with obligations under the UNFCCC and the Kyoto Protocol, determine and report to the Commission by 15 January each year (year X).

**Table 1.1** presents the requirements of Article 3(1) in Decision No 280/2004/EC as set in this report.

**Table 1.1. Information required under Article 3(1) and information submitted by Cyprus for 2009 submission**

Requirements	Description	Information Submitted
<b>3(1)a</b>	Anthropogenic GHG emissions for 2007	2, 3, 4, 5, 6, 7, 8
<b>3(1)b</b>	Secondary GHG for 2007	2.4
<b>3(1)c, 3(1)d</b>	Land-use, land-use change and forestry	7
<b>3(1)e</b>	Changes in inventory system/ previously submitted data	3.5, 4.5, 5.3, 6.6, 7.4, 8.4
<b>3(1)f</b>	Quality assurance/quality control plan;	1.6
	Uncertainty evaluation;	1.7, 4.6
	Assessment of completeness;	1.8
	Recalculations	3.5, 4.5, 5.3, 6.6, 7.4, 8.4
	Institutional arrangements	1.2
	Description of methodologies, EFs	1.4, 3.4, 4.3
	Comparison of sectoral with reference approach	3.5
<b>3(1)g</b>	National Registry	2
<b>3(1)h</b>	Legal Entities	1.2.1
<b>3(1)i</b>	Improvement of estimates	1.2
<b>3(1)j</b>	Indicators	3.6, 4.7, 5.4, 6.7, 7.5, 8.5
<b>3(1)k</b>	Change in the inventory system	9
		1.4.1

## 1.1. Background information on greenhouse gas inventories – for 3(1)h

The European Union is an Annex I signatory to the United Nations Framework Convention on Climate Change (UNFCCC) and an Annex B signatory to its Kyoto Protocol (KP). The KP sets quantified targets for reducing greenhouse gas emissions for those signatories that are included in its Annex B. Cyprus ratified the UNFCCC as a non-Annex I party on 15th October 1997, and on the same basis, subsequently ratified the Kyoto Protocol on 16th July 1999; i.e. Cyprus has no emissions limitation commitments.

The first Inventory report submitted by Cyprus was for 2004, under the Decision no. 280/2004/EC of the European Parliament and of the Council concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol.

## **1.2. Institutional arrangement for inventory preparation – for 3(1)f**

The Ministry of Agriculture, Natural Resources and Environment (MANRE) is the Cyprus governmental body responsible for the development and implementation of environmental policy in Cyprus, as well as for the provision of information concerning the state of the environment in Cyprus in compliance with relevant requirements defined in international conventions, protocols and agreements. In this context and by a Presidential Decision, the Ministry of Agriculture, Natural Resources and Environment, and more specifically the Environment Service has the overall responsibility for the national GHG inventory.

Within this framework and for the establishment of the National System foreseen in the Decision 280/2004/EC, the Ministry of Agriculture, Natural Resources and Environment and in particular the Environment Service, is responsible for the following regarding GHG emissions inventory preparation which consists of the preparation/compilation of the annual national inventory, i.e. the selection of methodologies, data collection (activity data and emission factors, provided by statistical services and other organizations), data processing and archiving, as well as the implementation of general quality control procedures; and the development of an inventory QA/QC plan, in accordance with the provisions of the IPCC Good Practice Guidance.

The present report has been developed through the co-operation of the Environment Service (Ministry of Agriculture, Natural Resources and Environment) with the government agencies shown in **Table 1.2**.

### **1.2.1. National Registry – for 3(1)g**

The national registry has been in operation since 2005. It is managed by Mr. Theodoulos Mesimeris, Environment Service (Ministry of Agriculture, Natural Resources and Environment).

### **1.2.2. National Allocation Plan 2008-2012**

13 installations are covered by Directive 2003/87/EC: 3 electricity production units, 2 cement production factories and 8 ceramic industries. The total of the allowances allocated is 27,398,000, under the revised National Allocation Plan 2008 – 2012 that has been approved by the European Commission on 16/02/2009.

## **1.3. Inventory preparation process**

The preparation of the Cyprus GHG emissions inventory is based predominantly on the Tier I methodologies of the IPCC Guidelines for National Greenhouse Gas Inventories published in 1998. Most of the emission factors have been revised according to the 2006 Guidelines. The stages followed for the preparation of the inventory are the following:

1. Data collection and processing per source/sink category. The main data sources used are the Cyprus Statistical Service, the government agencies involved and private companies (**Table 1.2**). The verified reports of installations under the Emissions Trading Directive were also used as data source (for the sectors of energy, cement and ceramics production). Data for the secondary GHG has been used as estimated by the competent authority on LRTAP Informative Inventory Report, the Department of Labour Inspection (Ministry of Labour and Social Insurance).

2. GHG emissions are estimated on the basis of the methods described in the IPCC Guidelines, the IPCC Good Practice Guidance, the IPCC Good Practice Guidance for LULUCF and the CORINAIR methodology. Emissions estimates are then transformed to the format required by the CRF Reporter. This stage also includes the evaluation of the emission factors used, and special attention is paid in selecting the emission factors from the pre-mentioned methodological resources that describe best the practices in Cyprus.
3. The internal check of the outcome of the calculations and the corresponding CRF tables, as well as the NIR, is followed by comments from the government agencies involved. On the basis of these comments, the final report is prepared and submitted to the European Commission.

#### **1.4. Methodology and data source used**

The data used for the preparation of this inventory were mainly obtained from published official reports and bulletins of the Statistical Service of Cyprus and statistical departments of the Ministries involved (the data sources are shown in **Table 1.2**). The main methodological references for the estimation of GHG emissions/removals were the following:

- Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories;
- Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories; and
- Good Practice Guidance for Land Use, Land Use Change and Forestry.

In the coming years, the target is to improve the inventory of Cyprus by estimating emissions in each sub-sector, especially in the industrial sector. In general, our effort is to steadily upgrade qualitatively and quantitatively our emission data submitted and every coming year expand it by additional sectors, thus minimizing the use of Notation Key NE.

##### **1.4.1. Changes in the Inventory System – for 3(1)k**

No changes have been made on the way data has been collected, verified and calculated. Recalculations and improvements are included again in each sector chapter (Chapters 3 – 8).

#### **1.5. Key sources and sinks categories (Annex I tables)**

According to the “IPCC Greenhouse Gas Inventory Workbook”, all the sources and sinks of anthropogenic emissions should be reported. The six main activities as defined by the IPCC guidelines are energy, industrial processes, solvent and other product use, agriculture, land-use change and forestry, waste, and other. No data is submitted for the sector of Others.

Information regarding methodologies and data sources used for the Community's key sources is provided in **Tables 1.3 –1.6**. Sources of data per sector are provided in the table below (**Table 1.2**).

**Table 1.2. Data sources per IPCC sector**

<b>SECTOR</b>		<b>STATISTICAL DATA</b>	<b>DATA SOURCES</b>
1.A1	Electricity generation	Fuel consumption	<ul style="list-style-type: none"> <li>▪ National Statistical Service</li> <li>▪ Energy Service</li> <li>▪ Cyprus Electricity Authority</li> <li>▪ ETS Verifiers Reports (2005-07)</li> </ul>
1.A2	Manufacturing industry and construction	Fuel consumption	<ul style="list-style-type: none"> <li>▪ National Statistical Service</li> <li>▪ Energy Service</li> <li>▪ Cyprus Electricity Authority</li> </ul>
1.A3	Transport	Number of vehicles	<ul style="list-style-type: none"> <li>▪ Ministry for Transport</li> <li>▪ National Statistical Service</li> </ul>
		Aircraft landing and take off cycles	<ul style="list-style-type: none"> <li>▪ Civil Aviation Authority</li> <li>▪ National Statistical Service</li> </ul>
1.A4	Other sectors	Fuel consumption	<ul style="list-style-type: none"> <li>▪ Energy Service</li> </ul>
1.B	Fugitive emissions from fuels	Amount of fuels	<ul style="list-style-type: none"> <li>▪ Energy Service</li> </ul>
2	Industrial Processes	Industrial production	<ul style="list-style-type: none"> <li>▪ National Statistical Service</li> <li>▪ Industrial units</li> </ul>
3	Solvents and other products use	Amount of solvents/other products use	<ul style="list-style-type: none"> <li>▪ Department of Labour Inspection</li> </ul>
4	Agriculture	Cultivated areas Agricultural production Livestock population	<ul style="list-style-type: none"> <li>▪ National Statistical Service</li> <li>▪ Ministry of Agriculture, Natural Resources and Environment</li> </ul>
5	Land use, Land use change and Forestry	Forest area Forest fires	<ul style="list-style-type: none"> <li>▪ Ministry of Agriculture, Natural Resources and Environment</li> </ul>
6	Waste	Quantities and composition of solid waste generated Recycling Population	<ul style="list-style-type: none"> <li>▪ Ministry of Interior</li> <li>▪ National Statistical Service</li> <li>▪ Ministry of Agriculture, Natural Resources and Environment</li> </ul>

Table 1.3. Community summary report for methods, activity data and emission factors used for Energy (Annex I Reporting Template)

GREENHOUSE GAS SOURCE AND SINK	CO2				CH4				N2O			
	Key source (1)	Method applied (2)	Activity data (3)	Emission factor (4)	Key source (1)	Method applied (2)	Activity data (3)	Emission factor (4)	Key source (1)	Method applied (2)	Activity data (3)	Emission factor (4)
1. Energy												
A. Fuel Combustion												
1. Energy Industries												
a. Public Electricity and Heat Production	Yes				No				Yes			
Liquid fuels	Yes	C	NS	D	No				No			
Solid fuels	Yes	C	NS	D, CS 1)	No				Yes	C	NS	C
Gaseous fuels	Yes	NO 2)	NO	NO	No				No			
Other fuels	Yes	NO	NO	NO	No				No			
b. Petroleum Refining	Yes	NO	NO	NO	No				No			
c. Manufacture of Solid Fuels and Other Energy Industries	Yes	NO	NO	NO	No				No			
2. Manufacturing Industries and Construction	Yes				No				No			
Liquid fuels	Yes	C	NS	D	No				No			
Solid fuels	Yes	C	NS	D	No				No			
Gaseous fuels	Yes	NO	NO	NO	No				No			
Other fuels	Yes	NO	NO	NO	No				No			
a. Iron and Steel	No				No				No			
b. Non-Ferrous Metals	No				No				No			
c. Chemicals	No				No				No			
d. Pulp, Paper and Print	No				No				No			
e. Food Processing, Beverages and Tobacco	No				No				No			
f. Other (as specified in table1.A(a)s2)	No				No				No			
3. Transport	Yes				No				Yes			
a. Civil Aviation	Yes				No				No			
Jet kerosene	Yes	T2a	NS, AS 4)	T2a	No				No			
b. Road Transportation	Yes				No				Yes			
Gasoline	Yes	COPERT III	NS	D	No				Yes	COPERT III	NS	C
Diesel	Yes	COPERT III	NS	D	No				Yes	COPERT III	NS	C
Other fuels	Yes	NO	NO	NO	No				No			
c. Railways	Yes	NO	NO	NO	No				No			
d. Navigation	Yes				No				No			
Gas/Diesel oil	Yes	C	NS	D	No				No			

GREENHOUSE GAS SOURCE AND SINK	CO2				CH4				N2O			
	Key source (1)	Method applied (2)	Activity data (3)	Emission factor (4)	Key source (1)	Method applied (2)	Activity data (3)	Emission factor (4)	Key source (1)	Method applied (2)	Activity data (3)	Emission factor (4)
e. Other Transportation (as specified in table 1.A(a)s3)	No				No				No			
4. Other Sectors	Yes				No				No			
a. Commercial/Institutional	Yes				No				No			
Liquid fuels	Yes	C	NS	D	No				No			
Solid fuels	Yes	C	NS	D	No				No			
Gaseous fuels	Yes	NO	NO	NO	No				No			
b. Residential	Yes				No				No			
Liquid fuels	Yes	C	NS	D	No				No			
Solid fuels	Yes	C	NS	D	No				No			
Gaseous fuels	Yes	NO	NO	NO	No				No			
c. Agriculture/Forestry/Fisheries	Yes				No				No			
Liquid fuels	Yes	C	NS	D	No				No			
Solid fuels	Yes	C	NS	D	No				No			
Gaseous fuels	Yes	C	NS	D	No				No			
5. Other	Yes	NO	NO	NO	No				No			
a. Stationary	No				No				No			
b. Mobile	No				No				No			
B. Fugitive Emissions from Fuels	No				No				No			
1. Solid Fuels	No				Yes				No			
a. Coal Mining	No				Yes	T1	NS	D	No			
b. Solid Fuel Transformation	No				No				No			
c. Other (as specified in table 1.B.1)	No				No				No			
2. Oil and Natural Gas	Yes				Yes				No			
a. Oil	Yes	T1	NS	D	No				No			
b. Natural Gas	No				Yes	T1	NS	D	No			
c. Venting and Flaring	Yes	T1	NS	D	No				No			
d. Other (as specified in table 1.B.2)	No				No				No			

[1] CS refers to the CO2 emission factor of lignite for electricity generation, [2] NO: Not Occurring, [3] CS refers to the CO2 emission factor of domestic natural gas, [4] NS refers to energy consumption data and AS refers to LTO data

Table 1.4. Community summary report for methods, activity data and emission factors used for Industrial Processes (Annex I Reporting Template)

GREENHOUSE GAS SOURCE AND SINK	CO2				CH4				N2O				HFCs				PFCs				SF6			
CATEGORIES	Key source (1)	MA (2)	AD (3)	EF (4)	Key source (1)	MA (2)	AD (3)	EF (4)	Key source (1)	MA (2)	AD (3)	EF (4)	Key source (1)	MA (2)	AD (3)	EF (4)	Key source (1)	MA (2)	AD (3)	EF (4)	Key source (1)	MA (2)	AD (3)	EF (4)
<b>2. Industrial Processes</b>																								
A. Mineral Products	Yes				No				No															
1. Cement Production	Yes	T2	PS	CS	No				No															
2. Lime Production	Yes	T1	Q, NS	D	No				No															
3. Limestone and Dolomite Use	No				No				No															
4. Soda Ash Production and Use	No				No				No															
5. Asphalt Roofing	No				No				No															
6. Road Paving with Asphalt	No				No				No															
7. Other (as specified in table 2(I)A-G)	No				No				No															
B. Chemical Industry	Yes				No				Yes				No				No				No			
1. Ammonia Production	Yes	IE 1)	IE	IE	No				No				No				No				No			
2. Nitric Acid Production	No				No				Yes	NO 2)	NO	NO	No				No				No			
3. Adipic Acid Production	No				No				Yes	NO	NO	NO	No				No				No			
4. Carbide Production	No				No				No				No				No				No			
5. Other (as specified in table 2(I)A-G)	No				No				Yes	NO	NO	NO	No				No				No			
C. Metal Production	Yes				No				No								Yes				No			
1. Iron and Steel Production	Yes	T2	NS	CS	No				No								No				No			
2. Ferroalloys Production	No				No				No								No				No			
3. Aluminium Production	No				No				No								Yes	T3b	PS	PS	No			
4. SF6 Used in Aluminium and Magnesium Foundries	No				No				No								No				No			
5. Other (as specified in table 2(I)A-G)	No				No				No								No				No			
D. Other Production	No																							
1. Pulp and Paper	No																							
2. Food and Drink	No																							
E. Production of Halocarbons and SF6													Yes	T1	PS	D	Yes	NO	NO	NO	No			



GREENHOUSE GAS SOURCE AND SINK	CO2				CH4				N2O				HFCs				PFCs				SF6			
CATEGORIES	Key source (1)	MA (2)	AD (3)	EF (4)	Key source (1)	MA (2)	AD (3)	EF (4)	Key source (1)	MA (2)	AD (3)	EF (4)	Key source (1)	MA (2)	AD (3)	EF (4)	Key source (1)	MA (2)	AD (3)	EF (4)	Key source (1)	MA (2)	AD (3)	EF (4)
1. By-product Emissions													No				No				No			
2. Fugitive Emissions													No				No				No			
3. Other (as specified in table 2(II))													No				No				No			
F. Consumption of Halocarbons and SF6													Yes	T2a	Q, IS	D	No				Yes	CS	NS	CS
1. Refrigeration and Air Conditioning Equipment													No				No				No			
2. Foam Blowing													No				No				No			
3. Fire Extinguishers													No				No				No			
4. Aerosols/ Metered Dose Inhalers													No				No				No			
5. Solvents													No				No				No			
6. Other applications using ODS substitutes													No				No				No			
7. Semiconductor Manufacture													No				No				No			
8. Electrical Equipment													No				No				No			
9. Other (as specified in table 2(II))													No				No				No			
G. Other	No				No				No				No				No				No			

[1] IE: Included Elsewhere (1.A.2c); [2] NO: Not Occurring; MA = Method Applied; AD = Activity Data; EF = Emission Factor.

**Table 1.5. Community summary report for methods, activity data and emission factors used for Solvent and Other product use, Agriculture (Annex I Reporting Template)**

GREENHOUSE GAS SOURCE AND SINK	CO2				CH4				N2O			
	Key source (1)	Method applied (2)	Activity data (3)	Emission factor (4)	Key source (1)	Method applied (2)	Activity data (3)	Emission factor (4)	Key source (1)	Method applied (2)	Activity data (3)	Emission factor (4)
<b>3. Solvent and Other Product Use</b>												
A. Paint Application	No								No			
B. Degreasing and Dry Cleaning	No								No			
C. Chemical Products, Manufacture and Processing	No								No			
D. Other	No								No			
<b>4. Agriculture</b>												
A. Enteric Fermentation					Yes							
1. Cattle					Yes	T1	NS	D				
2. Buffalo					No							
3. Sheep					Yes	T2	NS	CS				
4. Other					No							
B. Manure Management					Yes				Yes			
1. Cattle					Yes	T1	NS	D	No			
2. Buffalo					No				No			
3. Sheep					No				No			
4. Other					No				No			
8. Swine					Yes	T1	NS	D	No			
12. Solid Storage and Dry Lot					No				Yes	D	NS	D
13. Other					No				No			
C. Rice Cultivation					No							
D. Agricultural Soils	No				No				Yes			
1. Direct Soil Emissions	No				No				Yes	T1a, T1b 1)	NS, IS	D
2. Pasture, range and paddock manure	No				No				Yes	D	NS	D
3. Indirect Emissions	No				No				Yes	T1a	NS, IS	D
4. Other (as specified in table 4.D)	No				No				No			
E. Prescribed Burning of Savannas					No				No			
F. Field Burning of Agricultural Residues					No				No			
G. Other					No				No			

[1] T1b method is used for the estimation of N2O emissions from N-fixing crops and crop residues

**Table 1.6. Community summary report for methods, activity data and emission factors used for Land-use Change and Forestry, Waste, Other (Annex I Reporting Template)**

GREENHOUSE GAS SOURCE AND SINK	CO2				CH4				N2O			
	Key source (1)	Method applied (2)	Activity data (3)	Emission factor (4)	Key source (1)	Method applied (2)	Activity data (3)	Emission factor (4)	Key source (1)	Method applied (2)	Activity data (3)	Emission factor (4)
5. Land-Use, Land-Use Change and Forestry												
A. Forest Land	No				No				No			
1. Forest Land remaining Forest Lands	No				No				No			
2. Land converted to Forest Lands	No				No				No			
B. Cropland	No				No				No			
1. Cropland remaining Cropland	No				No				No			
2. Land converted to Cropland	No				No				No			
C. Grassland	No				No				No			
1. Grassland remaining Grassland	No				No				No			
2. Land converted to Grassland	No				No				No			
D. Wetlands	No				No				No			
1. Wetlands remaining Wetlands	No				No				No			
2. Land converted to Wetlands	No				No				No			
E. Settlements	No				No				No			
1. Settlements remaining Settlements	No				No				No			
2. Land converted to Settlements	No				No				No			
F. Other Land	No				No				No			
1. Other Land remaining Other Land					No				No			
2. Land converted to Other Land	No				No				No			
G. Other (please specify)	No				No				No			
Harvested Wood Products	No				No				No			
6. Waste												
A. Solid Waste Disposal on Land	No				Yes							
1. Managed Waste Disposal on Land	No				Yes	T1	NS, Q	D				
2. Unmanaged Waste Disposal Sites	No				Yes	T1	NS, Q	D				
3. Other (as specified in table 6.A)	No				No							
B. Wastewater Handling					Yes				Yes			
1. Industrial Wastewater					No				No			
2. Domestic and Commercial Wastewater					Yes	D	NS, Q 1)	D	Yes	NE	NE	NE
3. Other (as specified in table 6.B)					No				No			
C. Waste Incineration	No				No				No			
D. Other	No				No				No			
7. Other (as specified in Summary 1.A)												
Memo Items: (8)												
International Bunkers	No				No				No			
Aviation	No				No				No			
Marine	No				No				No			
CO2 Emissions from Biomass	No				No				No			

[1] Q refers to information on recycling

## 1.6. QA/QC plan – for 3(1)f

The QA/QC system has been developed on the basis of the IPCC guidelines. The quality objectives used are the following:

- Compliance with the IPCC guidelines and the UNFCCC reporting guidelines while estimating and reporting emissions/removals;
- Continuous improvement of GHG emissions/removals estimates;
- Timely submission of necessary information in compliance with relevant requirements defined in international conventions, protocols and agreements.

The QA/QC system developed covers the following processes:

- QA/QC system management, comprising all activities that are necessary for the management and control of the inventory agency in order to ensure the accomplishment of the above-mentioned quality objectives.
- Quality control that is directly related to the estimation of emissions. The process includes activities related to (a) data inquiry, collection and documentation, (b) methodological choices in accordance with IPCC Good Practice Guidance, (c) quality control checks for data from secondary sources and (d) record keeping.
- Archiving of inventory information, comprising activities related to centralised archiving of inventory information and the compilation of the national inventory report.
- Quality assurance, comprising activities related to the different levels of review processes including the review of input data from experts if necessary, and comments from the public.
- Estimation of uncertainties, defining procedures for estimating and documenting uncertainty estimates per source / sink category and for the whole inventory.
- Inventory improvement, that is related to the preparation and the justification of any recalculations made.

Data provided by the Statistical Service of Cyprus is characterised by independence, integrity and accountability. Hence, these data are not subjected to any checking.

## 1.7. General uncertainty evaluation – for 3(1)f

Uncertainty was calculated according to the Tier I methodology. **Table 1.7** presents the uncertainty reported with the previous submission in comparison to the current submission.

**Table 1.7. Summary of uncertainties according to Tier I methodology for 1990 to 2007 (2006 NIR compared to 2007 NIR)**

	Combined uncertainty as % of total national emissions in year t		Uncertainty introduced into the trend in total national emissions		Percentage uncertainty in total inventory		Trend uncertainty	
	2006 NIR	2007 NIR	2006 NIR	2007 NIR	2006 NIR	2007 NIR	2006 NIR	2007 NIR
<b>1990</b>	2.00%	0.73%	4.44%	4.28%	14.15%	8.57%	21.07%	20.68%
<b>1991</b>	1.96%	1.64%	5.10%	31.47%	14.01%	12.81%	22.59%	56.09%
<b>1992</b>	2.00%	1.49%	6.26%	35.07%	14.15%	12.20%	25.02%	59.22%
<b>1993</b>	1.89%	1.34%	8.08%	35.96%	13.76%	11.56%	28.42%	59.97%
<b>1994</b>	1.90%	1.29%	8.93%	36.09%	13.79%	11.36%	29.88%	60.07%
<b>1995</b>	1.86%	1.46%	7.89%	36.61%	13.65%	12.07%	28.09%	60.51%
<b>1996</b>	1.86%	1.40%	8.79%	38.05%	13.63%	11.84%	29.65%	61.69%
<b>1997</b>	1.81%	1.29%	10.29%	38.15%	13.46%	11.36%	32.07%	61.77%
<b>1998</b>	1.81%	1.17%	11.85%	40.46%	13.44%	10.80%	34.42%	63.61%
<b>1999</b>	1.84%	1.01%	14.02%	42.04%	13.56%	10.05%	37.45%	64.84%
<b>2000</b>	1.74%	0.89%	15.67%	42.36%	13.20%	9.44%	39.59%	65.09%
<b>2001</b>	1.74%	1.09%	15.08%	44.72%	13.20%	10.44%	38.83%	66.87%
<b>2002</b>	1.74%	1.22%	19.50%	46.87%	13.18%	11.06%	44.15%	68.46%
<b>2003</b>	1.61%	1.12%	23.86%	45.85%	12.68%	10.58%	48.84%	67.71%
<b>2004</b>	1.73%	0.95%	24.84%	45.12%	13.15%	9.74%	49.84%	67.17%
<b>2005</b>	1.60%	0.36%	24.47%	37.32%	12.65%	6.01%	49.47%	61.09%
<b>2006</b>	0.02%	0.62%	58.08%	25.39%	1.37%	7.86%	76.21%	50.39%
<b>2007</b>		0.71%		26.38%		8.44%		51.36%

### 1.7.1. Calculation of uncertainty – for 3(1)f

Uncertainty was calculated on the basis of Tier I methodology. The results shown in **Table 1.7** summarise the results presented in **Annex II**. The calculations follow the Tier 1 uncertainty calculation and reporting (IPCC, 1996). For the purposes of the uncertainty calculations, all the distributions used are considered normal.

Data for the estimation of uncertainty (activity and EF uncertainty) was obtained from:

- The uncertainty calculations made for the Emissions Trading Directive 2003/87/EC, as described in the Decision No. 2004/156/EC for the verification reports (1A1, 1A2, 1B2).
- National experts opinion and estimations of uncertainty (1A4, 3, 4, 5, 6, 2)
- Statistical Service for certain activities (1A3, 1A4)

### 1.8. General assessment of completeness

According to the completeness check performed by the CRF Reporter (version 3.2) no data is missing. However, emissions of particular gases from certain sectors have not been estimated due to lack of information on the activity data of the sector.

### 1.9. Geographical Coverage

**After the Turkish invasion in 1974, approximately 40% of the Republic of Cyprus is under Turkish occupation. All the data used for the calculation of emissions was collected from the available statistical data as presented in previous sections and cover the areas under the effective control of the Government of the Republic of Cyprus.**

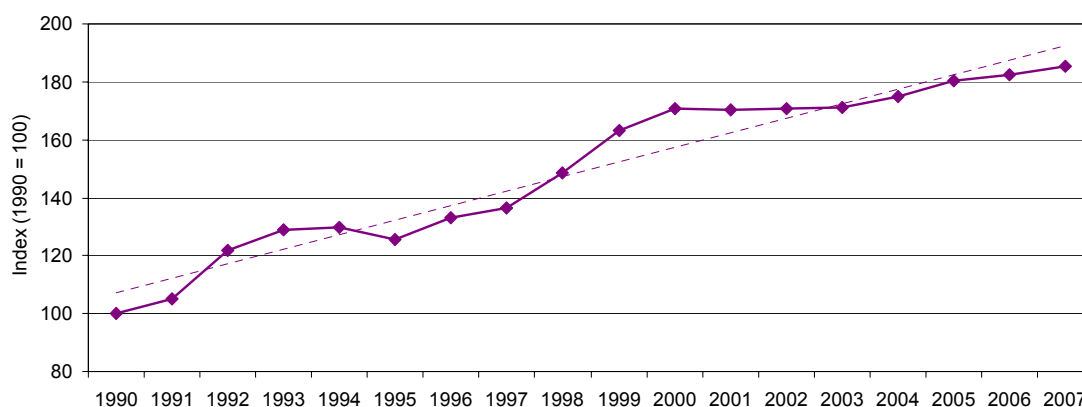
## 2. Trends in Greenhouse Gas Emissions – for 3(1)f

This chapter presents the main GHG emission trends in Cyprus. Firstly, aggregated results are described regarding total GHG emissions and then, emission trends are briefly analysed mainly at gas level. The trends of indirect GHGs and SO<sub>2</sub> emissions are also presented.

### 2.1. Emission trends for aggregated greenhouse gas emissions – for 3(1)a

- Total GHG emissions without LULUCF increased by 85.3% between 1990 and 2007 (**Figure 2.1**). In actual numbers this percentage corresponds to 4,662 thousand tonnes CO<sub>2</sub> equivalents.
- Emissions increased by 1.6% between 2006 and 2007, corresponding to an increase of 156 thousands tonnes.

**Table 2.1** shows the changes in the GHG sectors in Cyprus between 1990 and 2007, 2006 and 2007, in actual numbers and percentages.



**Figure 2.1. GHG emissions 1990–2006 (excl. LULUCF)**

**Table 2.1. Overview of source categories changes between 2006-2007 and 1990-2007 (excluding LULUCF)**

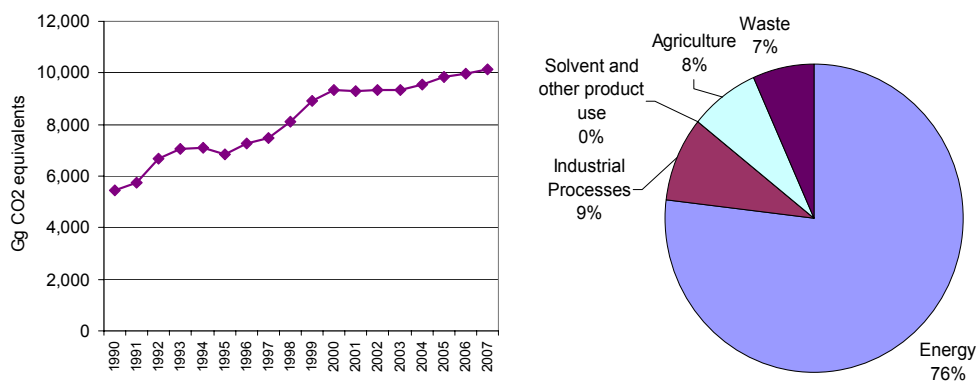
Source category	1990 (Gg CO <sub>2</sub> equiv.)	2007 (Gg CO <sub>2</sub> equiv.)	1990 – 2007 (Gg CO <sub>2</sub> equiv.)	2006 – 2007 (Gg CO <sub>2</sub> equiv.)	1990 – 2007 (%)	2006 – 2007 (%)
1. Energy	3754.1	7786.5	4032.4	171.3	107.4%	2.2%
2. Industrial Processes	666.6	916.6	250.0	-42.1	37.5%	-4.4%
3. Solvent and other product use	2.3	3.0	0.7	0.0	30.7%	1.4%
4. Agriculture	647.2	760.6	113.3	11.6	17.5%	1.5%
6. Waste	396.8	662.4	265.7	15.6	67.0%	2.4%
TOTAL (excl. LULUCF)	5,466.9	10,129.0	4,662.1	156.4	85.3%	1.6%

## 2.2. Emission trends by gas – for 3(1)a

**Table 2.2** gives an overview of the main trends in GHG emissions for Cyprus and removals for 1990–2007, excluding PCFs and SF6 for which no emissions have been estimated. The most important GHG by far is CO<sub>2</sub>, accounting for 82.2% of total emissions in 2007 excluding LULUCF.

**Table 2.2 Overview of GHG emissions and removals from 1990 to 2007 in CO<sub>2</sub> equivalents**

	Net CO <sub>2</sub> emissions/ removals	CO <sub>2</sub> emissions (excl. LULUCF)	CH <sub>4</sub>	N <sub>2</sub> O	HFCs	Total (with net CO <sub>2</sub> emissions/ removals)	Total (excl. CO <sub>2</sub> from LULUCF)	Total (excl. LULUCF)
1990	4,167.7	4,190.2	890.4	389.9	NA,NO	5,448.0	5,470.5	5,466.9
1991	4,401.0	4,450.1	900.7	390.0	NA,NO	5,691.7	5,740.8	5,737.2
1992	5,184.3	5,245.3	979.6	437.2	NA,NO	6,601.1	6,662.2	6,658.7
1993	5,518.1	5,573.9	1,027.8	449.7	NA,NO	6,995.6	7,051.4	7,047.9
1994	5,555.8	5,627.9	1,020.8	448.8	0.0	7,025.4	7,097.5	7,094.0
1995	5,296.6	5,372.5	1,040.1	452.5	NA,NO	6,789.2	6,865.1	6,861.6
1996	5,617.8	5,704.4	1,088.5	472.4	22.9	7,201.6	7,288.2	7,284.7
1997	5,813.5	5,917.0	1,075.0	470.1	NA,NO	7,358.7	7,462.2	7,458.6
1998	6,446.9	6,566.6	1,072.4	488.4	NA,NO	8,007.6	8,127.4	8,123.9
1999	7,258.0	7,352.5	1,081.6	502.7	0.3	8,842.7	8,937.2	8,933.6
2000	7,612.9	7,727.2	1,115.1	502.7	0.4	9,231.1	9,345.5	9,341.9
2001	7,480.4	7,601.0	1,171.7	536.1	0.8	9,189.0	9,309.5	9,306.0
2002	7,356.5	7,477.6	1,212.6	566.7	73.8	9,209.6	9,330.7	9,327.2
2003	7,372.8	7,501.3	1,226.7	558.9	73.4	9,231.8	9,360.3	9,356.7
2004	7,566.4	7,705.9	1,237.3	543.1	68.9	9,415.7	9,555.1	9,551.6
2005	7,829.4	7,979.8	1,227.5	517.1	136.1	9,710.3	9,860.6	9,857.1
2006	8,025.1	8,176.7	1,241.4	504.8	53.2	9,824.5	9,976.1	9,972.5
2007	8,167.3	8,327.6	1,257.6	526.4	20.9	9,972.2	10,132.5	10,129.0
90-07	3,999.5	4,137.4	367.2	136.5	20.9	4,524.2	4,662.1	4,662.1
90-07 (%)	96.0	98.7	41.2	35.0	100.0	83.0	85.2	85.3
06-07	142.1	150.8	16.2	21.7	-32.3	147.7	156.4	156.4
06-07 (%)	1.8	1.8	1.3	4.3	-60.7	1.5	1.6	1.6



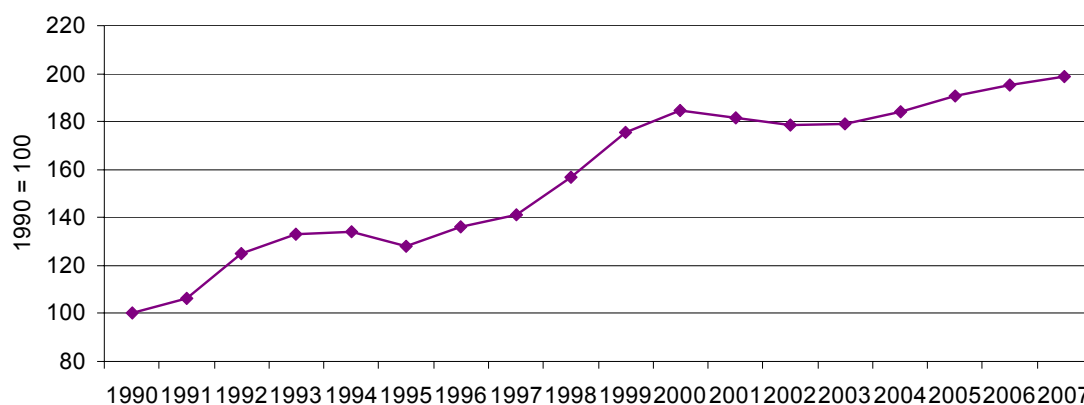
**Figure 2.2. Total emissions without LULUCF 1990 to 2007 in CO<sub>2</sub> equivalents (Gg) and share of source categories in 2007**

### 2.2.1. Carbon Dioxide emissions – for 3(1)a

In 2007, CO<sub>2</sub> emissions without LULUCF were 8,328 Gg, which was 98.7% above 1990 levels. Compared to 2006, CO<sub>2</sub> emissions increased by 1.8%. The primary activity producing CO<sub>2</sub> in 2007 remains energy production with 46% of total excluding LULUCF, while second is transport with 26%. **Table 2.3**, shows the CO<sub>2</sub> emissions per sector for 2007, 2006 and 1990. **Figure 2.3** illustrates the trend in CO<sub>2</sub> emissions without LULUCF, while **Figure 2.4** shows the increases in % between 1990 and 2007 of the sectors producing considerable emissions of CO<sub>2</sub> (without LULUCF) in Cyprus.

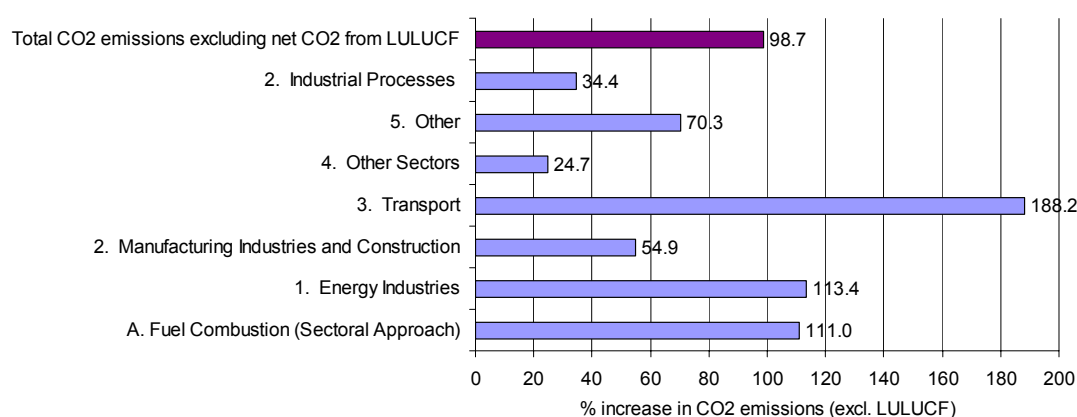
**Table 2.3. CO<sub>2</sub> emissions per sector for 2007, 2006 and 1990**

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year (1990)	2006	2007
	(Gg)	(Gg)	(Gg)
<b>1. Energy</b>	<b>3,521.31</b>	<b>7,268.30</b>	<b>7,428.94</b>
A. Fuel Combustion (Sectoral Approach)	3,521.31	7,268.30	7,428.94
1. Energy Industries	1,781.45	3,653.38	3,801.67
2. Manufacturing Industries and Construction	679.76	1,124.97	1,052.84
3. Transport	761.17	2,053.63	2,193.70
4. Other Sectors	281.63	407.90	351.27
5. Other	17.29	28.42	29.46
<b>2. Industrial Processes</b>	<b>666.59</b>	<b>905.49</b>	<b>895.66</b>
A. Mineral Products	666.59	905.49	895.66
<b>3. Solvent and Other Product Use</b>	<b>2.29</b>	<b>2.95</b>	<b>2.99</b>
<b>5. Land Use, Land-Use Change and Forestry(2)</b>	<b>-22.44</b>	<b>-151.62</b>	<b>-160.33</b>
A. Forest Land	-119.60	-160.33	-160.33
G. Other	97.16	8.71	
<b>Total CO<sub>2</sub> emissions including net CO<sub>2</sub> from LULUCF</b>	<b>4,167.74</b>	<b>8,025.13</b>	<b>8,167.26</b>
<b>Total CO<sub>2</sub> emissions excluding net CO<sub>2</sub> from LULUCF</b>	<b>4,190.19</b>	<b>8,176.75</b>	<b>8,327.59</b>



**Figure 2.3. Changes in CO<sub>2</sub> emissions for 1990 to 2007 without LULUCF in comparison to 1990 (1990=100)**





**Figure 2.4. Increases in % between 1990 and 2007 of the sectors producing considerable emissions of CO<sub>2</sub> (without LULUCF)**

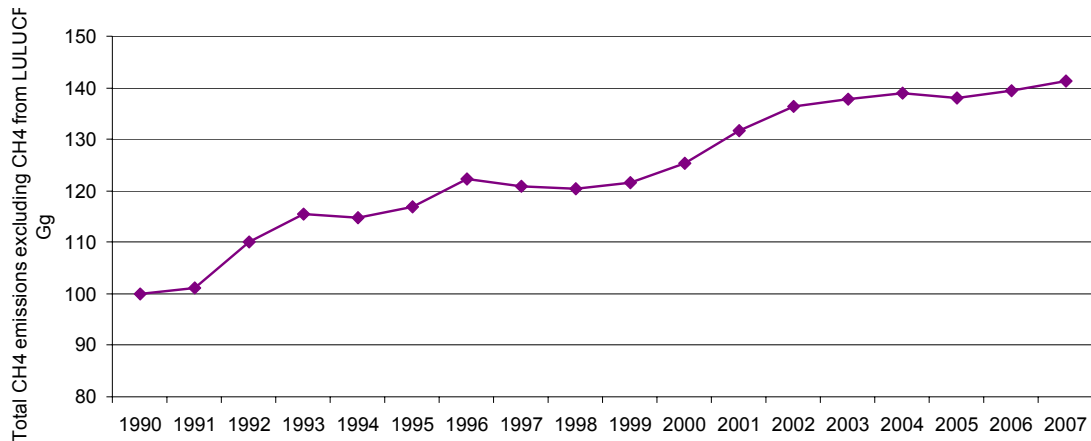
### 2.2.2. Methane emissions – for 3(1)a

In 2007, CH<sub>4</sub> emissions without LULUCF were 42.28 Gg, which was 41.4% above 1990 levels. Compared to 2006, CH<sub>4</sub> emissions increased by 1.7%, corresponding to 0.77 Gg. The primary activity producing CH<sub>4</sub> in 2007 remains the sector of waste with 53% of total excluding LULUCF, while second is agriculture with 34%. **Table 2.4**, shows the CH<sub>4</sub> emissions per sector for 2007, 2006 and 1990. **Figure 2.5** illustrates the trend in CH<sub>4</sub> emissions without LULUCF, while **Figure 2.6** shows the increases in % between 1990 and 2007 of the sectors producing considerable emissions of CH<sub>4</sub> (without LULUCF) in Cyprus.

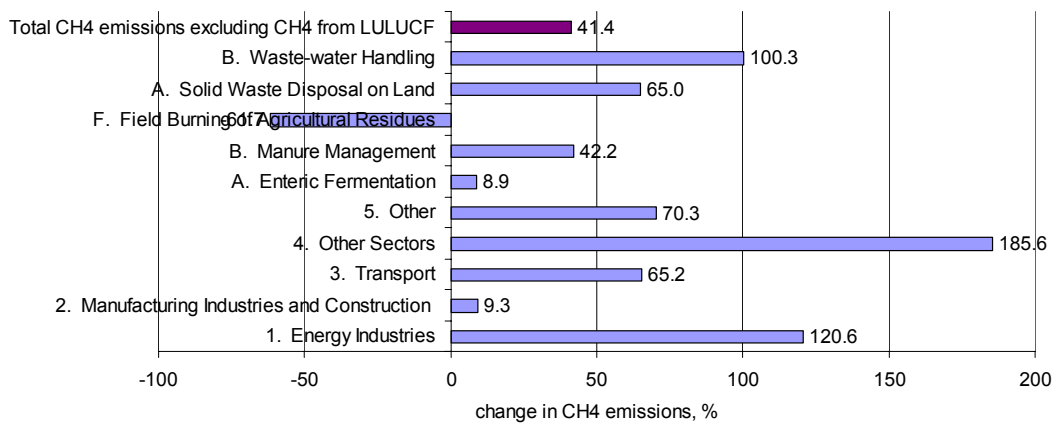
2005, 2006 and 2007 emissions for Fugitive emissions from fuels have not been estimated, therefore comparison in Figure 2.6 between 1990 and 2007 is not made.

**Table 2.4. CH<sub>4</sub> emissions per sector for 2007, 2006 and 1990**

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1990 (Gg)	2006 (Gg)	2007 (Gg)
<b>1. Energy</b>	7.09	7.93	8.06
A. Fuel Combustion (Sectoral Approach)	7.06	7.93	8.06
1. Energy Industries	0.11	0.23	0.24
2. Manufacturing Industries and Construction	6.65	7.17	7.26
3. Transport	0.27	0.43	0.44
4. Other Sectors	0.04	0.08	0.11
5. Other	0.00	0.00	0.00
B. Fugitive Emissions from Fuels	0.02	NA,NE,NO	NA,NE,NO
<b>4. Agriculture</b>	<b>16.30</b>	<b>20.27</b>	<b>20.17</b>
A. Enteric Fermentation	8.21	8.90	8.95
B. Manure Management	7.81	11.17	11.12
F. Field Burning of Agricultural Residues	0.27	0.20	0.11
<b>5. Land Use, Land-Use Change and Forestry</b>	<b>0.11</b>	<b>0.11</b>	<b>0.11</b>
A. Forest Land	0.11	0.11	0.11
<b>6. Waste</b>	<b>18.89</b>	<b>30.80</b>	<b>31.54</b>
A. Solid Waste Disposal on Land	17.86	28.74	29.47
B. Waste-water Handling	1.04	2.06	2.07
<b>Total CH<sub>4</sub> emissions including CH<sub>4</sub> from LULUCF</b>	<b>42.40</b>	<b>59.11</b>	<b>59.89</b>
<b>Total CH<sub>4</sub> emissions excluding CH<sub>4</sub> from LULUCF</b>	<b>42.28</b>	<b>59.00</b>	<b>59.77</b>



**Figure 2.5. Changes in CH<sub>4</sub> emissions for 1990 to 2007 without LULUCF in comparison to 1990 (1990=100)**



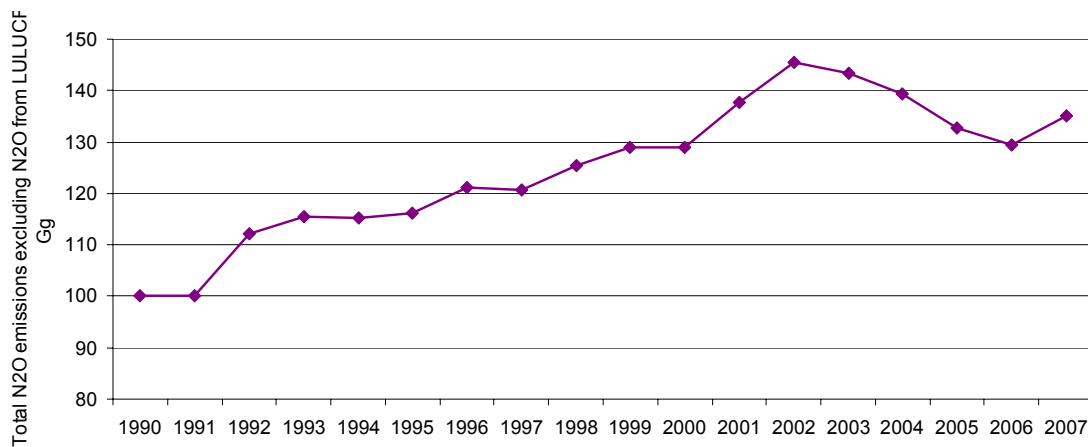
**Figure 2.6. Increases in % between 1990 and 2007 of the sectors producing considerable emissions of CH<sub>4</sub> (without LULUCF)**

### 2.2.3. Nitrous Oxide emissions – for 3(1)a

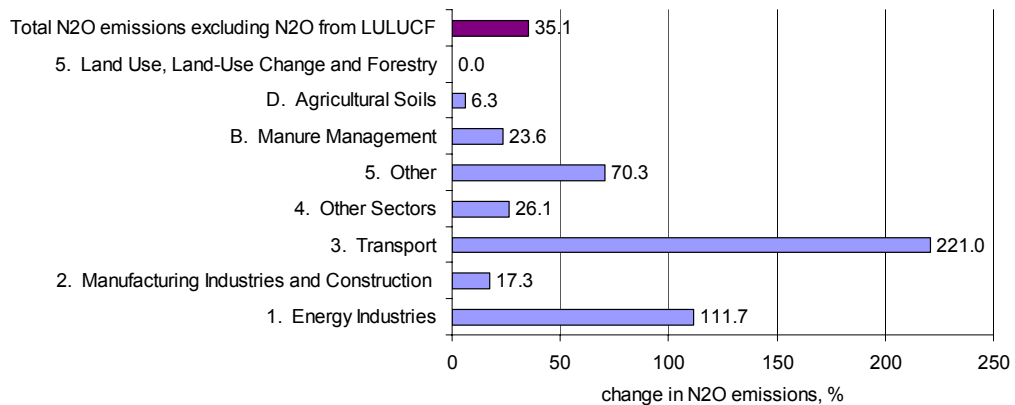
In 2007, N<sub>2</sub>O emissions without LULUCF were 1.69 Gg, which was 35.1% above 1990 levels. Compared to 2006, N<sub>2</sub>O emissions increased by 4.3%, corresponding to 0.07 Gg. The primary activity producing N<sub>2</sub>O in 2007 is agriculture with 64% of total excluding LULUCF, while second is energy industries with 23%. **Table 2.5**, shows the N<sub>2</sub>O emissions per sector for 2007, 2006 and 1990. **Figure 2.7** illustrates the trend in N<sub>2</sub>O emissions without LULUCF, while **Figure 2.8** shows the increases in % between 1990 and 2007 of the sectors producing considerable emissions of N<sub>2</sub>O (without LULUCF) in Cyprus.

**Table 2.5. N<sub>2</sub>O emissions per sector for 2007, 2006 and 1990**

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1990	2006	2007
1. Energy Industries	0.18	0.38	0.39
2. Manufacturing Industries and Construction	0.03	0.03	0.03
3. Transport	0.06	0.17	0.18
4. Other Sectors	0.00	0.00	0.00
5. Other	0.00	0.00	0.00
<b>4. Agriculture</b>	<b>0.98</b>	<b>1.04</b>	<b>1.09</b>
B. Manure Management	0.25	0.31	0.31
D. Agricultural Soils	0.73	0.73	0.77
<b>5. Land Use, Land-Use Change and Forestry</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Total N<sub>2</sub>O emissions including N<sub>2</sub>O from LULUCF</b>	<b>1.26</b>	<b>1.63</b>	<b>1.70</b>
<b>Total N<sub>2</sub>O emissions excluding N<sub>2</sub>O from LULUCF</b>	<b>1.25</b>	<b>1.62</b>	<b>1.69</b>



**Figure 2.7. Changes in N<sub>2</sub>O emissions for 1990 to 2007 without LULUCF in comparison to 1990 (1990=100)**



**Figure 2.8. Increases in % between 1990 and 2007 of the sectors producing considerable emissions of N<sub>2</sub>O (without LULUCF)**

#### 2.2.4. HFCs, PFCs and SF<sub>6</sub> emissions – for 3(1)a

In 2007, Fluorinated gas emissions were 20.91 Gg CO<sub>2</sub> equivalents. No data is available for 1990 to make to comparison. Compared to 2006, Fluorinated gas emissions increased by 61%, corresponding to 32.3 Gg CO<sub>2</sub> equivalents. **Table 2.6**, shows the Fluorinated gas emissions per gas for 2007, 2006 and 1990.

**Table 2.6. Fluorinated gas emissions per gas for 2007, 2006 and 1990**

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1990	2006	2007
	(Gg)	(Gg)	(Gg)
<b>Emissions of HFCs(3) - (Gg CO2 equivalent)</b>	<b>NA,NO</b>	<b>53.20</b>	<b>20.91</b>
HFC-32	NA	0.00	0.00
HFC-125	NA	0.01	0.00
HFC-134	NA	0.02	0.01
HFC-143a	NA	0.00	0.00
HFC-227ea	NA	0.00	0.00

#### 2.3. Emission trends by source – for 3(1)a

**Table 2.7** gives an overview of GHG emissions in the main source categories for 1990–2007. The most important sector in 2007 by far is Energy accounting for 78% of total emissions. The second largest sector is Industrial Processes (9 %), followed by Agriculture (8 %). The changes in each sector compared to 1990 are shown in **Figure 2.9**. **Figure 2.10** shows the annual changes in all sectors and total including LULUCF, with the exception of the sector of LULUCF.

**Table 2.7. Overview of GHG emissions in the main source and sink categories 1990 to 2007 in CO<sub>2</sub> equivalents (Gg)**

	1. Energy	2. Industrial Processes	3. Solvent and Other Product Use	4. Agriculture	5. LULUCF	6. Waste	7. Other	Total (including LULUCF)
<b>1990</b>	3,754.1	666.6	2.3	647.2	-18.9	396.8	NA	<b>5,448.0</b>
<b>1991</b>	3,993.5	662.9	2.4	652.2	-45.6	426.4	NA	<b>5,691.7</b>
<b>1992</b>	4,843.2	655.1	2.4	710.7	-57.5	447.2	NA	<b>6,601.1</b>
<b>1993</b>	5,212.0	630.9	2.5	743.3	-52.3	459.2	NA	<b>6,995.6</b>
<b>1994</b>	5,269.9	617.9	2.5	733.3	-68.6	470.4	NA	<b>7,025.4</b>
<b>1995</b>	5,017.3	598.8	2.5	761.2	-72.3	481.7	NA	<b>6,789.2</b>
<b>1996</b>	5,377.1	631.1	2.5	788.8	-83.1	485.1	NA	<b>7,201.6</b>
<b>1997</b>	5,646.8	535.9	2.6	776.3	-100.0	497.0	NA	<b>7,358.7</b>
<b>1998</b>	6,053.6	779.1	2.6	780.8	-116.2	507.8	NA	<b>8,007.6</b>
<b>1999</b>	6,841.2	786.3	2.6	776.8	-91.0	526.7	NA	<b>8,842.7</b>
<b>2000</b>	7,219.4	805.7	2.6	772.5	-110.8	541.6	NA	<b>9,231.1</b>
<b>2001</b>	7,113.1	783.7	2.7	840.1	-117.0	566.5	NA	<b>9,189.0</b>
<b>2002</b>	6,963.9	883.7	2.7	899.3	-117.6	577.5	NA	<b>9,209.6</b>
<b>2003</b>	6,990.4	892.5	2.8	868.9	-124.9	602.1	NA	<b>9,231.8</b>
<b>2004</b>	7,151.7	950.6	2.8	824.2	-135.9	622.2	NA	<b>9,415.7</b>
<b>2005</b>	7,427.8	1,026.0	2.9	767.3	-146.8	633.1	NA	<b>9,710.3</b>
<b>2006</b>	7,615.1	958.7	3.0	749.0	-148.1	646.8	NA	<b>9,824.5</b>
<b>2007</b>	7,786.5	916.6	3.0	760.6	-156.8	662.4	NA	<b>9,972.2</b>

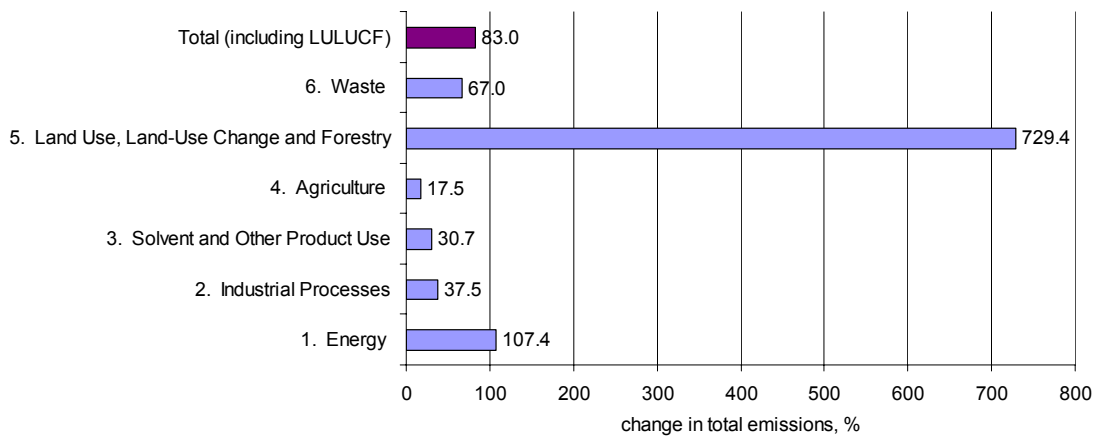


Figure 2.9. Changes in each sector compared to 1990, %

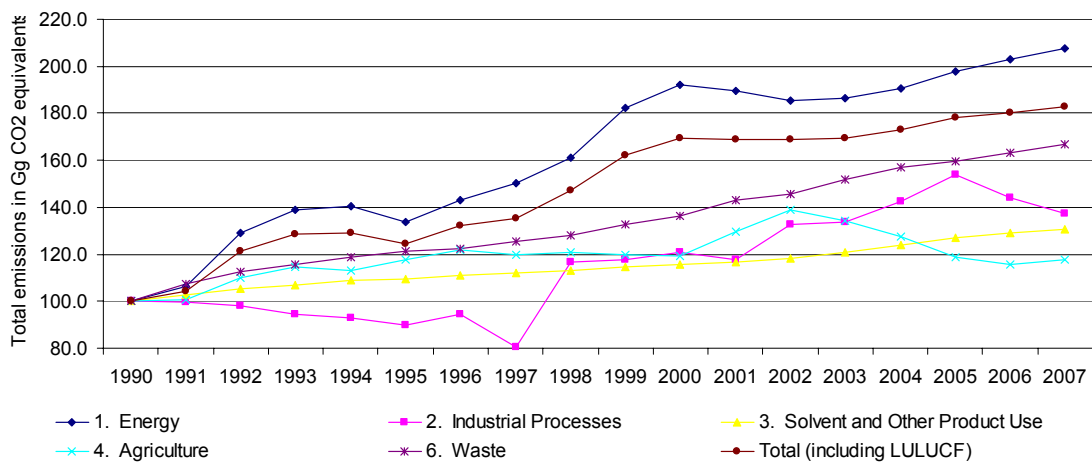


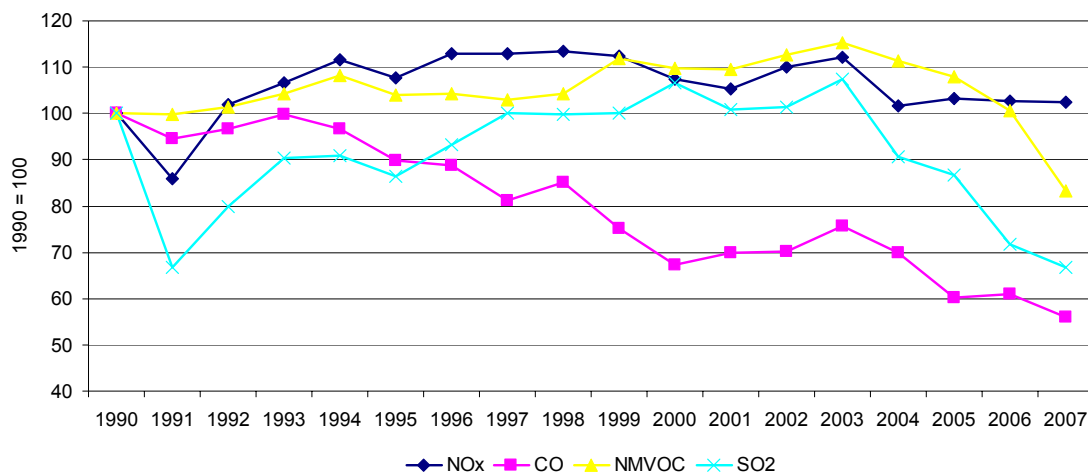
Figure 2.10. Changes in each sector between 1990 and 2007, % - LULUCF excluded

## 2.4. Emission trends for indirect greenhouse gases and sulphur dioxide – for 3(1)b

Table 2.8 shows the total indirect GHG and SO<sub>2</sub> emissions in Cyprus between 1990 – 2007. In comparison to 1990, NO<sub>x</sub> increased by 2.5 %, CO reduced by 44.1%, NMVOCs reduced by 16.6% and SO<sub>2</sub> reduced by 33.2%. the trend from 1990 to 2007 is shown in Figure 2.11.

**Table 2.8. Total indirect GHG and SO<sub>2</sub> emissions in Cyprus between 1990 –2007, Gg**

	NOx	CO	NMVOC	SO <sub>2</sub>
	Gg	Gg	Gg	Gg
1990	19.00	46.75	12.39	45.29
1991	16.33	44.25	12.36	30.18
1992	19.37	45.22	12.58	36.22
1993	20.27	46.62	12.92	40.94
1994	21.18	45.18	13.41	41.20
1995	20.43	41.98	12.88	39.17
1996	21.45	41.47	12.91	42.18
1997	21.45	37.94	12.77	45.30
1998	21.53	39.84	12.93	45.23
1999	21.36	35.10	13.88	45.37
2000	20.39	31.43	13.60	48.24
2001	20.00	32.74	13.57	45.65
2002	20.88	32.77	13.96	45.87
2003	21.29	35.39	14.28	48.63
2004	19.31	32.69	13.79	41.06
2005	19.61	28.15	13.38	39.22
2006	19.52	28.49	12.46	32.45
2007	19.48	26.16	10.33	30.26



**Figure 2.11. Changes in indirect GHG and SO<sub>2</sub> emissions in Cyprus between 1990 –2007, %**

## 2.5. Trends compared to 1990 emissions as submitted in 2008

As it shall be presented in detail in Chapter 3, and already mentioned in Section 2.3, Energy contributes 78% of the country's GHG emissions. Here, a comparison of the 2007 emissions is made to 1990 emissions submitted in 2008 submission due to: (a) the large difference that exists between the sectoral and reference approach for the emissions of the energy sector of the early years of the inventory, and especially 1990 in the current submission, and (b) the large difference observed in the trend for 1990.

Following the above, the 2007 GHG emissions is compared in **Table 2.9** with the 0 emissions estimated for the 2008 submission.

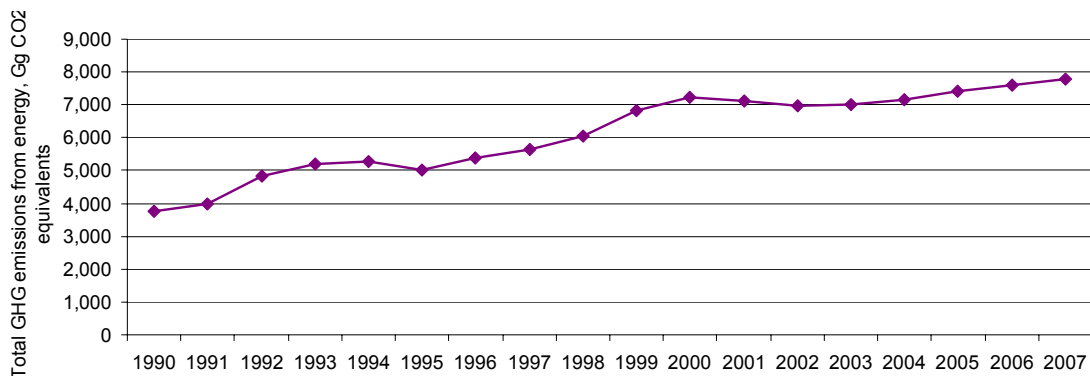
**Table 2.9. Comparison of 2007 emissions to 1990 emissions submitted in 2008 submission**

<b>Sector (Gg CO2 equivalent)</b>	<b>1990</b>	<b>2007</b>	<b>90-07 change</b>
Energy	4452.9	7786.5	74.9%
Industrial Processes	570.5	916.6	60.7%
Solvent and other product use	2.3	3.0	30.7%
Agriculture	570.6	760.6	33.3%
LULUCF	-18.9	-156.8	729.4%
Waste	433.2	662.4	52.9%
<b>TOTAL</b>	<b>6010.6</b>	<b>9972.2</b>	<b>65.9%</b>
Total without LULUCF	6029.5	10129.0	68.0%

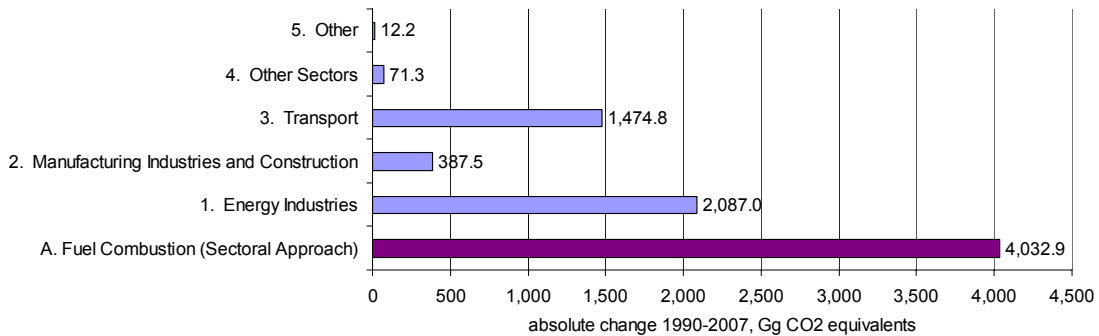
## 3. Energy (CRF sector 1)

### 3.1. Overview of sector

CRF Sector 1 Energy contributed 60% to total GHG emissions in 1990 and increased to 78% in 2007. Total GHG emissions from this sector increased by 2.2 % from 3,754 Gg in 1990 to 7,786 Gg in 2007 (**Figure 3.1**). In 2007, emissions increased by 2.2% compared to 2006. **Figure 3.2** shows that GHG emissions from road transport had the highest increase in absolute terms of all energy-related emissions between 1990 and 2007.



**Figure 3.1. GHG emissions from the energy sector and sub-sectors for 1990 to 2007, Gg CO<sub>2</sub> equivalents**



**Figure 3.2. Increase in GHG emissions between 1990-2007, Gg CO<sub>2</sub> equivalents**

The key sources of the energy sector in Cyprus are:

#### 1A. Fuel Combustion (Sectoral Approach)

##### 1A1. Energy Industries

- 1A1A. Public Electricity and Heat Production
- 1A1B. Petroleum Refining (1990-2004): the operation of the Cyprus Refinery stopped in 2004.

##### 1A2. Manufacturing Industries and Construction

- 1A2E. Food processing, beverages and tobacco



- 1A2F. Other
  - o Other
  - o Non-metallic minerals
- 1A3. Transport
  - 1A3B. Road Transport
- 1A4. Other Sectors
  - 1A4A. Commercial/ Institutional
  - 1A4B. Residential
  - 1A4C. Agriculture/ forestry/ fisheries
- 1A5. Other
  - 1A5B. Other
    - o Agricultural off-road vehicles
- 1B. Fugitive Emissions from Fuels
  - 1B2. Oil and natural gas
    - o 1B2A. Oil
      - Refining/ Storage (1990-2004): the operation of the Cyprus Refinery stopped in 2004.

## 3.2. Source categories

### 3.2.1. Fuel Combustion (1A)

Petroleum refining (1A1B) was taking place in Cyprus until 2004, when the refinery closed; thus, emissions for petroleum refining for 2005, 2006 and 2007 have been replaced by the symbol NO (not occurring).

The only industrial activity (1A2) accounted for in the GHG inventory of Cyprus is Food processing, beverages and tobacco (1A2E), cement and lime production (1A2F, under non-metallic minerals) and ceramics (1A2F, under other).

Only road transport (1A3B) exists in Cyprus and therefore being accounted in the transport sector (1A3).

Due to data availability, this year the emissions for 1A5B, Agricultural off-road vehicles have been estimated.

**Table 3.1** shows the differences between 1990 to 2007 emissions for the fuel combustion source categories.

**Table 3.1. Differences between 1990 to 2007 and 2006 to 2007 emissions for the fuel combustion source categories**

	1990	2006	2007	90-07 (%)	06-07 (%)
<b>A. Fuel Combustion (Sectoral Approach)</b>	<b>3,753.6</b>	<b>7,615.1</b>	<b>7,786.5</b>	<b>113.4</b>	<b>4.0</b>
A1. Energy Industries	1,841.1	3,775.3	3,928.1	46.8	-5.5
A2. Manufacturing Industries and Construction	827.7	1,285.5	1,215.2	188.1	6.8
A3. Transport	784.2	2,115.1	2,259.0	25.2	-13.7
A4. Other Sectors	283.1	410.7	354.4	70.3	3.7
A5. Other	17.4	28.6	29.6	107.4	2.2

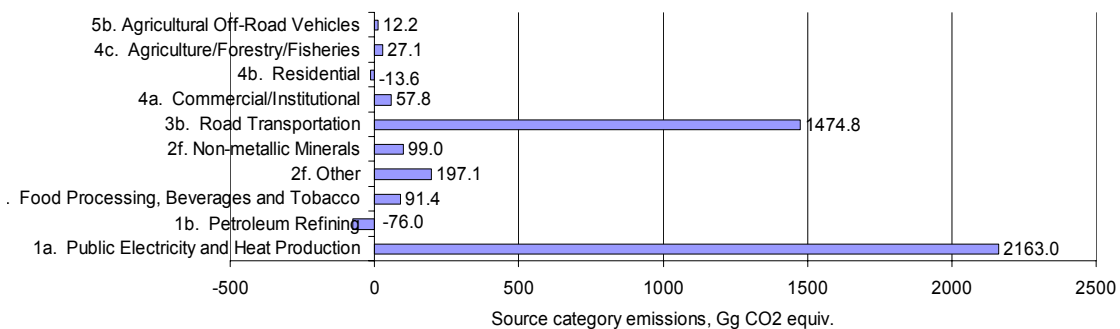
The changes in GHG emissions from category of Other Sectors (1A4), consisting of Commercial/Institutional (4a), Residential (4b) and Agriculture/ Forestry/ Fisheries (4c) are shown in **Table 3.2**, while **Figure 3.3** shows the difference between 1990 and

2007, in total emissions and the sources of the emissions. **Figure 3.4** shows the contribution of the energy sector to the total emissions of Cyprus for 1990-2007.

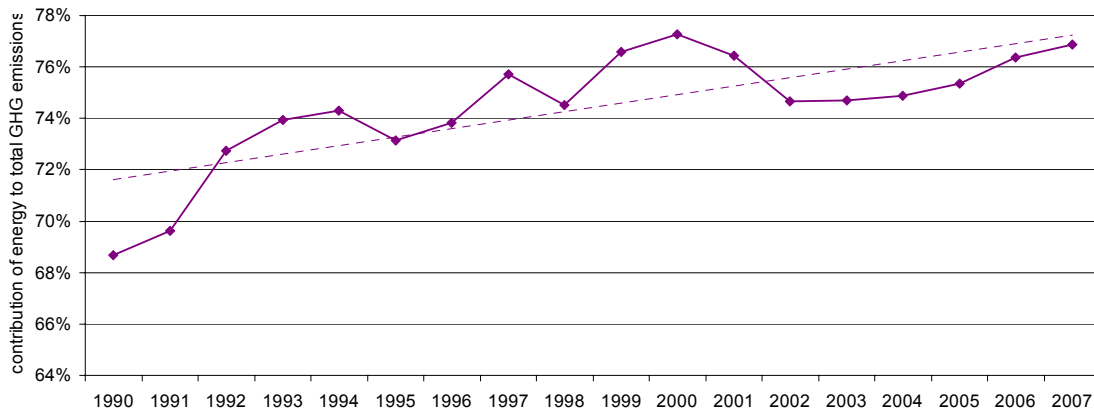
**Table 3.2. Differences between 1990 to 2007 and 2006 to 2007 emissions for the source categories of other sectors (Gg CO2 equiv.)**

	1990	2006	2007	90-07 (%)	06-07 (%)
<b>4. Other Sectors</b>	<b>283.1</b>	<b>410.7</b>	<b>354.4</b>	<b>70.3%</b>	<b>3.7%</b>
a. Commercial/Institutional	27.3	106.9	85.1	211.4%	-20.4%
b. Residential	223.5	239.2	210.0	-6.1%	-12.2%
c. Agriculture/ Forestry/ Fisheries	32.3	64.6	59.4	83.9%	-8.1%

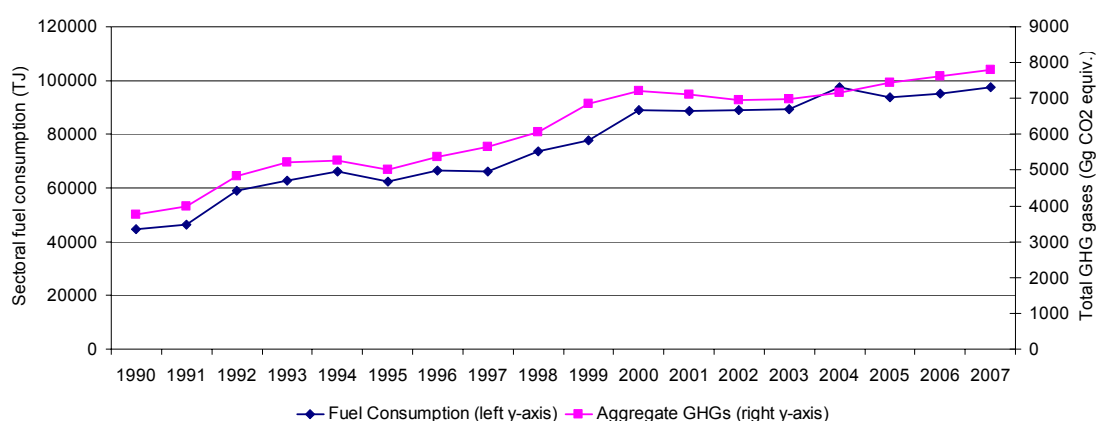
**Figure 3.3. Difference between 1990 and 2007, in total emissions and the sources of the emissions, Gg CO2 equiv.**



**Figure 3.4. Contribution of the energy sector to the total emissions of Cyprus for 1990-2007**



The relation between the total energy consumption of the sector of energy in relation to the total GHG emissions is shown in **Figure 3.5**.



**Figure 3.5. Correlation between energy consumption (TJ) and total GHG emissions 1990-2007 (Gg CO2 equiv.)**

### 3.3. Memo items - International Bunkers (1C)

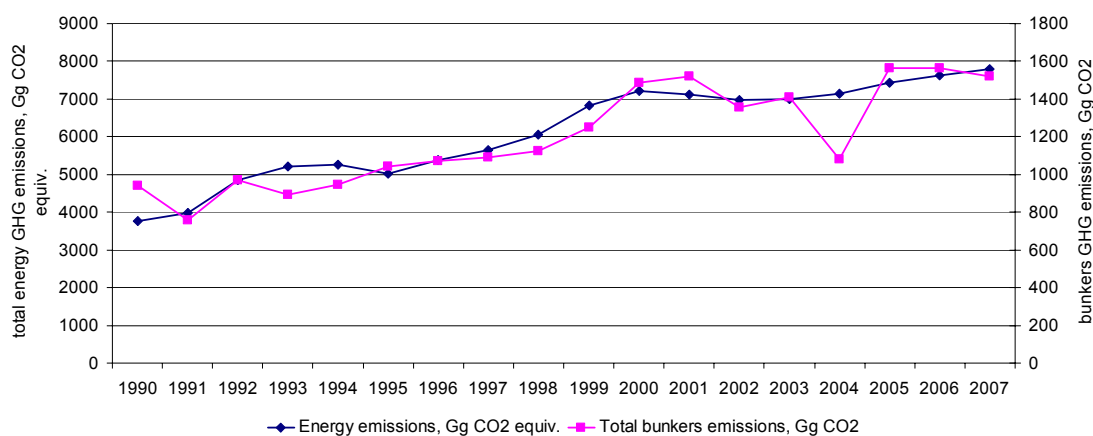
**Figure 3.6** shows the relation between the memo items and the energy sector emissions, while **Figure 3.7** compares the trend of the total GHG emissions to the emissions from international bunkers. The emissions changes between 1990-2007 and 2006-2007 are shown in **Table 3.3**.

Emissions of memo items correspond to 15% of the total emissions for 2007 (without LULUCF), compared to 17% in 1990. Compared to 1990 memo items emissions increased by 61% (577 Gg). Aviation emissions increased by 18% (135 Gg) between 1990 and 2007, while during the same time marine emissions increased by 217% (410 Gg).

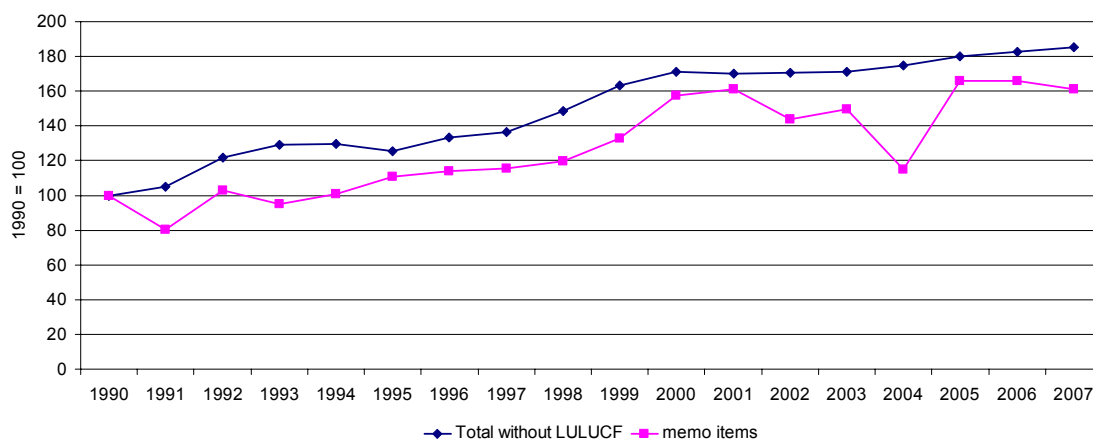
Emissions from aviation increased by

**Table 3.3. Emissions changes between 1990-2007 and 2006-2007 for bunkers, Gg CO2 equiv.**

	Aviation (Gg)	Marine (Gg)	CO <sub>2</sub> Emissions from Biomass (Gg)	TOTAL (Gg)
1990	753.2	189.3	NA	942.5
1991	582.1	176.9	NA	759.0
1992	788.6	183.0	NA	971.6
1993	738.9	155.9	NA	894.8
1994	756.8	191.4	NA	948.2
1995	829.6	214.9	NA	1044.5
1996	795.1	277.6	NA	1072.6
1997	783.4	306.2	NA	1089.6
1998	808.8	317.4	NA	1126.2
1999	757.4	492.5	NA	1250.0
2000	861.4	618.5	4.4	1484.4
2001	899.8	612.1	7.8	1519.8
2002	905.6	441.0	10.0	1356.7
2003	994.1	393.6	23.2	1411.0
2004	911.8	157.1	13.9	1082.8
2005	901.1	650.2	12.1	1563.4
2006	914.3	634.2	16.5	1565.0
2007	888.4	599.7	31.3	1519.4



**Figure 3.6. Total GHG emissions from bunkers and energy sector, Gg CO<sub>2</sub> equiv.**



**Figure 3.7. Comparison of relative GHG emissions from bunkers and relative total GHG emissions without LULUCF 1990-2007, 1990 = 100**

### 3.4. Methodological Issues – for 3(1)f

This sector presented the activity data and emission factors used for the preparation of the inventory 1990-2007. Changes from previously submitted data is presented in the next section (3.5)

#### 3.4.1. Activity data

**Table 3.4** presents the activity data used for the estimation of GHG emissions from the sector of Energy.

**Table 3.4. Activity data used for the estimation of GHG emissions from the sector of Energy, TJ**

		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
<b>1A Fuel combustion</b>	Liquid	43,368.9	45,582.1	57,539.4	60,583.6	5,103.3	61,533.7	65,317.5	65,399.5	72,873.6	76,926.5	87,419.3	87,056.9	87,375.7	87,471.7	95,727.6	92,132.1	93,345.8	95,595.6
	Solid	1,279.3	643.1	1,305.1	2,093.8	1,090.3	716.9	1,104.2	795.5	731.1	878.9	1,428.3	1,508.8	1,516.3	1,534.3	1,641.9	1,498.9	1,591.1	1,402.5
	Biomass	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	40.4	70.6	90.6	211.2	126.2	117.1	159.2	302.7
	Other*	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	18.3	NA,NO	15.0	71.3	137.9	73.3	114.4
1A1 Energy Industries	Liquid	22,951.7	23,842.1	27,652.8	29,469.2	30,857.1	28,444.2	29,952.6	31,706.7	34,767.6	36,792.7	38,487.7	37,556.2	38,898.3	41,751.1	42,896.8	45,356.3	46,610.9	48,342.3
1A1A. Public Electricity and Heat Production	Liquid	21,912.2	22,726.6	26,590.1	28,320.9	29,538.9	27,163.4	28,739.7	30,369.6	33,379.3	35,613.0	37,314.5	36,400.3	37,812.0	40,780.9	42,617.9	45,356.3	46,610.9	48,342.3
1A1B. Petroleum Refining (1990-2004)	Liquid	1,039.5	1,115.5	1,062.8	1,148.3	1,318.2	1,280.8	1,212.9	1,337.1	1,388.3	1,179.7	1,173.3	1,155.9	1,086.3	970.2	278.9	NO	NO	NO
<b>1A2. Manufacturing Industries and Construction</b>	Liquid	5,999.9	6,427.4	10,398.6	11,002.1	12,843.1	11,604.5	12,566.7	11,657.2	14,792.4	16,051.8	23,500.6	24,144.5	23,701.2	21,088.1	19,960.1	12,503.7	12,189.4	11,485.8
	Solid	1,279.3	643.1	1,305.1	2,093.8	1,090.3	716.9	1,104.2	795.5	731.1	878.9	1,428.3	1,508.8	1,516.3	1,534.3	1,641.9	1,498.9	1,591.1	1,402.5
	Biomass	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	40.4	70.6	90.6	211.2	126.2	38.7	61.5	99.7
	Other*	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	18.3	NA,NO	15.0	71.3	137.9	73.3	114.4
1A2E. Food processing, beverages and tobacco	Liquid	633.5	681.1	821.7	835.0	949.2	902.4	947.2	994.0	1,049.1	1,087.0	1,152.6	1,126.6	1,083.3	990.4	1,927.2	2,571.0	2,272.7	1,862.8
1A2F. Other	Liquid	5,366.4	5,746.2	9,576.9	10,167.0	11,893.9	10,702.1	11,619.5	10,663.3	13,743.3	14,964.8	22,348.0	23,017.9	22,617.9	20,097.8	18,032.9	9,932.7	9,916.7	9,623.0
	Solid	1,279.3	643.1	1,305.1	2,093.8	1,090.3	716.9	1,104.2	795.5	731.1	878.9	1,428.3	1,508.8	1,516.3	1,534.3	1,641.9	1,498.9	1,591.1	1,402.5
	Biomass	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	40.4	70.6	90.6	211.2	126.2	38.7	61.5	99.7
	Other	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	18.3	NA	15.0	71.3	137.9	73.3	114.4
- Other	Liquid	3.0	1,013.0	4,032.9	4,946.9	6,356.0	5,214.3	5,085.0	4,841.6	8,318.4	9,720.5	16,946.9	17,771.6	17,501.0	14,944.3	12,574.1	4,220.9	4,388.8	3,837.8
- Non-metallic minerals	Liquid	6,642.7	5,376.2	6,849.1	7,313.9	6,628.2	6,204.6	7,638.7	6,617.2	6,156.0	6,123.2	6,869.9	6,843.9	6,723.9	6,913.9	7,298.1	7,387.2	7,253.7	7,401.8
	Solid	1,279.3	643.1	1,305.1	2,093.8	1,090.3	716.9	1,104.2	795.5	731.1	878.9	1,428.3	1,508.8	1,516.3	1,534.3	1,641.9	1,498.9	1,591.1	1,402.5
	Biomass	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	40.4	70.6	90.6	211.2	126.2	38.7	61.5	99.7
	Other	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	18.3	NA	15.0	71.3	137.9	73.3	114.4
1A3. Transport	Liquid	10,383.3	10,974.8	14,255.4	14,794.5	15,358.1	15,737.9	16,766.0	15,705.6	16,632.5	17,159.3	17,484.2	17,643.5	17,366.8	18,325.2	26,098.5	28,525.8	28,635.4	30,607.9
1A3B. Road Transport	Gasoline	1,715.0	1,654.0	3,011.7	3,367.8	2,368.9	3,388.9	3,804.4	2,103.9	2,276.5	2,284.2	2,318.7	2,891.4	3,132.9	4,772.4	10,695.3	13,439.9	14,217.6	15,488.3
	Diesel Oil	8,668.3	9,320.8	11,243.7	11,426.7	12,989.2	12,349.0	12,961.6	13,601.7	14,356.1	14,875.1	15,165.5	14,752.1	14,233.9	13,552.8	15,403.2	15,085.9	14,417.7	15,119.6
1A4. Other Sectors	Liquid	3,800.7	4,086.8	4,929.9	5,010.2	5,695.3	5,414.6	5,683.2	5,963.8	6,294.6	6,522.2	7,279.4	7,062.8	6,781.1	5,942.4	6,383.6	5,359.8	5,526.6	4,762.1
	Biomass	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	78.5	97.7	203.1
1A4A. Commercial/Institutional	Liquid	366.7	394.3	475.7	483.4	549.5	522.5	548.4	575.5	607.4	629.3	667.3	650.0	628.3	573.4	2,403.1	1,597.8	1,457.1	1,163.7
1A4B. Residential	Liquid	3,000.6	3,226.4	3,892.0	3,955.4	4,496.3	4,274.7	4,486.7	4,708.3	4,969.4	5,149.1	5,459.6	5,286.3	5,069.6	4,691.3	3,202.9	2,989.4	3,202.9	2,801.4
1A4C. Agriculture/forestry/ fisheries	Liquid	433.4	466.0	562.2	571.3	649.5	617.5	648.1	680.1	717.8	743.8	1,152.6	1,126.6	1,083.3	677.6	777.5	772.7	866.6	797.0
	Biomass	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	4.3	4.5	1.3
1A5. Other	Liquid	233.4	250.9	302.7	307.6	349.7	332.5	349.0	366.2	386.5	400.5	667.3	650.0	628.3	364.9	388.8	386.3	383.5	397.6
1A5B. Other - Agricultural off-road vehicles	Liquid	233.4	250.9	302.7	307.6	349.7	332.5	349.0	366.2	386.5	400.5	667.3	650.0	628.3	364.9	388.8	386.3	383.5	397.6

\* Tires

### 3.4.2. Emission factors

The main source of the emission factors is the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. In **Table 3.5** the emission factors for the estimation of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O are presented.

The emissions of NO<sub>x</sub>, CO, NMVOC and SO<sub>2</sub> submitted, are as reported by the competent authority on LRTAP informative inventory report of Cyprus in the 2007 National Emission Inventory (Department of Labour Inspection, Ministry of Labour And Social Insurance). The main source of the emission factors for the estimation of secondary GHG gases is the CORINAIR Emission Inventory Guidebook.

The emission factors have been applied for the estimation of GHG emissions for 1990-2007, submitted in the current.

**Table 3.5. Emission factors for the estimation of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O for the sector of Energy, including fugitive emissions (1B) and memo items (1C)**

	Fuel	CO <sub>2</sub>	Source	CH <sub>4</sub>	Source	N <sub>2</sub> O	Source
<b>1A FUEL COMBUSTION</b>							
<b>1A1 Energy Industries</b>							
1A1A. Public Electricity and Heat Production	HFO	3.160 tCO <sub>2</sub> /t	Average EF reported in ETS reports 2005-2007	5 kgCH <sub>4</sub> / TJ	CORINAIR	8.1 kgN <sub>2</sub> O/ TJ	CORINAIR
	Diesel	3.101 tCO <sub>2</sub> /t	Average EF reported in ETS reports 2005-2007				
1A1B. Petroleum Refining	Crude oil refined	0.07086 Gg CO <sub>2</sub> /TJ	crf tables 1990-1998			0.007203 tN <sub>2</sub> O/ TJ	crf tables 1990-1998
<b>1A2. Manufacturing Industries and Construction</b>							
1A2E. Food processing, beverages and tobacco	Diesel	74.1 tCO <sub>2</sub> /TJ	2006 IPPC guidelines	0.003 tCH <sub>4</sub> /TJ	2006 IPPC guidelines	0.0006 tN <sub>2</sub> O/TJ	2006 IPPC guidelines
	Biomass	100 tCO <sub>2</sub> /TJ	2006 IPPC guidelines	0.3 tCH <sub>4</sub> /TJ	2006 IPPC guidelines	0.004 tN <sub>2</sub> O/TJ	2006 IPPC guidelines
1A2F. Other							
- Other	RFO	77.4 tCO <sub>2</sub> /TJ	2006 IPPC guidelines	0.003 tCH <sub>4</sub> /TJ	2006 IPPC guidelines	0.0006 tN <sub>2</sub> O/TJ	2006 IPPC guidelines
	LPG	63.1 tCO <sub>2</sub> /TJ	2006 IPPC guidelines	0.001 tCH <sub>4</sub> /TJ	2006 IPPC guidelines	0.0001 tN <sub>2</sub> O/TJ	2006 IPPC guidelines
- Non-metallic minerals	PetCoke	92.63 tCO <sub>2</sub> /TJ	Average EF reported in ETS reports 2005-2007, cement prod. Installation I	1 kgCH <sub>4</sub> /TJ	2006 IPPC guidelines	0.004 tN <sub>2</sub> O/TJ	2006 IPPC guidelines
	PetCoke	92.43 tCO <sub>2</sub> /TJ	Average EF reported in ETS reports 2005-2007, cement prod. Installation II				
	RFO	77.4 tCO <sub>2</sub> /TJ	Average EF reported in ETS reports 2005-2007 (cement), 2006 IPPC guidelines (lime)				
		76.38 tCO <sub>2</sub> /TJ	Average EF reported in ETS reports 2005-2007 (ceramics)				
	Coal	87.954 tCO <sub>2</sub> /TJ	Average EF reported in ETS reports 2005-2007				

	Fuel	CO <sub>2</sub>	Source	CH <sub>4</sub>	Source	N <sub>2</sub> O	Source
	Biomass	110 t/TJ	Average EF reported in ETS reports 2005-2007	0.3 tCH <sub>4</sub> /TJ	2006 IPPC guidelines	0.004 tN <sub>2</sub> O/TJ	2006 IPPC guidelines
	Other	85 t/TJ	Average EF reported in ETS reports 2005-2007	0.3 tCH <sub>4</sub> /TJ	2006 IPPC guidelines	0.004 tN <sub>2</sub> O/TJ	2006 IPPC guidelines
<b>1A3. Transport</b>							
1A3B. Road Transport	Gasoline, catalytic	69.3 t/TJ	2006 IPPC guidelines	0.025 tCH <sub>4</sub> /TJ	2006 IPPC guidelines	0.008 tN <sub>2</sub> O/TJ	2006 IPPC guidelines
	Gasoline, non-catalytic			0.033 tCH <sub>4</sub> /TJ	2006 IPPC guidelines	0.0032 tN <sub>2</sub> O/TJ	2006 IPPC guidelines
	Diesel	74.1 t/TJ	2006 IPPC guidelines	0.0039 tCH <sub>4</sub> /TJ	2006 IPPC guidelines	0.0039 tN <sub>2</sub> O/TJ	2006 IPPC guidelines
<b>1A4. Other Sectors</b>							
1A4A. Commercial/ Institutional	Diesel	74.1 t/TJ	2006 IPPC guidelines	0.001 tCH <sub>4</sub> /TJ	2006 IPPC guidelines	0.0006 tN <sub>2</sub> O/TJ	2006 IPPC guidelines
	Kerosene	71.9 t/TJ	2006 IPPC guidelines	0.001 tCH <sub>4</sub> /TJ	2006 IPPC guidelines	0.0006 tN <sub>2</sub> O/TJ	2006 IPPC guidelines
1A4B. Residential	Diesel	74.1 t/TJ	2006 IPPC guidelines	0.001 tCH <sub>4</sub> /TJ	2006 IPPC guidelines	0.0006 tN <sub>2</sub> O/TJ	2006 IPPC guidelines
	Biomass	100 t/TJ	2006 IPPC guidelines	0.3 tCH <sub>4</sub> /TJ	2006 IPPC guidelines	0.004 tN <sub>2</sub> O/TJ	2006 IPPC guidelines
1A4C. Agriculture/ forestry/ fisheries	Diesel	74.1 t/TJ	2006 IPPC guidelines	0.01 tCH <sub>4</sub> /TJ	2006 IPPC guidelines	0.0006 tN <sub>2</sub> O/TJ	2006 IPPC guidelines
	Biomass	100 t/TJ	2006 IPPC guidelines	0.3 tCH <sub>4</sub> /TJ	2006 IPPC guidelines	0.004 tN <sub>2</sub> O/TJ	2006 IPPC guidelines
<b>1A5. Other</b>							
1A5B. Other /Agricultural off-road vehicles	Diesel	74.1 t/TJ	2006 IPPC guidelines	0.01 tCH <sub>4</sub> /TJ	2006 IPPC guidelines	0.0006 tN <sub>2</sub> O/TJ	2006 IPPC guidelines
<b>1B. FUGITIVE EMISSIONS FROM FUEL</b>							
1B2A. Oil							
1B2A4. Refining/ Storage	Crude oil refined			0.039309 kgCH <sub>4</sub> /TJ	crf tables 1990-1998		
<b>1C. MEMO ITEMS</b>							
1C1. International Bunkers							
1C1A. Aviation	Jet Kerosene	70.8 t/TJ	2006 IPPC guidelines	0.01 tCH <sub>4</sub> /TJ	2006 IPPC guidelines	0.0019 tN <sub>2</sub> O/TJ	2006 IPPC guidelines
1C1B. Marine	Gas/ Diesel Oil	73.3 t/TJ	2006 IPPC guidelines	0.01 tCH <sub>4</sub> /TJ	2006 IPPC guidelines	0.0019 tN <sub>2</sub> O/TJ	2006 IPPC guidelines
	Jet Kerosene	70.8 t/TJ	2006 IPPC guidelines	0.01 tCH <sub>4</sub> /TJ	2006 IPPC guidelines	0.0019 tN <sub>2</sub> O/TJ	2006 IPPC guidelines

### 3.5. Explanations and justifications for recalculations – for 3(1)f

Recalculations have been performed due to changes in the EF used and the activity data. The changes between the 2008 and the 2009 submission in the activity data and the respective GHG emissions and secondary GHG emissions are presented in **Table 3.6**.

### 3.6. Changes in previously submitted data – for 3(1)e

*It should be noted that the recalculations are not available in the xml file submitted due to issues associated with the recalculation database of CRF-reporter software.*

**Table 3.6. Activity data and GHG emissions for the sector of Energy as submitted in 2009 and 2008, the top row in each parameter is the 2008 submission and the row below the 2009 submission**

Unit	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
<b>1AA FUEL COMBUSTION - SECTORAL</b>																		
<b>1AA1 ENERGY INDUSTRIES</b>																		
<b>1AA1A PUBLIC ELECTRICITY &amp; HEAT PRODUCTION</b>																		
<b>LIQUID</b>																		
Fuel Consumption	TJ	21719.5	22526.8	26296.9	28052.3	29267.4	26931.7	28492.1	30107.5	33095.7	35709.3	37422.9	36539.5	42071.2	44995.0	48009.7	45356.3	46610.9
		22951.7	23842.1	27652.8	29469.2	30857.1	28444.2	29952.6	31706.7	34767.6	36792.7	38487.7	37556.2	38898.3	41751.1	42896.8	45356.3	46610.9
CO2	Gg	1663.7	1725.6	2013.1	2148.4	2241.6	2061.8	2181.7	2305.4	2533.5	2733.5	2864.7	2797.1	3220.6	3444.4	3675.1	3471.8	3653.4
		1781.5	1850.3	2145.2	2287.8	2395.1	2205.9	2324.4	2460.3	2697.1	2854.2	2986.9	2918.0	3023.6	3245.9	3339.3	3471.8	3653.4
CH4	Gg	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
		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
N2O	Gg	1.0	1.1	1.2	1.3	1.4	1.2	1.3	1.4	1.5	1.6	1.7	1.7	1.9	2.1	2.2	2.1	2.1
		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4
<b>1AA1B PETROLEUM REFINING</b>																		
<b>LIQUID</b>																		
Fuel Consumption	TJ	1039.46	1115.51	1062.75	1148.25	1318.16	1280.8	1212.93	1337.09	1388.3	1576.32	1555.43	1566.48	1621.46	NA	444.414	NA	NA
		1039.46	1115.51	1062.75	1148.25	1318.16	1280.8	1212.93	1337.09	1388.3	1179.68	1173.26	1155.9	1086.3	970.201	278.87	NA,NO	NA,NO
CO2	Gg	73.25	78.79	75.06	81.31	93.34	91.64	86.76	94.47	98.09	111.367	109.891	110.672	114.556	NA	31.3978	NA	NA
		73.6559	79.0448	75.3062	81.3648	93.4045	90.7572	85.948	94.7459	98.3747	83.592	83.1372	81.907	76.9748	68.7482	19.7607	NA,NO	NA,NO
CH4	Gg																	
		NA,NE	NA,NE	NA,NE	NA,NE	NA,NE	NA,NE	NA,NE	NA,NE	NA,NE	NA,NE	NA,NE	NA,NE	NA,NE	NA	NA,NE	NA,NO	NA,NO
N2O	Gg	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01135	0.0112	0.01128	0.01167	NA	0.0032	NA	NA
		0.00749	0.00804	0.00766	0.00827	0.00949	0.00923	0.00874	0.00963	0.01	0.0085	0.00845	0.00833	0.00782	0.00699	0.00201	NA,NO	NA,NO
NOx	Gg	0.13	0.14	0.14	0.15	0.17	0.18	0.17	0.17	0.18	0.22	0.21	0.2	0.17	NE	0.04	NE	NE
		0.13	0.14	0.14	0.14	0.17	0.16	0.15	0.16	0.16	0.19	0.21	0.2	0.17	0.08	0.04	NO	NO
CO	Gg	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.02	0.02		NE	NE	NE	NE	NE	NE	NE
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NMVO	Gg	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.71	0.69	0.73	0.68	NE	0.25	NE	NE
		0.41	0.49	0.46	0.5	0.57	0.53	0.49	0.67	0.53	0.75	0.69	0.73	0.68	0.73	0.25	NO	NO
SO2	Gg	1.08	1.18	1.13	1.24	1.43	1.49	1.41	1.42	1.48	0.95	0.66	0.98	1.06	NE	0.32	NE	NE
		0.59	0.6	0.62	0.62	0.75	0.7	0.66	0.72	0.7	0.85	0.66	0.98	1.06	0.72	0.32	NO	NO
<b>1AA2 MANUFACTURING INDUSTRIES AND CONSTRUCTION</b>																		
<b>1AA2C CHEMICALS</b>																		
<b>LIQUID</b>																		
Fuel Consumption	TJ	143.94	132.09	145.38	148.91	143.55	150.67	152.33	152.35	157.29	72.87	62.37	59.16	77.30	NE,NO	39.34	79.11	85.42
		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO2	Gg	10.73	9.82	10.79	11.05	10.64	11.15	11.27	11.25	11.61	5.38	4.61	4.37	5.71	NE,NO	2.90	5.84	6.31
		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
CH4	Gg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NE,NO	0.00	0.00	0.00
		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
N2O	Gg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NE,NO	0.00	0.00	0.00
		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
NOx	Gg	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	NE	NE	NE	NE	NE	NE	NE	NE
		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO	Gg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NE	NE	NE	NE	NE	NE	NE	NE
		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
NMVO	Gg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NE	NE	NE	NE	NE	NE	NE	NE
		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
SO2	Gg	0.16	0.14	0.15	0.15	0.13	0.14	0.13	0.13	0.13	NE	NE	NE	NE	NE	NE	NE	NE
		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO



Unit	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
<b>1AA2D PULP PAPER &amp; PRINT</b>																			
LIQUID																			
Fuel Consumption	TJ	307.91	298.03	340.71	358.79	359.45	385.83	398.17	412.25	432.23	59.17	98.62	99.16	58.11	NE,NO	47.65	58.76	66.78	
		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO2	Gg	22.74	21.98	25.10	26.42	26.45	28.38	29.28	30.29	31.75	4.35	7.25	7.28	4.27	NE,NO	3.50	4.32	4.91	NO
		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
CH4	Gg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NE,NO	0.00	0.00	0.00	NO
		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
N2O	Gg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NE,NO	0.00	0.00	0.00	NO
		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
NOx	Gg	0.04	0.03	0.04	0.04	0.04	0.04	0.04	0.05	0.05	NE	NE	NE	NE	NE	NE	NE	NE	NO
		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
CO	Gg	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	NE	NE	NE	NE	NE	NE	NE	NE	NO
		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
NM VOC	Gg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	NE	NE	NE	NE	NE	NE	NE	NE	NE	NO
		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
SO2	Gg	0.23	0.21	0.23	0.24	0.23	0.24	0.24	0.24	0.25	NE	NE	NE	NE	NE	NE	NE	NE	NO
		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
<b>1AA2E FOOD PROCESSING &amp; BEVERAGES</b>																			
LIQUID																			
Fuel Consumption	TJ	2320.95	2097.55	2288.82	2331.57	2211.27	2306.09	2314.92	2292.85	2355.53	1285.82	1649.93	1815.19	2243.8	1714.03	1683.73	556.866	574.328	
		633.451	681.139	821.654	835.028	949.212	902.427	947.195	993.967	1049.1	1087.03	1152.58	1126.58	1083.25	990.394	1927.19	2571.03	2272.7	1862.8
CO2	Gg	173.845	156.696	170.651	173.756	164.526	171.427	171.907	169.954	174.542	95.2796	122.26	134.505	166.265	127.009	124.764	41.2638	42.5577	
		46.9387	50.4724	60.8846	61.8756	70.3366	66.8699	70.1871	73.6529	77.7381	80.5487	85.406	83.4796	80.2688	73.3882	142.805	190.513	168.407	138.033
CH4	Gg	0.00453	0.00384	0.00397	0.00391	0.00349	0.0035	0.00338	0.00311	0.0031	0.0017	0.00218	0.0024	0.00296	0.00226	0.00222	0.00074	0.00076	
		0.0019	0.00204	0.00246	0.00251	0.00285	0.00271	0.00284	0.00298	0.00315	0.00326	0.00346	0.00338	0.00325	0.00297	0.00578	0.00771	0.00682	0.00559
N2O	Gg	0.00135	0.00122	0.00133	0.00136	0.00129	0.00134	0.00135	0.00134	0.00137	0.00075	0.00096	0.00105	0.0013	0.00099	0.00098	0.00032	0.00033	
		0.00038	0.00041	0.00049	0.0005	0.00057	0.00054	0.00057	0.0006	0.00063	0.00065	0.00069	0.00068	0.00065	0.00059	0.00116	0.00154	0.00136	0.00112
NOx	Gg	0.34508	0.3041	0.32529	0.32743	0.30434	0.3134	0.31065	0.30069	0.30618	NE	NE	NE	NE	NE	NE	NE	NE	IE
		IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
CO	Gg	0.04739	0.04959	0.04779	0.04862	0.04713	0.04901	0.04936	0.04948	0.05086	NE	NE	NE	NE	NE	NE	NE	NE	IE
		IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
NM VOC	Gg	0.01937	0.01708	0.01823	0.0183	0.01702	0.01749	0.01732	0.01674	0.01702	NE	NE	NE	NE	NE	NE	NE	NE	IE
		IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
SO2	Gg	2.81423	2.412	2.51898	2.50461	2.27885	2.31166	2.25583	2.11679	2.13339	NE	NE	NE	NE	NE	NE	NE	NE	IE
		IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
<b>1AA2F OTHER</b>																			
MACHINERY																			
LIQUID																			
NOx	Gg	0.05885	0.05271	0.05668	0.05619	0.05273	0.05415	0.05382	0.05212	0.0526	NE	NE	NE	NE	NE	NE	NE	NE	NE
		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
CO	Gg	0.00644	0.00594	0.00651	0.0065	0.00623	0.00646	0.00651	0.00643	0.00653	NE	NE	NE	NE	NE	NE	NE	NE	NE
		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
NM VOC	Gg	0.00331	0.00296	0.00319	0.00315	0.00295	0.00302	0.003	0.0029	0.00292	NE	NE	NE	NE	NE	NE	NE	NE	NE
		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
SO2	Gg	0.41993	0.35972	0.37551	0.37325	0.33942	0.34418	0.33575	0.31483	0.3172	NE	NE	NE	NE	NE	NE	NE	NE	NE
		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
OTHER																			
NOx	Gg	0.006	0.006	3.003	0.007	0.008	0.008	0.009	0.009	0.009	NE	NE	NE	NE	NE	NE	NE	NE	NE
		3.299	2.933	3.398	3.455	3.572	3.450	3.987	3.636	3.450	3.485	1.940	1.931	1.897	1.950	2.058	2.087	1.990	1.954
CO	Gg	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	NE	NE	NE	NE	NE	NE	NE	NE	NE
		0.521	0.460	0.535	0.565	0.578	0.564	0.649	0.608	0.564	0.594	0.438	0.504	0.501	0.697	0.679	0.657	0.581	0.682
NM VOC	Gg	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	NE	NE	NE	NE	NE	NE	NE	NE	NE

	Unit	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
SO2	Gg	0.081 0.026 3.333	0.072 0.026 2.939	0.083 0.031 3.427	0.097 0.033 3.463	0.096 0.034 3.602	0.091 0.037 3.544	0.101 0.039 4.137	0.099 0.041 3.821	0.091 0.043 3.544	0.103 0.043 3.613	0.108 0.043 3.868	0.110 0.043 3.809	0.109 0.043 3.738	0.113 0.043 3.781	0.119 0.043 4.008	0.120 0.043 4.141	0.115 0.043 3.922	0.113 0.043 3.840
<b>LIQUID</b>																			
Fuel Consumption	TJ	8367.60 3.03	8652.54 1013.03	8436.58 4032.94	9156.49 4946.91	8795.03 6355.96	9425.79 5214.29	##### 5084.96	9666.06 4841.60	9905.18 8318.36	5028.95 9720.47	6991.81 #####	7196.72 #####	6361.95 #####	7215.59 #####	6255.85 #####	7215.59 4220.91	NA 4388.80	3837.81
CO2	Gg	489.97 63.96	573.17 300.26	548.03 366.60	593.92 477.29	556.29 392.87	642.37 378.84	728.00 359.39	646.55 631.90	623.02 740.26	316.32 1302.78	439.78 1361.75	452.67 1341.25	400.17 1143.95	534.68 956.26	393.49 313.88	730.26 291.30	722.26 303.64	260.69
CH4	Gg	0.03 0.00	0.03 0.01	0.03 0.01	0.04 0.02	0.03 0.02	0.04 0.01	0.05 0.01	0.04 0.02	0.04 0.03	0.02 0.05	0.03 0.05	0.03 0.05	0.03 0.04	0.01 0.04	0.03 0.01	0.01 0.01	0.01 0.01	0.01 0.01
N2O	Gg	0.06 0.00	0.07 0.00	0.07 0.00	0.07 0.00	0.07 0.00	0.08 0.00	0.09 0.00	0.08 0.01	0.07 0.01	0.08 0.01	0.05 0.01	0.05 0.01	0.05 0.01	0.05 0.01	0.00 0.00	0.05 0.00	0.00 0.00	0.00 0.00
<b>SOLID</b>																			
Fuel Consumption	TJ	786.793 NO	395.495 NO	802.655 NO	1287.73 NO	670.557 NO	440.892 NO	679.106 NO	489.251 NO	489.251 NO	NA NO	IE NO	IE NO	IE NO	IE NO	IE NO	IE NO	IE NO	IE NO
CO2	Gg	72.942 NO	36.67 NO	74.41 NO	119.38 NO	62.17 NO	40.87 NO	62.96 NO	45.36 NO	45.36 NO	NA NO	IE NO	IE NO	IE NO	IE NO	IE NO	IE NO	IE NO	IE NO
CH4	Gg	0.00629 NO	0.01 NO	0.01 NO	0.01 NO	0.00629 NO	0.01 NO	0.01 NO	0.01 NO	0.01 NO	NA NO	IE NO	IE NO	IE NO	IE NO	IE NO	IE NO	IE NO	IE NO
N2O	Gg	0.00944 NO	0.01 NO	0.02 NO	0.01 NO	0.01 NO	0.01 NO	0.01 NO	0.01 NO	0.01 NO	NA NO	IE NO	IE NO	IE NO	IE NO	IE NO	IE NO	IE NO	IE NO
Fuel Consumption	TJ	786.793	395.495	802.655	1287.73	670.557	440.892	679.106	489.251	489.251	NA	IE	IE	IE	IE	IE	IE	IE	IE
<b>NON-METALLIC MINERALS</b>																			
NOx	Gg	2.54524 IE	2.82555 IE	2.87093 IE	3.28117 IE	2.85587 IE	3.10511 IE	3.64602 IE	3.08655 IE	2.92678 IE	NE IE	NE IE	NE IE	NE IE	NE IE	NE IE	NE IE	NE IE	NE IE
CO	Gg	0.39676 IE	0.44275 IE	0.4501 IE	0.51517 IE	0.44914 IE	0.48872 IE	0.5746 IE	0.48711 IE	0.4621 IE	NE IE	NE IE	NE IE	NE IE	NE IE	NE IE	NE IE	NE IE	NE IE
NMVOc	Gg	0.07006 IE	0.07763 IE	0.07872 IE	0.09337 IE	0.07835 IE	0.08788 IE	0.10427 IE	0.09006 IE	0.08652 IE	NE IE	NE IE	NE IE	NE IE	NE IE	NE IE	NE IE	NE IE	NE IE
SO2	Gg	6.25194 IE	6.20261 IE	6.48748 IE	6.25648 IE	6.16131 IE	5.72335 IE	6.08395 IE	4.75898 IE	4.28855 IE	NE IE	NE IE	NE IE	NE IE	NE IE	NE IE	NE IE	NE IE	NE IE
<b>LIQUID</b>																			
Fuel Consumption	TJ	8367.60 5363.41	8652.54 4733.19	8436.58 5544.00	9156.49 5220.11	8795.03 5537.94	9425.79 5487.76	##### 6534.53	9666.06 5821.67	9905.18 5424.93	5028.95 5244.32	6991.81 5401.17	7196.72 5246.24	6361.95 5116.96	7215.59 5153.47	6255.85 5458.77	7215.59 5711.77	NA 5527.94	5785.18
CO2	Gg	489.97 456.35	573.17 400.48	548.03 470.72	593.92 455.32	556.29 478.73	642.37 480.79	728.00 571.43	646.55 519.97	623.02 488.88	316.32 475.49	439.78 486.26	452.67 473.44	400.17 462.92	534.68 465.28	393.49 492.96	730.26 516.41	722.26 497.23	527.07
CH4	Gg	0.03 5.36	0.03 4.73	0.03 5.54	0.04 5.22	0.03 5.54	0.04 5.49	0.05 6.53	0.04 5.82	0.04 5.42	0.02 5.24	0.03 5.40	0.03 5.25	0.03 5.12	0.01 5.15	0.03 5.46	0.01 5.71	0.01 5.53	5.79
N2O	Gg	0.06 0.02	0.07 0.02	0.07 0.02	0.07 0.02	0.07 0.02	0.08 0.02	0.09 0.03	0.08 0.02	0.07 0.02	0.04 0.02	0.05 0.02	0.05 0.02	0.05 0.02	0.05 0.02	0.00 0.02	0.05 0.02	0.00 0.02	0.02
<b>SOLID</b>																			
Fuel Consumption	TJ	786.79 1279.28	395.50 643.05	802.66 1305.07	1287.73 2093.78	670.56 1090.28	440.89 716.86	679.11 1104.18	489.25 795.49	489.25 731.07	NA 878.87	IE 1428.30	IE 1508.80	IE 1516.33	IE 1534.25	IE 1641.87	IE 1498.95	IE 1591.09	IE 1402.54
CO2	Gg	72.94 112.52	36.67 56.56	74.41 114.79	119.38 184.16	62.17 95.89	40.87 63.05	62.96 97.12	45.36 69.97	45.36 64.30	NA 77.30	IE 125.62	IE 132.71	IE 133.37	IE 134.94	IE 144.41	IE 131.84	IE 149.47	IE 117.33
CH4	Gg	0.01 1.28	0.64 0.01	0.01 1.31	0.01 2.09	0.01 1.09	0.01 0.72	0.01 1.10	0.80 0.73	0.88 0.73	NA 1.43	IE 1.51	IE 1.51	IE 1.52	IE 1.53	IE 1.64	IE 1.50	IE 1.59	IE 1.40
N2O	Gg	0.01 0.01	0.01 0.00	0.01 0.01	0.02 0.01	0.01 0.00	0.01 0.00	0.01 0.00	0.01 0.00	0.01 0.00	NA 0.00	IE 0.01	IE 0.01	IE 0.01	IE 0.01	IE 0.01	IE 0.01	IE 0.01	IE 0.01
<b>BIOMASS</b>																			
Fuel Consumption	TJ	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA 40.42	NA 70.632	NA 90.594	NA 211.185	NA 126.242	NA 38.656	NA 61.466	NA 99.681

	Unit	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
CO2	Gg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.4462	7.76952	9.96534	23.2304	13.8866	4.25216	6.76126	10.9649	
CH4	Gg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01213	0.02119	0.02718	0.06336	0.03787	0.0116	0.01844	0.0299	
N2O	Gg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00016	0.00028	0.00036	0.00084	0.0005	0.00015	0.00025	0.0004	

**OTHER**

Fuel Consumption	TJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18.25	NA	NA	15.00	71.25	137.85	73.25	114.38
CO2	Gg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.55	NA	1.28	6.06	11.72	6.23	9.72	
CH4	Gg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01	NA	0.00	0.02	0.04	0.02	0.03	
N2O	Gg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00	NA	0.00	0.00	0.00	0.00	0.00	

**TEXTILE LEATHER AND**

NOx	Gg	0.0521	0.0521	0.04725	0.05278	0.05041	0.0527	0.05304	0.05269	0.0543	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
		IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
CO	Gg	0.02542	0.02542	0.02482	0.02729	0.02763	0.0286	0.029	0.02974	0.03063	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
		IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
NMVOG	Gg	0.00375	0.00375	0.00347	0.00382	0.00371	0.00386	0.00388	0.00388	0.00399	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
		IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
SO2	Gg	0.38767	0.38767	0.3395	0.36305	0.33772	0.34719	0.34351	0.33056	0.33691	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
		IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE

**1AA3B ROAD TRANSPORT**

NOx	Gg	7.98	7.94	8.80	9.06	9.27	9.53	9.47	9.58	9.66	10.19	9.89	10.04	10.07	6.79	8.34	6.79	6.81		
		8.23	8.54	10.03	10.47	10.83	10.78	10.76	10.90	10.78	10.87	11.24	10.93	11.05	11.34	9.77	9.79	9.52	9.40	
CO	Gg	57.16	56.16	60.34	58.87	58.25	58.01	54.84	53.84	51.27	85.65	85.08	84.36	80.91	38.72	43.07	38.72	31.39		
		37.37	37.53	35.22	35.72	36.17	33.20	32.47	31.47	33.20	29.07	27.70	26.67	26.24	26.08	24.98	23.83	22.35	21.79	
NMVOG	Gg	7.08	7.06	7.66	7.55	7.47	7.58	7.22	7.05	6.84	9.40	9.42	9.39	9.09	4.98	5.68	4.98	4.30		
		6.53	6.58	6.44	6.55	6.62	6.27	6.16	5.92	6.27	5.33	5.05	4.74	4.46	4.38	4.00	3.83	3.42	3.31	
SO2	Gg	1.40	1.42	1.65	1.77	1.83	1.99	2.06	2.19	2.31	7.32	7.32	7.49	7.29	7.02	7.02	2.41	0.07	0.07	0.07
		3.98	4.28	5.34	5.71	6.04	6.36	6.49	6.89	6.36	7.32	6.93	7.05	7.03	6.69	2.26	0.06	0.06	0.07	

**LIQUID**

<b>GASOLINE</b>																				
Fuel Consumption	TJ	7279.92	7202.02	7716.51	7791.93	7975.35	8198.10	8301.24	8539.60	8767.31	9080.02	9185.43	9779.97	#####	#####	#####	#####	#####	#####	#####
		1715.00	1653.97	3011.69	3367.83	2368.89	3388.93	3804.41	2103.92	2276.47	2284.19	2318.73	2891.40	3132.86	4772.41	#####	#####	#####	#####	#####
CO2	Gg	514.99	509.48	545.87	551.21	564.18	579.94	587.24	604.10	620.21	642.32	649.78	691.84	725.64	967.92	895.79	950.75	1006.01		
		118.85	114.62	208.71	233.39	164.16	234.85	263.65	145.80	157.76	158.29	160.69	200.37	217.11	330.73	741.18	931.38	985.28	1073.34	
CH4	Gg	0.29	0.29	0.32	0.31	0.31	0.33	0.33	0.34	0.33	0.34	0.35	0.37	0.39	0.52	0.48	0.51	0.54		
		0.23	0.23	0.25	0.25	0.25	0.26	0.26	0.26	0.26	0.27	0.27	0.28	0.29	0.32	0.32	0.34	0.38	0.38	
N2O	Gg	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.06	0.06	0.06	0.06	0.06	0.12
		0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.05	0.06	0.07	0.09	0.10	0.11	0.12	

**DIESEL**

Fuel Consumption	TJ	6247.8	6293.8	7357.1	7864.5	8094.6	8787.5	9215.8	9675.1	10238.3	15382.2	15165.5	14752.1	14168.9	15085.9	15454.3	15043.4	14377.1		
		8668.3	9320.8	11243.7	11426.7	12989.2	12349.0	12961.6	13601.7	14356.1	14875.1	15165.5	14752.1	14233.9	13552.8	15403.2	15085.9	14417.7	15119.6	
CO2	Gg	442.06	445.78	521.80	558.77	575.98	626.11	655.57	689.70	729.83	1096.44	1081.00	1051.53	1009.96	1075.33	1101.58	1072.35	1024.85		
		642.32	690.67	833.16	846.72	962.50	915.06	960.46	1007.88	1063.78	1102.25	1123.76	1093.13	1054.73	1004.26	1141.37	1117.87	1068.35	1120.36	
CH4	Gg	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
		0.03	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.05	0.06	0.06	0.06	0.06	
N2O	Gg	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.08	0.07	0.07	0.07	0.07	0.08	0.08	0.07	0.07	0.06
		0.03	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.05	0.06	0.06	0.06	0.06	

	Unit	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
<b>1AA4 OTHER SECTORS</b>																				
<b>1AA4A COMMERCIAL / INSTITUTIONAL</b>																				
NOx	Gg	3.28	3.31	3.88	4.16	4.29	4.67	4.88	5.15	5.45	0.73	0.71	0.69	0.67	0.48	0.44	0.48	0.44		
		0.27	0.29	0.35	0.36	0.41	0.39	0.41	0.43	0.39	0.47	0.77	0.75	0.72	0.43	0.46	0.46	0.46	0.46	0.47
CO	Gg	1.11	1.12	1.31	1.40	1.45	1.57	1.64	1.72	1.82	0.42	0.40	0.53	0.37	0.37	0.33	0.40	0.37	0.34	
		0.20	0.22	0.26	0.26	0.30	0.29	0.30	0.32	0.29	0.34	0.57	0.56	0.54	0.31	0.34	0.33	0.34	0.34	0.34
NM VOC	Gg	0.48	0.48	0.56	0.60	0.62	0.68	0.71	0.75	0.79	0.15	0.15	0.14	0.14	0.09	0.09	0.09	0.09	0.09	0.09
		0.05	0.05	0.06	0.06	0.07	0.07	0.07	0.08	0.07	0.08	0.14	0.13	0.14	0.08	0.08	0.08	0.08	0.08	0.08
SO2	Gg	1.34	1.35	1.58	1.70	1.75	1.91	2.00	2.10	2.23	0.82	0.84	0.82	0.84	0.12	0.55	0.12	0.12	0.12	0.11
		0.31	0.33	0.40	0.41	0.46	0.44	0.46	0.48	0.44	0.53	0.84	0.82	0.84	0.48	0.54	0.11	0.12	0.12	0.11
<b>LIQUID</b>																				
Fuel Consumption	TJ	2993.68	3021.66	3539.93	3783.45	3899.77	4238.79	4427.86	4663.94	4926.55	4541.98	4080.34	3430.35	2680.98	1158.99	1180.01	1141.03	1304.40		
		433.41	466.04	562.18	571.34	649.46	617.45	648.08	680.08	717.80	743.76	1152.58	1126.58	1083.25	677.64	777.51	772.66	866.60	796.97	
CO2	Gg	218.49	220.54	258.40	276.33	284.87	309.70	323.55	340.86	360.14	332.02	298.27	250.76	195.98	84.72	86.26	83.41	95.35		
		32.12	34.53	41.66	42.34	48.13	45.75	48.02	50.39	53.19	55.11	85.41	83.48	80.27	50.21	57.61	57.25	64.22	59.06	
CH4	Gg	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.00	0.00	0.02	0.02	0.02	0.01
		0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
N2O	Gg	0.08	0.08	0.10	0.11	0.11	0.12	0.12	0.13	0.14	0.13	0.12	0.10	0.08	0.03	0.03	0.11	0.12	0.12	0.01
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>BIOMASS</b>																				
Fuel Consumption	TJ	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CO2	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CH4	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N2O	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>1AA5B OTHER - MOBILE (AGRICULTURAL OFF ROAD VEHICLES)</b>																				
<b>LIQUID</b>																				
Fuel Consumption	TJ	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
		233.38	250.95	302.71	307.64	349.71	332.47	348.97	366.20	386.51	400.48	667.28	649.95	628.29	364.88	388.76	386.33	383.47	397.55	
CO2	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
		17.29	18.60	22.43	22.80	25.91	24.64	25.86	27.14	28.64	29.68	49.45	48.16	46.56	27.04	28.81	28.63	28.42	29.46	
CH4	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
N2O	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
<b>1B FUGITIVE EMISSIONS FROM FUELS</b>																				
<b>1B2A4 REFINING STORAGE</b>																				
<b>OIL</b>																				
oil refined	PJ	27.1591	32.6269	31.08	33.3963	38.3382	35.3927	32.49	44.5739	46.2812	46.2812	46.2812	46.2812	46.2812	46.2812	46.2812	46.2812	NA		
	t	608018	732551	694232	751388	863573	796179	729611	1006683	1044243	1140423	1134810	1115102	1045526	931907	269151	NO	NO	NO	NO
CH4	Gg	0.0239	0.02871	0.02735	0.02939	0.03374	0.03115	0.02859	0.03923	0.04073	0.04073	0.04073	0.04073	0.04073	0.04073	0.04073	0.04073	NO	NO	NO
		0.0239	0.02871	0.02735	0.02939	0.03374	0.03115	0.02859	0.03923	0.04073	0.04483	0.04461	0.04383	0.0411	0.03663	0.01058	NO	NO	NO	NO
<b>1C MEMO ITEMS</b>																				
<b>1C1 INTERNATIONAL BUNKERS</b>																				
<b>OIL</b>																				
oil refined	PJ	27.1591	32.6269	31.08	33.3963	38.3382	35.3927	32.49	44.5739	46.2812	46.2812	46.2812	46.2812	46.2812	46.2812	46.2812	46.2812	NA		
	t	608018	732551	694232	751388	863573	796179	729611	1006683	1044243	1140423	1134810	1115102	1045526	931907	269151	NO	NO	NO	NO

	Unit	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
CO2	Gg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CH4	Gg	0.0239	0.02871	0.02735	0.02939	0.03374	0.03115	0.02859	0.03923	0.04073	0.04073	0.04073	0.04073	0.04073	0.04073	0.04073	0.04073	NA	NA
N2O	Gg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NO

**1C1A AVIATION**

**JET KEROSENE**

Fuel Consumption	TJ	10519.9	8129.6	11013.5	10320.5	10569.8	11586.6	11104.6	10941.2	11296.4	11712.9	12814.3	13987.4	13471.3	12987.9	13142.6	8.6	7.3	
CO2	Gg	10519.9	8129.6	11013.5	10320.5	10569.8	11586.6	11104.6	10941.2	11296.4	10579.0	12031.3	12567.9	12648.9	13884.3	12735.2	12585.3	12769.2	12408.4
CH4	Gg	744.81	575.58	779.75	730.69	748.34	820.33	786.21	774.64	799.79	829.27	907.25	990.31	953.77	919.54	930.50	1065.08	904.07	
N2O	Gg	0.06	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.08	0.09	0.08	0.08	0.08	0.08	0.09	0.08
		0.11	0.08	0.11	0.10	0.11	0.12	0.11	0.11	0.11	0.11	0.12	0.13	0.13	0.14	0.13	0.13	0.13	0.12
		0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.02
		0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.02

**1C1B MARINE**

**GAS/DIESEL OIL**

Fuel Consumption	TJ	1044.27	877.11	869.87	607.78	507.60	631.00	1064.81	1157.88	1636.80	1997.51	2177.33	2017.44	1411.86	6099.48	1105.13	1.64	3.66	
CO2	Gg	1044.27	877.11	869.87	607.78	507.60	631.00	1064.81	1157.88	1636.80	1930.24	2103.91	1949.16	1364.23	1487.28	963.59	5921.80	6407.04	6460.55
CH4	Gg	76.55	64.29	63.76	44.55	37.21	46.25	78.05	84.87	119.98	146.42	159.60	147.88	103.49	447.09	81.01	210.31	469.74	
N2O	Gg	0.01	0.01	0.01	NE	NE	NE	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.06	0.06	0.06
		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0.02
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01

**RFO**

Fuel Consumption	TJ	1445.62	1446.02	1532.20	1432.00	1986.98	2172.59	2566.73	2847.39	2534.21	4334.49	4933.32	5800.62	4220.15	2745.34	1085.85	1.56	1.18	
CO2	Gg	1445.62	1446.02	1532.20	1432.00	1986.98	2172.59	2566.73	2847.39	2534.21	4515.59	5976.74	6042.89	4392.16	3661.82	1106.99	2731.26	2059.97	1562.97
CH4	Gg	110.73	110.77	117.37	109.69	152.20	166.42	196.61	218.11	194.12	332.02	377.89	444.33	323.26	210.29	83.18	209.21	157.79	
N2O	Gg	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.03	0.03	0.05	0.06	0.04	0.01	0.02	0.02	0.02
		0.01	0.01	0.02	0.01	0.02	0.02	0.03	0.03	0.03	0.05	0.06	0.06	0.04	0.04	0.01	0.03	0.02	0.02
		NE	NE	NE	NE	NE	NE	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.01	0.00	0.01	0.01	0.01
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.00

**LUBRICANTS**

Fuel Consumption	TJ	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19	NA	NA	NA	NA	NA	NA	40.19	NA	
CO2	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
		1.4589	1.4589	1.4589	1.4589	1.4589	1.4589	1.4589	1.4589	1.4589	NA	NA	NA	NA	NA	NA	1.4589	NA	NA
		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

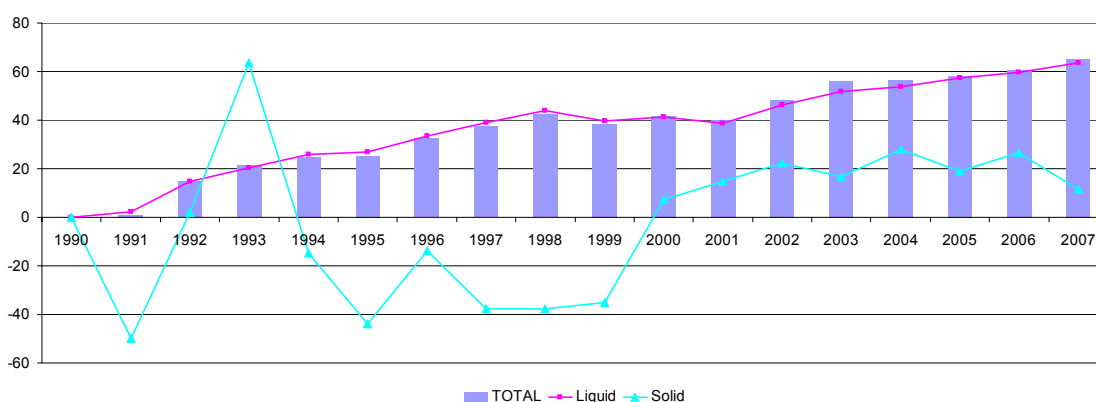
### 3.7. Comparison between sectoral and reference approach

The IPCC reference approach for CO<sub>2</sub> from fossil fuels for Cyprus is based on the energy balance prepared annually by the Energy Service (Ministry of Commerce, Industry and Tourism).

**Table 3.7** shows the apparent energy consumption from fossil fuel combustion from 1990 to 2007 as provided in CRF Tables 1.A(b). Total fossil fuel energy consumption increased by 65% between 1990 and 2007, due to the large increase in liquid fuels consumption (63%); during the same period solid fuels increased by 11%. The trend between 1990 and 2007 for liquid and solid fuels are illustrated in **Figure 3.8**.

**Table 3.7. Apparent energy consumption from fossil fuel combustion 1990 to 2007**

	Liquid	Solid	Biomass	Other fuels	TOTAL	Change in total compared to 1990
	TJ	TJ	TJ	TJ		%
1990	59450.0	1279.3	0.0	0.0	60729.2	
1991	60773.0	643.1	0.0	0.0	61416.0	1.1%
1992	68313.2	1305.1	0.0	0.0	69618.2	14.6%
1993	71614.3	2093.8	0.0	0.0	73708.1	21.4%
1994	74818.7	1090.3	0.0	0.0	75909.0	25.0%
1995	75351.1	716.9	0.0	0.0	76068.0	25.3%
1996	79309.4	1104.2	0.0	0.0	80413.6	32.4%
1997	82681.4	795.5	0.0	0.0	83476.9	37.5%
1998	85598.1	795.5	0.0	0.0	86393.5	42.3%
1999	83105.8	829.9	0.0	0.0	83935.8	38.2%
2000	84006.0	1372.7	592.3	0.0	85971.0	41.6%
2001	82525.1	1468.2	1035.1	18.3	85046.6	40.0%
2002	87011.9	1563.9	1327.6	0.0	89903.3	48.0%
2003	90211.8	1493.2	3094.8	15.0	94814.8	56.1%
2004	91490.8	1637.2	1850.0	71.3	95049.2	56.5%
2005	93656.2	1524.2	566.5	137.9	95884.7	57.9%
2006	94943.2	1619.7	900.8	73.3	97536.9	60.6%
2007	97360.2	1425.2	1460.8	114.4	100360.6	65.3%

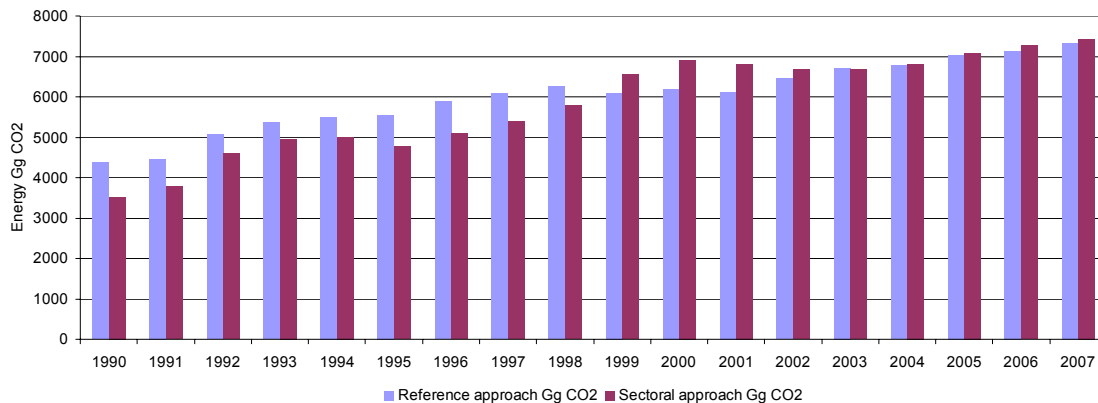


**Figure 3.8. Change in liquid, solid and total fuels between 1990 - 2007**

**Table 3.8** compares CO<sub>2</sub> emissions calculated with the IPCC reference approach and the sectoral approach. The reference approach and the sectoral approach, increased by 68% and 111% respectively between 1990 and 2007; the percentage differences between the two data sets are shown in **Figure 3.9**.

**Table 3.8. CO<sub>2</sub> emissions for energy as calculated with the IPCC reference approach and the sectoral approach, 1990 to 2007**

	Reference approach (Gg CO <sub>2</sub> )	Sectoral approach (Gg CO <sub>2</sub> )	Difference (%)
1990	4368.4	3521.3	24.1
1991	4462.2	3784.8	17.9
1992	5061.8	4587.8	10.3
1993	5364.1	4940.6	8.6
1994	5512.8	5007.6	10.1
1995	5542.8	4771.2	16.2
1996	5886.9	5093.7	15.6
1997	6072.8	5378.5	12.9
1998	6248.8	5784.9	8.0
1999	6091.3	6563.8	-7.2
2000	6207.8	6919.3	-10.3
2001	6125.8	6815.4	-10.1
2002	6454.7	6665.0	-3.2
2003	6719.3	6679.4	0.6
2004	6777.1	6821.3	-0.7
2005	7024.2	7087.0	-1.1
2006	7135.5	7268.3	-1.9
2007	7324.7	7428.9	-1.5



**Figure 3.9. Comparison of CO<sub>2</sub> emissions for energy as calculated with the IPCC reference approach and the sectoral approach, 1990 - 2007**

*Large differences between the approaches have been caused by the recalculations on sectoral approach for 1990-1998. The largest difference is in 1990, with 24%, decreasing down to 1.5% in 2007.*

### **3.8. Planned improvements to the inventory – for 3(1)i**

The improvements to take place in the immediate future, is to improve the accuracy of the estimations from all the energy sectors and especially combustion. Particular emphasis shall be given to the large difference observed in certain years to the data submitted under the current submission in comparison to previous submissions.

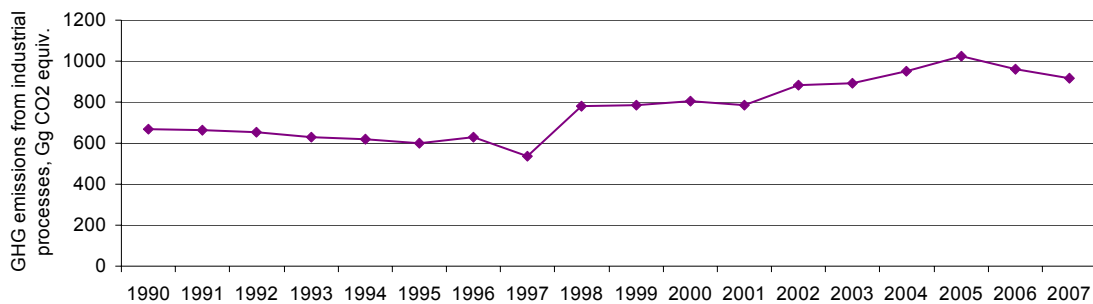
The difference identified between reference and sectoral approach, especially in the early years of the inventory, due to changes in the sectoral approach shall be improved.



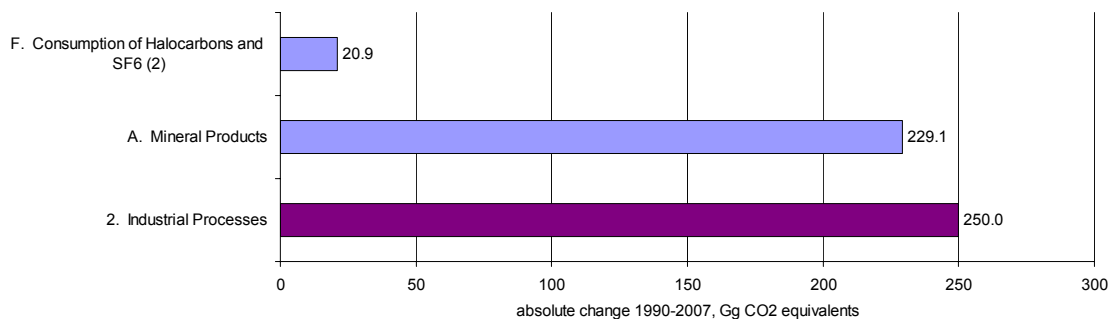
## 4. Industrial Processes (CRF sector 2)

### 4.1. Overview of sector

CRF Sector 2 Industrial Processes, is the second largest sector contributing 12% to total GHG emissions in 1990 and decreased to 9% in 2007. Total GHG emissions from this sector increased by 37% from 66Gg in 1990 to 917Gg in 2007 (**Figure 4.1**). In 2007, emissions decreased by 4.4% compared to 2006. **Figure 4.2** shows that GHG emissions from mineral products had the highest increase in absolute terms of all industry-related emissions between 1990 and 2007.



**Figure 4.1. GHG emissions from the industrial processes sector and sub-sectors for 1990 to 2007, Gg CO<sub>2</sub> equivalents**



**Figure 4.2. Increase in GHG emissions between 1990-2007 for industrial processes, Gg CO<sub>2</sub> equivalents**

The key sources of the sector of industrial processes in Cyprus are:

#### 2A. Mineral Products

2A1. Cement Production

2A2. Lime Production

2A6. Road Paving with Asphalt

2A7. Other Sectors

- 2A7.2. Ceramics Production

#### 2F. Consumption of Halocarbons and SF6

- 2F1. Refrigeration and Air Conditioning

- 2F3. Fire extinguishers
- 2FP. Consumption of Halocarbons and SF6
- 2FP2 Import

## 4.2. Source categories

### 4.2.1. Mineral Products (2A)

The source category 2A Mineral Products includes three key sources: CO<sub>2</sub> from 2A1 Cement Production, CO<sub>2</sub> from 2A2 Lime Production and CO<sub>2</sub> from Ceramics Production (2A72).

**Table 4.1** shows the GHG from Mineral Products for Cyprus for 1990 - 2007. GHG emissions from Mineral Products increased by 34.4% between 1990 and 2007 and reduced by 1.1% between 2006 and 2007.

- Cement production emissions increased by 32.4% between 1990 and 2007 (199 Gg CO<sub>2</sub>) and decreased by 1% between 2006 and 2007 (8.6 Gg CO<sub>2</sub>)
- Lime production emissions increased by 160.6% between 1990 and 2007 (5.9 Gg CO<sub>2</sub>) and decreased by 5.4% between 2006 and 2007 (0.5 Gg CO<sub>2</sub>)
- Ceramics production emissions increased by 49.8% between 1990 and 2007 (24.5 Gg CO<sub>2</sub>) and decreased by 1% between 2006 and 2007 (0.7 Gg CO<sub>2</sub>)

**Table 4.1. GHG from Mineral Products for Cyprus in 1990 and 2007, Gg CO<sub>2</sub> equiv.**

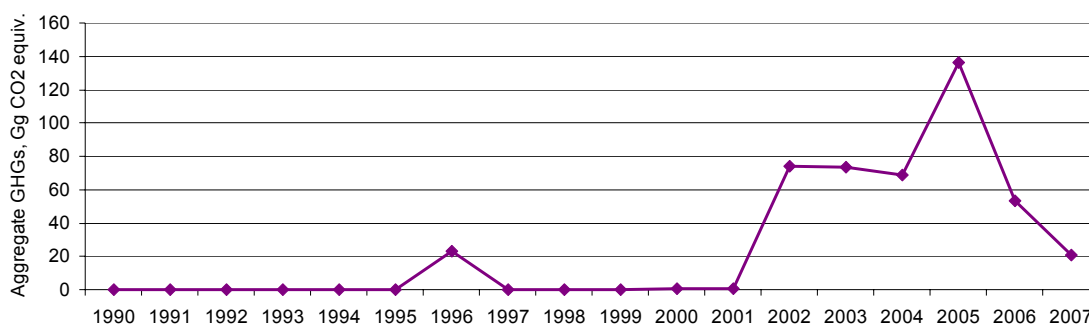
	2.A.1. Cement production (Gg CO <sub>2</sub> )	2.A.2. Lime production (Gg CO <sub>2</sub> )	2.A.7.2. Ceramics production (Gg CO <sub>2</sub> )	TOTAL GHG (Gg CO <sub>2</sub> )
1990	613.7	3.7	49.2	666.6
1991	612.0	3.4	47.5	662.9
1992	610.4	3.3	41.5	655.1
1993	577.5	4.4	49.0	630.9
1994	569.1	5.7	43.1	617.9
1995	551.7	3.4	43.7	598.8
1996	562.9	3.6	41.7	608.2
1997	492.2	4.7	39.0	535.9
1998	739.5	3.4	36.2	779.1
1999	740.1	4.7	41.2	786.1
2000	762.7	4.3	38.3	805.3
2001	745.0	4.3	33.5	782.9
2002	766.0	4.3	39.6	809.9
2003	751.0	9.9	58.2	819.1
2004	807.7	9.4	64.6	881.7
2005	821.8	11.7	56.3	889.8
2006	821.0	10.1	74.4	905.5
2007	812.4	9.5	73.7	895.7

### 4.2.2. Consumption of Halocarbons and SF6 (2F, 2FP)

The GHG caused by Consumption and possible consumption of Halocarbons and SF6 in 1990-2007 are shown in **Table 4.2**. No data on emissions is available for 1990 for reference, and no emissions appear to occur for PFCs and SF6. The trend in GHG emissions is shown in **Figure 4.3**.

**Table 4.2. Actual and potential emissions from consumption of Halocarbons and SF6 for 1990-2007, Gg CO2 equivalent**

	Actual emissions (Gg CO2 equivalent)	Potential emissions (Gg CO2 equivalent)	Aggregate GHGs (Gg CO2 equivalent)
1990	NA	NA	NA
1991	NA	NA	NA
1992	NA	NA	NA
1993	NA	NA	NA
1994	NA	0.02	0.02
1995	NA	NA	NA
1996	NA	22.91	22.91
1997	NA	NA	NA
1998	NA	NA	NA
1999	0.27	13.35	0.27
2000	0.42	21.25	0.42
2001	0.82	40.97	0.82
2002	73.82	3691.21	73.82
2003	73.38	3669.15	73.38
2004	68.91	3445.41	68.91
2005	136.15	6764.45	136.15
2006	53.20	2617.34	53.20
2007	20.91	1003.22	20.91



**Figure 4.3. GHG caused by Consumption and possible consumption of Halocarbons and SF6 in 1990-2007, CO2 equiv.**

### 4.3. Methodological Issues – for 3(1)f

This sector presented the activity data and emission factors used for the preparation of the inventory 1990-2007. Changes from previously submitted data is presented in the next section (4.4).

#### 4.3.1. Activity data, Mineral Products

**Table 4.3** presents the activity data used for the estimation of GHG emissions from the sector of Mineral Products.

Table 4.3. Activity data used for the estimation of GHG from the sector of Mineral Products

	2.A.1. Cement production (kt)	2.A.2. Lime production (kt)	2.A.7.2. Ceramics production (kt)
1990	1139.61	4.64	355.43
1991	1136.40	4.35	342.98
1992	1133.42	4.13	299.66
1993	1072.26	5.54	354.21
1994	1056.79	7.17	311.19
1995	1024.41	4.34	315.30
1996	1045.27	4.59	301.16
1997	914.05	5.92	281.69
1998	1381.92	4.35	261.25
1999	1381.52	5.98	297.92
2000	1427.72	5.50	276.34
2001	1393.93	5.50	271.41
2002	1431.71	5.50	314.47
2003	1405.26	12.51	364.22
2004	1509.06	11.94	470.38
2005	1502.93	14.82	493.15
2006	1541.38	12.78	483.59
2007	1515.25	12.08	500.38

#### 4.3.2. Emission factors, Mineral Products

Emissions factors used for the estimation of CO<sub>2</sub> from cement and ceramics have been obtained by the ETS reports submitted by the industries for 2005-2007, whereas the emission factor for lime production is the same as used in previous submissions. **Table 4.4** shows the emission factors used for the estimation of CO<sub>2</sub>.

Table 4.4. Emission factor for the estimation of CO<sub>2</sub> from the sector of industrial processes

	2.A.1. Cement production (tn CO <sub>2</sub> /t)	2.A.2. Lime production (tn CO <sub>2</sub> /t)	2.A.7.2. Ceramics production (tn CO <sub>2</sub> /t)
1990	0.5385	0.79	0.1384
1991	0.5385	0.79	0.1384
1992	0.5385	0.79	0.1384
1993	0.5385	0.79	0.1384
1994	0.5385	0.79	0.1384
1995	0.5385	0.79	0.1384
1996	0.5385	0.79	0.1384
1997	0.5385	0.79	0.1384
1998	0.5385	0.79	0.1384
1999	0.5385	0.79	0.1384
2000	0.5385	0.79	0.1384
2001	0.5385	0.79	0.1233
2002	0.5385	0.79	0.1259
2003	0.5385	0.79	0.1599
2004	0.5385	0.79	0.1372
2005	0.5468	ETS report 2005	0.1142
2006	0.5326	ETS report 2006	0.1538
2007	0.5362	ETS report 2007	0.1473

#### **4.3.3. Estimation of HFCs, PFCs and SF6 emissions**

Import of F-gases in bulk for 2007 was only 570 t of the item 3824 90 99, which is a mixture of R404, R407, R410 and R507. No production, export or destruction of halocarbons and SF6 occurs in Cyprus.

The resulting activity data and corresponding emissions for each gas are shown in **Table 4.5** for 1990 to 2007.





#### **4.4. Explanations and justifications for recalculations – for 3(1)f**

Due to changes in activity data and more accurate EFs, recalculations have been performed on all sources (**Table 4.6** compares data of 2008 submission to current submission). Additionally:

- NMVOCs have not been previously submitted for 2A6 Road Paving with Asphalt,
- NMVOCs from 2D1 Pulp and paper and 2D2 food and drink, are reported as NA for 1990-2007

#### **4.5. Changes in previously submitted data – for 3(1)e**

*It should be noted that the recalculations are not available in the xml file submitted due to issues associated with the recalculation database of CRF-reporter software.*

#### **4.6. Planned improvements to the inventory – for 3(1)i**

In coordination with the Statistical Service, means are investigated for the possibility for additional data to shall be made available for other small activities for the industrial sector that could be included in the GHG inventory.



**Table 4.6. Activity data and GHG emissions for the sector of Industrial Processes in 2009 and 2008, the top row in each parameter is the 2008 submission and the row below the 2009 submission**

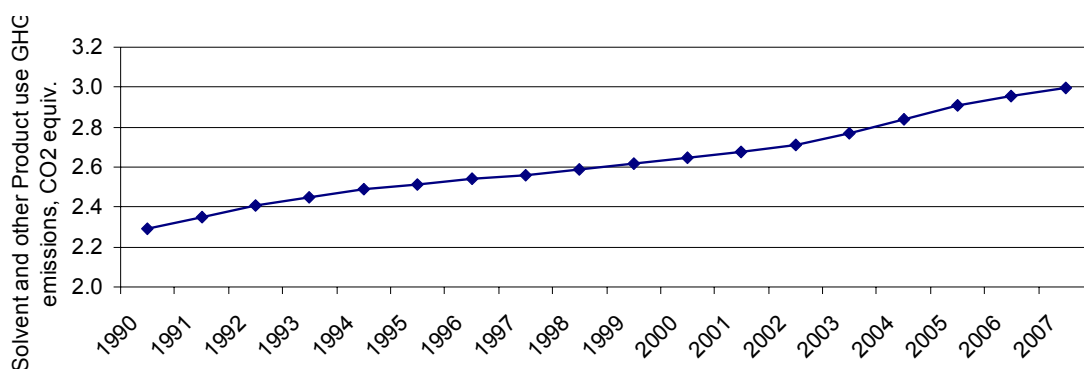
Unit	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
<b>2A MINERAL PRODUCTION</b>																			
<b>2A1 CEMENT PRODUCTION</b>																			
Cement production	kt	1132.87	1133.72	1127.72	1089.37	1053.05	1023.53	1021.25	909.29	1203.77	1146.46	1409.98	1377.15	1479.41	1793.80	1772.68	1780.00	1764.31	
CO2	Gg	1139.61	1136.40	1133.42	1072.26	1056.79	1024.41	1045.27	914.05	1381.92	1381.52	1427.72	1393.93	1431.71	1405.26	1509.06	1502.93	1541.38	1515.25
		564.73	565.16	562.17	543.05	524.95	510.23	509.09	453.28	600.08	573.2295	704.988	688.5755	739.7055	896.899	886.3415	821.784	821.001	
		613.72	611.99	610.38	577.45	569.12	551.68	562.91	492.25	739.51	740.10	762.71	745.04	765.99	750.98	807.69	821.81	821.00	812.41
SO2	Gg	0.34	0.34	0.34	0.33	0.32	0.31	0.31	0.27	0.36	3.38	3.54	3.37	3.34	4.56	4.23	4.56	4.73	
	Gg	0.34	0.34	0.34	0.32	0.32	0.31	0.31	0.27	0.41	0.41	0.43	0.42	0.43	0.42	0.45	0.45	0.46	0.45
<b>2A2 LIME PRODUCTION</b>																			
Lime Production	kt	7.33	6.57	5.54	6.08	7.44	5.98	5.55	6.02	5.73	5.214	5.214	9.036	13.664	12	13.91	16.547	16.547	
CO2	t	4637	4353	4133	5537	7166	4342	4591	5915	4345	5980	5500	5500	12511	11940	14822	12778	12083	
	Gg	5.79	5.19	4.38	4.80	5.87	4.72	4.39	4.76	4.53	2.61	2.61	4.52	6.83	6.00	6.96	13.07	13.07	
		3.66	3.44	3.27	4.37	5.66	3.43	3.63	4.67	3.43	4.72	4.35	4.35	4.35	9.88	9.43	11.71	10.09	9.55
<b>2A6 ROAD PAVING WITH ASPHALT</b>																			
Production	t	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
		500000	500000	500000	500000	500000	500000	500000	500000	500000	500000	563134	458150	499210	473400	565600	450675	408240	450000
NM VOC	Gg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.02	0.02	
		0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.01971	0.016035	0.017472	0.016569	0.019796	0.015774	0.014288	0.01575
<b>2A7 OTHER</b>																			
<b>2A72 Ceramics production</b>																			
Ceramics Production	t	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	
		355429	342978	299662	354205	311187	315304	301162	281688	261254	297916	276337	271405	314471	364215	470379	493153	483585	500384
CO2	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	
		49.21	47.48	41.49	49.04	43.08	43.65	41.69	39.00	36.17	41.24	38.26	33.46	39.59	58.23	64.55	56.32	74.40	73.70
<b>2D OTHER PRODUCTION</b>																			
<b>2D1 PULP AND PAPER</b>																			
NM VOC	Gg	0.01	0.01	0.01	0.03	0.01	0.01	0.02	0.02	0.02	NE	NE	NE	NE	NE	NE	NE	NE	
		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
<b>2D2 FOOD AND DRINK</b>																			
NM VOC	Gg	0.28	0.28	0.29	0.3	0.33	0.36	0.35	0.34	0.33	NE	NE	NE	NE	NE	NE	NE	NE	
		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## 5. Solvent and other Product Use (CRF sector 3)

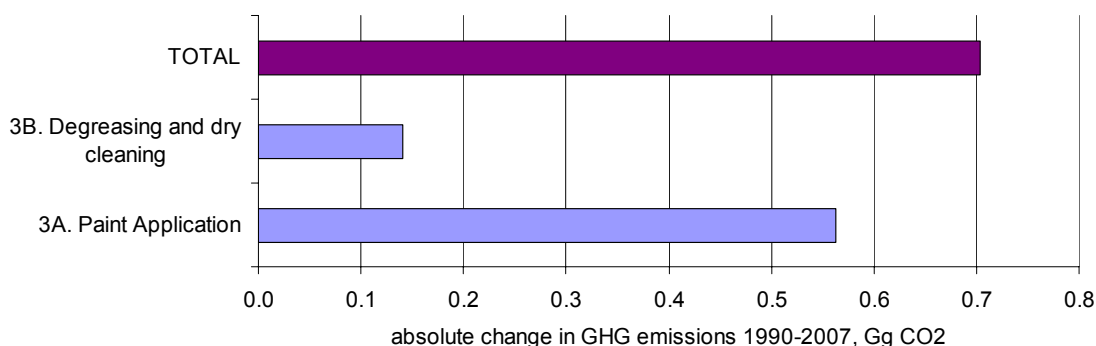
### 5.1. Overview of sector

CRF Sector 3 “Solvent and other Product Use” is the sector with the smallest contribution to the GHG of Cyprus. The sector contributed 0.035% to total GHG emissions in 1990 and decreased to 0.030% in 2007 (compared to total without LULUCF).

Total GHG emissions from this sector increased by 30.7% from 2.3 Gg in 1990 to 3.0 Gg in 2007 (**Figure 5.1**). In 2007, emissions increased by 1.4% compared to 2006. **Figure 5.2** shows the change in the emissions according to source between 1990 and 2007.



**Figure 5.1.** GHG emissions from the sector Solvent and other product use for 1990 to 2007, Gg CO<sub>2</sub> equivalents



**Figure 5.2.** Absolute increase in GHG emissions between 1990-2007 for sector 3, Gg CO<sub>2</sub> equivalents

The key sources of the sector of solvent and other product use in Cyprus are 3A Paint Application and 3B Degreasing and dry cleaning. The emissions of the sources are presented in **Table 5.1**.

**Table 5.1. GHG from solvent and other product use, 1990-2007, Gg CO2**

	<b>3A. Paint Application</b>	<b>3B. Degreasing and dry cleaning</b>	<b>TOTAL</b>
	<b>Gg CO2</b>	<b>Gg CO2</b>	<b>Gg CO2</b>
<b>1990</b>	1.83	0.46	2.29
<b>1991</b>	1.88	0.47	2.35
<b>1992</b>	1.93	0.48	2.41
<b>1993</b>	1.96	0.49	2.45
<b>1994</b>	1.99	0.50	2.49
<b>1995</b>	2.01	0.50	2.51
<b>1996</b>	2.03	0.51	2.54
<b>1997</b>	2.05	0.51	2.56
<b>1998</b>	2.07	0.52	2.59
<b>1999</b>	2.09	0.53	2.62
<b>2000</b>	2.11	0.53	2.65
<b>2001</b>	2.14	0.54	2.68
<b>2002</b>	2.17	0.54	2.71
<b>2003</b>	2.21	0.56	2.77
<b>2004</b>	2.27	0.57	2.84
<b>2005</b>	2.32	0.58	2.91
<b>2006</b>	2.36	0.59	2.95
<b>2007</b>	2.39	0.60	2.99

### **5.3. Methodological Issues – for 3(1)f**

#### **5.3.1. Activity data and Emission Factors**

Activity data for the sector was the population (**Table 5.2**), multiplied by the coefficient of 0.00303 t CO2/capita for 3A Paint Application and by 0.00076 t CO2/capita for 3B Degreasing and dry cleaning.

**Table 5.2. Population**

	<b>Population ('000s)</b>
<b>1990</b>	587.1
<b>1991</b>	603.1
<b>1992</b>	619.2
<b>1993</b>	632.9
<b>1994</b>	645.4
<b>1995</b>	656.3
<b>1996</b>	666.3
<b>1997</b>	675.2
<b>1998</b>	682.9
<b>1999</b>	690.5
<b>2000</b>	697.5
<b>2001</b>	705.5
<b>2002</b>	715.1
<b>2003</b>	730.4
<b>2004</b>	749.2
<b>2005</b>	766.4
<b>2006</b>	778.7
<b>2007</b>	789.3

#### **5.4. Explanations and justifications for recalculations – for 3(1)f**

Emissions in years later than 1998 were assumed equal to 1998 in previous submissions; have been estimated with same EF for the current submission.

#### **5.5. Changes in previously submitted data – for 3(1)e**

*It should be noted that the recalculations are not available in the xml file submitted due to issues associated with the recalculation database of CRF-reporter software.*

#### **5.6. Planned improvements to the inventory – for 3(1)i**

Emissions shall be calculated in greater accuracy for the following submissions, based on the activity of the sector.

**Table 5.3. Changes in previously submitted data for sector 3, Solvent and other product Use in 2009 and 2008, the top row in each parameter is the 2008 submission and the row below the 2009 submission**

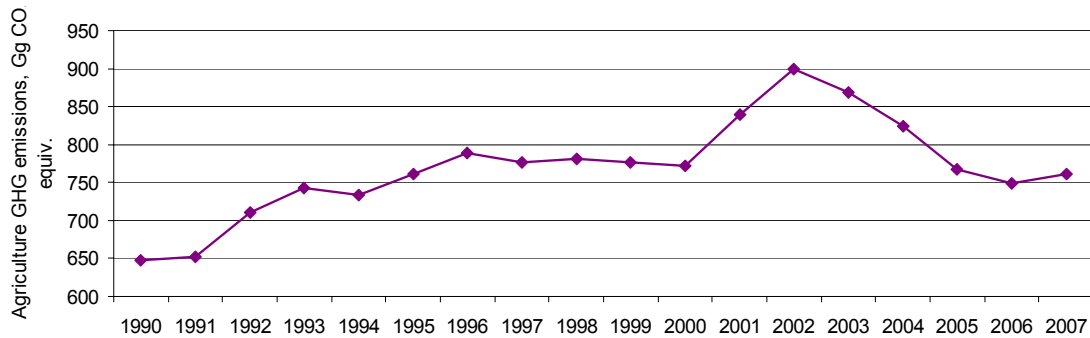
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
<b>3A PAINT APPLICATION</b>																			
CO2	Gg	1.83	1.88	1.93	1.96	1.99	2.01	2.03	2.05	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07
		1.83	1.88	1.93	1.96	1.99	2.01	2.03	2.05	2.07	2.09	2.11	2.14	2.17	2.21	2.27	2.32	2.36	2.39
NM VOC	Gg	0.59	0.60	0.62	0.63	0.64	0.65	0.65	0.66	0.66	NE	NE	NE	NE	0.19	0.20	2.22	2.53	
		1.73	1.61	1.64	1.69	1.82	1.74	1.80	1.68	1.74	1.74	1.76	1.95	2.17	2.40	2.78	2.69	2.70	2.43
<b>3B DEGREASING AND DRY CLEANING</b>																			
CO2	Gg	0.46	0.47	0.48	0.49	0.50	0.50	0.51	0.51	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.59	0.60	
		0.46	0.47	0.48	0.49	0.50	0.50	0.51	0.51	0.52	0.53	0.53	0.54	0.54	0.56	0.57	0.58	0.59	0.60
NM VOC	Gg	0.15	0.15	0.15	0.16	0.16	0.16	0.16	0.16	0.17	0.20	0.20	0.20	0.20			0.19	0.11	
		0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.19	0.11	0.11
<b>3C CHEMICAL PRODUCTS</b>																			
NM VOC	Gg	0.1	0.1	0.1	0.13	0.18	0.34	0.38	0.28	0.27	NE	NE	NE	NE	NE	NE	NE	NE	NE
		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
<b>3D Other</b>																			
<b>3D5.1. Domestic Solvent Use, other than paint application</b>																			
NM VOC	Gg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.224	0.230	0.260	0.211	0.198	0.233	0.236	0.249	0.219

## 6. Agriculture (CRF sector 4)

---

### 6.1. Overview of sector

CRF Sector 4 'Agriculture' contributes 7.5% to total GHG emissions of 2007 compared to 12% in 1990 (without LULUCF). The emissions from this sector increased by 17.5% between 1990 and 2007; from 647 Gg in 1990 to 761 Gg in 2007 (**Figure 6.1**). In 2007, the emissions increased by 1.5 % compared to 2006.



**Figure 6.1. GHG emissions from the agriculture sector and sub-sectors for 1990 to 2007, Gg CO<sub>2</sub> equivalents**

The key sources in this sector for Cyprus are:

#### 4A Enteric Fermentation

- 4A1 Cattle, Dairy and other
- 4A3 Sheep
- 4A8 Swine
- 4A9 Poultry

#### 4B Manure Management

- 4B1 Cattle, Dairy and other
- 4B3 Sheep
- 4B8 Swine
- 4B9 Poultry
- 4B10 Anaerobic lagoon
- 4B13 Solid Storage and dry lot

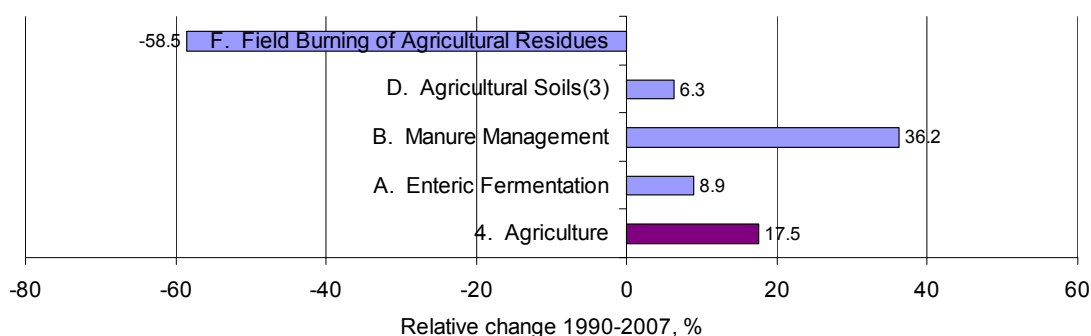
#### 4D Agricultural Soils

- 4D1 Direct Soil Emissions
  - 4D1.1 Synthetic Fertilizers
  - 4D1.2 Animal manure applied to soils
  - 4D1.3 N-fixing crops
  - 4D1.4 Crop residues
- 4D2 Pasture, Range and Paddock Manure

#### 4F Field burning of savannas

- 4F1 Cereals
  - 4F1.1 Wheat
  - 4F1.2 Barley
  - 4F1.3 Oats
- 4F2. Pulses
  - 4F2.1 Dry bean
  - 4F2.2 Peas
- 4F3. Tubers and Roots
  - 4F3.1 Potatoes

The relative change comparing 2007 to 1990 for the emissions sources from the sector of agriculture are shown in **Figure 6.2**.



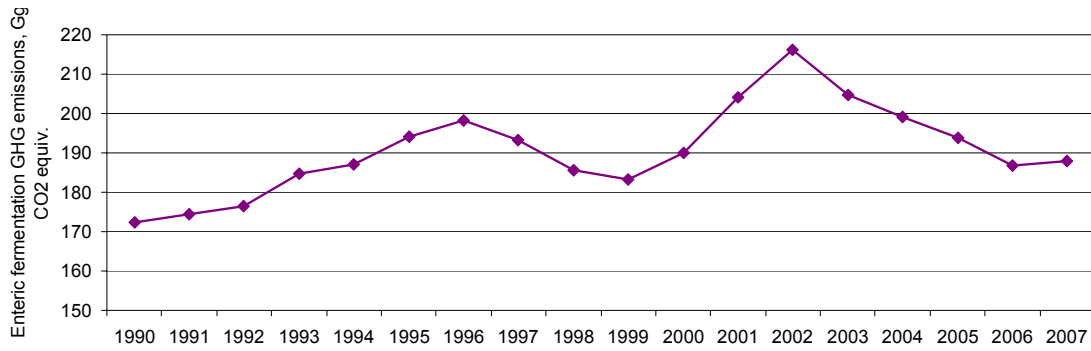
**Figure 6.2.** Relative change comparing 2007 to 1990 for the emissions sources from the sector of agriculture, (%)

## 6.2. Source categories

Enteric Fermentation (4A) emissions increased from 172.5 in 1990 to 188 Gg CO<sub>2</sub> equiv (8.9% increase). Manure Management (4B) increased from 242 to 330 Gg CO<sub>2</sub> equiv (36.2% increase), while Agricultural Soils (4D) increased from 226 to 239 Gg CO<sub>2</sub> equiv (6.3% increase). Finally emissions from Field Burning of Agricultural Residues (4F) decreased from 6.9 to 2.9 Gg CO<sub>2</sub> equiv corresponding to a reduction of 58.5%.

### 6.2.1. Enteric fermentation (4A)

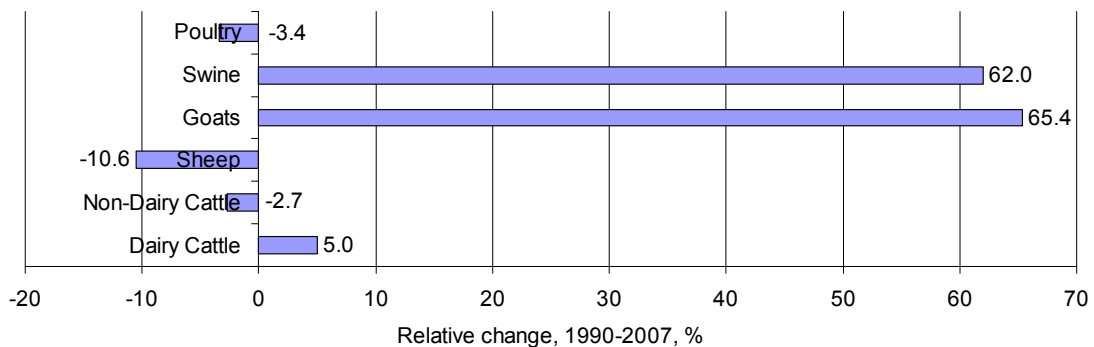
Methane emissions from enteric fermentation for 1990-2007 are shown in **Table 6.1** and **Figure 6.3**. As it is shown in **Figure 6.4**, the highest increase for 1990-2007 is 65.4% for goats, while second is swine with 62%. The change between 2006 and 2007 was 0.6% for the total methane emissions, -2% for cattle (-1.7% for dairy and -2.4% for other cattle), -4.7% for sheep, 24.5% for goats, 0.5% for swine and -22.2% for poultry.



**Figure 6.3. Methane emissions from enteric fermentation for 1990-2007, in CO2 equiv.**

**Table 6.1. Methane emissions from enteric fermentation for 1990-2007, Gg CH4**

	Dairy Cattle	Non-Dairy Cattle	Sheep	Goats	Swine	Poultry	TOTAL
<b>1990</b>	2.24	1.87	2.32	1.03	0.42	0.34	<b>8.21</b>
<b>1991</b>	2.31	1.85	2.36	1.03	0.44	0.32	<b>8.31</b>
<b>1992</b>	2.39	1.85	2.28	1.00	0.51	0.36	<b>8.40</b>
<b>1993</b>	2.56	2.06	2.20	0.99	0.55	0.43	<b>8.79</b>
<b>1994</b>	2.76	2.13	2.04	1.05	0.53	0.39	<b>8.90</b>
<b>1995</b>	2.95	2.24	2.00	1.10	0.56	0.40	<b>9.25</b>
<b>1996</b>	2.73	2.48	2.02	1.20	0.60	0.41	<b>9.44</b>
<b>1997</b>	2.55	2.14	1.96	1.51	0.62	0.42	<b>9.20</b>
<b>1998</b>	2.38	1.86	1.92	1.61	0.65	0.42	<b>8.84</b>
<b>1999</b>	2.38	1.75	1.86	1.73	0.63	0.37	<b>8.73</b>
<b>2000</b>	2.40	1.75	1.97	1.89	0.61	0.42	<b>9.05</b>
<b>2001</b>	2.44	1.69	2.37	2.14	0.68	0.40	<b>9.72</b>
<b>2002</b>	2.62	1.86	2.35	2.30	0.74	0.42	<b>10.29</b>
<b>2003</b>	2.46	1.91	2.12	2.04	0.73	0.49	<b>9.75</b>
<b>2004</b>	2.38	1.86	2.23	1.89	0.71	0.42	<b>9.49</b>
<b>2005</b>	2.46	1.91	2.15	1.65	0.64	0.42	<b>9.24</b>
<b>2006</b>	2.39	1.87	2.18	1.36	0.68	0.42	<b>8.90</b>
<b>2007</b>	2.35	1.82	2.08	1.70	0.68	0.33	<b>8.95</b>

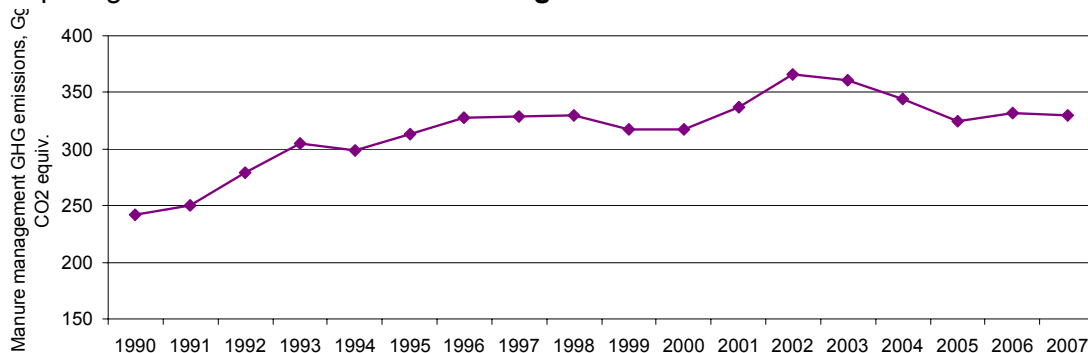


**Figure 6.4. Relative change in methane emissions from enteric fermentation comparing 2007 to 1990, (%)**



### 6.2.2. Manure management (4B)

Methane emissions from manure management for 1990-2007 are shown in **Table 6.2** and **Figure 6.5**. The change for the sources is 42.2% for 1990-2007 and -0.5% for 2006-2007. The relative change in methane emissions from manure management comparing 2007 to 1990 is the same as **Figure 6.6**.



**Figure 6.5.** Methane emissions from enteric fermentation for 1990-2007, in CO2 equiv.

**Table 6.2.** Methane emissions from manure management for 1990-2007, Gg CH4

	Dairy Cattle	Non-Dairy Cattle	Sheep	Goats	Swine	Poultry	TOTAL
<b>1990</b>	0.94	0.68	0.11	0.05	5.28	0.75	<b>7.81</b>
<b>1991</b>	0.97	0.67	0.11	0.05	5.63	0.70	<b>8.13</b>
<b>1992</b>	1.00	0.67	0.11	0.05	6.50	0.81	<b>9.13</b>
<b>1993</b>	1.08	0.74	0.10	0.05	7.02	0.95	<b>9.94</b>
<b>1994</b>	1.16	0.77	0.09	0.05	6.77	0.86	<b>9.71</b>
<b>1995</b>	1.24	0.81	0.09	0.06	7.11	0.88	<b>10.19</b>
<b>1996</b>	1.15	0.90	0.09	0.06	7.59	0.91	<b>10.70</b>
<b>1997</b>	1.07	0.78	0.09	0.08	7.88	0.94	<b>10.83</b>
<b>1998</b>	1.00	0.67	0.09	0.08	8.19	0.94	<b>10.98</b>
<b>1999</b>	1.00	0.63	0.09	0.09	7.95	0.83	<b>10.59</b>
<b>2000</b>	1.01	0.63	0.09	0.10	7.76	0.94	<b>10.53</b>
<b>2001</b>	1.02	0.61	0.11	0.11	8.57	0.88	<b>11.32</b>
<b>2002</b>	1.10	0.67	0.11	0.12	9.34	0.93	<b>12.27</b>
<b>2003</b>	1.03	0.69	0.10	0.11	9.27	0.90	<b>12.11</b>
<b>2004</b>	1.00	0.67	0.10	0.10	8.94	0.80	<b>11.61</b>
<b>2005</b>	1.03	0.69	0.10	0.09	8.16	0.78	<b>10.86</b>
<b>2006</b>	1.01	0.68	0.10	0.07	8.60	0.72	<b>11.17</b>
<b>2007</b>	0.99	0.66	0.10	0.09	8.56	0.73	<b>11.12</b>

Emissions according to manure management systems used for 1990-2007 are shown in **Table 6.3**. As shown in **Figure 6.4**, N<sub>2</sub>O emissions from manure management systems increased by 23.6% between 1990 and 2007 and decrease by 0.7% comparing 2006 and 2007.

Table 6.3. N2O emissions from manure management systems for 1990-2007, Gg N2O

	4B10 Anaerobic lagoon (Gg N2O)	4B13 Solid Storage and dry lot (Gg N2O)	TOTAL (Gg N2O)
1990	0.0022	0.2497	0.2520
1991	0.0024	0.2532	0.2556
1992	0.0028	0.2781	0.2809
1993	0.0030	0.3073	0.3103
1994	0.0029	0.3025	0.3054
1995	0.0030	0.3176	0.3206
1996	0.0032	0.3299	0.3331
1997	0.0033	0.3238	0.3272
1998	0.0035	0.3181	0.3216
1999	0.0034	0.3033	0.3066
2000	0.0033	0.3078	0.3111
2001	0.0036	0.3180	0.3216
2002	0.0040	0.3438	0.3478
2003	0.0039	0.3383	0.3423
2004	0.0038	0.3215	0.3252
2005	0.0035	0.3096	0.3130
2006	0.0036	0.3101	0.3137
2007	0.0036	0.3079	0.3115

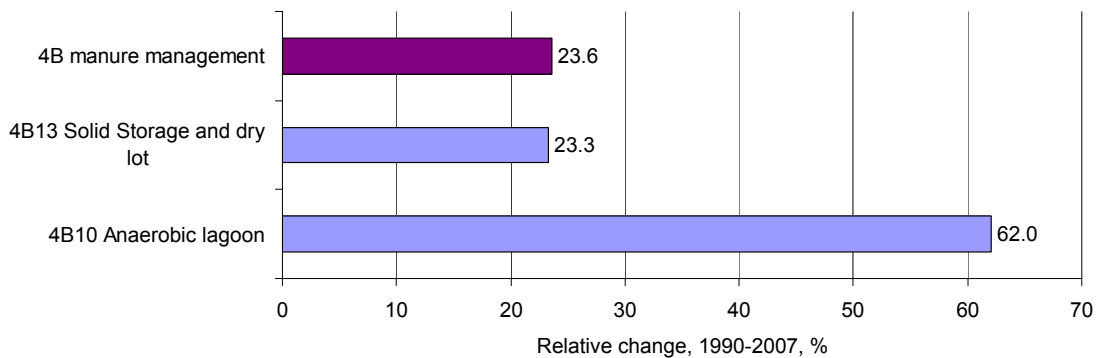
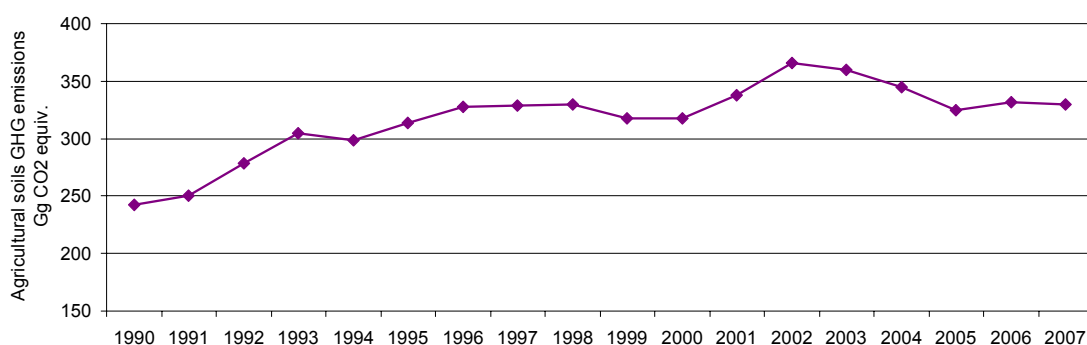


Figure 6.6. Relative change in nitrous oxide emissions from manure management systems comparing 2007 to 1990, (%)

### 6.2.3. Agricultural soils (4D)

The emissions from agricultural soils increased by 6.3% between 1990 and 2007 (Figure 6.7), and by 6.7% between 2006 and 2007 (increase of 14.2 and 15 Gg CO<sub>2</sub> equiv. respectively). Direct soil emissions decreased by 30.8% between 1990 and 2007, and by 11% between 2006 and 2007, while pasture range and paddock manure increased by 42.7% and by 17.8% respectively.



**Figure 6.7. N2O emissions from agricultural soils between 1990 and 2007, CO2 equiv.**

**Table 6.4.** shows the nitrous oxide Direct Soil Emissions, while **Table 6.5** nitrous oxide emissions from Direct Soil Emissions (4D1), pasture range and paddock manure (4D2) and the total for agricultural soils (4D).

**Figure 6.8** shows the change in emissions from agricultural soils between 1990 and 2007. **Figure 6.9** shows the contribution of the sub-sectors of direct soil emissions and Pasture, Range and Paddock Manure in 1990 and in 2007.

**Table 6.4. N2O emissions from Direct Soil emissions (4D1), Gg**

Gg N2O	4D1.1 Synthetic Fertilizers	4D1.2 Animal manure applied to soils	4D1.3 N-fixing crops	4D1.4 Crop residues	4D1 Direct Soil Emissions - TOTAL
1990	0.22	0.09	0.01	0.04	0.36
1991	0.22	0.10	0.00	0.03	0.35
1992	0.27	0.11	0.01	0.05	0.44
1993	0.26	0.12	0.00	0.06	0.43
1994	0.25	0.11	0.00	0.04	0.41
1995	0.25	0.12	0.00	0.05	0.42
1996	0.25	0.13	0.00	0.05	0.43
1997	0.19	0.12	0.00	0.02	0.34
1998	0.19	0.12	0.00	0.03	0.35
1999	0.19	0.12	0.00	0.04	0.35
2000	0.14	0.12	0.00	0.02	0.28
2001	0.14	0.12	0.00	0.03	0.30
2002	0.14	0.13	0.00	0.04	0.32
2003	0.16	0.14	0.00	0.04	0.34
2004	0.14	0.13	0.00	0.03	0.30
2005	0.12	0.12	0.00	0.03	0.28
2006	0.12	0.13	0.00	0.04	0.28
2007	0.10	0.12	0.00	0.03	0.25

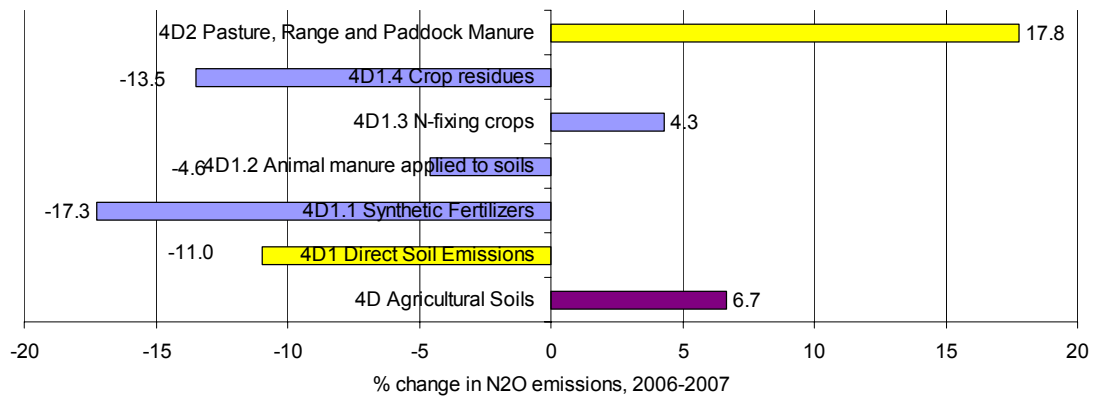
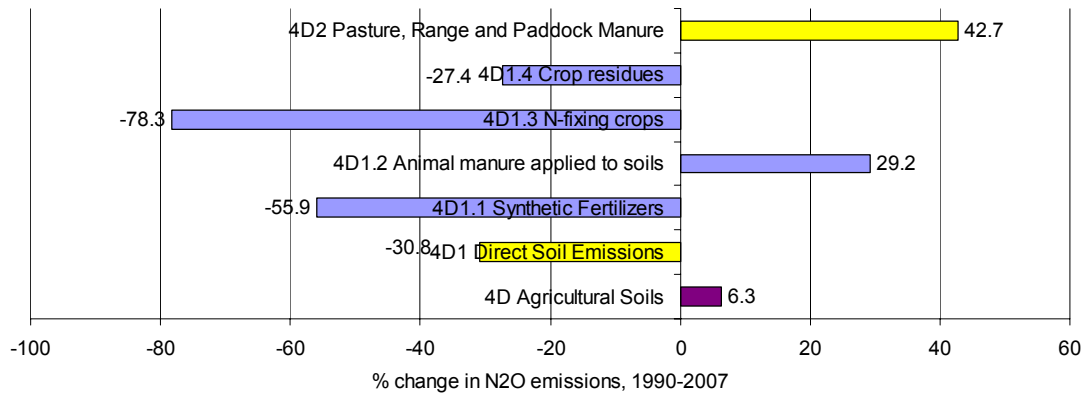
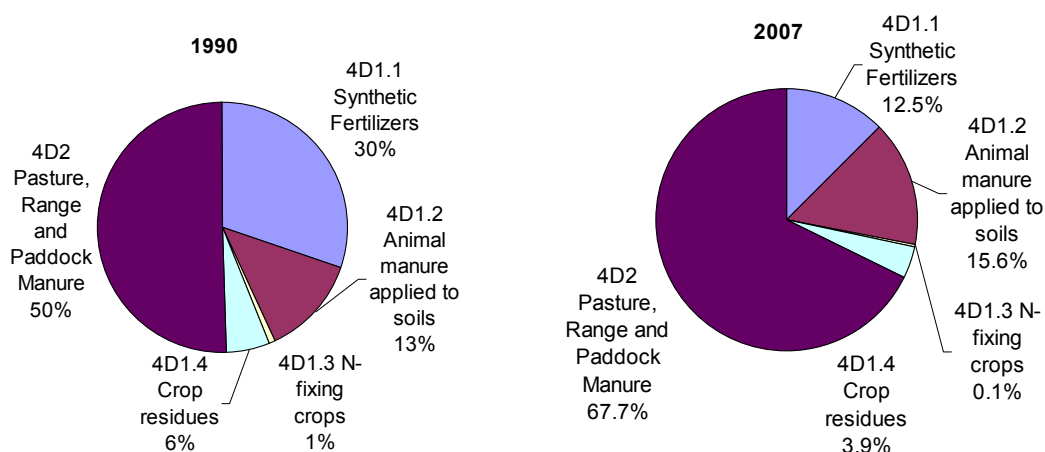


Figure 6.8. Change in N<sub>2</sub>O emissions from agricultural soils between 1990 and 2007 and between 2006 and 2007 (purple source total, yellow sub-source total)

Table 6.5. N<sub>2</sub>O emissions from Agricultural Soils (4D), Gg

Gg N <sub>2</sub> O	4D1 Direct Soil Emissions	4D2 Pasture, Range and Paddock Manure	4D Agricultural Soils - TOTAL
1990	0.36	0.37	0.73
1991	0.35	0.37	0.72
1992	0.44	0.36	0.79
1993	0.43	0.35	0.79
1994	0.41	0.36	0.77
1995	0.42	0.37	0.79
1996	0.43	0.40	0.82
1997	0.34	0.47	0.81
1998	0.35	0.50	0.84
1999	0.35	0.52	0.87
2000	0.28	0.57	0.85
2001	0.30	0.65	0.95
2002	0.32	0.69	1.01
2003	0.34	0.61	0.95
2004	0.30	0.58	0.88
2005	0.28	0.52	0.79
2006	0.28	0.44	0.73
2007	0.25	0.52	0.77



**Figure 6.9. Comparison of composition of N<sub>2</sub>O emissions from agricultural soils between 1990 and 2007**

### 6.3. Methodological Issues – for 3(1)f

The nitrous oxide emitted from nitrogen fixing crops and the agricultural residuals that are left onsite, was estimated based on the officially published data on the cultivated lands and the respective agricultural production, according to the methodology proposed by IPCC. During this inventory, the indirect nitrous oxides were not estimated, nor have the nitrous oxide emissions arising from the combustion of animal wastes.

The nitrous oxides emissions from agricultural soils covered by the current report cover the direct emissions (use of composite fertilizers, use of manure as soil improver, N-fixing crops, and Field Burning of agricultural residuals), in addition to the emissions from the animal waste produced from free grazing animals. For the estimation of emissions the relevant IPCC methodology was applied.

The assumption made for the estimation of emissions from bur, was that 50% of the agricultural wastes produced were burnt onsite, because no data was available on the amount of wastes burnt.

#### 6.3.1. Activity data

Source of data on animal population is the Statistical Service (Ministry of Finance). Horses, and mules and asses live in Cyprus, but no data is reported on the population. The population for 2007 compared to 1990 is presented in **Table 6.6**.

**Table 6.6. Animal population 1990 and 2007**

		1990	2007
<b>Dairy cows</b>	1000s	22.411	23.526
<b>Other cattle</b>	1000s	32.271	31.409
<b>Sheep</b>	1000s	290	259.4
<b>Goats</b>	1000s	205	339
<b>Pigs</b>	1000s	277.937	450.296
<b>Poultry</b>	1000s	2900	2800

The climate region has been identified as 100% warm for all animal types. Nitrogen excretion rate is shown in **Table 6.7**. Nitrogen in nitrogen in excretion according to treatment system used is shown in **Table 6.8**. Nitrogen production and animal waste distribution according to waste management system is shown in **Table 6.9**. **Table 6.10** presents the %N used according to type of fertilizer for 4D11 (Agricultural Soils, Synthetic fertilizers), the quantities of fertilizers used in 2007.

**Table 6.7. Nitrogen excretion rate, kg N/head/year**

	Nitrogen excretion rate, kg N/head/year	Source
<b>Dairy cows</b>	70	Cyprus data
<b>Other cattle</b>	50	Cyprus data
<b>Sheep</b>	12	Cyprus data
<b>Goats</b>	40	Near East & Med. IPCC 1996
<b>Pigs</b>	16	Near East & Med. IPCC 1996
<b>Poultry</b>	0.6	Near East & Med. IPCC 1996

**Table 6.8. Nitrogen in nitrogen in excretion according to treatment system, kg N/ kg Nex**

Type of treatment	kg N/ kg Nex
<b>Anaerobic lagoon</b>	0.001
<b>Solid storage and dry lot</b>	0.020
<b>Pasture range and paddock</b>	0.020

**Table 6.9. Animal waste distribution according to waste management system**

	Animal waste management system (%)						
	Anaerobic	Liquid system	Daily Spread	Solid Storage & Dry lot	Pasture Range & Paddock	Used fuel	Other System
<b>Dairy cows</b>				100%			
<b>Other cattle</b>				100%			
<b>Sheep</b>				100%			
<b>Goats</b>					100%		
<b>Pigs</b>	32%			68%			
<b>Poultry</b>					100%		

**Table 6.10. N in fertilizers for 2007**

FERTILIZER	%N	2007 (t)	2007 (kg N in fertilizer)
Ammonium sulphate	21%	1045.5	219,555
Urea	46%	990.55	455,653
Calcium Ammonium Nitrate	26%	371.9	96,694
Ammonium nitrate	33%	2231.9	736,527
Triple Superphosphate	0%	258.1	-
Potassium Sulphate	0%	72.5	-
Potassium nitrate	13%	0	-
13-0-46	13%	995.45	129,409
20-20-0	20%	12239	2,447,800
19-20-0	19%	0	-
20-10-10	20%	2162.15	432,430
16-20-0	16%	0	-
14-22-9	14%	5796.35	811,489
14-61-0	14%	1035	144,900
16-16-8	16%	0	-
24-12-0	24%	0	-

15-15-6-4	15%	0	-
2/4-21-21	3%	170.2	5,106
<b>TOTAL</b>		<b>27,369</b>	<b>5,479,563</b>

The fraction of synthetic fertilizer nitrogen applied to soils that volatilises as NH<sub>3</sub> and NO<sub>x</sub> was assumed 0.1.

In **Table 6.11** other information associated with the source of Field burning of agricultural residues (4F) are given.

**Table 6.11a. Emission ratio for GHG and secondary GHG for Field burning of agricultural residues (4F)**

	<b>EF</b>
CH <sub>4</sub>	0.005
CO	0.06
N <sub>2</sub> O	0.007
NO <sub>x</sub>	0.121

**Table 6.11b. Information associated with Field burning of agricultural residues (4F)**

	<b>4F11 Wheat</b>	<b>4F12 Barley</b>	<b>4F14 Oats</b>	<b>4F21 Dry bean</b>	<b>4F22 Peas</b>	<b>4F31 Potatoes</b>
Cultivated Area (Ha)	5287	34019	4250	296	21.0	6290
Crop Production (t)	10712	52007	814	1050	89	155500
Productivity (tn/Ha)	2.0	1.5	0.2	3.5	4.2	24.7
Residue/Crop ratio	1.3	1.2	1.3	1.3	1.3	1.3
Quantity of Residue (t)	13926	62408	1058	1365	115.7	202150
Dry matter fraction	0.8	0.8	1.0	1.0	1.0	1.0
Quantity of Dry Residue (t)	11558	51799	1058	1365	115.7	202150
Fraction burned	0.5	0.5	0.5	0.5	0.5	0.5
Fraction oxidized	0.9	0.9	0.9	0.9	0.9	0.9
Biomass burned (kt)	5.2	23.3	0.5	0.6	0.1	91.0
C fraction of residue	0.5	0.5	0.5	0.5	0.5	0.5
Total Carbon Released (t)	2524	10645	214	276	23	40935
Nitrogen-carbon ratio	0.0	0.0	0.0	0.0	0.0	0.0
Total Nitrogen Released (t)	30.3	159.7	3.2	4.1	0.4	614.0

### 6.3.2. Emission factors

The emission factors for methane used according to animal type are shown in **Table 6.12**.

**Table 6.12. CH4 EF for enteric fermentation and manure management**

	4A Enteric fermentation		4B Manure management	
	kg CH4/ head/ yr	source	kg CH4/head/yr	source
<b>Dairy cows</b>	100	average of eastern (89) and western (109); pg. 10.29 2006 IPCC guidelines	42	eastern (2006 IPCC, pg.10.38)
<b>Other cattle</b>	58	average of eastern (57) and western (58); pg. 10.29 2006 IPCC guidelines	21	eastern (2006 IPCC, pg.10.38)
<b>Sheep</b>	8	developed pg. 10.28 2006 IPCC guidelines	0.37	developed warm (2006 IPCC, pg.10.40)
<b>Goats</b>	5	developed pg. 10.28 2006 IPCC guidelines	0.26	developed warm (2006 IPCC, pg.10.40)
<b>Pigs</b>	1.5	developed pg. 10.28 2006 IPCC guidelines	19	developed warm (2006 IPCC, pg.10.40)
<b>Poultry</b>	0.117	developed 1996 IPCC guidelines	0.26	western (2006 IPCC, pg.10.40)

### 6.4. Explanations and justifications for recalculations – for 3(1)f

Recalculations have been made due to:

- Corrections in activity data of previous years
- Revision of EFs used for CH4, enteric fermentation

*It should be noted that the recalculations are not available in the xml file submitted due to issues associated with the recalculation database of CRF-reporter software.*

### 6.5. Changes in previously submitted data – for 3(1)e

**Table 6.13** compares data of 2008 submission to current submission.

### 6.6. Planned improvements to the inventory – for 3(1)i

Under the application of the Cypriot legislations (mainly associated with pollution prevention and the related disposal permits issued by the Competent Authority), records are available on the amounts of waste produced and managed by livestock breeding. Consequently, in the future inventories, these data sets shall be used that is considered more accurate.



**Table 6.13. Activity data and GHG emissions for the sector of agriculture as submitted in 2009 and 2008, the top row in each parameter is the 2008 submission and the row below the 2009 submission**

<b>4A ENTERIC FERMENTATION</b>																			
<b>CATTLE</b>																			
<b>Dairy Cattle</b>																			
CH4	Gg	2.240	2.310	2.390	2.560	2.760	2.950	2.730	2.550	2.380	2.379	2.399	2.439	2.619	2.380	2.380	2.459	2.393	
		2.241	2.312	2.390	2.565	2.757	2.948	2.732	2.549	2.382	2.380	2.400	2.440	2.620	2.459	2.382	2.459	2.393	2.353
<b>Non-dairy cattle</b>																			
CH4	Gg	1.550	1.530	1.530	1.700	1.770	1.860	2.050	1.770	1.540	1.451	1.451	1.402	1.542	1.540	1.540	1.584	1.545	
		1.872	1.851	1.851	2.057	2.134	2.242	2.481	2.142	1.857	1.752	1.752	1.694	1.862	1.913	1.857	1.914	1.866	1.822
<b>SHEEP</b>																			
Population	1000 num	290.000	295.000	285.000	275.000	255.000	250.000	252.000	265.000	240.000	233.000	246.000	296.600	294.000	199.020	240.000	240.000	272.192	
		290.000	295.000	285.000	275.000	255.000	250.000	252.000	245.000	240.000	233.000	246.000	296.600	294.000	264.600	279.000	268.674	272.192	259.400
CH4	Gg	2.320	2.360	2.280	2.200	2.040	2.000	2.020	2.120	1.920	1.864	1.968	2.373	2.352	1.920	1.920	2.151	2.178	
		2.320	2.360	2.280	2.200	2.040	2.000	2.016	1.960	1.920	1.864	1.968	2.373	2.352	2.117	2.232	2.151	2.178	2.075
<b>GOATS</b>																			
Population	1000 num	205.000	205.000	200.000	198.000	210.000	220.000	240.000	285.000	322.000	346.000	378.600	427.100	459.500	273.450	322.000	329.297	272.192	
		205.000	205.000	200.000	198.000	210.000	220.000	240.000	302.000	322.000	346.000	378.600	427.100	459.500	407.900	378.000	329.297	272.192	339.000
CH4	Gg	1.020	1.020	1.000	0.990	1.050	1.100	1.200	1.430	1.610	1.730	1.893	2.136	2.298	1.610	1.610	1.646	1.361	
		1.025	1.025	1.000	0.990	1.050	1.100	1.200	1.510	1.610	1.730	1.893	2.136	2.298	2.040	1.890	1.646	1.361	1.695
<b>SWINE</b>																			
Population	1000 num	277.937	296.228	341.946	369.409	356.206	374.074	399.530	414.788	431.299	418.500	408.400	451.300	491.400	429.700	431.299	429.719	452.644	
		277.937	296.228	341.946	369.409	356.206	374.074	399.530	414.788	431.299	418.500	408.400	451.300	491.400	488.100	470.500	429.719	452.644	450.296
CH4	Gg	0.420	0.440	0.510	0.550	0.530	0.560	0.600	0.620	0.650	0.632	0.617	0.681	0.742	0.650	0.650	0.645	0.679	
		0.417	0.444	0.513	0.554	0.534	0.561	0.599	0.622	0.647	0.628	0.613	0.677	0.737	0.732	0.706	0.645	0.679	0.675
<b>POULTRY</b>																			
CH4	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	
		0.339	0.316	0.363	0.427	0.386	0.398	0.410	0.421	0.421	0.374	0.421	0.398	0.420	0.490	0.421	0.421	0.421	0.328
<b>4B MANURE MANAGEMENT</b>																			
<b>CATTLE</b>																			
<b>Dairy Cattle</b>																			
Population	1000 num	22.411	23.120	23.897	25.646	27.574	29.481	27.319	25.491	23.822	23.800	24.000	24.400	26.200	24.590	23.822	24.585	23.931	
		22.411	23.120	23.897	25.646	27.574	29.481	27.319	25.491	23.822	23.800	24.000	24.400	26.200	24.590	23.822	24.585	23.931	23.526
Solid storage and dry lot	kg N/yr	1568770	1618400	1672790	1795220	1930180	2063670	2138450	1784370	1667540	1667540	1667540	1667540	1667540	1667540	1667540	1720950	1675170	
		1568770	1618400	1672790	1795220	1930180	2063670	1912330	1784370	1667540	1666000	1680000	1708000	1834000	1721300	1667540	1720950	1675170	1646820
CH4	Gg	0.99	1.02	1.05	1.13	1.21	1.3	1.2	1.12	1.05	1.05125	1.06008	1.07775	1.15725	1.05	1.05	1.08174	1.05296	
		0.941	0.971	1.004	1.077	1.158	1.238	1.147	1.071	1.001	1.000	1.008	1.025	1.100	1.033	1.001	1.033	1.005	0.988
<b>Other Cattle</b>																			
Population	1000 num	32.271	31.911	31.916	35.458	36.790	38.648	42.769	36.935	32.019	30.200	30.200	29.200	32.100	32.990	32.019	32.994		
		32.271	31.911	31.916	35.458	36.790	38.648	42.769	36.935	32.019	30.200	30.200	29.200	32.100	32.990	32.019	32.994	32.178	31.409
Solid storage and dry lot	kg N/yr	1613550	1595550	1595800	1772900	1839500	1932400	1912330	1846750	1600950	1600950	1600950	1600950	1600950	1600950	1600950	1649700	1608900	
		1613550	1595550	1595800	1772900	1839500	1932400	2138450	1846750	1600950	1510000	1510000	1460000	1605000	1649500	1600950	1649700	1608900	1570450
CH4	Gg	0.65	0.64	0.64	0.71	0.74	0.77	0.86	0.74	0.64	0.60823	0.60823	0.58809	0.64649	0.64	0.64	0.65988	0.64356	
		0.678	0.670	0.670	0.745	0.773	0.812	0.898	0.776	0.672	0.634	0.634	0.613	0.674	0.693	0.672	0.693	0.676	0.660
<b>SHEEP</b>																			

Population	1000 num	290.000	295.000	285.000	275.000	255.000	250.000	252.000	265.000	240.000	233.000	246.000	296.600	294.000	199.020	240.000	240.000	272.192	
		290.000	295.000	285.000	275.000	255.000	250.000	252.000	245.000	240.000	233.000	246.000	296.600	294.000	264.600	279.000	268.874	272.192	259.400
Pasture range and paddock	kg N/yr	3480000	3540000	3420000	3300000	3060000	3000000	3024000	3180000	2880000	2880000	2880000	2880000	2880000	2880000	2880000	3226488	3266304	3112800
		3480000	3540000	3420000	3300000	3060000	3000000	3024000	2940000	2880000	2796000	2952000	3559200	3528000	3175200	3348000	3226488	3266304	3112800
CH4	Gg	0.080	0.080	0.080	0.080	0.070	0.070	0.070	0.070	0.070	0.065	0.069	0.083	0.082	0.070	0.070	0.075	0.076	0.096
		0.107	0.109	0.105	0.102	0.094	0.093	0.093	0.091	0.089	0.086	0.091	0.110	0.109	0.098	0.103	0.099	0.101	0.096

#### GOATS

Population	1000 num	205.000	205.000	200.000	198.000	210.000	220.000	240.000	285.000	322.000	346.000	378.600	427.100	459.500	273.450	322.000	329.297	272.192	
		205.000	205.000	200.000	198.000	210.000	220.000	240.000	302.000	322.000	346.000	378.600	427.100	459.500	407.900	378.000	329.297	272.192	339.000
Pasture range and paddock	kg N/yr	8200000	8200000	8000000	7920000	8400000	8800000	9600000	1.1E+07	1.3E+07	1.3E+07	1.3E+07	1.3E+07	1.3E+07	1.3E+07	1.3E+07	13171.9	13797.2	1.4E+07
		8200000	8200000	8000000	7920000	8400000	8800000	9600000	1.2E+07	1.3E+07	1.4E+07	1.5E+07	1.7E+07	1.8E+07	1.6E+07	1.5E+07	1.3E+07	1.1E+07	1.4E+07
CH4	Gg	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.06	0.0692	0.07572	0.08542	0.0919	0.06	0.06	0.05927	0.04899	0.08814
		0.0533	0.0533	0.052	0.05148	0.0546	0.0572	0.0624	0.07852	0.08372	0.08996	0.09844	0.11105	0.11947	0.10605	0.09828	0.08562	0.07077	0.08814

#### SWINE

Population	1000 num	277.937	296.228	341.946	369.409	356.206	374.074	399.530	414.788	431.299	418.500	408.400	451.300	491.400	429.700	431.299	429.719	452.644	
		277.937	296.228	341.946	369.409	356.206	374.074	399.530	414.788	431.299	418.500	408.400	451.300	491.400	488.100	470.500	429.719	452.644	450.296
Anaerobic lagoon	kg N/yr	1423037	1516687	1750764	1891374	1823775	1915259	2045594	2123715	2208251	2208251	2208251	2208251	2208251	2208251	2208251	2200161	2317537	2305516
		1423037	1516687	1750764	1891374	1823775	1915259	2045594	2123715	2208251	2142720	2091008	2310656	2515968	2499072	2408960	2200161	2317537	2305516
Solid storage and dry lot	kg N/yr	3023955	3222961	3720372	4019170	3875521	4069925	4346886	4512893	4692533	4692533	4692533	4692533	4692533	4692533	4692533	4675343	4924767	4899220
		3023955	3222961	3720372	4019170	3875521	4069925	4346886	4512893	4692533	4553280	4443392	4910144	5346432	5310528	5119040	4675343	4924767	4899220
CH4	Gg	2.780	2.960	3.420	3.690	3.560	3.740	4.000	4.150	4.310	4.185	4.084	4.513	4.914	4.310	4.310	4.297	4.526	8.556
		5.281	5.628	6.497	7.019	6.768	7.107	7.591	7.881	8.195	7.952	7.760	8.575	9.337	9.274	8.940	8.165	8.600	8.556

#### POULTRY

Population	1000 num	2900.0	2700.0	3100.0	3650.0	3300.0	3400.0	3500.0	3600.0	3600.0	3200.0	3600.0	3400.0	3590.0	4418.6	3600.0	3600.0	3600.0	
		2900.0	2700.0	3100.0	3650.0	3300.0	3400.0	3500.0	3600.0	3600.0	3200.0	3600.0	3400.0	3590.0	4185.5	3600.0	3600.0	3600.0	2800.0
Solid storage and dry lot	kg N/yr	1740000	1620000	1860000	2190000	1980000	2040000	2100000	2160000	2160000	2160000	2160000	2160000	2160000	2160000	2160000	2160000	2160000	1680000
		1740000	1620000	1860000	2190000	1980000	2040000	2100000	2160000	2160000	1920000	2160000	2040000	2154000	2511300	2160000	2160000	2160000	1680000
CH4	Gg	0.340	0.320	0.360	0.430	0.390	0.400	0.410	0.420	0.420	0.384	0.432	0.408	0.431	0.420	0.420	0.421	0.421	0.328
		0.339	0.316	0.363	0.427	0.386	0.398	0.410	0.421	0.421	0.374	0.421	0.398	0.420	0.490	0.421	0.421	0.421	0.328

#### ANAEROBIC DIGESTION

N2O	Gg	0.0022	0.0024	0.0028	0.0030	0.0029	0.0030	0.0032	0.0033	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0036	0.0036
		0.0022	0.0024	0.0028	0.0030	0.0029	0.0030	0.0032	0.0033	0.0035	0.0034	0.0033	0.0036	0.0040	0.0039	0.0038	0.0035	0.0036	0.0036

#### SOLID STORAGE

N2O	Gg	0.2497	0.2532	0.2781	0.3073	0.3025	0.3176	0.3299	0.3238	0.3181	0.3181	0.3181	0.3181	0.3181	0.3181	0.3181	0.0003	0.0003	0.3079
		0.2497	0.2532	0.2781	0.3073	0.3025	0.3176	0.3299	0.3238	0.3181	0.3033	0.3078	0.3180	0.3438	0.3518	0.3315	0.3208	0.3259	0.3079
NM VOC	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	2.4589
		2.0163	2.0285	2.2521	2.3841	2.5652	2.5003	2.5652	2.5933	2.5003	2.4842	2.5016	2.5960	2.7239	2.6629	2.6305	2.5130	2.4632	2.4589

#### Pasture range and paddock

N2O	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0.5240
		0.3671	0.3690	0.3589	0.3526	0.3602	0.3709	0.3968	0.4721	0.4953	0.5228	0.5687	0.6488	0.6885	0.6126	0.5804	0.5154	0.4448	0.5240

#### 4D AGRICULTURAL SOILS

##### 4D1 DIRECT SOIL EMISSIONS

##### 4D11 SYNTHETIC FERTILISERS

Nitrogen input from application of synthetic fr kg N/yr		1.2E+07	1.2E+07	1.5E+07	1.4E+07	1.4E+07	1.4E+07	1.4E+07	1.1E+07	1.1E+07	1.1E+07	1.1E+07	1.1E+07	1.1E+07	1.1E+07	1.1E+07	6767660	6622153	5479563
		1.2E+07	1.2E+07	1.5E+07	1.4E+07	1.4E+07	1.4E+07	1.4E+07	1.1E+07	1.1E+07	1.1E+07	7692418	7777093	7987651	9050442	7724192	6767660	6622153	5479563
N2O	Gg	0.220	0.215	0.272	0.256	0.254	0.250	0.245	0.188	0.189	0.189	0.189	0.189	0.189	0.189	0.189	0.120	0.117	

			0.220	0.215	0.272	0.256	0.254	0.250	0.245	0.188	0.189	0.191	0.136	0.137	0.141	0.160	0.137	0.120	0.117	0.097
<b>4D12 ANIMAL MANURE APPLIED TO LAND</b>																				
Nitrogen input from manure applied to soils	kg N/yr	7495450	7658878	8479781	9334931	9159181	9617003	1E+07	9942182	9863419	9863419	9863419	9863419	9863419	9863419	9863419	9863419	9863419	9924923	1E+07
		7495450	7658878	8479781	9334931	9159181	9617003	1E+07	9942182	9863419	9433600	9507520	9943040	1.1E+07	1.1E+07	1E+07	9924923	1E+07	9681605	
N2O	Gg	0.094	0.096	0.106	0.117	0.114	0.120	0.125	0.124	0.123	0.123	0.123	0.123	0.123	0.123	0.123	0.123	0.123	0.124	0.127
		0.094	0.096	0.106	0.117	0.114	0.120	0.125	0.124	0.123	0.118	0.119	0.124	0.135	0.137	0.130	0.124	0.127	0.127	0.121

<b>4D13 N-FIXING CROPS</b>																				
Nitrogen fixed by N-fixing crops	kg N/yr	4462500	3859000	4250000	3540250	2975000	3058229	3315000	3400000	3000500	3000500	3400000	3000500	3400000	3000500	3000500	3000500	884.85	928.2	
		4462500	3859000	4250000	3540250	2975000	3058229	3315000	3400000	3000500	960500	1003000	977500	939250	2907000	2868750	884850	928200	968150	
N2O	Gg	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.010	
		0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.001	0.001	0.001	0.001	0.001	0.003	0.003	0.001	0.001	0.001

<b>4D2 PASTURE, RANGE AND PADDOCK MANURE</b>																				
N excretion on pasture range and paddock	kg N/yr	1.2E+07	1.2E+07	1.1E+07	1.1E+07	1.1E+07	1.2E+07	1.3E+07	1.5E+07	1.6E+07	1.6E+07	1.6E+07	1.6E+07	1.6E+07	1.6E+07	1.6E+07	1.6E+07	1.6E+07	64793.2	65602
		1.2E+07	1.2E+07	1.1E+07	1.1E+07	1.1E+07	1.2E+07	1.3E+07	1.5E+07	1.6E+07	1.7E+07	1.8E+07	2.1E+07	2.2E+07	1.9E+07	1.8E+07	1.6E+07	1.6E+07	1.4E+07	1.7E+07
N2O	Gg	0.367	0.369	0.359	0.353	0.360	0.371	0.397	0.458	0.495	0.495	0.495	0.495	0.495	0.495	0.495	0.495	0.495	0.124	0.127
		0.367	0.369	0.359	0.353	0.360	0.371	0.397	0.472	0.495	0.523	0.569	0.649	0.689	0.613	0.580	0.515	0.445	0.524	

**4F FIELD BURNING OF AGRICULTURAL RESIDUES**

<b>4F1 CEREALS</b>																				
NOx	Gg	0.1315	0.0791	0.2208	0.249	0.1972	0.1774	0.1712	0.0573	0.0793	NE	NE	NE	NE	NE	NE	NE	NE	8.5E-05	0.00015
CO	Gg	3.16	1.89	5.25	5.92	4.68	4.25	4.1	1.42	1.94	NE	NE	NE	NE	NE	NE	NE	NE	0.00206	0.00391
NMVOG	Gg	0.75	0.63	0.85	0.9	0.83	0.8	0.77	0.56	0.77	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
<b>4F11 WHEAT</b>																				
Crop production	t	10400	5600	10500	11700	8000	12297.3	13000	11500	11500	11500	11500	11500	11500	11500	11500	11500	9249	66833	
		10400	5600	10500	11700	8000	12297.3	13000	11500	11500	14000	10000	10500	12900	14280	9930	9249	66833	10712	
Biomass burned	Gg dm	5.04972	2.71908	5.09828	5.68094	3.8844	5.97095	6.31215	5.58383	5.58383	5.58383	5.58383	5.58383	5.58383	5.58383	5.58383	5.58383	5.58383	5.58383	5.58383
		5.04972	2.71908	5.09828	5.68094	3.8844	5.97095	6.31215	5.58383	5.58383	6.7977	4.8555	5.09828	6.2636	6.93365	4.82151	4.49085	32.4508	5.20121	
C fraction of residue		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Nitrogen-carbon ratio		0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
CH4	Gg	0.01634	0.0088	0.01649	0.01838	0.01257	0.01932	0.02042	0.01807	0.01807	0.01807	0.01807	0.01807	0.01807	0.01807	0.01807	0.01807	0.01807	0.01453	0.10499
		0.01634	0.0088	0.01649	0.01838	0.01257	0.01932	0.02042	0.01807	0.01807	0.02199	0.01571	0.01649	0.02026	0.02243	0.0156	0.01453	0.10499	0.01683	
N2O	Gg	0.00032	0.00017	0.00033	0.00036	0.00025	0.00038	0.0004	0.00036	0.00036	0.00036	0.00036	0.00036	0.00036	0.00036	0.00036	0.00036	0.00036	0.00029	0.00208
		0.00032	0.00017	0.00033	0.00036	0.00025	0.00038	0.0004	0.00036	0.00036	0.00044	0.00031	0.00033	0.0004	0.00044	0.00031	0.00029	0.00208	0.00033	
NOx	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
		0.01169	0.0063	0.0118	0.01315	0.00899	0.01382	0.01461	0.01293	0.01293	0.01574	0.01124	0.0118	0.0145	0.01605	0.01116	0.0104	0.07513	0.01204	
CO	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

0.34309 0.18474 0.34639 0.38597 0.26391 0.40568 0.42886 0.37938 0.37938 0.46185 0.32989 0.34639 0.42556 0.47109 0.32758 0.30512 2.20477 0.35338

**4F12 BARLEY**

Crop production	t	98000	59500	171000	193000	154000	133818	128000	36000	54000	54000	54000	54000	54000	54000	54000	60286	58372		
Biomass burned	Gg dm	43.924	26.668	76.642	86.503	69.023	59.977	57.370	16.135	24.203	24.203	24.203	24.203	24.203	24.203	24.203	24.203	24.203	24.203	23.310
C fraction of residue		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.457
Nitrogen-carbon ratio		0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
CH4	Gg	0.134	0.081	0.233	0.263	0.210	0.183	0.175	0.049	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.082	0.080	0.071
N2O	Gg	0.003	0.002	0.006	0.007	0.005	0.005	0.004	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
NOx	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
CO	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
		2.808	1.705	4.900	5.531	4.413	3.835	3.668	1.032	1.547	3.230	1.078	3.339	3.680	4.299	2.894	1.728	1.673	1.490	

**4F14 OATS**

Crop production	t	100	80	145	140	150	174	190	280	320	320	320	320	320	320	320	650	943		
Biomass burned	Gg dm	0.059	0.047	0.085	0.082	0.088	0.102	0.111	0.164	0.187	0.187	0.187	0.187	0.187	0.187	0.187	0.187	0.187	0.187	0.476
C fraction of residue		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.450
Nitrogen-carbon ratio		0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
CH4	Gg	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
N2O	Gg	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NOx	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
CO	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
		0.004	0.003	0.005	0.004	0.006	0.006	0.007	0.010	0.012	0.015	0.013	0.014	0.015	0.015	0.015	0.121	0.024	0.035	0.030

**4F2 PULSE**

**4F12 DRY BEAN**

Crop production	t	3600	3340	4070	2965	2600	2566.67	2800	2800	2430	2430	2430	2430	2430	2430	2430	950	1000		
Biomass burned	Gg dm	3.402	3.156	3.846	2.802	2.457	2.426	2.646	2.646	2.296	2.296	2.296	2.296	2.296	2.296	2.296	2.296	2.296	2.296	0.992
C fraction of residue		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.450
Nitrogen-carbon ratio		0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
CH4	Gg	0.010	0.009	0.012	0.008	0.007	0.007	0.008	0.008	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.003	0.003
N2O	Gg	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010



NOx	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0.000
		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000
CO	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0.000
		1.226	1.137	1.386	1.009	0.885	0.874	0.953	0.953	0.827	0.340	0.374	0.357	0.340	0.851	0.852	0.323	0.340	0.357		

#### 4F3 PEAS

Crop production	t	1650	1200	930	1200	900	1031.25	1100	1200	1100	1100	1100	1100	1100	1100	1100	91	92			
		1650	1200	930	1200	900	1031	1100	1200	1100	130	80	100	105	920	873	91	92		89	
Biomass burned	Gg dm	1.114	0.810	0.628	0.810	0.608	0.696	0.743	0.810	0.743	0.743	0.743	0.743	0.743	0.743	0.743	0.743	0.743	0.743	0.743	0.743
		1.114	0.810	0.628	0.810	0.608	0.696	0.743	0.810	0.743	0.088	0.054	0.068	0.071	0.621	0.589	0.061	0.062	0.060		
C fraction of residue		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450
Nitrogen-carbon ratio		0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
		0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
CH4	Gg	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
		0.089	0.065	0.050	0.065	0.049	0.056	0.060	0.065	0.060	0.007	0.004	0.005	0.006	0.050	0.047	0.005	0.005	0.005	0.005	0.005
N2O	Gg	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NOx	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0.000
		0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.000	0.000
CO	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0.000
		3.284	2.389	1.851	2.389	1.791	2.053	2.189	2.389	2.189	0.259	0.159	0.199	0.209	1.831	1.738	0.181	0.183	0.177		

#### 4F3 TUBER AND ROOT

NOx	Gg	0.0379	0.0367	0.0399	0.046	0.0276	0.0424	0.0465	0.0166	0.0282	NE	NE	NE	NE	NE	NE	3.1E-05	2.6E-05
CO	Gg	0.89	0.86	0.94	0.95	0.65	1	1.09	0.39	0.66	NE	NE	NE	NE	NE	NE	0.00073	0.00061
NM VOC	Gg	0.1	0.11	0.13	0.11	0.1	0.11	0.12	0.09	0.1	NE	NE	NE	NE	NE	NE	NE	NE

#### 4F31 POTATOES

Crop production	t	185900	179650	195400	199000	135000	207699	228000	81500	138092	138092	138092	138092	138092	138092	138092	152500	127500		
		185900	179650	195400	199000	135000	207699	228000	81500	138092	161500	117000	121000	148500	127500	131650	152500	127500	155500	
Fraction oxidized		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.900
Biomass burned	Gg dm	15.058	14.552	15.827	16.119	10.935	16.824	18.468	6.602	11.185	11.185	11.185	11.185	11.185	11.185	11.185	11.185	11.185	11.185	11.185
		15.058	14.552	15.827	16.119	10.935	16.824	18.468	6.602	11.185	13.082	9.477	9.801	12.029	10.328	10.664	12.353	10.328	12.596	12.596
C fraction of residue		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450
Nitrogen-carbon ratio		0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
		0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
CH4	Gg	0.042	0.041	0.045	0.045	0.031	0.047	0.052	0.019	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.035	0.029
		0.002	0.002	0.002	0.002	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
N2O	Gg	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NOx	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CO	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
		0.058	0.056	0.061	0.062	0.042	0.065	0.071	0.026	0.043	0.051	0.037	0.038	0.047	0.040	0.041	0.048	0.040	0.049	0.049

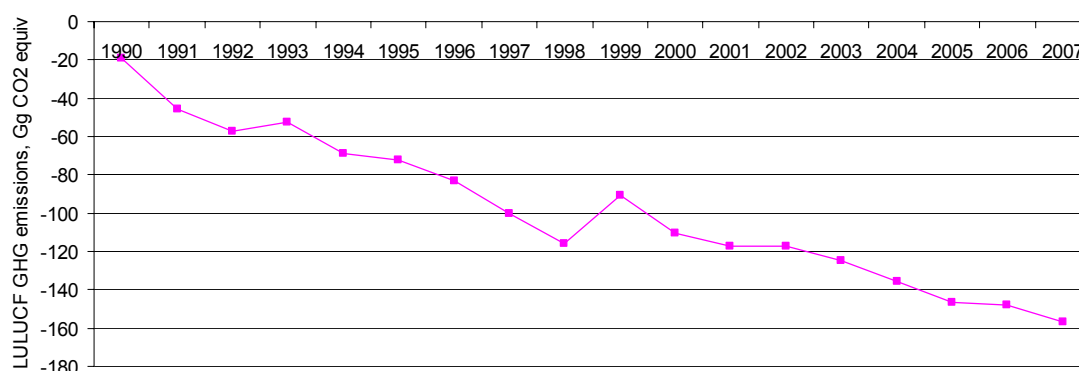
## 7. LULUCF (CRF sector 5) – for 3(1)c and 3(1)d

---

### 7.1. Overview of sector

CRF Sector 5 Land Use, Land Use Change reduced total GHG emissions in 1990 by 0.3% and increased to 1.5% in 2007 (**Figure 7.1**). Even though through time there have been wild-fires throughout the island, due to the fact that there is considerable forestation taking place and the trees cut for firewood have reduced considerably through the years, the emissions reductions have increased between 1990-2007 according to the available data.

**Figure 7.2** shows the relative change of CO<sub>2</sub> emissions of CO<sub>2</sub> absorption and CO<sub>2</sub> emissions related to LULUCF.



**Figure 7.1. GHG emissions from the LULUCF for 1990 to 2007, Gg CO<sub>2</sub> equivalents**

The key sources of the sector of Land Use, Land Use Change in Cyprus are:

#### 5A. Forest Land

- 5A1. Forest land remaining forest land
  - Carbon Stock Change
  - 5(V) Biomass Burning
  - Wildfires

#### 5G. Other

- Harvested Wood Products

### 7.2. Source categories

#### 7.2.1. Forest Land (5A)

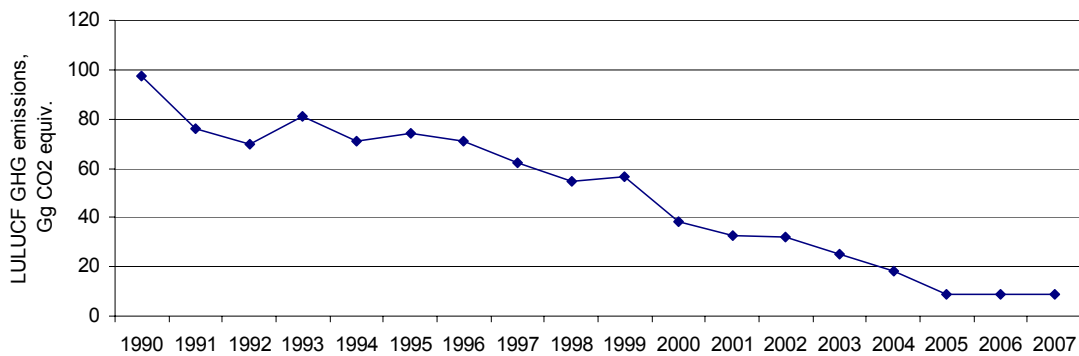
The emissions from carbon stock change from forest remaining forest land are shown in **Table 7.1**. CO<sub>2</sub> from carbon stock change decreased from -125.22 Gg in 1990 to -165.95 Gg in 2007, corresponding to 32.5%. No change between 2006 and 2007.

**Table 7.1. CO2 emissions (Gg) from carbon stock change and wildfires - forest remaining forest**

	Net CO2 emissions/ removals (Gg)	CO2 from 5(V) biomass burning –Wildfires (Gg)	5A. Forest remaining forest (net CO2, Gg)
1990	-125.22	5.62	-119.60
1991	-130.54	5.62	-124.92
1992	-136.18	5.62	-130.56
1993	-142.19	5.62	-136.57
1994	-148.61	5.62	-142.99
1995	-155.51	5.62	-149.89
1996	-162.97	5.62	-157.35
1997	-171.10	5.62	-165.48
1998	-180.00	5.62	-174.38
1999	-156.98	5.62	-151.36
2000	-158.24	5.62	-152.62
2001	-158.55	5.62	-152.93
2002	-158.87	5.62	-153.25
2003	-159.08	5.62	-153.46
2004	-163.17	5.62	-157.55
2005	-164.69	5.62	-159.07
2006	-165.95	5.62	-160.33
2007	-165.95	5.62	-160.33

### 7.2.2. Other (5G)

The emissions from Other (harvested wood product) are shown in **Figure 7.3**. CO2 from other decreased from 97Gg in 1990 to 9Gg in 2007, corresponding to a decrease of 91%. No change between 2006 and 2007.



**Figure 7.2. CO2 emissions (Gg) from harvested wood product**

## 7.3. Methodological Issues – for 3(1)f

### 7.3.1. Activity data

Changes in Carbon Stock Change are shown in **Table 7.3**.

**Table 7.3. Carbon Stock Change, 1990-2007 in Gg**

	Carbon Stock Change (Gg)
1990	34.15
1991	35.60
1992	37.14
1993	38.78
1994	40.53
1995	42.41
1996	44.45
1997	46.66
1998	49.09
1999	42.81
2000	43.16
2001	43.24
2002	43.33
2003	43.38
2004	44.50
2005	44.92
2006	45.26
2007	45.26

For the estimation of the emissions/ absorptions of carbon dioxide from this category, the IPCC methodology is applied [1]. The coefficients/ parameters used are:

- Annual rate of wood-storage increase: as arises from the data provided by Department of Forests;
- Dry biomass content in carbon: 0.5 tn C/tn dry biomass (proposed value by IPCC);
- Conversion coefficient of biomass volume to quantity of dry biomass: 0.5 tn dry biomass/ m3 biomass (proposed value by IPCC);
- Biomass expansion ratio for commercial roundwood harvested: 1.9

### **7.3.2. Emission Factors**

This category covers the emissions from forest fires, for which the emission coefficients in **Table 7.1** [2] are used.

**Table 7.1. CORINAIR emission coefficients for forests in the area of Mediterranean [2]**

<b>GHG</b>	<b>NOx</b>	<b>CO</b>	<b>CH<sub>4</sub></b>	<b>NMVOCS</b>	<b>SO<sub>2</sub></b>	<b>CO<sub>2</sub></b>	<b>N<sub>2</sub>O</b>
EF (kg/Ha)	51	1456	95	133	11	4641	3

### **7.4. Explanations and justifications for recalculations – for 3(1)f/ Changes in previously submitted data – for 3(1)e**

No changes have been made since the previous submission (April 2008).

### **7.5. Planned improvements to the inventory – for 3(1)i**

More accurate estimations of all the emissions arising from land uses and forests shall be made in co-ordination with the Forest Department. Better allocation of information in the sectors.

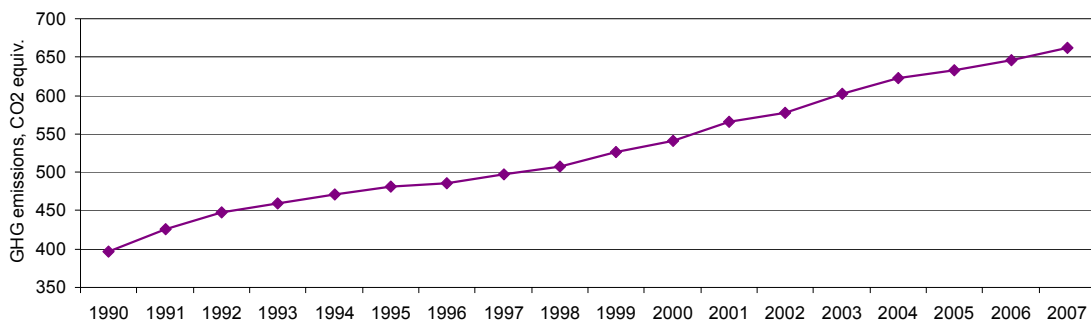


## 8. Waste (CRF sector 6)

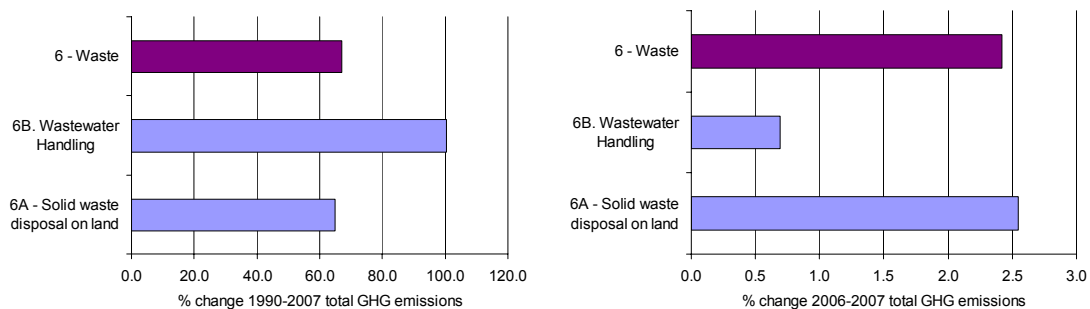
### 8.1. Overview of sector

GHG emissions from the sector of waste contributed 7.3% of the total emissions in 1990 and 6.5% in 2007 (compared to total without LULUCF). The increase in emissions between 1990 and 2007 was 265.7Gg Co<sub>2</sub> equiv. corresponding to 67%, while between 2006 and 2007, the emissions increased by 15.6 Gg CO<sub>2</sub> equiv. (2.4%). The trend of the sector GHG emissions for 1990 to 2007 is shown in **Figure 8.1**, whereas the relative increase of the sector for 1990-2007 and 2006-2007 is shown in **Figure 8.2**.

No incineration is currently used in Cyprus for treatment of waste other than abattoir waste. However, due to data lack no incineration is reported. Moreover, the sludge arising from the treatment of municipal and/or industrial treatment has not been considered for GHG emissions inventory.



**Figure 8.1. GHG emissions for the sector of waste for 1990-2007, Gg CO<sub>2</sub> equiv.**



**Figure 8.2. Relative increase of GHG emissions for the sector of waste for 1990-2007 and 2006-2007, %**

The emission for the particular sector in Cyprus are reported for:

#### 6A. Solid Waste Disposal on Land

##### 6A1. Managed waste disposal on land

6A2. Unmanaged waste disposal on land  
6A2.2. Shallow (<5m)

**6B. Wastewater Handling**

6B1. Industrial wastewater  
Wastewater

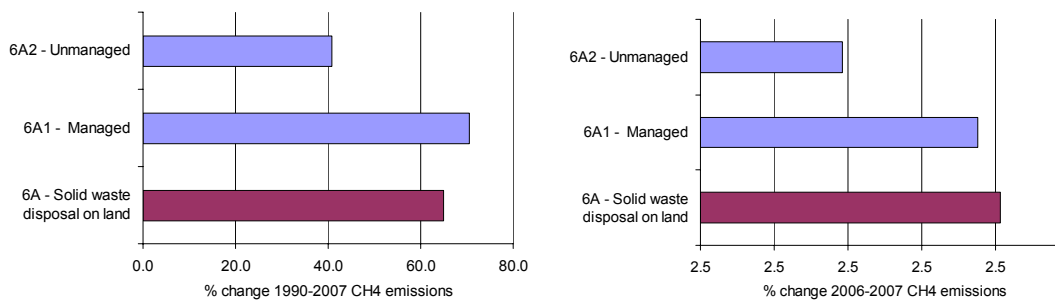
6B2. Domestic and commercial

6B2.1. Domestic and commercial (w/o human sewage)  
Wastewater

**8.2. Source categories**

**8.2.1. Solid Waste Disposal on Land (6A)**

All the emissions calculated from the source Solid waste disposal on land (6A) are for CH<sub>4</sub>. **Figure 8.3** presents the relative change between 1990-2007 and 2006-2007 for the sources; 65% increase for 1990-2007 (11.6 Gg CH<sub>4</sub>) and 2.5% increase between 2006 and 2007 (0.7Gg CH<sub>4</sub>). The unmanaged waste disposal on land is all assumed shallow (<5m). The trend of CH<sub>4</sub> emissions from solid waste disposal on land is shown in **Table 8.1**.



**Figure 8.3. Relative change of GHG emissions for the sector of Solid Waste Disposal on Land (6A) for 1990-2007 and 2006-2007.**

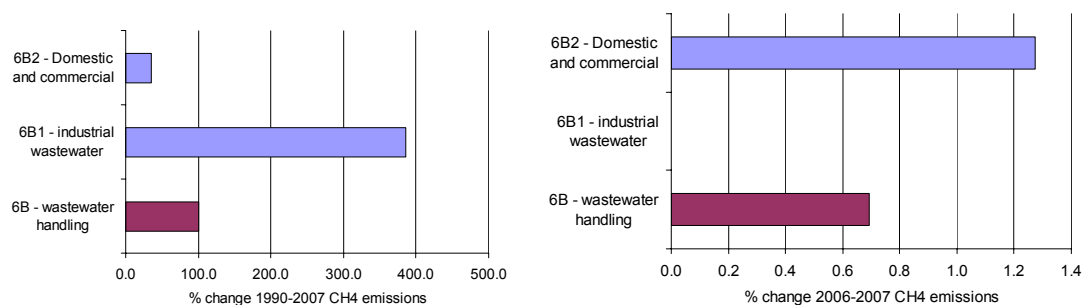
**Table 8.1. GHG emissions for the sector of Solid Waste Disposal on Land (6A) for 1990-2007**

	<b>6A - Solid waste disposal on land</b>	<b>6A - Solid waste disposal on land</b>	<b>6A1 - Managed</b>	<b>6A2 - Unmanaged</b>
	<b>Gg CO<sub>2</sub> equivalent</b>	<b>Gg CH<sub>4</sub></b>	<b>Gg CH<sub>4</sub></b>	<b>Gg CH<sub>4</sub></b>
<b>1990</b>	375.02	17.86	14.53	3.32
<b>1991</b>	404.27	19.25	15.67	3.58
<b>1992</b>	424.25	20.20	16.44	3.76
<b>1993</b>	436.07	20.77	17.03	3.74
<b>1994</b>	446.87	21.28	17.45	3.83
<b>1995</b>	457.66	21.79	17.87	3.92
<b>1996</b>	460.89	21.95	18.04	3.91
<b>1997</b>	472.49	22.50	18.54	3.96
<b>1998</b>	482.94	23.00	19.00	4.00
<b>1999</b>	492.19	23.44	19.41	4.03
<b>2000</b>	505.06	24.05	19.96	4.09
<b>2001</b>	528.80	25.18	20.95	4.23
<b>2002</b>	539.36	25.68	21.41	4.27
<b>2003</b>	560.34	26.68	22.29	4.39

<b>2004</b>	579.43	27.59	23.10	4.49
<b>2005</b>	589.90	28.09	23.58	4.51
<b>2006</b>	603.52	28.74	24.18	4.56
<b>2007</b>	618.87	29.47	24.79	4.68

### 8.2.2. Wastewater Handling (6B)

All the emissions calculated from the source Wastewater Handling (6B) are for CH<sub>4</sub>. **Figure 8.4** presents the relative change between 1990-2007 and 2006-2007 for the sources, while Table 8.1 shows the CH<sub>4</sub> emissions for the source. The



**Figure 8.4.** GHG emissions for the sector of Wastewater Handling (6B) for 1990-2007 and 2006-2007, Gg CO<sub>2</sub> equiv.

**Table 8.2.** GHG emissions for the sector of Wastewater Handling (6B) for 1990-2007

	6B - wastewater handling	6B - wastewater handling	6B1 - industrial wastewater	6B2 - Domestic and commercial
	Gg CO <sub>2</sub> equivalent	Gg CH <sub>4</sub>	Gg CH <sub>4</sub>	Gg
<b>1990</b>	21.74	1.04	0.19	0.84
<b>1991</b>	22.10	1.05	0.19	0.86
<b>1992</b>	22.98	1.09	0.19	0.90
<b>1993</b>	23.13	1.10	0.19	0.91
<b>1994</b>	23.54	1.12	0.19	0.93
<b>1995</b>	24.04	1.14	0.19	0.95
<b>1996</b>	24.21	1.15	0.19	0.96
<b>1997</b>	24.51	1.17	0.19	0.97
<b>1998</b>	24.83	1.18	0.19	0.99
<b>1999</b>	34.49	1.64	0.63	1.01
<b>2000</b>	36.59	1.74	0.72	1.02
<b>2001</b>	37.68	1.79	0.76	1.04
<b>2002</b>	38.16	1.82	0.78	1.04
<b>2003</b>	41.75	1.99	0.93	1.05
<b>2004</b>	42.77	2.04	0.96	1.08
<b>2005</b>	43.17	2.06	0.95	1.11
<b>2006</b>	43.25	2.06	0.94	1.12
<b>2007</b>	43.55	2.07	0.94	1.13

## 8.3. Methodological Issues – for 3(1)f

### 8.3.1. Activity data

Solid waste disposal on land

The emissions arising from solid waste disposal on land are estimated on the basis of waste production and type of management, based on the methodology proposed by UNFCCC [1]. The activity data for 2007 is shown in **Table 8.3**, compared to 2006 and 1990 for solid waste disposal on land.

**Table 8.3. Solid waste disposal on land activity data**

		<b>1990</b>	<b>2006</b>	<b>2007</b>
<b>Total population</b>		<b>587,100</b>	<b>778700</b>	<b>789300</b>
MSW generation rate	tonnes/cap permanent population	0.58	0.73	0.75
	kg/cap/day	1.60	2.01	2.04
Total MSW production	000s tonnes	342.11	571.18	588.03
MSW disposed on land	000s tonnes	342.11	499.49	512.19
Fraction disposed on land		1	0.87	0.87
<b>Waste composition - LANDFILLED</b>			<b>499.49</b>	<b>512.194</b>
paper etc	000s tonnes	90.89	142.35	145.97
textiles	000s tonnes	21.36	33.47	34.32
plastic	000s tonnes	38.57	60.44	61.98
glass	000s tonnes	3.81	5.99	6.14
metal	000s tonnes	7.35	11.49	11.78
biodegradable	000s tonnes	132.66	207.79	213.07
other	000s tonnes	24.30	37.96	38.93
TOTAL biodegradable fraction	%	0.72	0.77	0.77
<b>DOC</b>	<b>2006 IPCC (pg 2.14)</b>			
paper etc		0.4		
textiles		0.4		
biodegradable		0.26		
paper etc		0.11	0.11	0.11
textiles		0.02	0.03	0.03
biodegradable		0.10	0.11	0.11
DOC		0.23	0.25	0.25
DOC	%	23.21	24.90	24.90

<b>6A1</b>	<b>MANAGED WASTE DISPOSAL ON LAND</b>			
Production (assumed that all urban waste managed)				
Urban population		418900	542900	550290
Portion of MSW going to SWDS	%	0.7	0.7	0.7
Annual MSW at the SWDS	000s tonnes	231.4	348.2	357.1

<b>6A2</b>	<b>UNMANAGED WASTE DISPOSAL ON LAND</b>			
Production (assumed that all suburban waste unmanaged)				
Suburban population		200300	235800	239010

Portion of MSW going to unmanaged SWDS	%	32%	30%	30%
Annual MSW at the unmanaged SWDS	000s tonnes	110.667	151.252	155.099

The methane emissions were estimated with the IPCC methodology [1]. The parameters used are presented in Chapter 3. According to the particular methodology, the uncontrolled disposal sites are distinguished into two categories: depth smaller and larger than 5 meters, where the first have smaller methane emission coefficient since the conditions do not allow intensive fermentation to take place. The uncontrolled sites in Cyprus have been classified as of the first type.

For the estimation of methane emissions from solid wastes, the IPCC default methodology was applied [1]. The values of the parameters used are:

- *MCF* [Methane Correction Factor] for organised disposal sites = 1
- *MCF* for non-organised disposal sites: 0.4 (note: the IPCC coefficient for disposal sites with mean depth smaller than 5 meters)
- *DOC<sub>F</sub>*: 0.6
- *F*: 50%
- *L<sub>0</sub>*: 0.072 for organised disposal sites, and 0.029 for non-organised disposal sites
- *R*: 0
- *OX*: 0

#### Wastewater handling

Emissions from municipal wastewater treatment units were estimated with the method proposed by the IPCC. For the estimation of the organic loading used for the methane emissions, the same data concerning population and tourism as for solid wastes (**Table 8.3**). It was assumed that the part of municipal wastewater subjected to aerobic treatment was constant; the value of 70% was used. **Table 8.4** shows the activity data used for Domestic and commercial wastewater.

**Table 8.4. Activity data used for Domestic and Commercial wastewater**

	<b>1990</b>	<b>2006</b>	<b>2007</b>
Permanent population	587100	778700	789300
Tourists (over-night)	10218739	14439000	14378000
D <sub>dom</sub> (kg BOD/cap day)	0.05	0.05	0.05
D <sub>dom</sub> (kg BOD/1000 cap y)	18250	18250	18250
D <sub>sdom</sub> (sludge removal)	0	0	0
TOW <sub>dom</sub> (wastewater) - TOTAL wstwater (m3)	11225512	14933225	15123625

The volume of industrial wastewater was estimated using the IPCC methodology [1]: the industrial production data per product was multiplied with a wastewater production coefficient per unit product. However, because:

- (a) the production units according to the statistics of the industry are not always in accordance to the respective production units used in the IPCC methodology; and
- (b) there are cases where the IPCC methodology gives COD coefficients per unit wastewater volume, and not a coefficient for wastewater production per unit product;

it was not possible for the current inventory to cover all the industrial sectors resulting to production of wastewater. In cases where the wastewater production coefficients were not available for unit product by the IPCC, the World Health Organization/WHO database was used [16]. The activities/ products covered by the current inventory, in addition to the produced volume of wastewater as estimated for 2006 and the respective COD are presented in **Table 8.5**.

It should be noted here, that the industrial production used for 2007 was the values of 2006, since no data is yet available for the industrial production of 2007 by the Statistical Service.

**Table 8.5 Volume of industrial wastewater produced and Chemical oxygen demand (COD) for industrial wastewaters for 2007**

	PRODUCT	Wastewater Volume produced in 2007 (m <sup>3</sup> )	COD (kg)
REFRESHMENTS	Alcohol	14,963	164,593
	Beer	187,050	542,445
	Wine	609,477	914,216
	Refreshments	250,557	501,113
	Fruit juices	671,200	3,356,000
	Canned fruits	24,280	121,400
	Canned vegetables	18,860	94,300
	Tomato paste	7,200	36,000
	Meat	992,290	4,068,389
	Poultry	259,974	1,065,893
FOOD	Pasteurised milk	231,359	624,670
	Fresh creams		0
	Halloumi cheese	17,595	47,507
	Cheese	3,328	8,986
	Butter	1,768	4,774
	Feta cheese	1,421	3,838
	Anari cheese	3,491	9,427
	Yogurt	33,989	91,769
	Ice cream	12,705	34,304
	Olive oil	26,250	1,102,500
CHEMICALS	Plant oils	47,650	57,180
	Sugar	7,272	23,270
	Soap	4,260	5,112
CHEMICALS	Detergents	26,575	31,890
	Plastics	8,710	32,226
<b>TOTAL</b>		<b>3,462,224</b>	<b>12,941,800</b>

For the estimation of methane emissions from municipal wastewaters, the IPCC default methodology was applied [1]. The values of the parameters used are:

- $D_{dom}$  [biodegradable organic loading in municipal wastewaters]: 0.05 kg BOD<sub>5</sub>/person/day or else 18250 kg BOD<sub>5</sub>/1000 people/year (proposed IPCC value for Europe).
- $D_{sdom}$  [biodegradable organic loading in municipal wastewaters removed as sludge]: 0
- $B_o$  [maximum methane potential]: 0.25 kg CH<sub>4</sub>/kg BOD
- $WS_{aerobic}$  [% wastewaters with aerobic treatment]: 30%
- $MCF_{aerobic}$  [Methane Correction Factor for aerobic treatment]: 0
- $MCF_{anaerobic}$  [Methane Correction Factor for anaerobic treatment]: 1
- $MR$  [Methane Recovered]: 0

The IPCC methodology [1] was also applied for the estimation of methane emissions from industrial activity. The values of the parameters used per industrial sector/products for the estimation of volume and COD of the liquid wastewater, are as proposed by IPCC [1, 18] – with the exception of certain indicators that are from WHO [16] and used in occasions where there were no respective available coefficients from IPCC (**Table 8.4**). The values of the remaining parameters/coefficients used are:

- $MCF_{aerobic}$  [Methane Correction Factor for aerobic treatment]: 0
- $MCF_{anaerobic}$  [Methane Correction Factor for anaerobic treatment]: 1
- $B_o$  [maximum methane potential]: 0.25 kg CH<sub>4</sub>/kg COD

**Table 8.4. Indicators used for the estimation of volume and organic loading of industrial wastewaters**

CATEGORY	PRODUCT	Activity unit	m <sup>3</sup> wastewater / activity unit	Source	kg COD/m <sup>3</sup> wastewater	Source
REFRESHMENTS	Alcohol	m <sup>3</sup> alcohol	13	IPCC [1]	11	IPCC [18]
	Beer	m <sup>3</sup> beer	5	IPCC [1]	2.9	IPCC [18]
	Wine	tn product	23	IPCC [18]	1.5	IPCC [18]
	Refreshments	tn product	4.3	WHO [16]	2	IPCC [18]
	Fruit juices	tn product	20	IPCC [18]	5	IPCC [18]
FOOD	Canned fruits	tn product	20	IPCC [18]	5	IPCC [18]
	Canned vegetables	tn product	20	IPCC [18]	5	IPCC [18]
	Tomato paste	tn product	20	IPCC [18]	5	IPCC [18]
	Meat	tn product	13	IPCC [18]	4.1	IPCC [18]
	Poultry	tn product	13	IPCC [18]	4.1	IPCC [18]
	Pasteurised milk	tn product	3.1	WHO [16]	2.7	IPCC [18]
	Fresh creams	tn product	2	WHO [16]	2.7	IPCC [18]
	Halloumi cheese	tn product	2.3	WHO [16]	2.7	IPCC [18]
	Cheese	tn product	2.3	WHO [16]	2.7	IPCC [18]
	Butter	tn product	2.6	WHO [16]	2.7	IPCC [18]
	Feta cheese	tn product	2.3	WHO [16]	2.7	IPCC [18]
	Anari cheese	tn product	2.3	WHO [16]	2.7	IPCC [18]
	Yogurt	tn product	3.9	WHO [16]	2.7	IPCC [18]
	Ice cream	tn product	3	WHO [16]	2.7	IPCC [18]
	Olive oil	tn product	7	WHO [16]	42	IPCC [1]
	Plant oils	tn product	3.1	IPCC [18]	1.2	IPCC [18]
Sugar	tn product	18	IPCC [18]	3.2	IPCC [18]	
CHEMICAL	Soap	tn product	5	IPCC [18]	1.2	IPCC [18]

Detergents	tn product	5	IPCC [18]	1.2	IPCC [18]
Plastics	tn product	0.6	IPCC [18]	3.7	IPCC [18]

### 8.3.2. Emission factors

For domestic and commercial wastewaters the emission factor for CH<sub>4</sub> used was 75t/ktn BOD. For industrial wastewaters, 0.0494 kg CH<sub>4</sub>/kg DC in 1990 compared to 7.3098 in 2006 and 7.3098 in 2007.

### 8.4. Explanations and justifications for recalculations – for 3(1)f

Recalculations have been made due to corrections in activity data of previous years.

*It should be noted that the recalculations are not available in the xml file submitted due to issues associated with the recalculation database of CRF-reporter software.*

### 8.5. Changes in previously submitted data – for 3(1)e

**Table 8.5** compares data of 2008 submission to current submission.

### 8.6. Planned improvements to the inventory – for 3(1)i

Under the application of the Cypriot legislations (mainly associated with pollution prevention and the related disposal permits issued by the Competent Authority), records are available on the amounts of waste produced and managed by livestock breeding. Consequently, in the future inventories, these data sets shall be used that is considered more accurate.



**Table 8.5. Activity data and GHG emissions for the sector of waste as submitted in 2009 and 2008, the top row in each parameter is the 2008 submission and the row below the 2009 submission**

		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
<b>6A1 MANAGED</b>																			
Annual MSW at the SWDS	Gg	225.03	228.39	237.89	240.90	245.72	247.77	244.83	248.22	254.33	288.49	295.16	307.44	312.99	350.00	334.48	304.07	307.43	
		231.44	237.75	244.10	251.13	254.03	256.78	265.46	272.21	278.30	283.69	291.16	304.92	311.05	323.20	334.26	340.42	348.24	357.10
Methane conversion factor		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CO2	Gg	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
CH4	Gg	16.21	16.45	17.14	17.36	17.70	17.93	17.74	18.00	18.34	20.19	20.66	21.52	21.91	24.50	23.41	21.96	22.20	
		14.53	15.67	16.44	17.03	17.45	17.87	18.04	18.54	19.00	19.41	19.96	20.95	21.41	22.29	23.10	23.58	24.18	24.79
DOC (Degradable Organic Carbon) degraded	%	18.01	18.01	18.01	18.01	18.01	18.01	18.01	18.01	18.01	18.01	18.01	18.01	18.01	18.01	18.01	18.01	18.01	
	%	23.21	24.35	24.89	24.89	25.22	25.55	24.90	24.90	24.90	24.90	24.90	24.90	24.90	24.90	24.90	24.89	24.90	24.90
<b>6A2 UNMANAGED</b>																			
Annual MSW at the SWDS	Gg	117.42	119.15	128.97	127.5	131.99	132.29	127.08	128.27	131.49	155.35	158.93	165.55	168.53	180.58	180.58	151.24	152.30	
		110.67	113.68	116.72	117.67	119.03	120.32	123.54	125.78	127.70	129.31	131.84	137.08	138.94	143.43	147.33	148.88	151.25	155.10
DOC (Degradable Organic Carbon) degraded	%	18.01	18.01	18.01	18.01	18.01	18.09	18.11	18.13	18.02	18	18	18	18	18	18	18	18	
<b>6A22 SHALLOW (&lt;5m)</b>																			
Annual MSW at the SWDS	Gg	117.42	119.15	128.97	127.5	131.99	132.29	127.08	128.27	131.49	155.35	158.93	165.55	168.53	180.58	180.58	151.24	152.30	
		110.67	113.68	116.72	117.67	119.03	120.32	123.54	125.79	127.70	129.31	131.84	137.08	138.95	143.43	147.33	148.88	151.25	155.10
DOC (Degradable Organic Carbon) degraded	%	18.01	18.01	18.01	18.01	18.01	18.09	18.11	18.13	18.02	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	
		23.21	24.35	24.89	24.89	25.22	25.55	24.90	24.90	24.90	24.90	24.90	24.90	24.90	24.90	24.90	24.89	24.90	24.90
CH4	Gg	3.38	3.43	3.72	3.67	3.80	3.83	3.68	3.72	3.79	4.66	4.77	4.97	5.06	5.42	5.42	4.37	4.40	
		3.32	3.58	3.76	3.74	3.83	3.92	3.91	3.96	4.00	4.03	4.09	4.23	4.27	4.39	4.49	4.51	4.56	4.68
<b>6B WASTEWATER HANDLING</b>																			
<b>6B1 INDUSTRIAL WASTEWATER</b>																			
<b>WASTEWATER</b>																			
Total organic product	Gg DC	11.09	10.08	10.56	11.47	13.60	14.99	14.73	14.75	13.89	13.89	13.89	13.89	13.89	13.89	13.89	12.97	12.974	
	Gg DC	391.89	467.54	446.38	479.73	551.14	511.23	470.28	639.72	662.80	697.24	694.76	683.39	642.25	572.85	175.33	13.62	12.852	12.85
CH4	Gg	0.20	0.21	0.210	0.210	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.95	0.950	
	Gg	0.19	0.19	0.193	0.193	0.193	0.19	0.19	0.19	0.19	0.63	0.72	0.76	0.78	0.93	0.96	0.95	0.939	0.94
	kg/kg																		
CH4	DC	0.02	0.021	0.020	0.018	0.015	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.07	0.073	
	kg/kg																		
	DC	0.00	0.000	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.001	0.001	0.001	0.001	0.00	0.00	0.07	0.073	0.07

## 9. Indicators – for 3(1)j

---

All indicators are resubmitted according to the new estimations of emissions. The economic denominators used are Chain Volume Measures of 2000.

**Table 9.1, 9.2 and 9.2** present the priority, additional and supplementary indicators respectively.

The indicators listed below have not been reported due to unavailability of following data:

### Priority

- (a) TRANSPORT C0: no data available on passenger transport by cars; emissions from transport cars have not been estimated.
- (b) HOUSEHOLD A1: no data available on Stock of permanently occupied dwellings.

### Additional

- (a) TRANSPORT D0: no data available
- (b) INDUSTRY A1.1: not occurring
- (c) INDUSTRY A1.2: not occurring
- (d) INDUSTRY C0.1: not occurring

### Supplementary

- (a) TRANSPORT B0: no data available on passenger transport by diesel-driven cars
- (b) TRANSPORT B0: no data available on passenger transport by petrol-driven cars
- (c) TRANSPORT C0: no data available on passenger transport by cars
- (d) TRANSPORT E1: no domestic flights in Cyprus
- (e) HOUSEHOLDS A0: no data available on surface area covered by dwellings
- (f) SERVICES B0: no data available on surface area covered by service buildings

**Table 9.1. Priority Indicators according to Annex II table of the Decision, 1990-2007 (change on the economic variables)**

Nomenclature in Eurostat																							
No.	energy efficiency indicators	Indicator	Numerator/denominator	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999										
PRIORITY	1	MACRO	Total CO2 intensity of GDP, t/Mio EUR	Total CO2 emissions, kt	4167.74	4400.975	5184.259	5518.121	5555.825	5296.586	5617.819	5813.539	6446.875	7258.013									
				GDP, Bio Euro (Chain Volume Measures of 2000)						646.29	8.20	673.04	8.35	680.51	8.54	718.42	8.97	771.42	9.41				
	2	MACRO B0	Energy related CO2 intensity of GDP, t/Mio EUR	CO2 emissions from energy consumption, kt	3521.31	3784.805	4587.77	4940.606	5007.576	4771.184	5093.659	5378.549	5784.927	6563.835									
				GDP, Bio Euro (Chain Volume Measures of 2000)						582.18	8.20	610.25	8.35	629.59	8.54	644.65	8.97	697.63	9.41				
	3	TRANSPORT C0	CO2 emissions from passenger cars, kt		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE									
				Number of kilometres by passenger cars, Mkm	NO DATA AVAILABLE ON PASSENGER TRANSPORT BY CARS																		
	4	INDUSTRY A1	Energy related CO2 intensity of industry, t/Mio EUR	CO2 emissions from industry, kt	679.7641	807.7706	1012.988	1178.637	1037.836	989.5494	1098.129	1295.491	1371.185	1936.12									
			Gross value-added total industry, Bio EUR (Chain Volume Measures of 2000)						1089.45	0.9083	1239.84	0.8857	1456.59	0.8894	1524.56	0.8994	2150.77	0.9002					
5	HOUSEHOLDS A.1	Specific CO2 emissions of households, t/dwelling	CO2 emissions from fossil fuel consumption households, kt	222.3412	222.3412	288.4007	293.095	333.1733	316.752	332.4654	348.8823	368.2331	381.5465										
			Stock of permanently occupied dwellings, 1000	1.41	157.33	1.37	161.92	1.74	165.79	1.70	172.65	1.85	179.81	1.70	186.62	1.72	192.87	1.75	199.41	1.79	206.22	1.80	211.88
6	SERVICES A0	CO2 intensity of the commercial and institutional sector, t/Mio EUR	CO2 emissions from fossil fuel consumption in commercial and institutional sector, kt	27.17503	29.22085	35.24897	35.82272	40.72119	38.71414	40.63466	42.64118	45.00626	46.63347										
			Gross value-added services, Bio Euro (Chain Volume Measures of 2000)						10.29	3.760962	10.57	3.844786	10.65	4.005133	10.67	4.219613	10.46	4.458128					
7	TRANSFORMATION B0	Specific CO2 missions of public and autoproducer power plants, t/TJ	CO2 emissions from public and autoproducer thermal power stations, kt	2387.56	2579.036	3082.858	3385.082	3339.573	3104.657	3336.629	3661.066	3969.939	4706.734										
			All products — output by public and autoproducer thermal power stations, PJ	81.79	29.19141	86.55	29.79702	80.51	38.29374	81.73	41.41674	76.82	43.47234	78.63	39.48479	78.67	42.41057	85.49	42.82235	81.18	48.90276	89.58	52.54371

Nomenclature in Eurostat																					
No.	energy efficiency indicators	Indicator	Numerator/denominator	2000	2001	2002	2003	2004	2005	2006	2007**										
PRIORITY	1	MACRO	Total CO2 intensity of GDP, t/Mio EUR	Total CO2 emissions, kt	7612.899	7480.38	7356.474	7372.844	7566.404	7829.417	8025.127	8167.26									
				GDP, Bio Euro (EC95)	770.29	9.88	727.88	10.28	701.07	10.49	689.49	10.69	679.06	11.14	675.98	11.58	665.95	12.05	649.42	12.58	
	2	MACRO B0	Energy related CO2 intensity of GDP, t/Mio EUR	CO2 emissions from energy consumption, kt	6919.254	6815.429	6664.962	6679.417	6821.336	7087.039	7268.303	7428.94									
				GDP, Bio Euro (EC95)	700.11	9.88	663.17	10.28	635.17	10.49	624.64	10.69	612.20	11.14	611.89	11.58	603.14	12.05	590.71	12.58	
	3	TRANSPORT C0	CO2 emissions from passenger cars, kt		NE	NE	NE	NE	NE	NE	NE	NE									
				Number of kilometres by passenger cars, Mkm	NO DATA AVAILABLE ON PASSENGER TRANSPORT BY CARS																
	4	INDUSTRY A1	Energy related CO2 intensity of industry, t/Mio EUR	CO2 emissions from industry, kt	2059.047	2032.42	1820.496	1631.144	1100.106	1141.78	1124.972	1052.845									
			Gross value-added total industry, Bio EUR (Chain Volume Measures of 2000)	2276.70	0.9044	2257.24	0.9004	2004.51	0.9082	1755.81	0.929	1171.20	0.9393	1226.40	0.931	1199.97	0.9375	1100.27	0.9569		
5	HOUSEHOLDS A.1	Specific CO2 emissions of households, t/dwelling	CO2 emissions from fossil fuel consumption households, kt	404.5549	391.7119	375.6581	347.6282	237.335	221.5127	237.335	207.5868										
			Stock of permanently occupied dwellings, 1000	1.86	217.90	1.76	222.39	1.65	228.25	1.49	233.94	0.98	242.10	0.86	256.60	0.89	268.10		no data		
6	SERVICES A0	CO2 intensity of the commercial and institutional sector, t/Mio EUR	CO2 emissions from fossil fuel consumption in commercial and institutional sector, kt	49.4456	48.1613	46.55592	42.48789	175.6122	116.7675	106.3505	84.62536										
			Gross value-added services, Bio Euro (Chain Volume Measures of 2000)	10.45	4.730968	9.86	4.885752	9.46	4.918841	8.64	4.918547	35.23	4.985144	22.09	5.285448	19.29	5.51348	14.70	5.757807		
7	TRANSFORMATION B0	Specific CO2 missions of public and autoproducer power plants, t/TJ	CO2 emissions from public and autoproducer thermal power stations, kt	4962.813	4868.504	4767.109	4808.315	4419.648	4613.624	4778.352	4854.513										
			All products — output by public and autoproducer thermal power stations, PJ	79.68	62.28383	78.34	62.14245	75.52	63.12012	75.57	63.62949	68.61	64.41731	77.49	59.5355	78.95	60.52618	79.01	61.44467		

**Table 9.2. Additional Indicators according to Annex II table of the Decision, 1990-2007**

Nomenclature in Eurostat energy efficiency indicators				1990	1991	1992	1993	1994	1995	1996	1997	1998	1999									
No.	Indicator	Numerator/denominator																				
ADDITIONAL	1	TRANSPORT D0	CO2 emissions from freight transport on road, kt	NO DATA AVAILABLE																		
			Freight transport on road, Mtkm	NO DATA AVAILABLE																		
	2	INDUSTRY A1.1	Total CO2 intensity — iron and steel industry, t/Mio EUR	NOT OCCURING*																		
			Total CO2 emissions from iron and steel, kt																			
			Gross value-added iron and steel industry, Bio Euro (EC95)																			
			Gross value-added iron and steel industry, Bio Euro (current prices)																			
3	INDUSTRY A1.2	Energy related intensity — chemical industry, t/Mio EUR	NOT OCCURING*																			
		Energy related CO2 emissions chemical industries, kt																				
		Gross value-added chemical industry, Bio Euro (current prices)																				
4	INDUSTRY A1.3	Energy related CO2 intensity — glass, pottery and building materials industry, t/Mio EUR	11178.77	0.06	13008.97	0.06	15158.47	0.06	15912.41	0.07	1209.18	0.80	10950.80	0.08	11851.34	0.09	14331.49	0.09	15499.72	0.08	21032.90	0.09
		Energy related CO2 emissions glass, pottery and building materials, kt																				
		Gross value-added — glass, pottery and buildings materials industry, Bio Euro (current prices)																				
5	INDUSTRY C0.1	Specific CO2 emissions of iron and steel industry, t/t	NOT OCCURING*																			
		Total CO2 emissions from iron and steel, kt																				
		Production of oxygen steel, kt																				
6	INDUSTRY C0.2	Specific energy related CO2 emissions of cement industry, t/t	0.56	1132.87	0.67	1133.72	0.84	1127.72	1.03	1089.37	0.92	1053.05	0.90	1023.53	1.01	1021.25	1.34	909.29	1.07	1203.77	1.62	1146.46
		Energy related CO2 emissions from glass, pottery and building materials, kt																				
		Cement production, kt																				

Nomenclature in Eurostat energy efficiency indicators				2000	2001	2002	2003	2004	2005	2006	2007											
No.	Indicator	Numerator/denominator																				
ADDITIONAL	1	TRANSPORT D0	CO2 emissions from freight transport on road, kt	NO DATA AVAILABLE																		
			Freight transport on road, Mtkm	NO DATA AVAILABLE																		
	2	INDUSTRY A1.1	Total CO2 intensity — iron and steel industry, t/Mio EUR	NOT OCCURING*																		
			Total CO2 emissions from iron and steel, kt																			
			Gross value-added iron and steel industry, Bio Euro (EC95)																			
			Gross value-added iron and steel industry, Bio Euro (current prices)																			
3	INDUSTRY A1.2	Energy related intensity — chemical industry, t/Mio EUR	NOT OCCURING*																			
		Energy related CO2 emissions chemical industries, kt																				
		Gross value-added chemical industry, Bio Euro (current prices)																				
4	INDUSTRY A1.3	Energy related CO2 intensity — glass, pottery and building materials industry, t/Mio EUR	19623.17	0.10	12291.64	0.16	11254.25	0.15	11255.72	0.14	6591.57	0.15	6620.12	0.14	6000.56	0.16	5354.15	0.17				
		Energy related CO2 emissions glass, pottery and building materials, kt																				
		Gross value-added — glass, pottery and buildings materials industry, Bio Euro (current prices)																				
5	INDUSTRY C0.1	Specific CO2 emissions of iron and steel industry, t/t	NOT OCCURING*																			
		Total CO2 emissions from iron and steel, kt																				
		Production of oxygen steel, kt																				
6	INDUSTRY C0.2	Specific energy related CO2 emissions of cement industry, t/t	1.40	1409.98	1.42	1377.15	1.18	1479.41	0.94	1658.77	0.54	1772.68	0.53	1793.80	0.62	1541.38	0.60	1515.25				
		Energy related CO2 emissions from glass, pottery and building materials, kt																				
		Cement production, kt																				

Table 9.3. Supplementary Indicators according to Annex II table of the Decision, 1990-2007

Nomenclature in Eurostat																																		
No.	energy efficiency indicators	Indicator	Numerator/denominator	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999																					
SUPPLEMENTARY	1	TRANSPORT B0	Specific petrol related CO2 emissions of passenger cars, g/100 km	CO2 emissions from diesel-driven passenger cars, kt	NO DATA AVAILABLE ON PASSENGER TRANSPORT BY DIESEL-DRIVEN CARS																													
				Passenger transport by diesel-driven passenger cars, Mpkm																														
	2	TRANSPORT B0	Specific petrol related CO2 emissions of passenger cars, g/100 km	CO2 emissions from petrol driven passenger cars, kt	NO DATA AVAILABLE ON PASSENGER TRANSPORT BY PETROL-DRIVEN CARS																													
				Passenger transport by petrol-driven passenger cars, Mpkm																														
	3	TRANSPORT C0	Specific CO2 emissions of passenger cars, t/pkm	CO2 emissions from passenger cars, kt	NO DATA AVAILABLE ON PASSENGER TRANSPORT BY CARS																													
				Passenger transport by cars, Mpkm																														
	4	TRANSPORT E1	Specific air-transport emissions, t/ passenger	CO2 emissions from domestic air transport, kt	NO DOMESTIC FLIGHTS IN CYPRUS																													
				Domestic air-passengers, Mio																														
	5	INDUSTRY A1.4	Energy related CO2 intensity — food, drink and tobacco industry, t/Mio EUR	Energy related CO2 emissions food industries, kt	46.94	50.47	60.88	61.88	70.34	66.87	70.19	73.65	77.74	80.55	0.28	168.22	0.29	174.73	0.29	208.69	0.29	215.84	0.30	237.55	0.26	258.86	0.26	271.17	0.26	287.79	0.25	310.24	0.24	332.20
				Gross value-added — food, drink and tobacco industry, Mio EUR																														
	6	INDUSTRY A1.5	Energy related CO2 intensity — paper and printing industry, t/Mio EUR	Energy related CO2 emissions paper and printing, kt	NOT OCCURRING*																													
				Gross value-added — paper and printing industry, Mio EUR																														
	7	HOUSEHOLDS A0	Specific CO2 emissions of households for space heating, kg/m2	CO2 emissions from space heating in households, kt	222.34	239.08	288.40	293.09	333.17	316.75	332.47	348.88	368.23	381.55																				
				Surface area of permanently occupied dwellings, Mio m2	NO DATA AVAILABLE ON SURFACE AREA COVERED BY DWELLINGS																													
	8	SERVICES B0	Specific CO2 emissions of commercial and institutional sector for space heating, kg/m2	CO2 emissions from space heating in commercial and institutional, kt	27.18	29.22	35.25	35.82	40.72	38.71	40.63	42.64	45.01	46.63																				
			Surface area of services buildings, Mio m2	NO DATA AVAILABLE ON SURFACE AREA COVERED BY SERVICE BUILDINGS																														
9	TRANSFORMATION D0	Specific CO2 emissions of public power plants, t/TJ	CO2 emissions from public thermal power stations, kt	1707.80	1771.27	2069.87	2206.44	2301.74	2115.11	2238.50	2365.58	2598.75	2770.61	78.63	21719.53	78.63	22526.77	78.71	26296.90	78.65	28052.25	78.65	29267.35	78.54	26931.67	78.57	28492.08	78.57	30107.52	78.52	33095.73	77.59	35709.30	
			All products output by public thermal power stations, PJ																															
10	TRANSFORMATION E0	Specific CO2 emissions of autoproducer plants, t/TJ	CO2 emissions from autoproducers, kt	2387.56	2579.04	3082.86	3385.08	3339.57	3104.66	3336.63	3661.07	3969.94	4706.73																					
			All products output by autoproducer thermal power stations, PJ																															
11	TRANSFORMATION	Carbon intensity of total power generation, t/TJ	CO2 emissions from classical power production, kt	1663.72	1725.55	2013.07	2148.38	2241.64	2061.80	2181.65	2399.89	2533.49	2733.59	76.60	21.72	76.60	22.53	76.55	26.30	76.58	28.05	76.59	29.27	76.56	26.93	76.57	28.49	79.71	30.11	76.55	33.10	76.55	35.71	
			All products output by public and autoproducer power stations, PJ																															
12	TRANSPORT	Carbon intensity of transport, t/TJ	CO2 emissions from transport, kt	957.05	955.26	1067.67	1109.98	1140.16	1206.05	1242.81	1293.80	1350.04	1738.76	70.75	13.53	70.78	13.50	70.83	15.07	70.90	15.66	70.95	16.07	71.00	16.99	70.95	17.52	71.03	18.21	71.03	19.01	71.08	24.46	
			Total final energy consumption from transport, PJ																															
13	INDUSTRY C0.3	Specific energy related CO2 emissions of paper industry, t/t	Energy related CO2 emissions paper and printing industries, kt	NOT OCCURRING*																														
			Physical output of paper, kt																															
14	INDUSTRY	CO2 emissions from the industry sector, kt		679.76	807.77	1012.99	1178.64	1037.84	989.55	1098.13	1295.49	1371.19	1936.12																					
			Total final energy consumption from industry, PJ	7279.16	7070.41	11703.67	13095.83	13933.40	12321.34	13670.87	12452.73	15523.46	16930.68																					
15	HOUSEHOLDS	CO2 emissions from households, kt		222.34	239.08	288.40	293.09	333.17	316.75	332.47	348.88	368.23	381.55																					
			Total final energy consumption from households, PJ	3000.56	3226.45	3892.05	3955.40	4496.27	4274.66	4486.71	4708.26	4969.41	5149.08																					

Nomenclature in Eurostat			2000	2001	2002	2003	2004	2005	2006	2007									
No.	energy efficiency indicators	Indicator	Numerator/denominator																
SUPPLEMENTARY	1	TRANSPORT B0	Specific petrol related CO2 emissions of passenger cars, g/100 km	CO2 emissions from diesel-driven passenger cars, kt	NO DATA AVAILABLE ON PASSENGER TRANSPORT BY DIESEL-DRIVEN CARS														
				Passenger transport by diesel-driven passenger cars, Mpkm															
	2	TRANSPORT B0	Specific petrol related CO2 emissions of passenger cars, g/100 km	CO2 emissions from petrol driven passenger cars, kt	NO DATA AVAILABLE ON PASSENGER TRANSPORT BY PETROL-DRIVEN CARS														
				Passenger transport by petrol-driven passenger cars, Mpkm															
	3	TRANSPORT C0	Specific CO2 emissions of passenger cars, t/pkm	CO2 emissions from passenger cars, kt	NO DATA AVAILABLE ON PASSENGER TRANSPORT BY CARS														
				Passenger transport by cars, Mpkm															
	4	TRANSPORT E1	Specific air-transport emissions, t/ passenger	CO2 emissions from domestic air transport, kt	NO DOMESTIC FLIGHTS IN CYPRUS														
				Domestic air-passengers, Mio															
	5	INDUSTRY A1.4	Energy related CO2 intensity — food, drink and tobacco industry, t/Mio EUR	Energy related CO2 emissions food industries, kt	85.41	83.48	80.27	73.39	142.80	190.51	168.41	138.03							
				Gross value-added — food, drink and tobacco industry, Mio EUR	0.24	352.33	0.22	382.47	0.20	399.55	0.18	417.92	0.31	463.71	0.41	470.39	0.04	3806.78	NA
	6	INDUSTRY A1.5	Energy related CO2 intensity — paper and printing industry, t/Mio EUR	Energy related CO2 emissions paper and printing, kt	NOT OCCURRING*														
				Gross value-added — paper and printing industry, Mio EUR															
	7	HOUSEHOLDS A0	Specific CO2 emissions of households for space heating, kg/m2	CO2 emissions from space heating in households, kt	404.55	391.71	375.66	347.63	237.34	221.51	237.34	207.59							
				Surface area of permanently occupied dwellings, Mio m2	NO DATA AVAILABLE ON SURFACE AREA COVERED BY DWELLINGS														
	8	SERVICES B0	Specific CO2 emissions of commercial and institutional sector for space heating, kg/m2	CO2 emissions from space heating in commercial and institutional, kt	49.45	48.16	46.56	42.49	175.61	116.77	106.35	84.63							
			Surface area of services buildings, Mio m2	NO DATA AVAILABLE ON SURFACE AREA COVERED BY SERVICE BUILDINGS															
9	TRANSFORMATION D0	Specific CO2 emissions of public power plants, t/TJ	CO2 emissions from public thermal power stations, kt	2903.77	2836.08	2946.61	3177.17	3319.54	3471.84	3653.38	3801.67								
			All products output by public thermal power stations, PJ	77.59	37422.93	77.62	36539.54	70.04	42071.22	70.61	44993.27	69.14	48009.71	77.16	44995.04	78.38	46610.93	#DIV/0!	
10	TRANSFORMATION E0	Specific CO2 emissions of autoproducer plants, t/TJ	CO2 emissions from autoproducers, kt	4962.81	4868.50	4767.11	4808.32	4419.65	4613.62	4778.35	4854.51								
			All products output by autoproducer thermal power stations, PJ			101.65	47.30	46.72	94.61	48.77	94.61	5.94	804.58	#DIV/0!					
11	TRANSFORMATION	Carbon intensity of total power generation, t/TJ	CO2 emissions from classical power production, kt	2864.72	2797.10	3220.55	3449.84	3691.28	3463.00	8431.73									
			All products output by public and autoproducer power stations, PJ	76.55	37.42	76.55	36.54	76.55	42.07	76.67	44.99	76.89	48.01	76.96	45.00	0.18	47415.51	#DIV/0!	
12	TRANSPORT	Carbon intensity of transport, t/TJ	CO2 emissions from transport, kt	1730.77	1743.37	1735.60	1820.14	1997.37	2043.24	2030.86145									
			Total final energy consumption from transport, PJ	71.08	24.35	71.06	24.53	71.05	24.43	71.03	25.63	71.27	28.03	71.14	28.72	71.03	28.59		
13	INDUSTRY C0.3	Specific energy related CO2 emissions of paper industry, t/t	Energy related CO2 emissions paper and printing industries, kt	NOT OCCURRING*															
			Physical output of paper, kt																
14	INDUSTRY	CO2 emissions from the industry sector, kt		2059.05	2032.42	1820.50	1631.14	1100.11	1141.78	1124.97	1052.84								
			Total final energy consumption from industry, PJ	24969.35	25742.14	25308.12	22848.59	21799.43	14179.16	13915.25	13102.38								
15	HOUSEHOLDS	CO2 emissions from households, kt		404.55	391.71	375.66	347.63	237.34	221.51	237.34	207.59								
			Total final energy consumption from households, PJ	5459.58	5286.26	5069.61	4691.34	3202.90	3063.54	3296.10	3003.23								

## References

---

- [1] UNEP/WMO/OECD/IEA. 1997. Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual.
- [2] EMEP/CORINAIR. 1999. Atmospheric Emission Inventory Guidebook. EMEP Task Force on Emission Inventories.
- [3] EU-DG XVII-A2. 1996. NO<sub>x</sub>, SO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emissions on the basis of the four long term energy scenarios of DG XVII.
- [4] U.S. Environmental Protection Agency [EPA]. 1995. Compilation of Air Pollutant Emission Factors AP-42. Fifth Edition. Volume I: Stationary Point and Area Sources.
- [5] U.S. Environmental Protection Agency [EPA]. 1999. FIRE: Factor Information Retrieval System. Version 6.23.
- [6] IPCC. 1996. Climate Change 1995. The Science of Climate Change. Cambridge University Press.
- [7] EXERGIA – Ministry of Commerce, Industry and Tourism. 1997. Preparation of an action plan for improving the efficiency of the energy sector of the island of Cyprus. 1<sup>st</sup> technical report within the framework of Synergy Programme.
- [8] Ministry of Finance/ Statistical Service. Transport Statistics 1990 – 2005.
- [9] Ministry of Finance/ Statistical Service. Agricultural Statistics 1990 – 2005.
- [10] Ministry of Finance/ Statistical Service. Industrial Statistics 1990 – 2005.
- [11] Cyprus College – Centre of Applied Research. 1994. Fuel consumption data for various consumer groups. (*Έρευνα για τον καταρτισμό στοιχείων σχετικά με την κατανάλωση καυσίμων από τις διάφορες ομάδες καταναλωτών*).
- [12] Ministry of Agriculture, Natural Resources and Environment, Forest Department. 1994. Pine trees inventory 1991-1992. (*Απογραφή παραγωγικών δασών τραχείας πεύκης 1991-92*).
- [13] Nikolaides & Associates, Ministry of Interior. 1998. Analysis of content and characteristics of solid wastes produced in Cyprus. (*Μελέτη για την ανάλυση του περιεχομένου και των χαρακτηριστικών των στερεών απορριμμάτων της Κύπρου*).

- [14] Environmental Management Consultants Ltd., Cyprus Recyclers Association. 2000. Recycling in Cyprus. (*Η ανακύκλωση στην Κύπρο*).
- [15] CIA/HED – Republic of Cyprus. 1999. Recycling of municipal solid waste in the main urban and tourist centres of Cyprus, Supplementary Report.
- [16] World Health Organization [WHO]. 1993. Assessment of Sources of Air, Water and Land Pollution – Part One: Rapid Inventory Techniques in Environmental Pollution. Environmental Technology Series, Geneva.
- [17] IEA. 1999. Energy Balances of Non-OECD countries, 1996 – 1997. IEA.
- [18] IPCC. 2000. Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories.
- [19] European Commission/ DG for Energy and Transport. EU Transport in Figures – Statistical Pocket Book 2000.
- [20] Cyprus Programming Bureau. 1999. Strategic Development plan 1999-2003 (*Στρατηγικό Σχέδιο Ανάπτυξης 1999-2003*).
- [21] U.S. Environmental Protection Agency [EPA]. 1999. Emissions Projection, Report prepared for Projections Committee, Emission Inventory Improvement Programme.



## **ANNEX I: Common Reporting Format (CRF) Summary tables**

---

**SUMMARY 2 SUMMARY REPORT FOR CO<sub>2</sub> EQUIVALENT EMISSIONS**  
(Sheet 1 of 1)

Inventory 1990  
Submission 2009 v1.4  
CYPRUS

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> <sup>(1)</sup>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs <sup>(2)</sup>	PFCs <sup>(2)</sup>	SF <sub>6</sub> <sup>(2)</sup>	Total
	CO <sub>2</sub> equivalent (Gg)						
<b>Total (Net Emissions)<sup>(1)</sup></b>	<b>4,167.74</b>	<b>890.36</b>	<b>389.93</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>5,448.03</b>
<b>1. Energy</b>	<b>3,521.31</b>	<b>148.82</b>	<b>83.96</b>				<b>3,754.09</b>
A. Fuel Combustion (Sectoral Approach)	3,521.31	148.32	83.96				3,753.59
1. Energy Industries	1,781.45	2.30	57.34				1,841.10
2. Manufacturing Industries and Construction	679.76	139.58	8.39				827.73
3. Transport	761.17	5.60	17.47				784.24
4. Other Sectors	281.63	0.80	0.71				283.14
5. Other	17.29	0.05	0.04				17.39
B. Fugitive Emissions from Fuels	NA,NE,NO	0.50	NA,NO				0.50
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE,NO	0.50	NA,NO				0.50
<b>2. Industrial Processes</b>	<b>666.59</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>666.59</b>
A. Mineral Products	666.59	NA	NA				666.59
B. Chemical Industry	NO	NO	NO	NA	NA	NA	NA,NO
C. Metal Production	NA,NO	NA,NO	NA	NA	NA,NO	NA,NO	NA,NO
D. Other Production	NE						NE
E. Production of Halocarbons and SF <sub>6</sub>				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF <sub>6</sub> <sup>(2)</sup>				NA	NA	NA	NA
G. Other	NA	NA	NA	NA	NA	NA	NA
<b>3. Solvent and Other Product Use</b>	<b>2.29</b>		<b>NE</b>				<b>2.29</b>
<b>4. Agriculture</b>		<b>342.36</b>	<b>304.85</b>				<b>647.21</b>
A. Enteric Fermentation		172.49					172.49
B. Manure Management		164.10	78.11				242.21
C. Rice Cultivation		NA,NO					NA,NO
D. Agricultural Soils <sup>(3)</sup>		NA,NE	225.59				225.59
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		5.77	1.14				6.91
G. Other		NA	NA				NA
<b>5. Land Use, Land-Use Change and Forestry<sup>(1)</sup></b>	<b>-22.44</b>	<b>2.41</b>	<b>1.13</b>				<b>-18.90</b>
A. Forest Land	-119.60	2.41	1.13				-116.06
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	97.16						97.16
<b>6. Waste</b>	<b>NA,NE,NO</b>	<b>396.76</b>	<b>IE,NA,NE</b>				<b>396.76</b>
A. Solid Waste Disposal on Land	NA,NE,NO	375.02					375.02
B. Waste-water Handling		21.74	IE,NA,NE				21.74
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
<b>7. Other (as specified in Summary 1.A)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Memo Items:<sup>(4)</sup></b>							
<b>International Bunkers</b>	932.09	2.73	7.66				942.49
Aviation	744.81	2.21	6.20				753.22
Marine	187.28	0.52	1.47				189.27
<b>Multilateral Operations</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>				<b>NO</b>
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>NA,NO</b>						<b>NA,NO</b>
Total CO <sub>2</sub> Equivalent Emissions without Land Use, Land-Use Change and Forestry							5,466.93
Total CO <sub>2</sub> Equivalent Emissions with Land Use, Land-Use Change and Forestry							5,448.03

<sup>(1)</sup> For CO<sub>2</sub> from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

<sup>(2)</sup> Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

<sup>(3)</sup> Parties which previously reported CO<sub>2</sub> from soils in the Agriculture sector should note this in the NIR.

<sup>(4)</sup> See footnote 8 to table Summary 1.A.

**SUMMARY 2 SUMMARY REPORT FOR CO<sub>2</sub> EQUIVALENT EMISSIONS**  
(Sheet 1 of 1)

Inventory 1991  
Submission 2009 v1.4  
CYPRUS

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> <sup>(1)</sup>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs <sup>(2)</sup>	PFCs <sup>(2)</sup>	SF <sub>6</sub> <sup>(2)</sup>	Total
	CO <sub>2</sub> equivalent (Gg)						
<b>Total (Net Emissions)<sup>(1)</sup></b>	<b>4,400.98</b>	<b>900.69</b>	<b>390.03</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>5,691.69</b>
<b>1. Energy</b>	<b>3,784.80</b>	<b>122.68</b>	<b>85.97</b>				<b>3,993.46</b>
A. Fuel Combustion (Sectoral Approach)	3,784.80	122.08	85.97				3,992.86
1. Energy Industries	1,850.31	2.39	59.56				1,912.25
2. Manufacturing Industries and Construction	807.77	113.19	7.42				928.38
3. Transport	805.29	5.60	18.19				829.08
4. Other Sectors	302.83	0.86	0.76				304.45
5. Other	18.60	0.05	0.05				18.69
B. Fugitive Emissions from Fuels	NA,NE,NO	0.60	NA,NO				0.60
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE,NO	0.60	NA,NO				0.60
<b>2. Industrial Processes</b>	<b>662.91</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>662.91</b>
A. Mineral Products	662.91	NA	NA				662.91
B. Chemical Industry	NO	NO	NO	NA	NA	NA	NA,NO
C. Metal Production	NA,NO	NA,NO	NA	NA	NA,NO	NA,NO	NA,NO
D. Other Production	NE						NE
E. Production of Halocarbons and SF <sub>6</sub>				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF <sub>6</sub> <sup>(2)</sup>				NA	NA	NA	NA
G. Other	NA	NA	NA	NA	NA	NA	NA
<b>3. Solvent and Other Product Use</b>	<b>2.35</b>		<b>NE</b>				<b>2.35</b>
<b>4. Agriculture</b>		<b>349.22</b>	<b>302.93</b>				<b>652.15</b>
A. Enteric Fermentation		174.47					174.47
B. Manure Management		170.81	79.24				250.05
C. Rice Cultivation		NA,NO					NA,NO
D. Agricultural Soils <sup>(3)</sup>		NA,NE	223.00				223.00
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		3.94	0.69				4.63
G. Other		NA	NA				NA
<b>5. Land Use, Land-Use Change and Forestry<sup>(1)</sup></b>	<b>-49.09</b>	<b>2.41</b>	<b>1.13</b>				<b>-45.55</b>
A. Forest Land	-124.92	2.41	1.13				-121.38
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	75.83						75.83
<b>6. Waste</b>	<b>NA,NE,NO</b>	<b>426.37</b>	<b>IE,NA,NE</b>				<b>426.37</b>
A. Solid Waste Disposal on Land	NA,NE,NO	404.27					404.27
B. Waste-water Handling		22.10	IE,NA,NE				22.10
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
<b>7. Other (as specified in Summary I.A)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Memo Items:<sup>(4)</sup></b>							
<b>International Bunkers</b>	750.64	2.20	6.16				758.99
Aviation	575.58	1.71	4.79				582.07
Marine	175.06	0.49	1.37				176.91
<b>Multilateral Operations</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>				<b>NO</b>
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>NA,NO</b>						<b>NA,NO</b>
Total CO <sub>2</sub> Equivalent Emissions without Land Use, Land-Use Change and Forestry							5,737.25
Total CO <sub>2</sub> Equivalent Emissions with Land Use, Land-Use Change and Forestry							5,691.69

<sup>(1)</sup> For CO<sub>2</sub> from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

<sup>(2)</sup> Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

<sup>(3)</sup> Parties which previously reported CO<sub>2</sub> from soils in the Agriculture sector should note this in the NIR.

<sup>(4)</sup> See footnote 8 to table Summary I.A.

**SUMMARY 2 SUMMARY REPORT FOR CO<sub>2</sub> EQUIVALENT EMISSIONS**  
(Sheet 1 of 1)

Inventory 1992  
Submission 2009 v1.4  
CYPRUS

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> <sup>(1)</sup>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs <sup>(2)</sup>	PFCs <sup>(2)</sup>	SF <sub>6</sub> <sup>(2)</sup>	Total
	CO <sub>2</sub> equivalent (Gg)						
<b>Total (Net Emissions)<sup>(1)</sup></b>	<b>5,184.26</b>	<b>979.63</b>	<b>437.25</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>6,601.14</b>
<b>1. Energy</b>	<b>4,587.77</b>	<b>154.71</b>	<b>100.71</b>				<b>4,843.18</b>
A. Fuel Combustion (Sectoral Approach)	4,587.77	154.13	100.71				4,842.61
1. Energy Industries	2,145.18	2.79	69.14				2,217.11
2. Manufacturing Industries and Construction	1,012.99	144.16	9.39				1,166.54
3. Transport	1,041.87	6.08	21.20				1,069.14
4. Other Sectors	365.31	1.04	0.92				367.26
5. Other	22.43	0.06	0.06				22.55
B. Fugitive Emissions from Fuels	NA,NE,NO	0.57	NA,NO				0.57
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE,NO	0.57	NA,NO				0.57
<b>2. Industrial Processes</b>	<b>655.14</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>655.14</b>
A. Mineral Products	655.14	NA	NA				655.14
B. Chemical Industry	NO	NO	NO	NA	NA	NA	NA,NO
C. Metal Production	NA,NO	NA,NO	NA	NA	NA,NO	NA,NO	NA,NO
D. Other Production	NE						NE
E. Production of Halocarbons and SF <sub>6</sub>				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF <sub>6</sub> <sup>(2)</sup>				NA	NA	NA	NA
G. Other	NA	NA	NA	NA	NA	NA	NA
<b>3. Solvent and Other Product Use</b>	<b>2.41</b>		<b>NE</b>				<b>2.41</b>
<b>4. Agriculture</b>		<b>375.28</b>	<b>335.42</b>				<b>710.70</b>
A. Enteric Fermentation		176.33					176.33
B. Manure Management		191.82	87.07				278.89
C. Rice Cultivation		NA,NO					NA,NO
D. Agricultural Soils <sup>(3)</sup>		NA,NE	246.45				246.45
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		7.14	1.90				9.04
G. Other		NA	NA				NA
<b>5. Land Use, Land-Use Change and Forestry<sup>(1)</sup></b>	<b>-61.06</b>	<b>2.41</b>	<b>1.13</b>				<b>-57.52</b>
A. Forest Land	-130.56	2.41	1.13				-127.02
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	69.50						69.50
<b>6. Waste</b>	<b>NA,NE,NO</b>	<b>447.22</b>	<b>IE,NA,NE</b>				<b>447.22</b>
A. Solid Waste Disposal on Land	NA,NE,NO	424.25					424.25
B. Waste-water Handling		22.98	IE,NA,NE				22.98
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
<b>7. Other (as specified in Summary I.A)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Memo Items:<sup>(4)</sup></b>							
<b>International Bunkers</b>	960.88	2.82	7.90				971.60
Aviation	779.75	2.31	6.49				788.55
Marine	181.13	0.50	1.41				183.05
<b>Multilateral Operations</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>				<b>NO</b>
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>NA,NO</b>						<b>NA,NO</b>
Total CO <sub>2</sub> Equivalent Emissions without Land Use, Land-Use Change and Forestry							6,658.63
Total CO <sub>2</sub> Equivalent Emissions with Land Use, Land-Use Change and Forestry							6,601.14

<sup>(1)</sup> For CO<sub>2</sub> from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

<sup>(2)</sup> Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

<sup>(3)</sup> Parties which previously reported CO<sub>2</sub> from soils in the Agriculture sector should note this in the NIR.

<sup>(4)</sup> See footnote 8 to table Summary I.A.

**SUMMARY 2 SUMMARY REPORT FOR CO<sub>2</sub> EQUIVALENT EMISSIONS**  
(Sheet 1 of 1)

Inventory 1993  
Submission 2009 v1.4  
CYPRUS

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> <sup>(1)</sup>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs <sup>(2)</sup>	PFCs <sup>(2)</sup>	SF <sub>6</sub> <sup>(2)</sup>	Total
	CO <sub>2</sub> equivalent (Gg)						
<b>Total (Net Emissions)<sup>(1)</sup></b>	<b>5,518.12</b>	<b>1,027.81</b>	<b>449.71</b>	NA,NO	NA,NO	NA,NO	<b>6,995.64</b>
<b>1. Energy</b>	<b>4,940.61</b>	<b>164.86</b>	<b>106.57</b>				<b>5,212.04</b>
A. Fuel Combustion (Sectoral Approach)	4,940.61	164.24	106.57				5,211.42
1. Energy Industries	2,287.81	2.97	73.68				2,364.46
2. Manufacturing Industries and Construction	1,178.64	154.03	10.25				1,342.92
3. Transport	1,080.11	6.12	21.66				1,107.89
4. Other Sectors	371.25	1.05	0.93				373.24
5. Other	22.80	0.06	0.06				22.92
B. Fugitive Emissions from Fuels	NA,NE,NO	0.62	NA,NO				0.62
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE,NO	0.62	NA,NO				0.62
<b>2. Industrial Processes</b>	<b>630.86</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>630.86</b>
A. Mineral Products	630.86	NA	NA				630.86
B. Chemical Industry	NO	NO	NO	NA	NA	NA	NA,NO
C. Metal Production	NA,NO	NA,NO	NA	NA	NA,NO	NA,NO	NA,NO
D. Other Production	NE						NE
E. Production of Halocarbons and SF <sub>6</sub>				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF <sub>6</sub> <sup>(2)</sup>				NA	NA	NA	NA
G. Other	NA	NA	NA	NA	NA	NA	NA
<b>3. Solvent and Other Product Use</b>	<b>2.45</b>		<b>NE</b>				<b>2.45</b>
<b>4. Agriculture</b>		<b>401.33</b>	<b>342.01</b>				<b>743.35</b>
A. Enteric Fermentation		184.64					184.64
B. Manure Management		208.80	96.18				304.98
C. Rice Cultivation		NA,NO					NA,NO
D. Agricultural Soils <sup>(3)</sup>		NA,NE	243.69				243.69
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		7.90	2.15				10.04
G. Other		NA	NA				NA
<b>5. Land Use, Land-Use Change and Forestry<sup>(1)</sup></b>	<b>-55.80</b>	<b>2.41</b>	<b>1.13</b>				<b>-52.26</b>
A. Forest Land	-136.57	2.41	1.13				-133.03
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	80.77						80.77
<b>6. Waste</b>	<b>NA,NE,NO</b>	<b>459.20</b>	<b>IE,NA,NE</b>				<b>459.20</b>
A. Solid Waste Disposal on Land	NA,NE,NO	436.07					436.07
B. Waste-water Handling		23.13	IE,NA,NE				23.13
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
<b>7. Other (as specified in Summary 1.A)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Memo Items:<sup>(4)</sup></b>							
<b>International Bunkers</b>	884.93	2.60	7.28				894.81
Aviation	730.69	2.17	6.08				738.94
Marine	154.24	0.43	1.20				155.87
<b>Multilateral Operations</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>				<b>NO</b>
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>NA,NO</b>						<b>NA,NO</b>
Total CO <sub>2</sub> Equivalent Emissions without Land Use, Land-Use Change and Forestry							7,047.90
Total CO <sub>2</sub> Equivalent Emissions with Land Use, Land-Use Change and Forestry							6,995.64

<sup>(1)</sup> For CO<sub>2</sub> from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

<sup>(2)</sup> Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

<sup>(3)</sup> Parties which previously reported CO<sub>2</sub> from soils in the Agriculture sector should note this in the NIR.

<sup>(4)</sup> See footnote 8 to table Summary 1.A.

**SUMMARY 2 SUMMARY REPORT FOR CO<sub>2</sub> EQUIVALENT EMISSIONS**  
(Sheet 1 of 1)

Inventory 1994  
Submission 2009 v1.4  
CYPRUS

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> <sup>(1)</sup>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs <sup>(2)</sup>	PFCs <sup>(2)</sup>	SF <sub>6</sub> <sup>(2)</sup>	Total
	CO <sub>2</sub> equivalent (Gg)						
<b>Total (Net Emissions)<sup>(1)</sup></b>	<b>5,555.83</b>	<b>1,020.81</b>	<b>448.78</b>	<b>0.02</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>7,025.44</b>
<b>1. Energy</b>	<b>5,007.58</b>	<b>151.01</b>	<b>111.36</b>				<b>5,269.95</b>
A. Fuel Combustion (Sectoral Approach)	5,007.58	150.30	111.36				5,269.24
1. Energy Industries	2,395.14	3.10	77.12				2,475.36
2. Manufacturing Industries and Construction	1,037.84	139.57	9.25				1,186.66
3. Transport	1,126.67	6.36	23.87				1,156.89
4. Other Sectors	422.02	1.20	1.06				424.27
5. Other	25.91	0.07	0.07				26.05
B. Fugitive Emissions from Fuels	NA,NE,NO	0.71	NA,NO				0.71
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE,NO	0.71	NA,NO				0.71
<b>2. Industrial Processes</b>	<b>617.86</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>0.02</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>617.88</b>
A. Mineral Products	617.86	NA	NA				617.86
B. Chemical Industry	NO	NO	NO	NA	NA	NA	NA,NO
C. Metal Production	NA,NO	NA,NO	NA	NA	NA,NO	NA,NO	NA,NO
D. Other Production	NE						NE
E. Production of Halocarbons and SF <sub>6</sub>				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF <sub>6</sub> <sup>(2)</sup>				0.02	NA	NA	0.02
G. Other	NA	NA	NA	NA	NA	NA	NA
<b>3. Solvent and Other Product Use</b>	<b>2.49</b>		<b>NE</b>				<b>2.49</b>
<b>4. Agriculture</b>		<b>396.99</b>	<b>336.30</b>				<b>733.29</b>
A. Enteric Fermentation		186.93					186.93
B. Manure Management		203.82	94.67				298.48
C. Rice Cultivation		NA,NO					NA,NO
D. Agricultural Soils <sup>(3)</sup>		NA,NE	239.93				239.93
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		6.24	1.70				7.94
G. Other		NA	NA				NA
<b>5. Land Use, Land-Use Change and Forestry<sup>(1)</sup></b>	<b>-72.10</b>	<b>2.41</b>	<b>1.13</b>				<b>-68.56</b>
A. Forest Land	-142.99	2.41	1.13				-139.45
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	70.89						70.89
<b>6. Waste</b>	<b>NA,NE,NO</b>	<b>470.40</b>	<b>IE,NA,NE</b>				<b>470.40</b>
A. Solid Waste Disposal on Land	NA,NE,NO	446.87					446.87
B. Waste-water Handling		23.54	IE,NA,NE				23.54
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
<b>7. Other (as specified in Summary 1.A)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Memo Items:<sup>(4)</sup></b>							
<b>International Bunkers</b>	937.75	2.74	7.69				948.19
Aviation	748.34	2.22	6.23				756.79
Marine	189.41	0.52	1.47				191.40
<b>Multilateral Operations</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>				<b>NO</b>
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>NA,NO</b>						<b>NA,NO</b>
Total CO <sub>2</sub> Equivalent Emissions without Land Use, Land-Use Change and Forestry							7,094.00
Total CO <sub>2</sub> Equivalent Emissions with Land Use, Land-Use Change and Forestry							7,025.44

<sup>(1)</sup> For CO<sub>2</sub> from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

<sup>(2)</sup> Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

<sup>(3)</sup> Parties which previously reported CO<sub>2</sub> from soils in the Agriculture sector should note this in the NIR.

<sup>(4)</sup> See footnote 8 to table Summary 1.A.

**SUMMARY 2 SUMMARY REPORT FOR CO<sub>2</sub> EQUIVALENT EMISSIONS**  
(Sheet 1 of 1)

Inventory 1995  
Submission 2009 v1.4  
CYPRUS

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> <sup>(1)</sup>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs <sup>(2)</sup>	PFCs <sup>(2)</sup>	SF <sub>6</sub> <sup>(2)</sup>	Total
	CO <sub>2</sub> equivalent (Gg)						
<b>Total (Net Emissions)<sup>(1)</sup></b>	<b>5,296.59</b>	<b>1,040.10</b>	<b>452.54</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>6,789.22</b>
<b>1. Energy</b>	<b>4,771.18</b>	<b>141.79</b>	<b>104.37</b>				<b>5,016.69</b>
A. Fuel Combustion (Sectoral Approach)	4,771.18	141.14	104.37				5,016.69
1. Energy Industries	2,205.87	2.85	71.07				2,279.78
2. Manufacturing Industries and Construction	989.55	130.66	8.65				1,128.86
3. Transport	1,149.91	6.42	23.58				1,179.92
4. Other Sectors	401.22	1.14	1.01				403.36
5. Other	24.64	0.07	0.06				24.77
B. Fugitive Emissions from Fuels	NA,NE,NO	0.65	NA,NO				0.65
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE,NO	0.65	NA,NO				0.65
<b>2. Industrial Processes</b>	<b>598.76</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>598.76</b>
A. Mineral Products	598.76	NA	NA				598.76
B. Chemical Industry	NO	NO	NO	NA	NA	NA	NA,NO
C. Metal Production	NA,NO	NA,NO	NA	NA	NA,NO	NA,NO	NA,NO
D. Other Production	NE						NE
E. Production of Halocarbons and SF <sub>6</sub>				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF <sub>6</sub> <sup>(2)</sup>				NA	NA	NA	NA
G. Other	NA	NA	NA	NA	NA	NA	NA
<b>3. Solvent and Other Product Use</b>	<b>2.51</b>		<b>NE</b>				<b>2.51</b>
<b>4. Agriculture</b>		<b>414.19</b>	<b>347.04</b>				<b>761.23</b>
A. Enteric Fermentation		194.22					194.22
B. Manure Management		214.01	99.39				313.40
C. Rice Cultivation		NA,NO					NA,NO
D. Agricultural Soils <sup>(3)</sup>		NA,NE	246.12				246.12
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		5.96	1.53				7.49
G. Other		NA	NA				NA
<b>5. Land Use, Land-Use Change and Forestry<sup>(1)</sup></b>	<b>-75.87</b>	<b>2.41</b>	<b>1.13</b>				<b>-72.33</b>
A. Forest Land	-149.89	2.41	1.13				-146.35
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	74.02						74.02
<b>6. Waste</b>	<b>NA,NE,NO</b>	<b>481.71</b>	<b>IE,NA,NE</b>				<b>481.71</b>
A. Solid Waste Disposal on Land	NA,NE,NO	457.66					457.66
B. Waste-water Handling		24.04	IE,NA,NE				24.04
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
<b>7. Other (as specified in Summary 1.A)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Memo Items:<sup>(4)</sup></b>							
<b>International Bunkers</b>	<b>1,033.00</b>	<b>3.02</b>	<b>8.48</b>				<b>1,044.50</b>
Aviation	820.33	2.43	6.82				829.59
Marine	212.67	0.59	1.65				214.91
<b>Multilateral Operations</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>				<b>NO</b>
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>NA,NO</b>						<b>NA,NO</b>
Total CO <sub>2</sub> Equivalent Emissions without Land Use, Land-Use Change and Forestry							6,861.55
Total CO <sub>2</sub> Equivalent Emissions with Land Use, Land-Use Change and Forestry							6,789.22

<sup>(1)</sup> For CO<sub>2</sub> from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

<sup>(2)</sup> Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

<sup>(3)</sup> Parties which previously reported CO<sub>2</sub> from soils in the Agriculture sector should note this in the NIR.

<sup>(4)</sup> See footnote 8 to table Summary 1.A.

**SUMMARY 2 SUMMARY REPORT FOR CO<sub>2</sub> EQUIVALENT EMISSIONS**  
(Sheet 1 of 1)

Inventory 1996  
Submission 2009 v1.4  
CYPRUS

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> <sup>(1)</sup>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs <sup>(2)</sup>	PFCs <sup>(2)</sup>	SF <sub>6</sub> <sup>(2)</sup>	Total
	CO <sub>2</sub> equivalent (Gg)						
<b>Total (Net Emissions)<sup>(1)</sup></b>	<b>5,617.82</b>	<b>1,088.52</b>	<b>472.36</b>	<b>22.91</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>7,201.61</b>
<b>1. Energy</b>	<b>5,093.66</b>	<b>172.13</b>	<b>111.32</b>				<b>5,377.11</b>
A. Fuel Combustion (Sectoral Approach)	5,093.66	171.53	111.32				5,376.51
1. Energy Industries	2,324.45	3.02	74.87				2,402.34
2. Manufacturing Industries and Construction	1,098.13	160.74	10.38				1,269.26
3. Transport	1,224.10	6.51	24.94				1,255.54
4. Other Sectors	421.12	1.19	1.06				423.37
5. Other	25.86	0.07	0.06				26.00
B. Fugitive Emissions from Fuels	NA,NE,NO	0.60	NA,NO				0.60
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE,NO	0.60	NA,NO				0.60
<b>2. Industrial Processes</b>	<b>608.23</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>22.91</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>631.15</b>
A. Mineral Products	608.23	NA	NA				608.23
B. Chemical Industry	NO	NO	NO	NA	NA	NA	NA,NO
C. Metal Production	NA,NO	NA,NO	NA	NA	NA,NO	NA,NO	NA,NO
D. Other Production	NE						NE
E. Production of Halocarbons and SF <sub>6</sub>				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF <sub>6</sub> <sup>(2)</sup>				22.91	NA	NA	22.91
G. Other	NA	NA	NA	NA	NA	NA	NA
<b>3. Solvent and Other Product Use</b>	<b>2.54</b>		<b>NE</b>				<b>2.54</b>
<b>4. Agriculture</b>		<b>428.87</b>	<b>359.92</b>				<b>788.79</b>
A. Enteric Fermentation		198.18					198.18
B. Manure Management		224.75	103.27				328.02
C. Rice Cultivation		NA,NO					NA,NO
D. Agricultural Soils <sup>(3)</sup>		NA,NE	255.17				255.17
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		5.94	1.48				7.42
G. Other		NA	NA				NA
<b>5. Land Use, Land-Use Change and Forestry<sup>(1)</sup></b>	<b>-86.62</b>	<b>2.41</b>	<b>1.13</b>				<b>-83.08</b>
A. Forest Land	-157.35	2.41	1.13				-153.82
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	70.74						70.74
<b>6. Waste</b>	<b>NA,NE,NO</b>	<b>485.10</b>	<b>IE,NA,NE</b>				<b>485.10</b>
A. Solid Waste Disposal on Land	NA,NE,NO	460.89					460.89
B. Waste-water Handling		24.21	IE,NA,NE				24.21
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
<b>7. Other (as specified in Summary 1.A)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Memo Items:<sup>(4)</sup></b>							
<b>International Bunkers</b>	<b>1,060.87</b>	<b>3.09</b>	<b>8.68</b>				<b>1,072.64</b>
Aviation	786.21	2.33	6.54				795.08
Marine	274.66	0.76	2.14				277.56
<b>Multilateral Operations</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>				<b>NO</b>
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>NA,NO</b>						<b>NA,NO</b>
Total CO <sub>2</sub> Equivalent Emissions without Land Use, Land-Use Change and Forestry							7,284.69
Total CO <sub>2</sub> Equivalent Emissions with Land Use, Land-Use Change and Forestry							7,201.61

<sup>(1)</sup> For CO<sub>2</sub> from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

<sup>(2)</sup> Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

<sup>(3)</sup> Parties which previously reported CO<sub>2</sub> from soils in the Agriculture sector should note this in the NIR.

<sup>(4)</sup> See footnote 8 to table Summary 1.A.



**SUMMARY 2 SUMMARY REPORT FOR CO<sub>2</sub> EQUIVALENT EMISSIONS**  
(Sheet 1 of 1)

Inventory 1997  
Submission 2009 v1.4  
CYPRUS

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> <sup>(1)</sup>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs <sup>(2)</sup>	PFCs <sup>(2)</sup>	SF <sub>6</sub> <sup>(2)</sup>	Total
	CO <sub>2</sub> equivalent (Gg)						
<b>Total (Net Emissions)<sup>(1)</sup></b>	<b>5,813.54</b>	<b>1,075.02</b>	<b>470.14</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>7,358.70</b>
<b>1. Energy</b>	<b>5,378.55</b>	<b>151.49</b>	<b>116.81</b>				<b>5,646.85</b>
A. Fuel Combustion (Sectoral Approach)	5,378.55	150.67	116.81				5,646.02
1. Energy Industries	2,460.32	3.19	79.24				2,542.75
2. Manufacturing Industries and Construction	1,295.49	139.52	9.81				1,444.82
3. Transport	1,153.68	6.63	26.58				1,186.89
4. Other Sectors	441.92	1.25	1.11				444.28
5. Other	27.14	0.08	0.07				27.28
B. Fugitive Emissions from Fuels	NA,NE,NO	0.82	NA,NO				0.82
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE,NO	0.82	NA,NO				0.82
<b>2. Industrial Processes</b>	<b>535.92</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>535.92</b>
A. Mineral Products	535.92	NA	NA				535.92
B. Chemical Industry	NO	NO	NO	NA	NA	NA	NA,NO
C. Metal Production	NA,NO	NA,NO	NA	NA	NA,NO	NA,NO	NA,NO
D. Other Production	NE						NE
E. Production of Halocarbons and SF <sub>6</sub>				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF <sub>6</sub> <sup>(2)</sup>				NA	NA	NA	NA
G. Other	NA	NA	NA	NA	NA	NA	NA
<b>3. Solvent and Other Product Use</b>	<b>2.56</b>		<b>NE</b>				<b>2.56</b>
<b>4. Agriculture</b>		<b>424.12</b>	<b>352.20</b>				<b>776.33</b>
A. Enteric Fermentation		193.30					193.30
B. Manure Management		227.48	101.43				328.91
C. Rice Cultivation		NA,NO					NA,NO
D. Agricultural Soils <sup>(3)</sup>		NA,NE	250.27				250.27
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		3.35	0.50				3.85
G. Other		NA	NA				NA
<b>5. Land Use, Land-Use Change and Forestry<sup>(1)</sup></b>	<b>-103.49</b>	<b>2.41</b>	<b>1.13</b>				<b>-99.95</b>
A. Forest Land	-165.48	2.41	1.13				-161.94
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	61.99						61.99
<b>6. Waste</b>	<b>NA,NE,NO</b>	<b>496.99</b>	<b>IE,NA,NE</b>				<b>496.99</b>
A. Solid Waste Disposal on Land	NA,NE,NO	472.49					472.49
B. Waste-water Handling		24.51	IE,NA,NE				24.51
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
<b>7. Other (as specified in Summary 1.A)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Memo Items:<sup>(4)</sup></b>							
<b>International Bunkers</b>	<b>1,077.62</b>	<b>3.14</b>	<b>8.80</b>				<b>1,089.56</b>
Aviation	774.64	2.30	6.44				783.38
Marine	302.98	0.84	2.36				306.18
<b>Multilateral Operations</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>				<b>NO</b>
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>NA,NO</b>						<b>NA,NO</b>
Total CO <sub>2</sub> Equivalent Emissions without Land Use, Land-Use Change and Forestry							7,458.65
Total CO <sub>2</sub> Equivalent Emissions with Land Use, Land-Use Change and Forestry							7,358.70

<sup>(1)</sup> For CO<sub>2</sub> from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

<sup>(2)</sup> Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

<sup>(3)</sup> Parties which previously reported CO<sub>2</sub> from soils in the Agriculture sector should note this in the NIR.

<sup>(4)</sup> See footnote 8 to table Summary 1.A.

**SUMMARY 2 SUMMARY REPORT FOR CO<sub>2</sub> EQUIVALENT EMISSIONS**  
(Sheet 1 of 1)

Inventory 1998  
Submission 2009 v1.4  
CYPRUS

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> <sup>(1)</sup>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs <sup>(2)</sup>	PFCs <sup>(2)</sup>	SF <sub>6</sub> <sup>(2)</sup>	Total
	CO <sub>2</sub> equivalent (Gg)						
<b>Total (Net Emissions)<sup>(1)</sup></b>	<b>6,446.87</b>	<b>1,072.38</b>	<b>488.38</b>	NA,NO	NA,NO	NA,NO	<b>8,007.63</b>
<b>1. Energy</b>	<b>5,784.93</b>	<b>142.43</b>	<b>126.27</b>				<b>6,053.63</b>
A. Fuel Combustion (Sectoral Approach)	5,784.93	141.58	126.27				6,052.77
1. Energy Industries	2,697.13	3.50	86.92				2,787.55
2. Manufacturing Industries and Construction	1,371.19	129.93	9.51				1,510.62
3. Transport	1,221.54	6.74	28.61				1,256.89
4. Other Sectors	466.43	1.32	1.17				468.92
5. Other	28.64	0.08	0.07				28.79
B. Fugitive Emissions from Fuels	NA,NE,NO	0.86	NA,NO				0.86
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE,NO	0.86	NA,NO				0.86
<b>2. Industrial Processes</b>	<b>779.11</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>779.11</b>
A. Mineral Products	779.11	NA	NA				779.11
B. Chemical Industry	NO	NO	NO	NA	NA	NA	NA,NO
C. Metal Production	NA,NO	NA,NO	NA	NA	NA,NO	NA,NO	NA,NO
D. Other Production	NE						NE
E. Production of Halocarbons and SF <sub>6</sub>				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF <sub>6</sub> <sup>(2)</sup>				NA	NA	NA	NA
G. Other	NA	NA	NA	NA	NA	NA	NA
<b>3. Solvent and Other Product Use</b>	<b>2.59</b>		<b>NE</b>				<b>2.59</b>
<b>4. Agriculture</b>		<b>419.77</b>	<b>360.98</b>				<b>780.75</b>
A. Enteric Fermentation		185.59					185.59
B. Manure Management		230.50	99.68				330.18
C. Rice Cultivation		NA,NO					NA,NO
D. Agricultural Soils <sup>(3)</sup>		NA,NE	260.61				260.61
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		3.69	0.69				4.38
G. Other		NA	NA				NA
<b>5. Land Use, Land-Use Change and Forestry<sup>(1)</sup></b>	<b>-119.76</b>	<b>2.41</b>	<b>1.13</b>				<b>-116.22</b>
A. Forest Land	-174.38	2.41	1.13				-170.84
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	54.62						54.62
<b>6. Waste</b>	<b>NA,NE,NO</b>	<b>507.76</b>	<b>IE,NA,NE</b>				<b>507.76</b>
A. Solid Waste Disposal on Land	NA,NE,NO	482.94					482.94
B. Waste-water Handling		24.83	IE,NA,NE				24.83
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
<b>7. Other (as specified in Summary 1.A)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Memo Items:<sup>(4)</sup></b>							
<b>International Bunkers</b>	1,113.88	3.25	9.11				1,126.24
Aviation	799.79	2.37	6.65				808.81
Marine	314.10	0.88	2.46				317.43
<b>Multilateral Operations</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>				<b>NO</b>
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>NA,NO</b>						<b>NA,NO</b>
Total CO <sub>2</sub> Equivalent Emissions without Land Use, Land-Use Change and Forestry							8,123.85
Total CO <sub>2</sub> Equivalent Emissions with Land Use, Land-Use Change and Forestry							8,007.63

<sup>(1)</sup> For CO<sub>2</sub> from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

<sup>(2)</sup> Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

<sup>(3)</sup> Parties which previously reported CO<sub>2</sub> from soils in the Agriculture sector should note this in the NIR.

<sup>(4)</sup> See footnote 8 to table Summary 1.A.

**SUMMARY 2 SUMMARY REPORT FOR CO<sub>2</sub> EQUIVALENT EMISSIONS**  
(Sheet 1 of 1)

Inventory 1999  
Submission 2009 v1.4  
CYPRUS

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> <sup>(1)</sup>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs <sup>(2)</sup>	PFCs <sup>(2)</sup>	SF <sub>6</sub> <sup>(2)</sup>	Total
	CO <sub>2</sub> equivalent (Gg)						
<b>Total (Net Emissions)<sup>(1)</sup></b>	<b>7,258.01</b>	<b>1,081.64</b>	<b>502.73</b>	<b>0.27</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>8,842.66</b>
<b>1. Energy</b>	<b>6,563.83</b>	<b>142.72</b>	<b>134.68</b>				<b>6,841.24</b>
A. Fuel Combustion (Sectoral Approach)	6,563.83	141.78	134.68				6,840.30
1. Energy Industries	2,854.21	3.74	92.06				2,950.00
2. Manufacturing Industries and Construction	1,936.12	129.71	10.85				2,076.68
3. Transport	1,260.54	6.88	30.48				1,297.90
4. Other Sectors	483.29	1.37	1.21				485.88
5. Other	29.68	0.08	0.07				29.83
B. Fugitive Emissions from Fuels	NA,NE,NO	0.94	NA,NO				0.94
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE,NO	0.94	NA,NO				0.94
<b>2. Industrial Processes</b>	<b>786.06</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>0.27</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>786.33</b>
A. Mineral Products	786.06	NA	NA				786.06
B. Chemical Industry	NO	NO	NO	NA	NA	NA	NA,NO
C. Metal Production	NA,NO	NA,NO	NA	NA	NA,NO	NA,NO	NA,NO
D. Other Production	NE						NE
E. Production of Halocarbons and SF <sub>6</sub>				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF <sub>6</sub> <sup>(2)</sup>				0.27	NA	NA	0.27
G. Other	NA	NA	NA	NA	NA	NA	NA
<b>3. Solvent and Other Product Use</b>	<b>2.62</b>		<b>NE</b>				<b>2.62</b>
<b>4. Agriculture</b>		<b>409.82</b>	<b>366.93</b>				<b>776.75</b>
A. Enteric Fermentation		183.28					183.28
B. Manure Management		222.46	95.06				317.52
C. Rice Cultivation		NA,NO					NA,NO
D. Agricultural Soils <sup>(3)</sup>		NA,NE	270.55				270.55
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		4.08	1.32				5.40
G. Other		NA	NA				NA
<b>5. Land Use, Land-Use Change and Forestry<sup>(1)</sup></b>	<b>-94.50</b>	<b>2.41</b>	<b>1.13</b>				<b>-90.97</b>
A. Forest Land	-151.36	2.41	1.13				-147.82
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	56.85						56.85
<b>6. Waste</b>	<b>NA,NE,NO</b>	<b>526.68</b>	<b>IE,NA,NE</b>				<b>526.68</b>
A. Solid Waste Disposal on Land	NA,NE,NO	492.19					492.19
B. Waste-water Handling		34.49	IE,NA,NE				34.49
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
<b>7. Other (as specified in Summary 1.A)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Memo Items:<sup>(4)</sup></b>							
<b>International Bunkers</b>	<b>1,236.38</b>	<b>3.58</b>	<b>10.03</b>				<b>1,249.98</b>
Aviation	749.00	2.22	6.23				757.45
Marine	487.38	1.35	3.80				492.53
<b>Multilateral Operations</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>				<b>NO</b>
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>NA,NO</b>						<b>NA,NO</b>
Total CO <sub>2</sub> Equivalent Emissions without Land Use, Land-Use Change and Forestry							8,933.62
Total CO <sub>2</sub> Equivalent Emissions with Land Use, Land-Use Change and Forestry							8,842.66

<sup>(1)</sup> For CO<sub>2</sub> from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

<sup>(2)</sup> Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

<sup>(3)</sup> Parties which previously reported CO<sub>2</sub> from soils in the Agriculture sector should note this in the NIR.

<sup>(4)</sup> See footnote 8 to table Summary 1.A.

**SUMMARY 2 SUMMARY REPORT FOR CO<sub>2</sub> EQUIVALENT EMISSIONS**  
(Sheet 1 of 1)

Inventory 2000  
Submission 2009 v1.4  
CYPRUS

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> <sup>(1)</sup>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs <sup>(2)</sup>	PFCs <sup>(2)</sup>	SF <sub>6</sub> <sup>(2)</sup>	Total
	CO <sub>2</sub> equivalent (Gg)						
<b>Total (Net Emissions)<sup>(1)</sup></b>	<b>7,612.90</b>	<b>1,115.09</b>	<b>502.73</b>	<b>0.42</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>9,231.14</b>
<b>1. Energy</b>	<b>6,919.25</b>	<b>158.24</b>	<b>141.86</b>				<b>7,219.35</b>
A. Fuel Combustion (Sectoral Approach)	6,919.25	157.30	141.86				7,218.41
1. Energy Industries	2,986.90	3.92	96.32				3,087.14
2. Manufacturing Industries and Construction	2,059.05	144.84	11.89				2,215.77
3. Transport	1,284.45	6.88	32.17				1,323.50
4. Other Sectors	539.41	1.53	1.35				542.29
5. Other	49.45	0.14	0.12				49.71
B. Fugitive Emissions from Fuels	NA,NE,NO	0.94	NA,NO				0.94
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE,NO	0.94	NA,NO				0.94
<b>2. Industrial Processes</b>	<b>805.31</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>0.42</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>805.73</b>
A. Mineral Products	805.31	NA	NA				805.31
B. Chemical Industry	NO	NO	NO	NA	NA	NA	NA,NO
C. Metal Production	NA,NO	NA,NO	NA	NA	NA,NO	NA,NO	NA,NO
D. Other Production	NE						NE
E. Production of Halocarbons and SF <sub>6</sub>				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF <sub>6</sub> <sup>(2)</sup>				0.42	NA	NA	0.42
G. Other	NA	NA	NA	NA	NA	NA	NA
<b>3. Solvent and Other Product Use</b>	<b>2.65</b>		<b>NE</b>				<b>2.65</b>
<b>4. Agriculture</b>		<b>412.79</b>	<b>359.75</b>				<b>772.54</b>
A. Enteric Fermentation		189.97					189.97
B. Manure Management		221.07	96.43				317.51
C. Rice Cultivation		NA,NO					NA,NO
D. Agricultural Soils <sup>(3)</sup>		NA,NE	262.82				262.82
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		1.75	0.50				2.24
G. Other		NA	NA				NA
<b>5. Land Use, Land-Use Change and Forestry<sup>(1)</sup></b>	<b>-114.31</b>	<b>2.41</b>	<b>1.13</b>				<b>-110.77</b>
A. Forest Land	-152.62	2.41	1.13				-149.08
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	38.31						38.31
<b>6. Waste</b>	<b>NA,NE,NO</b>	<b>541.64</b>	<b>IE,NA,NE</b>				<b>541.64</b>
A. Solid Waste Disposal on Land	NA,NE,NO	505.06					505.06
B. Waste-water Handling		36.59	IE,NA,NE				36.59
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
<b>7. Other (as specified in Summary 1.A)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Memo Items:<sup>(4)</sup></b>							
<b>International Bunkers</b>	<b>1,463.85</b>	<b>4.22</b>	<b>11.85</b>				<b>1,479.92</b>
Aviation	851.81	2.53	7.09				861.43
Marine	612.03	1.70	4.76				618.49
<b>Multilateral Operations</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>				<b>NO</b>
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>4.45</b>						<b>4.45</b>
Total CO <sub>2</sub> Equivalent Emissions without Land Use, Land-Use Change and Forestry							9,341.91
Total CO <sub>2</sub> Equivalent Emissions with Land Use, Land-Use Change and Forestry							9,231.14

<sup>(1)</sup> For CO<sub>2</sub> from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

<sup>(2)</sup> Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

<sup>(3)</sup> Parties which previously reported CO<sub>2</sub> from soils in the Agriculture sector should note this in the NIR.

<sup>(4)</sup> See footnote 8 to table Summary 1.A.

**SUMMARY 2 SUMMARY REPORT FOR CO<sub>2</sub> EQUIVALENT EMISSIONS**  
(Sheet 1 of 1)

Inventory 2001  
Submission 2009 v1.4  
CYPRUS

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> <sup>(1)</sup>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs <sup>(2)</sup>	PFCs <sup>(2)</sup>	SF <sub>6</sub> <sup>(2)</sup>	Total
	CO <sub>2</sub> equivalent (Gg)						
<b>Total (Net Emissions)<sup>(1)</sup></b>	<b>7,480.38</b>	<b>1,171.65</b>	<b>536.12</b>	<b>0.82</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>9,188.97</b>
<b>1. Energy</b>	<b>6,815.43</b>	<b>157.01</b>	<b>140.62</b>				<b>7,113.06</b>
A. Fuel Combustion (Sectoral Approach)	6,815.43	156.09	140.62				7,112.14
1. Energy Industries	2,917.99	3.82	93.98				3,015.79
2. Manufacturing Industries and Construction	2,032.42	143.56	11.81				2,187.79
3. Transport	1,293.50	7.08	33.40				1,333.98
4. Other Sectors	523.35	1.48	1.31				526.15
5. Other	48.16	0.14	0.12				48.42
B. Fugitive Emissions from Fuels	NA,NE,NO	0.92	NA,NO				0.92
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE,NO	0.92	NA,NO				0.92
<b>2. Industrial Processes</b>	<b>782.85</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>0.82</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>783.67</b>
A. Mineral Products	782.85	NA	NA				782.85
B. Chemical Industry	NO	NO	NO	NA	NA	NA	NA,NO
C. Metal Production	NA,NO	NA,NO	NA	NA	NA,NO	NA,NO	NA,NO
D. Other Production	NE						NE
E. Production of Halocarbons and SF <sub>6</sub>				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF <sub>6</sub> <sup>(2)</sup>				0.82	NA	NA	0.82
G. Other	NA	NA	NA	NA	NA	NA	NA
<b>3. Solvent and Other Product Use</b>	<b>2.68</b>		<b>NE</b>				<b>2.68</b>
<b>4. Agriculture</b>		<b>445.76</b>	<b>394.37</b>				<b>840.12</b>
A. Enteric Fermentation		204.05					204.05
B. Manure Management		237.67	99.71				337.37
C. Rice Cultivation		NA,NO					NA,NO
D. Agricultural Soils <sup>(3)</sup>		NA,NE	293.34				293.34
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		4.04	1.33				5.37
G. Other		NA	NA				NA
<b>5. Land Use, Land-Use Change and Forestry<sup>(1)</sup></b>	<b>-120.58</b>	<b>2.41</b>	<b>1.13</b>				<b>-117.04</b>
A. Forest Land	-152.93	2.41	1.13				-149.39
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	32.36						32.36
<b>6. Waste</b>	<b>NA,NE,NO</b>	<b>566.48</b>	<b>IE,NA,NE</b>				<b>566.48</b>
A. Solid Waste Disposal on Land	NA,NE,NO	528.80					528.80
B. Waste-water Handling		37.68	IE,NA,NE				37.68
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
<b>7. Other (as specified in Summary 1.A)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Memo Items:<sup>(4)</sup></b>							
<b>International Bunkers</b>	<b>1,495.56</b>	<b>4.32</b>	<b>12.11</b>				<b>1,511.99</b>
Aviation	889.80	2.64	7.40				899.85
Marine	605.76	1.68	4.71				612.14
<b>Multilateral Operations</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>				<b>NO</b>
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>7.77</b>						<b>7.77</b>
Total CO <sub>2</sub> Equivalent Emissions without Land Use, Land-Use Change and Forestry							9,306.00
Total CO <sub>2</sub> Equivalent Emissions with Land Use, Land-Use Change and Forestry							9,188.97

<sup>(1)</sup> For CO<sub>2</sub> from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

<sup>(2)</sup> Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

<sup>(3)</sup> Parties which previously reported CO<sub>2</sub> from soils in the Agriculture sector should note this in the NIR.

<sup>(4)</sup> See footnote 8 to table Summary 1.A.

**SUMMARY 2 SUMMARY REPORT FOR CO<sub>2</sub> EQUIVALENT EMISSIONS**  
(Sheet 1 of 1)

Inventory 2002  
Submission 2009 v1.4  
CYPRUS

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> <sup>(1)</sup>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs <sup>(2)</sup>	PFCs <sup>(2)</sup>	SF <sub>6</sub> <sup>(2)</sup>	Total
	CO <sub>2</sub> equivalent (Gg)						
<b>Total (Net Emissions)<sup>(1)</sup></b>	<b>7,356.47</b>	<b>1,212.61</b>	<b>566.67</b>	<b>73.82</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>9,209.58</b>
<b>1. Energy</b>	<b>6,664.96</b>	<b>154.43</b>	<b>144.50</b>				<b>6,963.89</b>
A. Fuel Combustion (Sectoral Approach)	6,664.96	153.57	144.50				6,963.03
1. Energy Industries	3,023.59	3.97	97.37				3,124.93
2. Manufacturing Industries and Construction	1,820.50	140.85	11.18				1,972.53
3. Transport	1,271.84	7.19	34.57				1,313.60
4. Other Sectors	502.48	1.42	1.26				505.17
5. Other	46.56	0.13	0.12				46.80
B. Fugitive Emissions from Fuels	NA,NE,NO	0.86	NA,NO				0.86
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE,NO	0.86	NA,NO				0.86
<b>2. Industrial Processes</b>	<b>809.92</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>73.82</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>883.75</b>
A. Mineral Products	809.92	NA	NA				809.92
B. Chemical Industry	NO	NO	NO	NA	NA	NA	NA,NO
C. Metal Production	NA,NO	NA,NO	NA	NA	NA,NO	NA,NO	NA,NO
D. Other Production	NE						NE
E. Production of Halocarbons and SF <sub>6</sub>				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF <sub>6</sub> <sup>(2)</sup>				73.82	NA	NA	73.82
G. Other	NA	NA	NA	NA	NA	NA	NA
<b>3. Solvent and Other Product Use</b>	<b>2.71</b>		<b>NE</b>				<b>2.71</b>
<b>4. Agriculture</b>		<b>478.25</b>	<b>421.05</b>				<b>899.29</b>
A. Enteric Fermentation		216.06					216.06
B. Manure Management		257.73	107.81				365.53
C. Rice Cultivation		NA,NO					NA,NO
D. Agricultural Soils <sup>(3)</sup>		NA,NE	311.76				311.76
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		4.46	1.48				5.94
G. Other		NA	NA				NA
<b>5. Land Use, Land-Use Change and Forestry<sup>(1)</sup></b>	<b>-121.12</b>	<b>2.41</b>	<b>1.13</b>				<b>-117.58</b>
A. Forest Land	-153.25	2.41	1.13				-149.71
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	32.12						32.12
<b>6. Waste</b>	<b>NA,NE,NO</b>	<b>577.52</b>	<b>IE,NA,NE</b>				<b>577.52</b>
A. Solid Waste Disposal on Land	NA,NE,NO	539.36					539.36
B. Waste-water Handling		38.16	IE,NA,NE				38.16
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
<b>7. Other (as specified in Summary 1.A)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Memo Items:<sup>(4)</sup></b>							
<b>International Bunkers</b>	<b>1,331.98</b>	<b>3.87</b>	<b>10.84</b>				<b>1,346.69</b>
Aviation	895.54	2.66	7.45				905.65
Marine	436.44	1.21	3.39				441.04
<b>Multilateral Operations</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>				<b>NO</b>
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>9.97</b>						<b>9.97</b>
Total CO <sub>2</sub> Equivalent Emissions without Land Use, Land-Use Change and Forestry							9,327.16
Total CO <sub>2</sub> Equivalent Emissions with Land Use, Land-Use Change and Forestry							9,209.58

<sup>(1)</sup> For CO<sub>2</sub> from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

<sup>(2)</sup> Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

<sup>(3)</sup> Parties which previously reported CO<sub>2</sub> from soils in the Agriculture sector should note this in the NIR.

<sup>(4)</sup> See footnote 8 to table Summary 1.A.

**SUMMARY 2 SUMMARY REPORT FOR CO<sub>2</sub> EQUIVALENT EMISSIONS**  
(Sheet 1 of 1)

Inventory 2003  
Submission 2009 v1.4  
CYPRUS

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> <sup>(1)</sup>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs <sup>(2)</sup>	PFCs <sup>(2)</sup>	SF <sub>6</sub> <sup>(2)</sup>	Total
	CO <sub>2</sub> equivalent (Gg)						
<b>Total (Net Emissions)<sup>(1)</sup></b>	<b>7,372.84</b>	<b>1,226.68</b>	<b>558.91</b>	<b>73.38</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>9,231.82</b>
<b>1. Energy</b>	<b>6,679.42</b>	<b>156.83</b>	<b>154.19</b>				<b>6,990.44</b>
A. Fuel Combustion (Sectoral Approach)	6,679.42	156.07	154.19				6,989.67
1. Energy Industries	3,245.92	4.28	104.57				3,354.77
2. Manufacturing Industries and Construction	1,631.14	142.68	10.91				1,784.74
3. Transport	1,334.99	7.77	37.53				1,380.29
4. Other Sectors	440.33	1.25	1.11				442.68
5. Other	27.04	0.08	0.07				27.18
B. Fugitive Emissions from Fuels	NA,NE,NO	0.77	NA,NO				0.77
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE,NO	0.77	NA,NO				0.77
<b>2. Industrial Processes</b>	<b>819.10</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>73.38</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>892.48</b>
A. Mineral Products	819.10	NA	NA				819.10
B. Chemical Industry	NO	NO	NO	NA	NA	NA	NA,NO
C. Metal Production	NA,NO	NA,NO	NA	NA	NA,NO	NA,NO	NA,NO
D. Other Production	NE						NE
E. Production of Halocarbons and SF <sub>6</sub>				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF <sub>6</sub> <sup>(2)</sup>				73.38	NA	NA	73.38
G. Other	NA	NA	NA	NA	NA	NA	NA
<b>3. Solvent and Other Product Use</b>	<b>2.77</b>		<b>NE</b>				<b>2.77</b>
<b>4. Agriculture</b>		<b>465.34</b>	<b>403.60</b>				<b>868.94</b>
A. Enteric Fermentation		204.76					204.76
B. Manure Management		254.23	106.10				360.34
C. Rice Cultivation		NA,NO					NA,NO
D. Agricultural Soils <sup>(3)</sup>		NA,NE	295.77				295.77
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		6.34	1.72				8.06
G. Other		NA	NA				NA
<b>5. Land Use, Land-Use Change and Forestry<sup>(1)</sup></b>	<b>-128.44</b>	<b>2.41</b>	<b>1.13</b>				<b>-124.90</b>
A. Forest Land	-153.46	2.41	1.13				-149.92
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	25.02						25.02
<b>6. Waste</b>	<b>NA,NE,NO</b>	<b>602.09</b>	<b>IE,NA,NE</b>				<b>602.09</b>
A. Solid Waste Disposal on Land	NA,NE,NO	560.34					560.34
B. Waste-water Handling		41.75	IE,NA,NE				41.75
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
<b>7. Other (as specified in Summary 1.A)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Memo Items:<sup>(4)</sup></b>							
<b>International Bunkers</b>	<b>1,372.52</b>	<b>4.00</b>	<b>11.21</b>				<b>1,387.73</b>
Aviation	983.01	2.92	8.18				994.11
Marine	389.51	1.08	3.03				393.63
<b>Multilateral Operations</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>				<b>NO</b>
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>23.23</b>						<b>23.23</b>
Total CO <sub>2</sub> Equivalent Emissions without Land Use, Land-Use Change and Forestry							9,356.72
Total CO <sub>2</sub> Equivalent Emissions with Land Use, Land-Use Change and Forestry							9,231.82

<sup>(1)</sup> For CO<sub>2</sub> from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

<sup>(2)</sup> Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

<sup>(3)</sup> Parties which previously reported CO<sub>2</sub> from soils in the Agriculture sector should note this in the NIR.

<sup>(4)</sup> See footnote 8 to table Summary 1.A.

**SUMMARY 2 SUMMARY REPORT FOR CO<sub>2</sub> EQUIVALENT EMISSIONS**  
(Sheet 1 of 1)

Inventory 2004  
Submission 2009 v1.4  
CYPRUS

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> <sup>(1)</sup>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs <sup>(2)</sup>	PFCs <sup>(2)</sup>	SF <sub>6</sub> <sup>(2)</sup>	Total
	CO <sub>2</sub> equivalent (Gg)						
<b>Total (Net Emissions)<sup>(1)</sup></b>	<b>7,566.40</b>	<b>1,237.29</b>	<b>543.08</b>	<b>68.91</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>9,415.67</b>
<b>1. Energy</b>	<b>6,821.34</b>	<b>164.72</b>	<b>165.66</b>				<b>7,151.72</b>
A. Fuel Combustion (Sectoral Approach)	6,821.34	164.50	165.66				7,151.50
1. Energy Industries	3,339.30	4.47	107.64				3,451.41
2. Manufacturing Industries and Construction	1,100.11	150.67	9.90				1,260.68
3. Transport	1,882.56	7.93	46.86				1,937.36
4. Other Sectors	470.56	1.34	1.19				473.09
5. Other	28.81	0.08	0.07				28.96
B. Fugitive Emissions from Fuels	NA,NE,NO	0.22	NA,NO				0.22
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE,NO	0.22	NA,NO				0.22
<b>2. Industrial Processes</b>	<b>881.67</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>68.91</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>950.58</b>
A. Mineral Products	881.67	NA	NA				881.67
B. Chemical Industry	NO	NO	NO	NA	NA	NA	NA,NO
C. Metal Production	NA,NO	NA,NO	NA	NA	NA,NO	NA,NO	NA,NO
D. Other Production	NE						NE
E. Production of Halocarbons and SF <sub>6</sub>				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF <sub>6</sub> <sup>(2)</sup>				68.91	NA	NA	68.91
G. Other	NA	NA	NA	NA	NA	NA	NA
<b>3. Solvent and Other Product Use</b>	<b>2.84</b>		<b>NE</b>				<b>2.84</b>
<b>4. Agriculture</b>		<b>447.94</b>	<b>376.29</b>				<b>824.24</b>
A. Enteric Fermentation		199.25					199.25
B. Manure Management		243.84	100.83				344.67
C. Rice Cultivation		NA,NO					NA,NO
D. Agricultural Soils <sup>(3)</sup>		NA,NE	274.26				274.26
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		4.85	1.21				6.05
G. Other		NA	NA				NA
<b>5. Land Use, Land-Use Change and Forestry<sup>(1)</sup></b>	<b>-139.45</b>	<b>2.41</b>	<b>1.13</b>				<b>-135.91</b>
A. Forest Land	-157.55	2.41	1.13				-154.01
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	18.10						18.10
<b>6. Waste</b>	<b>NA,NE,NO</b>	<b>622.20</b>	<b>IE,NA,NE</b>				<b>622.20</b>
A. Solid Waste Disposal on Land	NA,NE,NO	579.43					579.43
B. Waste-water Handling		42.77	IE,NA,NE				42.77
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
<b>7. Other (as specified in Summary 1.A)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Memo Items:<sup>(4)</sup></b>							
<b>International Bunkers</b>	<b>1,057.08</b>	<b>3.11</b>	<b>8.72</b>				<b>1,068.91</b>
Aviation	901.66	2.67	7.50				911.83
Marine	155.43	0.43	1.22				157.08
<b>Multilateral Operations</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>				<b>NO</b>
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>13.89</b>						<b>13.89</b>
Total CO <sub>2</sub> Equivalent Emissions without Land Use, Land-Use Change and Forestry							9,551.58
Total CO <sub>2</sub> Equivalent Emissions with Land Use, Land-Use Change and Forestry							9,415.67

<sup>(1)</sup> For CO<sub>2</sub> from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

<sup>(2)</sup> Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

<sup>(3)</sup> Parties which previously reported CO<sub>2</sub> from soils in the Agriculture sector should note this in the NIR.

<sup>(4)</sup> See footnote 8 to table Summary 1.A.



**SUMMARY 2 SUMMARY REPORT FOR CO<sub>2</sub> EQUIVALENT EMISSIONS**  
(Sheet 1 of 1)

Inventory 2005  
Submission 2009 v1.4  
CYPRUS

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> <sup>(1)</sup>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs <sup>(2)</sup>	PFCs <sup>(2)</sup>	SF <sub>6</sub> <sup>(2)</sup>	Total
	CO <sub>2</sub> equivalent (Gg)						
<b>Total (Net Emissions)<sup>(1)</sup></b>	<b>7,829.42</b>	<b>1,227.55</b>	<b>517.14</b>	<b>136.15</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>9,710.26</b>
<b>1. Energy</b>	<b>7,087.04</b>	<b>167.76</b>	<b>173.01</b>				<b>7,427.80</b>
A. Fuel Combustion (Sectoral Approach)	7,087.04	167.76	173.01				7,427.80
1. Energy Industries	3,471.84	4.76	113.89				3,590.50
2. Manufacturing Industries and Construction	1,141.78	152.87	10.04				1,304.69
3. Transport	2,049.25	8.43	48.01				2,105.69
4. Other Sectors	395.53	1.62	1.00				398.15
5. Other	28.63	0.08	0.07				28.78
B. Fugitive Emissions from Fuels	NA,NE,NO	NA,NE,NO	NA,NO				NA,NE,NO
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE,NO	NA,NE,NO	NA,NO				NA,NE,NO
<b>2. Industrial Processes</b>	<b>889.84</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>136.15</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>1,025.98</b>
A. Mineral Products	889.84	NA	NA				889.84
B. Chemical Industry	NO	NO	NO	NA	NA	NA	NA,NO
C. Metal Production	NA,NO	NA,NO	NA	NA	NA,NO	NA,NO	NA,NO
D. Other Production	NE						NE
E. Production of Halocarbons and SF <sub>6</sub>				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF <sub>6</sub> <sup>(2)</sup>				136.15	NA	NA	136.15
G. Other	NA	NA	NA	NA	NA	NA	NA
<b>3. Solvent and Other Product Use</b>	<b>2.91</b>		<b>NE</b>				<b>2.91</b>
<b>4. Agriculture</b>		<b>424.31</b>	<b>343.01</b>				<b>767.32</b>
A. Enteric Fermentation		193.94					193.94
B. Manure Management		228.00	97.04				325.04
C. Rice Cultivation		NA,NO					NA,NO
D. Agricultural Soils <sup>(3)</sup>		NA,NE	245.24				245.24
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		2.37	0.73				3.10
G. Other		NA	NA				NA
<b>5. Land Use, Land-Use Change and Forestry<sup>(1)</sup></b>	<b>-150.36</b>	<b>2.41</b>	<b>1.13</b>				<b>-146.82</b>
A. Forest Land	-159.07	2.41	1.13				-155.53
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	8.71						8.71
<b>6. Waste</b>	<b>NA,NE,NO</b>	<b>633.06</b>	<b>IE,NA,NE</b>				<b>633.06</b>
A. Solid Waste Disposal on Land	NA,NE,NO	589.90					589.90
B. Waste-water Handling		43.17	IE,NA,NE				43.17
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
<b>7. Other (as specified in Summary 1.A)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Memo Items:<sup>(4)</sup></b>							
<b>International Bunkers</b>	<b>1,534.32</b>	<b>4.46</b>	<b>12.51</b>				<b>1,551.29</b>
Aviation	891.04	2.64	7.41				901.10
Marine	643.28	1.82	5.10				650.20
<b>Multilateral Operations</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>				<b>NO</b>
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>12.10</b>						<b>12.10</b>
Total CO <sub>2</sub> Equivalent Emissions without Land Use, Land-Use Change and Forestry							9,857.08
Total CO <sub>2</sub> Equivalent Emissions with Land Use, Land-Use Change and Forestry							9,710.26

<sup>(1)</sup> For CO<sub>2</sub> from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

<sup>(2)</sup> Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

<sup>(3)</sup> Parties which previously reported CO<sub>2</sub> from soils in the Agriculture sector should note this in the NIR.

<sup>(4)</sup> See footnote 8 to table Summary 1.A.

**SUMMARY 2 SUMMARY REPORT FOR CO<sub>2</sub> EQUIVALENT EMISSIONS**  
(Sheet 1 of 1)

Inventory 2006  
Submission 2009 v1.4  
CYPRUS

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> <sup>(1)</sup>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs <sup>(2)</sup>	PFCs <sup>(2)</sup>	SF <sub>6</sub> <sup>(2)</sup>	Total
	CO <sub>2</sub> equivalent (Gg)						
<b>Total (Net Emissions)<sup>(1)</sup></b>	<b>8,025.13</b>	<b>1,241.36</b>	<b>504.76</b>	<b>53.20</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>9,824.45</b>
<b>1. Energy</b>	<b>7,268.30</b>	<b>166.50</b>	<b>180.32</b>				<b>7,615.13</b>
A. Fuel Combustion (Sectoral Approach)	7,268.30	166.50	180.32				7,615.13
1. Energy Industries	3,653.38	4.89	117.04				3,775.31
2. Manufacturing Industries and Construction	1,124.97	150.67	9.84				1,285.48
3. Transport	2,053.63	9.08	52.34				2,115.06
4. Other Sectors	407.90	1.78	1.03				410.71
5. Other	28.42	0.08	0.07				28.57
B. Fugitive Emissions from Fuels	NA,NE,NO	NA,NE,NO	NA,NO				NA,NE,NO
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE,NO	NA,NE,NO	NA,NO				NA,NE,NO
<b>2. Industrial Processes</b>	<b>905.49</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>53.20</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>958.69</b>
A. Mineral Products	905.49	NA	NA				905.49
B. Chemical Industry	NO	NO	NO	NA	NA	NA	NA,NO
C. Metal Production	NA,NO	NA,NO	NA	NA	NA,NO	NA,NO	NA,NO
D. Other Production	NE						NE
E. Production of Halocarbons and SF <sub>6</sub>				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF <sub>6</sub> <sup>(2)</sup>				53.20	NA	NA	53.20
G. Other	NA	NA	NA	NA	NA	NA	NA
<b>3. Solvent and Other Product Use</b>	<b>2.95</b>		<b>NE</b>				<b>2.95</b>
<b>4. Agriculture</b>		<b>425.68</b>	<b>323.31</b>				<b>749.00</b>
A. Enteric Fermentation		186.86					186.86
B. Manure Management		234.59	97.26				331.85
C. Rice Cultivation		NA,NO					NA,NO
D. Agricultural Soils <sup>(3)</sup>		NA,NE	224.78				224.78
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		4.23	1.27				5.50
G. Other		NA	NA				NA
<b>5. Land Use, Land-Use Change and Forestry<sup>(1)</sup></b>	<b>-151.62</b>	<b>2.41</b>	<b>1.13</b>				<b>-148.08</b>
A. Forest Land	-160.33	2.41	1.13				-156.79
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	8.71						8.71
<b>6. Waste</b>	<b>NA,NE,NO</b>	<b>646.76</b>	<b>IE,NA,NE</b>				<b>646.76</b>
A. Solid Waste Disposal on Land	NA,NE,NO	603.52					603.52
B. Waste-water Handling		43.25	IE,NA,NE				43.25
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
<b>7. Other (as specified in Summary I.A)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Memo Items:<sup>(4)</sup></b>							
<b>International Bunkers</b>	<b>1,531.49</b>	<b>4.46</b>	<b>12.51</b>				<b>1,548.46</b>
Aviation	904.06	2.68	7.52				914.26
Marine	627.43	1.78	4.99				634.20
<b>Multilateral Operations</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>				<b>NO</b>
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>16.53</b>						<b>16.53</b>
Total CO <sub>2</sub> Equivalent Emissions without Land Use, Land-Use Change and Forestry							9,972.54
Total CO <sub>2</sub> Equivalent Emissions with Land Use, Land-Use Change and Forestry							9,824.45

<sup>(1)</sup> For CO<sub>2</sub> from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

<sup>(2)</sup> Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

<sup>(3)</sup> Parties which previously reported CO<sub>2</sub> from soils in the Agriculture sector should note this in the NIR.

<sup>(4)</sup> See footnote 8 to table Summary I.A.

**SUMMARY 2 SUMMARY REPORT FOR CO<sub>2</sub> EQUIVALENT EMISSIONS**  
(Sheet 1 of 1)

Inventory 2007  
Submission 2009 v1.4  
CYPRUS

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> <sup>(1)</sup>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs <sup>(2)</sup>	PFCs <sup>(2)</sup>	SF <sub>6</sub> <sup>(2)</sup>	Total
	CO <sub>2</sub> equivalent (Gg)						
<b>Total (Net Emissions)<sup>(1)</sup></b>	<b>8,167.26</b>	<b>1,257.59</b>	<b>526.43</b>	<b>20.91</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>9,972.19</b>
<b>1. Energy</b>	<b>7,428.94</b>	<b>169.23</b>	<b>188.29</b>				<b>7,786.46</b>
A. Fuel Combustion (Sectoral Approach)	7,428.94	169.23	188.29				7,786.46
1. Energy Industries	3,801.67	5.08	121.39				3,928.13
2. Manufacturing Industries and Construction	1,052.84	152.55	9.85				1,215.24
3. Transport	2,193.70	9.24	56.09				2,259.03
4. Other Sectors	351.27	2.28	0.89				354.44
5. Other	29.46	0.08	0.07				29.62
B. Fugitive Emissions from Fuels	NA,NE,NO	NA,NE,NO	NA,NO				NA,NE,NO
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE,NO	NA,NE,NO	NA,NO				NA,NE,NO
<b>2. Industrial Processes</b>	<b>895.66</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>20.91</b>	<b>NA,NO</b>	<b>NA,NO</b>	<b>916.57</b>
A. Mineral Products	895.66	NA	NA				895.66
B. Chemical Industry	NO	NO	NO	NA	NA	NA	NA,NO
C. Metal Production	NA,NO	NA,NO	NA	NA	NA,NO	NA,NO	NA,NO
D. Other Production	NE						NE
E. Production of Halocarbons and SF <sub>6</sub>				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF <sub>6</sub> <sup>(2)</sup>				20.91	NA	NA	20.91
G. Other	NA	NA	NA	NA	NA	NA	NA
<b>3. Solvent and Other Product Use</b>	<b>2.99</b>		<b>NE</b>				<b>2.99</b>
<b>4. Agriculture</b>		<b>423.53</b>	<b>337.02</b>				<b>760.55</b>
A. Enteric Fermentation		187.90					187.90
B. Manure Management		233.42	96.57				329.99
C. Rice Cultivation		NA,NO					NA,NO
D. Agricultural Soils <sup>(3)</sup>		NA,NE	239.79				239.79
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		2.21	0.66				2.87
G. Other		NA	NA				NA
<b>5. Land Use, Land-Use Change and Forestry<sup>(1)</sup></b>	<b>-160.33</b>	<b>2.41</b>	<b>1.13</b>				<b>-156.79</b>
A. Forest Land	-160.33	2.41	1.13				-156.79
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other							
<b>6. Waste</b>	<b>NA,NE,NO</b>	<b>662.41</b>	<b>IE,NA,NE</b>				<b>662.41</b>
A. Solid Waste Disposal on Land	NA,NE,NO	618.87					618.87
B. Waste-water Handling		43.55	IE,NA,NE				43.55
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
<b>7. Other (as specified in Summary 1.A)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Memo Items:<sup>(4)</sup></b>							
<b>International Bunkers</b>	<b>1,471.79</b>	<b>4.29</b>	<b>12.03</b>				<b>1,488.12</b>
Aviation	878.51	2.61	7.31				888.43
Marine	593.28	1.68	4.73				599.69
<b>Multilateral Operations</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>				<b>NO</b>
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>31.27</b>						<b>31.27</b>
Total CO <sub>2</sub> Equivalent Emissions without Land Use, Land-Use Change and Forestry							10,128.99
Total CO <sub>2</sub> Equivalent Emissions with Land Use, Land-Use Change and Forestry							9,972.19

<sup>(1)</sup> For CO<sub>2</sub> from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

<sup>(2)</sup> Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

<sup>(3)</sup> Parties which previously reported CO<sub>2</sub> from soils in the Agriculture sector should note this in the NIR.

<sup>(4)</sup> See footnote 8 to table Summary 1.A.

**ANNEX II:      Uncertainty Tier I Table**

---

Tier I UNCERTAINTY CALCULATION AND REPORTING - 1990

IPCC Source category	Gas	Base year emissions (1990)	1990 emissions	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in year t	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions	Emission factor quality indicator	Activity data quality indicator	Expert judgement reference numbers	Footnote reference number	
		CO2 equiv. (Gg)	CO2 equiv. (Gg)														
1A1. Energy Industries	CO2	1781.45	1781.45	1%	1.0%	1.4%	0.46%	0.00%	32.71%	0.00	0.00	0.46%	D	R			
1A2. Manufacturing Industries and Construction	CO2	679.76	679.76	1%	1.0%	1.4%	0.18%	0.00%	12.48%	0.00	0.00	0.18%	D	R			
1A3. Transport	CO2	761.17	761.17	5%	1.4%	5.2%	0.73%	0.00%	13.97%	0.00	0.01	0.99%	D	R			
1A4. Other sectors	CO2	281.63	281.63	5%	2.0%	5.4%	0.28%	0.00%	5.17%	0.00	0.00	0.37%	D	R			
1A5. Other	CO2	17.29	17.29														
2A. Mineral Products	CO2	666.59	666.59	5%	2.2%	5.5%	0.67%	0.00%	12.24%	0.00	0.01	0.87%	D	R			
3. Solvent and other product use	CO2	2.29	2.29	7%	50%	50.5%	0.02%	0.00%	0.04%	0.00	0.00	0.00%	D	R			
5. Land-Use Change and Forestry	CO2	-22.44	-22.44	5%	50%	50.2%	-0.21%	0.00%	-0.41%	0.00	0.00	0.03%	D	R			
<b>TOTAL</b>	<b>CO2</b>	<b>4167.74</b>	<b>4167.74</b>				<b>0.0001</b>					<b>2.89%</b>					
1A1. Energy Industries	CH4	2.30	2.30	1%	50%	50.0%	0.02%	0.00%	0.04%	0.00	0.00	0.00%	D	R			
1A2. Manufacturing Industries and Construction	CH4	139.58	139.58	3%	50%	50.1%	1.28%	0.00%	2.56%	0.00	0.00	0.11%	D	R			
1A3. Transport	CH4	5.60	5.60	5%	50%	50.2%	0.05%	0.00%	0.10%	0.00	0.00	0.01%	D	R			
1A4. Other sectors	CH4	0.80	0.80	5%	2.0%	5.4%	0.00%	0.00%	0.01%	0.00	0.00	0.00%	D	R			
1A5. Other	CH4	0.05	0.05	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R			
1B2. Oil and Natural Gas	CH4	0.50	0.50	1%	20%	20.0%	0.00%	0.00%	0.01%	0.00	0.00	0.00%	D	R			
4A. Enteric Fermentation	CH4	172.49	172.49	3%	20%	20.2%	0.64%	0.00%	3.17%	0.00	0.00	0.13%	D	R			
4B. Manure Management	CH4	164.10	164.10	3%	30%	30.1%	0.91%	0.00%	3.01%	0.00	0.00	0.13%	D	R			
4F. Field Burning of Agricultural Residues	CH4	5.77	5.77	5%	50%	50.2%	0.05%	0.00%	0.11%	0.00	0.00	0.01%	D	R			
5. Land-Use Change and Forestry	CH4	2.41	2.41	5%	20%	20.6%	0.01%	0.00%	0.04%	0.00	0.00	0.00%	D	R			
6A. Solid Waste Disposal on Land	CH4	375.02	375.02	5%	46%	46.3%	3.19%	0.00%	6.88%	0.00	0.00	0.49%	D	R			
6B. Wastewater Handling	CH4	21.74	21.74	5%	50%	50.2%	0.20%	0.00%	0.40%	0.00	0.00	0.03%	D	R			
<b>TOTAL</b>	<b>CH4</b>	<b>890.36</b>	<b>890.36</b>				<b>0.0007</b>					<b>0.91%</b>					
1A1. Energy Industries	N2O	57.34	57.34	1%	195%	195.0%	2.05%	0.00%	1.05%	0.00	0.00	0.01%	D	R			
1A2. Manufacturing Industries and Construction	N2O	8.39	8.39	3%	195%	195.0%	0.30%	0.00%	0.15%	0.00	0.00	0.01%	D	R			
1A3. Transport	N2O	17.47	17.47	5%	170%	170.1%	0.55%	0.00%	0.32%	0.00	0.00	0.02%	D	R			
1A4. Other sectors	N2O	0.71	0.71	5%	170%	170.1%	0.02%	0.00%	0.01%	0.00	0.00	0.00%	D	R			
1A5. Other	N2O	0.05	0.05	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R			
4B. Manure Management	N2O	0.04	0.04	5%	414%	414.0%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R			
4D. Agricultural Soils	N2O	78.11	78.11	7%	424%	424.1%	6.08%	0.00%	1.43%	0.00	0.00	0.14%	D	R			
4F. Field Burning of Agricultural Residues	N2O	225.59	225.59	5%	230%	230.1%	9.53%	0.00%	4.14%	0.00	0.00	0.29%	D	R			
5. Land-Use Change and Forestry	N2O	1.13	1.13	5%	20%	20.6%	0.00%	0.00%	0.02%	0.00	0.00	0.00%	D	R			
<b>TOTAL</b>	<b>N2O</b>	<b>388.83</b>	<b>388.83</b>				<b>0.0066</b>					<b>0.48%</b>					
2F. Consumption of Halocarbons and SF6	HCFs	0.00	0.00	10%	15%	18.0%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R			
<b>TOTAL</b>	<b>HCFs</b>	<b>0.00</b>	<b>0.00</b>				<b>0.000000</b>					<b>0.00%</b>					
<b>TOTAL EMISSIONS</b>		<b>5446.93</b>	<b>5446.93</b>				<b>1%</b>					<b>4%</b>					
<b>TOTAL UNCERTAINTIES</b>				<b>Percentage uncertainty in total inventory</b>				<b>9%</b>				<b>Trend uncertainty:</b>	<b>21%</b>				

Tier I UNCERTAINTY CALCULATION AND REPORTING - 1991

IPCC Source category	Gas	Base year emissions (1990)	1991 emissions	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in year t	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions	Emission factor quality indicator	Activity data quality indicator	Expert judgement reference numbers	Footnote reference number	
		CO2 equiv. (Gg)	CO2 equiv. (Gg)														
1A1. Energy Industries	CO2	1781.45	1850.31	1%	1.0%	1.4%	0.46%	-0.20%	33.97%	0.00	0.00	0.48%	D	R			
1A2. Manufacturing Industries and Construction	CO2	679.76	807.77	1%	1.0%	1.4%	0.20%	1.79%	14.83%	0.00	0.00	0.21%	D	R			
1A3. Transport	CO2	761.17	805.29	5%	1.4%	5.2%	0.73%	0.18%	14.78%	0.00	0.01	1.05%	D	R			
1A4. Other sectors	CO2	281.63	302.83	5%	2.0%	5.4%	0.29%	0.16%	5.56%	0.00	0.00	0.39%	D	R			
1A5. Other	CO2	17.29	18.60														
2A. Mineral Products	CO2	666.59	662.91	5%	2.2%	5.5%	0.64%	-0.62%	12.17%	0.00	0.01	0.86%	D	R			
3. Solvent and other product use	CO2	2.29	2.35	7%	50%	50.5%	0.02%	0.00%	0.04%	0.00	0.00	0.00%	D	R			
5. Land-Use Change and Forestry	CO2	-22.44	-49.09	5%	50%	50.2%	-0.43%	-0.47%	-0.90%	0.00	0.00	0.24%	D	R			
<b>TOTAL CO2</b>	<b>CO2</b>	<b>4167.74</b>	<b>4400.98</b>				<b>0.0001</b>					<b>3.24%</b>					
1A1. Energy Industries	CH4	2.30	2.39	1%	50%	50.0%	0.02%	0.00%	0.04%	0.00	0.00	0.00%	D	R			
1A2. Manufacturing Industries and Construction	CH4	139.58	113.19	3%	50%	50.1%	1.00%	-0.60%	2.08%	0.00	0.00	0.31%	D	R			
1A3. Transport	CH4	5.60	5.60	5%	50%	50.2%	0.05%	0.00%	0.10%	0.00	0.00	0.01%	D	R			
1A4. Other sectors	CH4	0.80	0.86	5%	2.0%	5.4%	0.00%	0.00%	0.02%	0.00	0.00	0.00%	D	R			
1A5. Other	CH4	0.05	0.05	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R			
1B2. Oil and Natural Gas	CH4	0.50	0.60	1%	20%	20.0%	0.00%	0.00%	0.01%	0.00	0.00	0.00%	D	R			
4A. Enteric Fermentation	CH4	172.49	174.47	3%	20%	20.2%	0.62%	-0.11%	3.20%	0.00	0.00	0.14%	D	R			
4B. Manure Management	CH4	164.10	170.81	3%	30%	30.1%	0.90%	-0.01%	3.14%	0.00	0.00	0.13%	D	R			
4F. Field Burning of Agricultural Residues	CH4	5.77	3.94	5%	50%	50.2%	0.03%	-0.04%	0.07%	0.00	0.00	0.02%	D	R			
5. Land-Use Change and Forestry	CH4	2.41	2.41	5%	20%	20.6%	0.01%	0.00%	0.04%	0.00	0.00	0.00%	D	R			
6A. Solid Waste Disposal on Land	CH4	375.02	404.27	5%	46%	46.3%	3.29%	0.23%	7.42%	0.00	0.01	0.54%	D	R			
6B. Wastewater Handling	CH4	21.74	22.10	5%	50%	50.2%	0.20%	-0.01%	0.41%	0.00	0.00	0.03%	D	R			
<b>TOTAL CH4</b>	<b>CH4</b>	<b>890.36</b>	<b>900.69</b>				<b>0.0007</b>					<b>1.18%</b>					
1A1. Energy Industries	N2O	57.34	59.56	1%	195%	195.0%	2.04%	-0.01%	1.09%	0.00	0.00	0.02%	D	R			
1A2. Manufacturing Industries and Construction	N2O	8.39	7.42	3%	195%	195.0%	0.25%	-0.02%	0.14%	0.00	0.00	0.05%	D	R			
1A3. Transport	N2O	17.47	18.19	5%	170%	170.1%	0.54%	0.00%	0.33%	0.00	0.00	0.02%	D	R			
1A4. Other sectors	N2O	0.71	0.76	5%	170%	170.1%	0.02%	0.00%	0.01%	0.00	0.00	0.00%	D	R			
1A5. Other	N2O	0.05	0.05	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R			
4B. Manure Management	N2O	0.04	79.24	5%	414%	414.0%	5.76%	1.45%	1.45%	0.06	0.00	6.02%	D	R			
4D. Agricultural Soils	N2O	78.11	223.00	7%	424%	424.1%	16.61%	2.60%	4.09%	0.11	0.00	11.01%	D	R			
4F. Field Burning of Agricultural Residues	N2O	225.59	0.69	5%	230%	230.1%	0.03%	-4.31%	0.01%	-0.10	0.00	9.92%	D	R			
5. Land-Use Change and Forestry	N2O	1.13	1.13	5%	20%	20.6%	0.00%	0.00%	0.02%	0.00	0.00	0.00%	D	R			
<b>TOTAL N2O</b>	<b>N2O</b>	<b>388.83</b>	<b>390.03</b>				<b>0.0157</b>					<b>27.05%</b>					
2F. Consumption of Halocarbons and SF6	HCFs	0.00	0.00	10%	15%	18.0%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R			
<b>TOTAL HCFs</b>	<b>HCFs</b>	<b>0.00</b>	<b>0.00</b>				<b>0.000000</b>					<b>0.00%</b>					
<b>TOTAL EMISSIONS</b>		<b>5446.93</b>	<b>5691.69</b>				<b>2%</b>					<b>31%</b>					
<b>TOTAL UNCERTAINTIES</b>				<b>Percentage uncertainty in total inventory</b>				<b>13%</b>				<b>Trend uncertainty:</b>	<b>56%</b>				

Tier I UNCERTAINTY CALCULATION AND REPORTING - 1992

IPCC Source category	Gas	Base year emissions (1990)	1992 emissions	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in year t	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions	Emission factor quality indicator	Activity data quality indicator	Expert judgement reference numbers	Footnote reference number
		CO2 equiv. (Gg)	CO2 equiv. (Gg)													
1A1. Energy Industries	CO2	1781.45	2145.18	1%	1.0%	1.4%	0.46%	-0.25%	39.38%	0.00	0.01	0.56%	D	R		
1A2. Manufacturing Industries and Construction	CO2	679.76	1012.99	1%	1.0%	1.4%	0.22%	3.47%	18.60%	0.00	0.00	0.27%	D	R		
1A3. Transport	CO2	761.17	1041.87	5%	1.4%	5.2%	0.82%	2.19%	19.13%	0.00	0.01	1.35%	D	R		
1A4. Other sectors	CO2	281.63	365.31	5%	2.0%	5.4%	0.30%	0.44%	6.71%	0.00	0.00	0.47%	D	R		
1A5. Other	CO2	17.29	22.43													
2A. Mineral Products	CO2	666.59	655.14	5%	2.2%	5.5%	0.54%	-2.80%	12.03%	0.00	0.01	0.85%	D	R		
3. Solvent and other product use	CO2	2.29	2.41	7%	50%	50.5%	0.02%	-0.01%	0.04%	0.00	0.00	0.01%	D	R		
5. Land-Use Change and Forestry	CO2	-22.44	-61.06	5%	50%	50.2%	-0.46%	-0.62%	-1.12%	0.00	0.00	0.32%	D	R		
<b>TOTAL</b>	<b>CO2</b>	<b>4167.74</b>	<b>5184.26</b>				<b>0.0001</b>					<b>3.83%</b>				
1A1. Energy Industries	CH4	2.30	2.79	1%	50%	50.0%	0.02%	0.00%	0.05%	0.00	0.00	0.00%	D	R		
1A2. Manufacturing Industries and Construction	CH4	139.58	144.16	3%	50%	50.1%	1.09%	-0.46%	2.65%	0.00	0.00	0.26%	D	R		
1A3. Transport	CH4	5.60	6.08	5%	50%	50.2%	0.05%	-0.01%	0.11%	0.00	0.00	0.01%	D	R		
1A4. Other sectors	CH4	0.80	1.04	5%	2.0%	5.4%	0.00%	0.00%	0.02%	0.00	0.00	0.00%	D	R		
1A5. Other	CH4	0.05	0.06	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
1B2. Oil and Natural Gas	CH4	0.50	0.57	1%	20%	20.0%	0.00%	0.00%	0.01%	0.00	0.00	0.00%	D	R		
4A. Enteric Fermentation	CH4	172.49	176.33	3%	20%	20.2%	0.54%	-0.60%	3.24%	0.00	0.00	0.18%	D	R		
4B. Manure Management	CH4	164.10	191.82	3%	30%	30.1%	0.88%	-0.13%	3.52%	0.00	0.00	0.15%	D	R		
4F. Field Burning of Agricultural Residues	CH4	5.77	7.14	5%	50%	50.2%	0.05%	0.00%	0.13%	0.00	0.00	0.01%	D	R		
5. Land-Use Change and Forestry	CH4	2.41	2.41	5%	20%	20.6%	0.01%	-0.01%	0.04%	0.00	0.00	0.00%	D	R		
6A. Solid Waste Disposal on Land	CH4	375.02	424.25	5%	46%	46.3%	2.97%	-0.55%	7.79%	0.00	0.01	0.61%	D	R		
6B. Wastewater Handling	CH4	21.74	22.98	5%	50%	50.2%	0.17%	-0.06%	0.42%	0.00	0.00	0.04%	D	R		
<b>TOTAL</b>	<b>CH4</b>	<b>890.36</b>	<b>979.63</b>				<b>0.0006</b>					<b>1.27%</b>				
1A1. Energy Industries	N2O	57.34	69.14	1%	195%	195.0%	2.04%	-0.01%	1.27%	0.00	0.00	0.02%	D	R		
1A2. Manufacturing Industries and Construction	N2O	8.39	9.39	3%	195%	195.0%	0.28%	-0.01%	0.17%	0.00	0.00	0.03%	D	R		
1A3. Transport	N2O	17.47	21.20	5%	170%	170.1%	0.55%	0.00%	0.39%	0.00	0.00	0.03%	D	R		
1A4. Other sectors	N2O	0.71	0.92	5%	170%	170.1%	0.02%	0.00%	0.02%	0.00	0.00	0.00%	D	R		
1A5. Other	N2O	0.05	0.06	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
4B. Manure Management	N2O	0.04	87.07	5%	414%	414.0%	5.46%	1.60%	1.60%	0.07	0.00	6.61%	D	R		
4D. Agricultural Soils	N2O	78.11	246.45	7%	424%	424.1%	15.83%	2.79%	4.52%	0.12	0.00	11.82%	D	R		
4F. Field Burning of Agricultural Residues	N2O	225.59	1.90	5%	230%	230.1%	0.07%	-4.98%	0.03%	-0.11	0.00	11.46%	D	R		
5. Land-Use Change and Forestry	N2O	1.13	1.13	5%	20%	20.6%	0.00%	0.00%	0.02%	0.00	0.00	0.00%	D	R		
<b>TOTAL</b>	<b>N2O</b>	<b>388.83</b>	<b>437.25</b>				<b>0.0143</b>					<b>29.98%</b>				
2F. Consumption of Halocarbons and SF6	HCFs	0.00	0.00	10%	15%	18.0%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
<b>TOTAL</b>	<b>HCFs</b>	<b>0.00</b>	<b>0.00</b>				<b>0.000000</b>					<b>0.00%</b>				
<b>TOTAL EMISSIONS</b>		<b>5446.93</b>	<b>6601.14</b>				<b>1%</b>					<b>35%</b>				
<b>TOTAL UNCERTAINTIES</b>				<b>Percentage uncertainty in total inventory</b>			<b>12%</b>				<b>Trend uncertainty:</b>	<b>59%</b>				

Tier I UNCERTAINTY CALCULATION AND REPORTING - 1993

IPCC Source category	Gas	Base year emissions (1990)	1993 emissions	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in year t	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions	Emission factor quality indicator	Activity data indicator	Expert judgement reference numbers	Footnote reference number
		CO2 equiv. (Gg)	CO2 equiv. (Gg)													
1A1. Energy Industries	CO2	1781.45	2287.81	1%	1.0%	1.4%	0.46%	0.00%	42.00%	0.00	0.01	0.59%	D	R		
1A2. Manufacturing Industries and Construction	CO2	679.76	1178.64	1%	1.0%	1.4%	0.24%	5.60%	21.64%	0.00	0.00	0.31%	D	R		
1A3. Transport	CO2	761.17	1080.11	5%	1.4%	5.2%	0.80%	1.88%	19.83%	0.00	0.01	1.40%	D	R		
1A4. Other sectors	CO2	281.63	371.25	5%	2.0%	5.4%	0.29%	0.18%	6.82%	0.00	0.00	0.48%	D	R		
1A5. Other	CO2	17.29	22.80													
2A. Mineral Products	CO2	666.59	630.86	5%	2.2%	5.5%	0.49%	-4.13%	11.58%	0.00	0.01	0.82%	D	R		
3. Solvent and other product use	CO2	2.29	2.45	7%	50%	50.5%	0.02%	-0.01%	0.04%	0.00	0.00	0.01%	D	R		
5. Land-Use Change and Forestry	CO2	-22.44	-55.80	5%	50%	50.2%	-0.40%	-0.50%	-1.02%	0.00	0.00	0.26%	D	R		
<b>TOTAL</b>	<b>CO2</b>	<b>4167.74</b>	<b>5518.12</b>				<b>0.0001</b>					<b>3.88%</b>				
1A1. Energy Industries	CH4	2.30	2.97	1%	50%	50.0%	0.02%	0.00%	0.05%	0.00	0.00	0.00%	D	R		
1A2. Manufacturing Industries and Construction	CH4	139.58	154.03	3%	50%	50.1%	1.10%	-0.46%	2.83%	0.00	0.00	0.26%	D	R		
1A3. Transport	CH4	5.60	6.12	5%	50%	50.2%	0.04%	-0.02%	0.11%	0.00	0.00	0.01%	D	R		
1A4. Other sectors	CH4	0.80	1.05	5%	2.0%	5.4%	0.00%	0.00%	0.02%	0.00	0.00	0.00%	D	R		
1A5. Other	CH4	0.05	0.06	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
1B2. Oil and Natural Gas	CH4	0.50	0.62	1%	20%	20.0%	0.00%	0.00%	0.01%	0.00	0.00	0.00%	D	R		
4A. Enteric Fermentation	CH4	172.49	184.64	3%	20%	20.2%	0.53%	-0.68%	3.39%	0.00	0.00	0.20%	D	R		
4B. Manure Management	CH4	164.10	208.80	3%	30%	30.1%	0.90%	-0.04%	3.83%	0.00	0.00	0.16%	D	R		
4F. Field Burning of Agricultural Residues	CH4	5.77	7.90	5%	50%	50.2%	0.06%	0.01%	0.14%	0.00	0.00	0.01%	D	R		
5. Land-Use Change and Forestry	CH4	2.41	2.41	5%	20%	20.6%	0.01%	-0.01%	0.04%	0.00	0.00	0.00%	D	R		
6A. Solid Waste Disposal on Land	CH4	375.02	436.07	5%	46%	46.3%	2.88%	-0.84%	8.01%	0.00	0.01	0.68%	D	R		
6B. Wastewater Handling	CH4	21.74	23.13	5%	50%	50.2%	0.17%	-0.09%	0.42%	0.00	0.00	0.05%	D	R		
<b>TOTAL</b>	<b>CH4</b>	<b>890.36</b>	<b>1027.81</b>				<b>0.0005</b>					<b>1.39%</b>				
1A1. Energy Industries	N2O	57.34	73.68	1%	195%	195.0%	2.05%	0.00%	1.35%	0.00	0.00	0.02%	D	R		
1A2. Manufacturing Industries and Construction	N2O	8.39	10.25	3%	195%	195.0%	0.29%	-0.01%	0.19%	0.00	0.00	0.02%	D	R		
1A3. Transport	N2O	17.47	21.66	5%	170%	170.1%	0.53%	-0.01%	0.40%	0.00	0.00	0.04%	D	R		
1A4. Other sectors	N2O	0.71	0.93	5%	170%	170.1%	0.02%	0.00%	0.02%	0.00	0.00	0.00%	D	R		
1A5. Other	N2O	0.05	0.06	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
4B. Manure Management	N2O	0.04	96.18	5%	414%	414.0%	5.69%	1.76%	1.77%	0.07	0.00	7.31%	D	R		
4D. Agricultural Soils	N2O	78.11	243.69	7%	424%	424.1%	14.77%	2.63%	4.47%	0.11	0.00	11.17%	D	R		
4F. Field Burning of Agricultural Residues	N2O	225.59	2.15	5%	230%	230.1%	0.07%	-5.28%	0.04%	-0.12	0.00	12.14%	D	R		
5. Land-Use Change and Forestry	N2O	1.13	1.13	5%	20%	20.6%	0.00%	-0.01%	0.02%	0.00	0.00	0.00%	D	R		
<b>TOTAL</b>	<b>N2O</b>	<b>388.83</b>	<b>449.71</b>				<b>0.0128</b>					<b>30.69%</b>				
2F. Consumption of Halocarbons and SF6	HCFs	0.00	0.00	10%	15%	18.0%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
<b>TOTAL</b>	<b>HCFs</b>	<b>0.00</b>	<b>0.00</b>				<b>0.000000</b>					<b>0.00%</b>				
<b>TOTAL EMISSIONS</b>		<b>5446.93</b>	<b>6995.64</b>				<b>1%</b>					<b>36%</b>				
<b>TOTAL UNCERTAINTIES</b>				<b>Percentage uncertainty in total inventory</b>			<b>12%</b>				<b>Trend uncertainty:</b>	<b>60%</b>				



Tier I UNCERTAINTY CALCULATION AND REPORTING - 1994

IPCC Source category	Gas	Base year emissions (1990)	1994 emissions	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in year t	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions	Emission factor quality indicator	Activity data quality indicator	Expert judgement reference numbers	Footnote reference number
		CO2 equiv. (Gg)	CO2 equiv. (Gg)													
1A1. Energy Industries	CO2	1781.45	2395.14	1%	1.0%	1.4%	0.48%	1.78%	43.97%	0.00	0.01	0.62%	D	R		
1A2. Manufacturing Industries and Construction	CO2	679.76	1037.84	1%	1.0%	1.4%	0.21%	2.95%	19.05%	0.00	0.00	0.27%	D	R		
1A3. Transport	CO2	761.17	1126.67	5%	1.4%	5.2%	0.83%	2.66%	20.68%	0.00	0.01	1.46%	D	R		
1A4. Other sectors	CO2	281.63	422.02	5%	2.0%	5.4%	0.32%	1.08%	7.75%	0.00	0.01	0.55%	D	R		
1A5. Other	CO2	17.29	25.91													
2A. Mineral Products	CO2	666.59	617.86	5%	2.2%	5.5%	0.48%	-4.44%	11.34%	0.00	0.01	0.81%	D	R		
3. Solvent and other product use	CO2	2.29	2.49	7%	50%	50.5%	0.02%	-0.01%	0.05%	0.00	0.00	0.01%	D	R		
5. Land-Use Change and Forestry	CO2	-22.44	-72.10	5%	50%	50.2%	-0.52%	-0.79%	-1.32%	0.00	0.00	0.41%	D	R		
<b>TOTAL</b>	<b>CO2</b>	<b>4167.74</b>	<b>5555.83</b>				<b>0.0001</b>					<b>4.13%</b>				
1A1. Energy Industries	CH4	2.30	3.10	1%	50%	50.0%	0.02%	0.00%	0.06%	0.00	0.00	0.00%	D	R		
1A2. Manufacturing Industries and Construction	CH4	139.58	139.57	3%	50%	50.1%	1.00%	-0.74%	2.56%	0.00	0.00	0.39%	D	R		
1A3. Transport	CH4	5.60	6.36	5%	50%	50.2%	0.05%	-0.02%	0.12%	0.00	0.00	0.01%	D	R		
1A4. Other sectors	CH4	0.80	1.20	5%	2.0%	5.4%	0.00%	0.00%	0.02%	0.00	0.00	0.00%	D	R		
1A5. Other	CH4	0.05	0.07	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
1B2. Oil and Natural Gas	CH4	0.50	0.71	1%	20%	20.0%	0.00%	0.00%	0.01%	0.00	0.00	0.00%	D	R		
4A. Enteric Fermentation	CH4	172.49	186.93	3%	20%	20.2%	0.54%	-0.65%	3.43%	0.00	0.00	0.20%	D	R		
4B. Manure Management	CH4	164.10	203.82	3%	30%	30.1%	0.87%	-0.14%	3.74%	0.00	0.00	0.16%	D	R		
4F. Field Burning of Agricultural Residues	CH4	5.77	6.24	5%	50%	50.2%	0.04%	-0.02%	0.11%	0.00	0.00	0.01%	D	R		
5. Land-Use Change and Forestry	CH4	2.41	2.41	5%	20%	20.6%	0.01%	-0.01%	0.04%	0.00	0.00	0.00%	D	R		
6A. Solid Waste Disposal on Land	CH4	375.02	446.87	5%	46%	46.3%	2.94%	-0.68%	8.20%	0.00	0.01	0.66%	D	R		
6B. Wastewater Handling	CH4	21.74	23.54	5%	50%	50.2%	0.17%	-0.08%	0.43%	0.00	0.00	0.05%	D	R		
<b>TOTAL</b>	<b>CH4</b>	<b>890.36</b>	<b>1020.81</b>				<b>0.0005</b>					<b>1.49%</b>				
1A1. Energy Industries	N2O	57.34	77.12	1%	195%	195.0%	2.14%	0.06%	1.42%	0.00	0.00	0.11%	D	R		
1A2. Manufacturing Industries and Construction	N2O	8.39	9.25	3%	195%	195.0%	0.26%	-0.03%	0.17%	0.00	0.00	0.06%	D	R		
1A3. Transport	N2O	17.47	23.87	5%	170%	170.1%	0.58%	0.02%	0.44%	0.00	0.00	0.05%	D	R		
1A4. Other sectors	N2O	0.71	1.06	5%	170%	170.1%	0.03%	0.00%	0.02%	0.00	0.00	0.00%	D	R		
1A5. Other	N2O	0.05	0.07	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
4B. Manure Management	N2O	0.04	94.67	5%	414%	414.0%	5.58%	1.74%	1.74%	0.07	0.00	7.19%	D	R		
4D. Agricultural Soils	N2O	78.11	239.93	7%	424%	424.1%	14.48%	2.55%	4.40%	0.11	0.00	10.84%	D	R		
4F. Field Burning of Agricultural Residues	N2O	225.59	1.70	5%	230%	230.1%	0.06%	-5.31%	0.03%	-0.12	0.00	12.21%	D	R		
5. Land-Use Change and Forestry	N2O	1.13	1.13	5%	20%	20.6%	0.00%	-0.01%	0.02%	0.00	0.00	0.00%	D	R		
<b>TOTAL</b>	<b>N2O</b>	<b>388.83</b>	<b>448.78</b>				<b>0.0123</b>					<b>30.47%</b>				
2F. Consumption of Halocarbons and SF6	HCFs	0.00	0.00	10%	15%	18.0%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
<b>TOTAL</b>	<b>HCFs</b>	<b>0.00</b>	<b>0.00</b>				<b>0.000000</b>					<b>0.00%</b>				
<b>TOTAL EMISSIONS</b>		<b>5446.93</b>	<b>7025.42</b>				<b>1%</b>					<b>36%</b>				
<b>TOTAL UNCERTAINTIES</b>				<b>Percentage uncertainty in total inventory</b>			<b>11%</b>				<b>Trend uncertainty:</b>	<b>60%</b>				

Tier I UNCERTAINTY CALCULATION AND REPORTING - 1995

IPCC Source category	Gas	Base year emissions (1990)	1995 emissions	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in year t	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions	Emission factor quality indicator	Activity data quality indicator	Expert judgement reference numbers	Footnote reference number	
		CO2 equiv. (Gg)	CO2 equiv. (Gg)														
1A1. Energy Industries	CO2	1781.45	2205.87	1%	1.0%	1.4%	0.46%	-0.27%	40.50%	0.00	0.01	0.57%	D	R			
1A2. Manufacturing Industries and Construction	CO2	679.76	989.55	1%	1.0%	1.4%	0.21%	2.61%	18.17%	0.00	0.00	0.26%	D	R			
1A3. Transport	CO2	761.17	1149.91	5%	1.4%	5.2%	0.88%	3.69%	21.11%	0.00	0.01	1.49%	D	R			
1A4. Other sectors	CO2	281.63	401.22	5%	2.0%	5.4%	0.32%	0.92%	7.37%	0.00	0.01	0.52%	D	R			
1A5. Other	CO2	17.29	24.64														
2A. Mineral Products	CO2	666.59	598.76	5%	2.2%	5.5%	0.48%	-4.26%	10.99%	0.00	0.01	0.78%	D	R			
3. Solvent and other product use	CO2	2.29	2.51	7%	50%	50.5%	0.02%	-0.01%	0.05%	0.00	0.00	0.01%	D	R			
5. Land-Use Change and Forestry	CO2	-22.44	-75.87	5%	50%	50.2%	-0.56%	-0.88%	-1.39%	0.00	0.00	0.45%	D	R			
<b>TOTAL</b>	<b>CO2</b>	<b>4167.74</b>	<b>5296.59</b>				<b>0.0001</b>					<b>4.08%</b>					
1A1. Energy Industries	CH4	2.30	2.85	1%	50%	50.0%	0.02%	0.00%	0.05%	0.00	0.00	0.00%	D	R			
1A2. Manufacturing Industries and Construction	CH4	139.58	130.66	3%	50%	50.1%	0.96%	-0.80%	2.40%	0.00	0.00	0.41%	D	R			
1A3. Transport	CH4	5.60	6.42	5%	50%	50.2%	0.05%	-0.01%	0.12%	0.00	0.00	0.01%	D	R			
1A4. Other sectors	CH4	0.80	1.14	5%	2.0%	5.4%	0.00%	0.00%	0.02%	0.00	0.00	0.00%	D	R			
1A5. Other	CH4	0.05	0.07	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R			
1B2. Oil and Natural Gas	CH4	0.50	0.65	1%	20%	20.0%	0.00%	0.00%	0.01%	0.00	0.00	0.00%	D	R			
4A. Enteric Fermentation	CH4	172.49	194.22	3%	20%	20.2%	0.58%	-0.38%	3.57%	0.00	0.00	0.17%	D	R			
4B. Manure Management	CH4	164.10	214.01	3%	30%	30.1%	0.95%	0.17%	3.93%	0.00	0.00	0.17%	D	R			
4F. Field Burning of Agricultural Residues	CH4	5.77	5.96	5%	50%	50.2%	0.04%	-0.02%	0.11%	0.00	0.00	0.01%	D	R			
5. Land-Use Change and Forestry	CH4	2.41	2.41	5%	20%	20.6%	0.01%	-0.01%	0.04%	0.00	0.00	0.00%	D	R			
6A. Solid Waste Disposal on Land	CH4	375.02	457.66	5%	46%	46.3%	3.12%	-0.18%	8.40%	0.00	0.01	0.60%	D	R			
6B. Wastewater Handling	CH4	21.74	24.04	5%	50%	50.2%	0.18%	-0.06%	0.44%	0.00	0.00	0.04%	D	R			
<b>TOTAL</b>	<b>CH4</b>	<b>890.36</b>	<b>1040.10</b>				<b>0.0006</b>					<b>1.43%</b>					
1A1. Energy Industries	N2O	57.34	71.07	1%	195%	195.0%	2.04%	-0.01%	1.30%	0.00	0.00	0.02%	D	R			
1A2. Manufacturing Industries and Construction	N2O	8.39	8.65	3%	195%	195.0%	0.25%	-0.03%	0.16%	0.00	0.00	0.06%	D	R			
1A3. Transport	N2O	17.47	23.58	5%	170%	170.1%	0.59%	0.03%	0.43%	0.00	0.00	0.06%	D	R			
1A4. Other sectors	N2O	0.71	1.01	5%	170%	170.1%	0.03%	0.00%	0.02%	0.00	0.00	0.00%	D	R			
1A5. Other	N2O	0.05	0.06	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R			
4B. Manure Management	N2O	0.04	99.39	5%	414%	414.0%	6.06%	1.82%	1.82%	0.08	0.00	7.55%	D	R			
4D. Agricultural Soils	N2O	78.11	246.12	7%	424%	424.1%	15.37%	2.73%	4.52%	0.12	0.00	11.59%	D	R			
4F. Field Burning of Agricultural Residues	N2O	225.59	1.53	5%	230%	230.1%	0.05%	-5.13%	0.03%	-0.12	0.00	11.80%	D	R			
5. Land-Use Change and Forestry	N2O	1.13	1.13	5%	20%	20.6%	0.00%	-0.01%	0.02%	0.00	0.00	0.00%	D	R			
<b>TOTAL</b>	<b>N2O</b>	<b>388.83</b>	<b>452.54</b>				<b>0.0139</b>					<b>31.10%</b>					
2F. Consumption of Halocarbons and SF6	HCFs	0.00	0.00	10%	15%	18.0%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R			
<b>TOTAL</b>	<b>HCFs</b>	<b>0.00</b>	<b>0.00</b>				<b>0.000000</b>					<b>0.00%</b>					
<b>TOTAL EMISSIONS</b>		<b>5446.93</b>	<b>6789.22</b>				<b>1%</b>					<b>37%</b>					
<b>TOTAL UNCERTAINTIES</b>				<b>Percentage uncertainty in total inventory</b>				<b>12%</b>				<b>Trend uncertainty:</b>	<b>61%</b>				

Tier I UNCERTAINTY CALCULATION AND REPORTING - 1996

IPCC Source category	Gas	Base year emissions (1990)	1996 emissions	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in year t	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions	Emission factor quality indicator	Activity data quality indicator	Expert judgement reference numbers	Footnote reference number	
		CO2 equiv. (Gg)	CO2 equiv. (Gg)														
1A1. Energy Industries	CO2	1781.45	2324.45	1%	1.0%	1.4%	0.46%	-0.43%	42.67%	0.00	0.01	0.60%	D	R			
1A2. Manufacturing Industries and Construction	CO2	679.76	1098.13	1%	1.0%	1.4%	0.22%	3.71%	20.16%	0.00	0.00	0.29%	D	R			
1A3. Transport	CO2	761.17	1224.10	5%	1.4%	5.2%	0.89%	4.05%	22.47%	0.00	0.02	1.59%	D	R			
1A4. Other sectors	CO2	281.63	421.12	5%	2.0%	5.4%	0.32%	0.92%	7.73%	0.00	0.01	0.55%	D	R			
1A5. Other	CO2	17.29	25.86														
2A. Mineral Products	CO2	666.59	608.23	5%	2.2%	5.5%	0.46%	-4.96%	11.17%	0.00	0.01	0.80%	D	R			
3. Solvent and other product use	CO2	2.29	2.54	7%	50%	50.5%	0.02%	-0.01%	0.05%	0.00	0.00	0.01%	D	R			
5. Land-Use Change and Forestry	CO2	-22.44	-86.62	5%	50%	50.2%	-0.61%	-1.05%	-1.59%	-0.01	0.00	0.54%	D	R			
<b>TOTAL</b>	<b>CO2</b>	<b>4167.74</b>	<b>5617.82</b>				<b>0.0001</b>					<b>4.37%</b>					
1A1. Energy Industries	CH4	2.30	3.02	1%	50%	50.0%	0.02%	0.00%	0.06%	0.00	0.00	0.00%	D	R			
1A2. Manufacturing Industries and Construction	CH4	139.58	160.74	3%	50%	50.1%	1.12%	-0.43%	2.95%	0.00	0.00	0.25%	D	R			
1A3. Transport	CH4	5.60	6.51	5%	50%	50.2%	0.05%	-0.02%	0.12%	0.00	0.00	0.01%	D	R			
1A4. Other sectors	CH4	0.80	1.19	5%	2.0%	5.4%	0.00%	0.00%	0.02%	0.00	0.00	0.00%	D	R			
1A5. Other	CH4	0.05	0.07	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R			
1B2. Oil and Natural Gas	CH4	0.50	0.60	1%	20%	20.0%	0.00%	0.00%	0.01%	0.00	0.00	0.00%	D	R			
4A. Enteric Fermentation	CH4	172.49	198.18	3%	20%	20.2%	0.56%	-0.54%	3.64%	0.00	0.00	0.19%	D	R			
4B. Manure Management	CH4	164.10	224.75	3%	30%	30.1%	0.94%	0.16%	4.13%	0.00	0.00	0.18%	D	R			
4F. Field Burning of Agricultural Residues	CH4	5.77	5.94	5%	50%	50.2%	0.04%	-0.03%	0.11%	0.00	0.00	0.02%	D	R			
5. Land-Use Change and Forestry	CH4	2.41	2.41	5%	20%	20.6%	0.01%	-0.01%	0.04%	0.00	0.00	0.00%	D	R			
6A. Solid Waste Disposal on Land	CH4	375.02	460.89	5%	46%	46.3%	2.97%	-0.61%	8.46%	0.00	0.01	0.66%	D	R			
6B. Wastewater Handling	CH4	21.74	24.21	5%	50%	50.2%	0.17%	-0.08%	0.44%	0.00	0.00	0.05%	D	R			
<b>TOTAL</b>	<b>CH4</b>	<b>890.36</b>	<b>1088.52</b>				<b>0.0006</b>					<b>1.36%</b>					
1A1. Energy Industries	N2O	57.34	74.87	1%	195%	195.0%	2.03%	-0.01%	1.37%	0.00	0.00	0.03%	D	R			
1A2. Manufacturing Industries and Construction	N2O	8.39	10.38	3%	195%	195.0%	0.28%	-0.01%	0.19%	0.00	0.00	0.03%	D	R			
1A3. Transport	N2O	17.47	24.94	5%	170%	170.1%	0.59%	0.04%	0.46%	0.00	0.00	0.07%	D	R			
1A4. Other sectors	N2O	0.71	1.06	5%	170%	170.1%	0.03%	0.00%	0.02%	0.00	0.00	0.00%	D	R			
1A5. Other	N2O	0.05	0.06	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R			
4B. Manure Management	N2O	0.04	103.27	5%	414%	414.0%	5.96%	1.89%	1.90%	0.08	0.00	7.85%	D	R			
4D. Agricultural Soils	N2O	78.11	255.17	7%	424%	424.1%	15.07%	2.79%	4.68%	0.12	0.00	11.86%	D	R			
4F. Field Burning of Agricultural Residues	N2O	225.59	1.48	5%	230%	230.1%	0.05%	-5.43%	0.03%	-0.12	0.00	12.49%	D	R			
5. Land-Use Change and Forestry	N2O	1.13	1.13	5%	20%	20.6%	0.00%	-0.01%	0.02%	0.00	0.00	0.00%	D	R			
<b>TOTAL</b>	<b>N2O</b>	<b>388.83</b>	<b>472.36</b>				<b>0.0134</b>					<b>32.32%</b>					
2F. Consumption of Halocarbons and SF6	HCFs	0.00	0.48	10%	15%	18.0%	0.00%	0.01%	0.01%	0.00	0.00	0.00%	D	R			
<b>TOTAL</b>	<b>HCFs</b>	<b>0.00</b>	<b>0.48</b>				<b>0.000000</b>					<b>0.00%</b>					
<b>TOTAL EMISSIONS</b>		<b>5446.93</b>	<b>7179.18</b>				<b>1%</b>					<b>38%</b>					
<b>TOTAL UNCERTAINTIES</b>				<b>Percentage uncertainty in total inventory</b>				<b>12%</b>				<b>Trend uncertainty:</b>	<b>62%</b>				

Tier I UNCERTAINTY CALCULATION AND REPORTING - 1997

IPCC Source category	Gas	Base year emissions (1990)	1997 emissions	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in year t	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions	Emission factor quality indicator	Activity data quality indicator	Expert judgement reference numbers	Footnote reference number
		CO2 equiv. (Gg)	CO2 equiv. (Gg)													
1A1. Energy Industries	CO2	1781.45	2460.32	1%	1.0%	1.4%	0.47%	0.98%	45.17%	0.00	0.01	0.64%	D	R		
1A2. Manufacturing Industries and Construction	CO2	679.76	1295.49	1%	1.0%	1.4%	0.25%	6.92%	23.78%	0.00	0.00	0.34%	D	R		
1A3. Transport	CO2	761.17	1153.68	5%	1.4%	5.2%	0.81%	2.30%	21.18%	0.00	0.01	1.50%	D	R		
1A4. Other sectors	CO2	281.63	441.92	5%	2.0%	5.4%	0.32%	1.13%	8.11%	0.00	0.01	0.57%	D	R		
1A5. Other	CO2	17.29	27.14													
2A. Mineral Products	CO2	666.59	535.92	5%	2.2%	5.5%	0.40%	-6.69%	9.84%	0.00	0.01	0.71%	D	R		
3. Solvent and other product use	CO2	2.29	2.56	7%	50%	50.5%	0.02%	-0.01%	0.05%	0.00	0.00	0.01%	D	R		
5. Land-Use Change and Forestry	CO2	-22.44	-103.49	5%	50%	50.2%	-0.71%	-1.34%	-1.90%	-0.01	0.00	0.68%	D	R		
<b>TOTAL</b>	<b>CO2</b>	<b>4167.74</b>	<b>5813.54</b>				<b>0.0001</b>					<b>4.46%</b>				
1A1. Energy Industries	CH4	2.30	3.19	1%	50%	50.0%	0.02%	0.00%	0.06%	0.00	0.00	0.00%	D	R		
1A2. Manufacturing Industries and Construction	CH4	139.58	139.52	3%	50%	50.1%	0.95%	-0.90%	2.56%	0.00	0.00	0.46%	D	R		
1A3. Transport	CH4	5.60	6.63	5%	50%	50.2%	0.05%	-0.02%	0.12%	0.00	0.00	0.01%	D	R		
1A4. Other sectors	CH4	0.80	1.25	5%	2.0%	5.4%	0.00%	0.00%	0.02%	0.00	0.00	0.00%	D	R		
1A5. Other	CH4	0.05	0.08	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
1B2. Oil and Natural Gas	CH4	0.50	0.82	1%	20%	20.0%	0.00%	0.00%	0.02%	0.00	0.00	0.00%	D	R		
4A. Enteric Fermentation	CH4	172.49	193.30	3%	20%	20.2%	0.53%	-0.73%	3.55%	0.00	0.00	0.21%	D	R		
4B. Manure Management	CH4	164.10	227.48	3%	30%	30.1%	0.93%	0.11%	4.18%	0.00	0.00	0.18%	D	R		
4F. Field Burning of Agricultural Residues	CH4	5.77	3.35	5%	50%	50.2%	0.02%	-0.08%	0.06%	0.00	0.00	0.04%	D	R		
5. Land-Use Change and Forestry	CH4	2.41	2.41	5%	20%	20.6%	0.01%	-0.02%	0.04%	0.00	0.00	0.00%	D	R		
6A. Solid Waste Disposal on Land	CH4	375.02	472.49	5%	46%	46.3%	2.97%	-0.63%	8.67%	0.00	0.01	0.68%	D	R		
6B. Wastewater Handling	CH4	21.74	24.51	5%	50%	50.2%	0.17%	-0.09%	0.45%	0.00	0.00	0.05%	D	R		
<b>TOTAL</b>	<b>CH4</b>	<b>890.36</b>	<b>1075.02</b>				<b>0.0005</b>					<b>1.65%</b>				
1A1. Energy Industries	N2O	57.34	79.24	1%	195%	195.0%	2.10%	0.03%	1.45%	0.00	0.00	0.07%	D	R		
1A2. Manufacturing Industries and Construction	N2O	8.39	9.81	3%	195%	195.0%	0.26%	-0.03%	0.18%	0.00	0.00	0.06%	D	R		
1A3. Transport	N2O	17.47	26.58	5%	170%	170.1%	0.61%	0.05%	0.49%	0.00	0.00	0.10%	D	R		
1A4. Other sectors	N2O	0.71	1.11	5%	170%	170.1%	0.03%	0.00%	0.02%	0.00	0.00	0.01%	D	R		
1A5. Other	N2O	0.05	0.07	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
4B. Manure Management	N2O	0.04	101.43	5%	414%	414.0%	5.71%	1.86%	1.86%	0.08	0.00	7.71%	D	R		
4D. Agricultural Soils	N2O	78.11	250.27	7%	424%	424.1%	14.42%	2.66%	4.59%	0.11	0.00	11.27%	D	R		
4F. Field Burning of Agricultural Residues	N2O	225.59	0.50	5%	230%	230.1%	0.02%	-5.58%	0.01%	-0.13	0.00	12.84%	D	R		
5. Land-Use Change and Forestry	N2O	1.13	1.13	5%	20%	20.6%	0.00%	-0.01%	0.02%	0.00	0.00	0.00%	D	R		
<b>TOTAL</b>	<b>N2O</b>	<b>388.83</b>	<b>470.14</b>				<b>0.0123</b>					<b>32.05%</b>				
2F. Consumption of Halocarbons and SF6	HCFs	0.00	0.0	10%	15%	18.0%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
<b>TOTAL</b>	<b>HCFs</b>	<b>0.00</b>	<b>0.00</b>				<b>0.000000</b>					<b>0.00%</b>				
<b>TOTAL EMISSIONS</b>		<b>5446.93</b>	<b>7358.70</b>				<b>1%</b>					<b>38%</b>				
<b>TOTAL UNCERTAINTIES</b>				<b>Percentage uncertainty in total inventory</b>			<b>11%</b>				<b>Trend uncertainty:</b>	<b>62%</b>				

Tier I UNCERTAINTY CALCULATION AND REPORTING - 1998

IPCC Source category	Gas	Base year emissions (1990)	1998 emissions	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in year t	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions	Emission factor quality indicator	Activity data quality indicator	Expert judgement reference numbers	Footnote reference number
		CO2 equiv. (Gg)	CO2 equiv. (Gg)													
1A1. Energy Industries	CO2	1781.45	2697.13	1%	1.0%	1.4%	0.48%	1.43%	49.52%	0.00	0.01	0.70%	D	R		
1A2. Manufacturing Industries and Construction	CO2	679.76	1371.19	1%	1.0%	1.4%	0.24%	6.82%	25.17%	0.00	0.00	0.36%	D	R		
1A3. Transport	CO2	761.17	1221.54	5%	1.4%	5.2%	0.79%	1.88%	22.43%	0.00	0.02	1.59%	D	R		
1A4. Other sectors	CO2	281.63	466.43	5%	2.0%	5.4%	0.31%	0.96%	8.56%	0.00	0.01	0.61%	D	R		
1A5. Other	CO2	17.29	28.64													
2A. Mineral Products	CO2	666.59	779.11	5%	2.2%	5.5%	0.53%	-3.68%	14.30%	0.00	0.01	1.01%	D	R		
3. Solvent and other product use	CO2	2.29	2.59	7%	50%	50.5%	0.02%	-0.01%	0.05%	0.00	0.00	0.01%	D	R		
5. Land-Use Change and Forestry	CO2	-22.44	-119.76	5%	50%	50.2%	-0.75%	-1.59%	-2.20%	-0.01	0.00	0.81%	D	R		
<b>TOTAL</b>	<b>CO2</b>	<b>4167.74</b>	<b>6446.87</b>				<b>0.0001</b>					<b>5.09%</b>				
1A1. Energy Industries	CH4	2.30	3.50	1%	50%	50.0%	0.02%	0.00%	0.06%	0.00	0.00	0.00%	D	R		
1A2. Manufacturing Industries and Construction	CH4	139.58	129.93	3%	50%	50.1%	0.81%	-1.38%	2.39%	-0.01	0.00	0.70%	D	R		
1A3. Transport	CH4	5.60	6.74	5%	50%	50.2%	0.04%	-0.03%	0.12%	0.00	0.00	0.02%	D	R		
1A4. Other sectors	CH4	0.80	1.32	5%	2.0%	5.4%	0.00%	0.00%	0.02%	0.00	0.00	0.00%	D	R		
1A5. Other	CH4	0.05	0.08	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
1B2. Oil and Natural Gas	CH4	0.50	0.86	1%	20%	20.0%	0.00%	0.00%	0.02%	0.00	0.00	0.00%	D	R		
4A. Enteric Fermentation	CH4	172.49	185.59	3%	20%	20.2%	0.47%	-1.25%	3.41%	0.00	0.00	0.29%	D	R		
4B. Manure Management	CH4	164.10	230.50	3%	30%	30.1%	0.87%	-0.20%	4.23%	0.00	0.00	0.19%	D	R		
4F. Field Burning of Agricultural Residues	CH4	5.77	3.69	5%	50%	50.2%	0.02%	-0.09%	0.07%	0.00	0.00	0.04%	D	R		
5. Land-Use Change and Forestry	CH4	2.41	2.41	5%	20%	20.6%	0.01%	-0.02%	0.04%	0.00	0.00	0.01%	D	R		
6A. Solid Waste Disposal on Land	CH4	375.02	482.94	5%	46%	46.3%	2.79%	-1.25%	8.87%	-0.01	0.01	0.85%	D	R		
6B. Wastewater Handling	CH4	21.74	24.83	5%	50%	50.2%	0.16%	-0.13%	0.46%	0.00	0.00	0.07%	D	R		
<b>TOTAL</b>	<b>CH4</b>	<b>890.36</b>	<b>1072.38</b>				<b>0.0005</b>					<b>2.17%</b>				
1A1. Energy Industries	N2O	57.34	86.92	1%	195%	195.0%	2.12%	0.05%	1.60%	0.00	0.00	0.10%	D	R		
1A2. Manufacturing Industries and Construction	N2O	8.39	9.51	3%	195%	195.0%	0.23%	-0.05%	0.17%	0.00	0.00	0.10%	D	R		
1A3. Transport	N2O	17.47	28.61	5%	170%	170.1%	0.61%	0.05%	0.53%	0.00	0.00	0.10%	D	R		
1A4. Other sectors	N2O	0.71	1.17	5%	170%	170.1%	0.02%	0.00%	0.02%	0.00	0.00	0.00%	D	R		
1A5. Other	N2O	0.05	0.07	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
4B. Manure Management	N2O	0.04	99.68	5%	414%	414.0%	5.15%	1.83%	1.83%	0.08	0.00	7.57%	D	R		
4D. Agricultural Soils	N2O	78.11	260.61	7%	424%	424.1%	13.80%	2.68%	4.78%	0.11	0.00	11.36%	D	R		
4F. Field Burning of Agricultural Residues	N2O	225.59	0.69	5%	230%	230.1%	0.02%	-6.07%	0.01%	-0.14	0.00	13.97%	D	R		
5. Land-Use Change and Forestry	N2O	1.13	1.13	5%	20%	20.6%	0.00%	-0.01%	0.02%	0.00	0.00	0.00%	D	R		
<b>TOTAL</b>	<b>N2O</b>	<b>388.83</b>	<b>488.38</b>				<b>0.0111</b>					<b>33.20%</b>				
2F. Consumption of Halocarbons and SF6	HCFs	0.00	0.00	10%	15%	18.0%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
<b>TOTAL</b>	<b>HCFs</b>	<b>0.00</b>	<b>0.00</b>				<b>0.000000</b>					<b>0.00%</b>				
<b>TOTAL EMISSIONS</b>		<b>5446.93</b>	<b>8007.63</b>				<b>1%</b>					<b>40%</b>				
<b>TOTAL UNCERTAINTIES</b>				<b>Percentage uncertainty in total inventory</b>			<b>11%</b>				<b>Trend uncertainty:</b>	<b>64%</b>				

Tier I UNCERTAINTY CALCULATION AND REPORTING - 1999

IPCC Source category	Gas	Base year emissions (1990)	1999 emissions	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in year t	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions	Emission factor quality indicator	Activity data quality indicator	Expert judgement reference numbers	Footnote reference number	
		CO2 equiv. (Gg)	CO2 equiv. (Gg)														
1A1. Energy Industries	CO2	1781.45	2854.21	1%	1.0%	1.4%	0.46%	-0.69%	52.40%	0.00	0.01	0.74%	D	R			
1A2. Manufacturing Industries and Construction	CO2	679.76	1936.12	1%	1.0%	1.4%	0.31%	15.27%	35.55%	0.00	0.01	0.53%	D	R			
1A3. Transport	CO2	761.17	1260.54	5%	1.4%	5.2%	0.74%	0.46%	23.14%	0.00	0.02	1.64%	D	R			
1A4. Other sectors	CO2	281.63	483.29	5%	2.0%	5.4%	0.29%	0.48%	8.87%	0.00	0.01	0.63%	D	R			
1A5. Other	CO2	17.29	29.68														
2A. Mineral Products	CO2	666.59	786.06	5%	2.2%	5.5%	0.49%	-5.43%	14.43%	0.00	0.01	1.03%	D	R			
3. Solvent and other product use	CO2	2.29	2.62	7%	50%	50.5%	0.01%	-0.02%	0.05%	0.00	0.00	0.01%	D	R			
5. Land-Use Change and Forestry	CO2	-22.44	-94.50	5%	50%	50.2%	-0.54%	-1.07%	-1.74%	-0.01	0.00	0.55%	D	R			
<b>TOTAL</b>	<b>CO2</b>	<b>4167.74</b>	<b>7258.01</b>				<b>0.0001</b>					<b>5.12%</b>					
1A1. Energy Industries	CH4	2.30	3.74	1%	50%	50.0%	0.02%	0.00%	0.07%	0.00	0.00	0.00%	D	R			
1A2. Manufacturing Industries and Construction	CH4	139.58	129.71	3%	50%	50.1%	0.73%	-1.78%	2.38%	-0.01	0.00	0.89%	D	R			
1A3. Transport	CH4	5.60	6.88	5%	50%	50.2%	0.04%	-0.04%	0.13%	0.00	0.00	0.02%	D	R			
1A4. Other sectors	CH4	0.80	1.37	5%	2.0%	5.4%	0.00%	0.00%	0.03%	0.00	0.00	0.00%	D	R			
1A5. Other	CH4	0.05	0.08	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R			
1B2. Oil and Natural Gas	CH4	0.50	0.94	1%	20%	20.0%	0.00%	0.00%	0.02%	0.00	0.00	0.00%	D	R			
4A. Enteric Fermentation	CH4	172.49	183.28	3%	20%	20.2%	0.42%	-1.77%	3.36%	0.00	0.00	0.38%	D	R			
4B. Manure Management	CH4	164.10	222.46	3%	30%	30.1%	0.76%	-0.81%	4.08%	0.00	0.00	0.30%	D	R			
4F. Field Burning of Agricultural Residues	CH4	5.77	4.08	5%	50%	50.2%	0.02%	-0.10%	0.07%	0.00	0.00	0.05%	D	R			
5. Land-Use Change and Forestry	CH4	2.41	2.41	5%	20%	20.6%	0.01%	-0.03%	0.04%	0.00	0.00	0.01%	D	R			
6A. Solid Waste Disposal on Land	CH4	375.02	492.19	5%	46%	46.3%	2.58%	-2.14%	9.04%	-0.01	0.01	1.17%	D	R			
6B. Wastewater Handling	CH4	21.74	34.49	5%	50%	50.2%	0.20%	-0.01%	0.63%	0.00	0.00	0.05%	D	R			
<b>TOTAL</b>	<b>CH4</b>	<b>890.36</b>	<b>1081.64</b>				<b>0.0004</b>					<b>2.87%</b>					
1A1. Energy Industries	N2O	57.34	92.06	1%	195%	195.0%	2.03%	-0.02%	1.69%	0.00	0.00	0.04%	D	R			
1A2. Manufacturing Industries and Construction	N2O	8.39	10.85	3%	195%	195.0%	0.24%	-0.05%	0.20%	0.00	0.00	0.10%	D	R			
1A3. Transport	N2O	17.47	30.48	5%	170%	170.1%	0.59%	0.04%	0.56%	0.00	0.00	0.08%	D	R			
1A4. Other sectors	N2O	0.71	1.21	5%	170%	170.1%	0.02%	0.00%	0.02%	0.00	0.00	0.00%	D	R			
1A5. Other	N2O	0.05	0.07	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R			
4B. Manure Management	N2O	0.04	95.06	5%	414%	414.0%	4.45%	1.74%	1.75%	0.07	0.00	7.22%	D	R			
4D. Agricultural Soils	N2O	78.11	270.55	7%	424%	424.1%	12.98%	2.64%	4.97%	0.11	0.00	11.20%	D	R			
4F. Field Burning of Agricultural Residues	N2O	225.59	1.32	5%	230%	230.1%	0.03%	-6.70%	0.02%	-0.15	0.00	15.40%	D	R			
5. Land-Use Change and Forestry	N2O	1.13		5%	20%	20.6%	0.00%	-0.03%	0.00%	0.00	0.00	0.01%	D	R			
<b>TOTAL</b>	<b>N2O</b>	<b>388.83</b>	<b>501.61</b>				<b>0.0096</b>					<b>34.05%</b>					
2F. Consumption of Halocarbons and SF6	HCFs	0.00	0.27	10%	15%	18.0%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R			
<b>TOTAL</b>	<b>HCFs</b>	<b>0.00</b>	<b>0.27</b>				<b>0.000000</b>					<b>0.00%</b>					
<b>TOTAL EMISSIONS</b>		<b>5446.93</b>	<b>8841.53</b>				<b>1%</b>					<b>42%</b>					
<b>TOTAL UNCERTAINTIES</b>				<b>Percentage uncertainty in total inventory</b>				<b>10%</b>				<b>Trend uncertainty:</b>	<b>65%</b>				

Tier I UNCERTAINTY CALCULATION AND REPORTING - 2000

IPCC Source category	Gas	Base year emissions (1990)	2000 emissions	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in year t	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions	Emission factor quality indicator	Activity data quality indicator	Expert judgement reference numbers	Footnote reference number	
		CO2 equiv. (Gg)	CO2 equiv. (Gg)														
1A1. Energy Industries	CO2	1781.45	2986.90	1%	1.0%	1.4%	0.46%	-0.59%	54.84%	0.00	0.01	0.78%	D	R			
1A2. Manufacturing Industries and Construction	CO2	679.76	2059.05	1%	1.0%	1.4%	0.32%	16.63%	37.80%	0.00	0.01	0.56%	D	R			
1A3. Transport	CO2	761.17	1284.45	5%	1.4%	5.2%	0.72%	-0.10%	23.58%	0.00	0.02	1.67%	D	R			
1A4. Other sectors	CO2	281.63	539.41	5%	2.0%	5.4%	0.31%	1.14%	9.90%	0.00	0.01	0.70%	D	R			
1A5. Other	CO2	17.29	49.45														
2A. Mineral Products	CO2	666.59	805.31	5%	2.2%	5.5%	0.48%	-5.95%	14.78%	0.00	0.01	1.05%	D	R			
3. Solvent and other product use	CO2	2.29	2.65	7%	50%	50.5%	0.01%	-0.02%	0.05%	0.00	0.00	0.01%	D	R			
5. Land-Use Change and Forestry	CO2	-22.44	-114.31	5%	50%	50.2%	-0.62%	-1.40%	-2.10%	-0.01	0.00	0.72%	D	R			
<b>TOTAL</b>	<b>CO2</b>	<b>4167.74</b>	<b>7612.90</b>				<b>0.0001</b>					<b>5.49%</b>					
1A1. Energy Industries	CH4	2.30	3.92	1%	50%	50.0%	0.02%	0.00%	0.07%	0.00	0.00	0.00%	D	R			
1A2. Manufacturing Industries and Construction	CH4	139.58	144.84	3%	50%	50.1%	0.79%	-1.68%	2.66%	-0.01	0.00	0.85%	D	R			
1A3. Transport	CH4	5.60	6.88	5%	50%	50.2%	0.04%	-0.05%	0.13%	0.00	0.00	0.03%	D	R			
1A4. Other sectors	CH4	0.80	1.53	5%	2.0%	5.4%	0.00%	0.00%	0.03%	0.00	0.00	0.00%	D	R			
1A5. Other	CH4	0.05	0.14	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R			
1B2. Oil and Natural Gas	CH4	0.50	0.94	1%	20%	20.0%	0.00%	0.00%	0.02%	0.00	0.00	0.00%	D	R			
4A. Enteric Fermentation	CH4	172.49	189.97	3%	20%	20.2%	0.42%	-1.88%	3.49%	0.00	0.00	0.40%	D	R			
4B. Manure Management	CH4	164.10	221.07	3%	30%	30.1%	0.72%	-1.05%	4.06%	0.00	0.00	0.36%	D	R			
4F. Field Burning of Agricultural Residues	CH4	5.77	1.75	5%	50%	50.2%	0.01%	-0.15%	0.03%	0.00	0.00	0.07%	D	R			
5. Land-Use Change and Forestry	CH4	2.41	2.41	5%	20%	20.6%	0.01%	-0.03%	0.04%	0.00	0.00	0.01%	D	R			
6A. Solid Waste Disposal on Land	CH4	375.02	505.06	5%	46%	46.3%	2.53%	-2.39%	9.27%	-0.01	0.01	1.28%	D	R			
6B. Wastewater Handling	CH4	21.74	36.59	5%	50%	50.2%	0.20%	0.00%	0.67%	0.00	0.00	0.05%	D	R			
<b>TOTAL</b>	<b>CH4</b>	<b>890.36</b>	<b>1115.09</b>				<b>0.0004</b>					<b>3.05%</b>					
1A1. Energy Industries	N2O	57.34	96.32	1%	195%	195.0%	2.03%	-0.02%	1.77%	0.00	0.00	0.04%	D	R			
1A2. Manufacturing Industries and Construction	N2O	8.39	11.89	3%	195%	195.0%	0.25%	-0.04%	0.22%	0.00	0.00	0.08%	D	R			
1A3. Transport	N2O	17.47	32.17	5%	170%	170.1%	0.59%	0.05%	0.59%	0.00	0.00	0.09%	D	R			
1A4. Other sectors	N2O	0.71	1.35	5%	170%	170.1%	0.02%	0.00%	0.02%	0.00	0.00	0.01%	D	R			
1A5. Other	N2O	0.05	0.12	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R			
4B. Manure Management	N2O	0.04	96.43	5%	414%	414.0%	4.33%	1.77%	1.77%	0.07	0.00	7.33%	D	R			
4D. Agricultural Soils	N2O	78.11	262.82	7%	424%	424.1%	12.07%	2.39%	4.83%	0.10	0.00	10.16%	D	R			
4F. Field Burning of Agricultural Residues	N2O	225.59	0.50	5%	230%	230.1%	0.01%	-7.01%	0.01%	-0.16	0.00	16.12%	D	R			
5. Land-Use Change and Forestry	N2O	1.13	1.13	5%	20%	20.6%	0.00%	-0.01%	0.02%	0.00	0.00	0.00%	D	R			
<b>TOTAL</b>	<b>N2O</b>	<b>388.83</b>	<b>502.73</b>				<b>0.0085</b>					<b>33.83%</b>					
2F. Consumption of Halocarbons and SF6	HCFs	0.00	0.43	10%	15%	18.0%	0.00%	0.01%	0.01%	0.00	0.00	0.00%	D	R			
<b>TOTAL</b>	<b>HCFs</b>	<b>0.00</b>	<b>0.43</b>				<b>0.000000</b>					<b>0.00%</b>					
<b>TOTAL EMISSIONS</b>		<b>5446.93</b>	<b>9231.15</b>				<b>1%</b>					<b>42%</b>					
<b>TOTAL UNCERTAINTIES</b>				<b>Percentage uncertainty in total inventory</b>				<b>9%</b>				<b>Trend uncertainty:</b>	<b>65%</b>				

Tier I UNCERTAINTY CALCULATION AND REPORTING - 2001

IPCC Source category	Gas	Base year emissions (1990)	2001 emissions	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in year t	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions	Emission factor quality indicator	Activity data quality indicator	Expert judgement reference numbers	Footnote reference number
		CO2 equiv. (Gg)	CO2 equiv. (Gg)													
1A1. Energy Industries	CO2	1781.45	2917.99	1%	1.0%	1.4%	0.45%	-1.60%	53.57%	0.00	0.01	0.76%	D	R		
1A2. Manufacturing Industries and Construction	CO2	679.76	2032.42	1%	1.0%	1.4%	0.31%	16.24%	37.31%	0.00	0.01	0.55%	D	R		
1A3. Transport	CO2	761.17	1293.50	5%	1.4%	5.2%	0.73%	0.17%	23.75%	0.00	0.02	1.68%	D	R		
1A4. Other sectors	CO2	281.63	523.35	5%	2.0%	5.4%	0.31%	0.89%	9.61%	0.00	0.01	0.68%	D	R		
1A5. Other	CO2	17.29	48.16													
2A. Mineral Products	CO2	666.59	782.85	5%	2.2%	5.5%	0.47%	-6.27%	14.37%	0.00	0.01	1.03%	D	R		
3. Solvent and other product use	CO2	2.29	2.68	7%	50%	50.5%	0.01%	-0.02%	0.05%	0.00	0.00	0.01%	D	R		
5. Land-Use Change and Forestry	CO2	-22.44	-120.58	5%	50%	50.2%	-0.66%	-1.52%	-2.21%	-0.01	0.00	0.78%	D	R		
<b>TOTAL</b>	<b>CO2</b>	<b>4167.74</b>	<b>7480.38</b>				<b>0.0001</b>					<b>5.48%</b>				
1A1. Energy Industries	CH4	2.30	3.82	1%	50%	50.0%	0.02%	0.00%	0.07%	0.00	0.00	0.00%	D	R		
1A2. Manufacturing Industries and Construction	CH4	139.58	143.56	3%	50%	50.1%	0.78%	-1.69%	2.64%	-0.01	0.00	0.85%	D	R		
1A3. Transport	CH4	5.60	7.08	5%	50%	50.2%	0.04%	-0.04%	0.13%	0.00	0.00	0.02%	D	R		
1A4. Other sectors	CH4	0.80	1.48	5%	2.0%	5.4%	0.00%	0.00%	0.03%	0.00	0.00	0.00%	D	R		
1A5. Other	CH4	0.05	0.14	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
1B2. Oil and Natural Gas	CH4	0.50	0.92	1%	20%	20.0%	0.00%	0.00%	0.02%	0.00	0.00	0.00%	D	R		
4A. Enteric Fermentation	CH4	172.49	204.05	3%	20%	20.2%	0.45%	-1.60%	3.75%	0.00	0.00	0.36%	D	R		
4B. Manure Management	CH4	164.10	237.67	3%	30%	30.1%	0.78%	-0.72%	4.36%	0.00	0.00	0.28%	D	R		
4F. Field Burning of Agricultural Residues	CH4	5.77	4.04	5%	50%	50.2%	0.02%	-0.10%	0.07%	0.00	0.00	0.05%	D	R		
5. Land-Use Change and Forestry	CH4	2.41	2.41	5%	20%	20.6%	0.01%	-0.03%	0.04%	0.00	0.00	0.01%	D	R		
6A. Solid Waste Disposal on Land	CH4	375.02	528.80	5%	46%	46.3%	2.66%	-1.91%	9.71%	-0.01	0.01	1.11%	D	R		
6B. Wastewater Handling	CH4	21.74	37.68	5%	50%	50.2%	0.21%	0.02%	0.69%	0.00	0.00	0.05%	D	R		
<b>TOTAL</b>	<b>CH4</b>	<b>890.36</b>	<b>1171.65</b>				<b>0.0004</b>					<b>2.74%</b>				
1A1. Energy Industries	N2O	57.34	93.98	1%	195%	195.0%	1.99%	-0.05%	1.73%	0.00	0.00	0.10%	D	R		
1A2. Manufacturing Industries and Construction	N2O	8.39	11.81	3%	195%	195.0%	0.25%	-0.04%	0.22%	0.00	0.00	0.08%	D	R		
1A3. Transport	N2O	17.47	33.40	5%	170%	170.1%	0.62%	0.07%	0.61%	0.00	0.00	0.13%	D	R		
1A4. Other sectors	N2O	0.71	1.31	5%	170%	170.1%	0.02%	0.00%	0.02%	0.00	0.00	0.00%	D	R		
1A5. Other	N2O	0.05	0.12	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
4B. Manure Management	N2O	0.04	99.71	5%	414%	414.0%	4.49%	1.83%	1.83%	0.08	0.00	7.57%	D	R		
4D. Agricultural Soils	N2O	78.11	293.34	7%	424%	424.1%	13.54%	2.97%	5.39%	0.13	0.01	12.59%	D	R		
4F. Field Burning of Agricultural Residues	N2O	225.59	1.33	5%	230%	230.1%	0.03%	-6.96%	0.02%	-0.16	0.00	16.01%	D	R		
5. Land-Use Change and Forestry	N2O	1.13	1.13	5%	20%	20.6%	0.00%	-0.01%	0.02%	0.00	0.00	0.00%	D	R		
<b>TOTAL</b>	<b>N2O</b>	<b>388.83</b>	<b>536.12</b>				<b>0.0104</b>					<b>36.49%</b>				
2F. Consumption of Halocarbons and SF6	HCFs	0.00	0.82	10%	15%	18.0%	0.00%	0.02%	0.02%	0.00	0.00	0.00%	D	R		
<b>TOTAL</b>	<b>HCFs</b>	<b>0.00</b>	<b>0.82</b>				<b>0.000000</b>					<b>0.00%</b>				
<b>TOTAL EMISSIONS</b>		<b>5446.93</b>	<b>9188.97</b>				<b>1%</b>					<b>45%</b>				
<b>TOTAL UNCERTAINTIES</b>				<b>Percentage uncertainty in total inventory</b>			<b>10%</b>				<b>Trend uncertainty:</b>	<b>67%</b>				



Tier I UNCERTAINTY CALCULATION AND REPORTING - 2002

IPCC Source category	Gas	Base year emissions (1990)	2002 emissions	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in year t	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions	Emission factor quality indicator	Activity data quality indicator	Expert judgement reference numbers	Footnote reference number
		CO2 equiv. (Gg)	CO2 equiv. (Gg)													
1A1. Energy Industries	CO2	1781.45	3023.59	1%	1.0%	1.4%	0.46%	0.21%	55.51%	0.00	0.01	0.79%	D	R		
1A2. Manufacturing Industries and Construction	CO2	679.76	1820.50	1%	1.0%	1.4%	0.28%	12.31%	33.42%	0.00	0.00	0.49%	D	R		
1A3. Transport	CO2	761.17	1271.84	5%	1.4%	5.2%	0.72%	-0.28%	23.35%	0.00	0.02	1.65%	D	R		
1A4. Other sectors	CO2	281.63	502.48	5%	2.0%	5.4%	0.29%	0.48%	9.23%	0.00	0.01	0.65%	D	R		
1A5. Other	CO2	17.29	46.56													
2A. Mineral Products	CO2	666.59	809.92	5%	2.2%	5.5%	0.48%	-5.82%	14.87%	0.00	0.01	1.06%	D	R		
3. Solvent and other product use	CO2	2.29	2.71	7%	50%	50.5%	0.01%	-0.02%	0.05%	0.00	0.00	0.01%	D	R		
5. Land-Use Change and Forestry	CO2	-22.44	-121.12	5%	50%	50.2%	-0.66%	-1.53%	-2.22%	-0.01	0.00	0.78%	D	R		
<b>TOTAL</b>	<b>CO2</b>	<b>4167.74</b>	<b>7356.47</b>				<b>0.0001</b>					<b>5.43%</b>				
1A1. Energy Industries	CH4	2.30	3.97	1%	50%	50.0%	0.02%	0.00%	0.07%	0.00	0.00	0.00%	D	R		
1A2. Manufacturing Industries and Construction	CH4	139.58	140.85	3%	50%	50.1%	0.77%	-1.75%	2.59%	-0.01	0.00	0.88%	D	R		
1A3. Transport	CH4	5.80	7.19	5%	50%	50.2%	0.04%	-0.04%	0.13%	0.00	0.00	0.02%	D	R		
1A4. Other sectors	CH4	0.80	1.42	5%	2.0%	5.4%	0.00%	0.00%	0.03%	0.00	0.00	0.00%	D	R		
1A5. Other	CH4	0.05	0.13	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
1B2. Oil and Natural Gas	CH4	0.50	0.86	1%	20%	20.0%	0.00%	0.00%	0.02%	0.00	0.00	0.00%	D	R		
4A. Enteric Fermentation	CH4	172.49	216.06	3%	20%	20.2%	0.47%	-1.39%	3.97%	0.00	0.00	0.32%	D	R		
4B. Manure Management	CH4	164.10	257.73	3%	30%	30.1%	0.84%	-0.36%	4.73%	0.00	0.00	0.23%	D	R		
4F. Field Burning of Agricultural Residues	CH4	5.77	4.46	5%	50%	50.2%	0.02%	-0.10%	0.08%	0.00	0.00	0.05%	D	R		
5. Land-Use Change and Forestry	CH4	2.41	2.41	5%	20%	20.6%	0.01%	-0.03%	0.04%	0.00	0.00	0.01%	D	R		
6A. Solid Waste Disposal on Land	CH4	375.02	539.36	5%	46%	46.3%	2.71%	-1.74%	9.90%	-0.01	0.01	1.06%	D	R		
6B. Wastewater Handling	CH4	21.74	38.16	5%	50%	50.2%	0.21%	0.03%	0.70%	0.00	0.00	0.05%	D	R		
<b>TOTAL</b>	<b>CH4</b>	<b>890.36</b>	<b>1212.61</b>				<b>0.0004</b>					<b>2.63%</b>				
1A1. Energy Industries	N2O	57.34	97.37	1%	195%	195.0%	2.06%	0.01%	1.79%	0.00	0.00	0.03%	D	R		
1A2. Manufacturing Industries and Construction	N2O	8.39	11.18	3%	195%	195.0%	0.24%	-0.06%	0.21%	0.00	0.00	0.11%	D	R		
1A3. Transport	N2O	17.47	34.57	5%	170%	170.1%	0.64%	0.09%	0.63%	0.00	0.00	0.16%	D	R		
1A4. Other sectors	N2O	0.71	1.26	5%	170%	170.1%	0.02%	0.00%	0.02%	0.00	0.00	0.00%	D	R		
1A5. Other	N2O	0.05	0.12	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
4B. Manure Management	N2O	0.04	107.81	5%	414%	414.0%	4.85%	1.98%	1.98%	0.08	0.00	8.19%	D	R		
4D. Agricultural Soils	N2O	78.11	311.76	7%	424%	424.1%	14.36%	3.30%	5.72%	0.14	0.01	14.00%	D	R		
4F. Field Burning of Agricultural Residues	N2O	225.59	1.48	5%	230%	230.1%	0.04%	-6.97%	0.03%	-0.16	0.00	16.04%	D	R		
5. Land-Use Change and Forestry	N2O	1.13	1.13	5%	20%	20.6%	0.00%	-0.01%	0.02%	0.00	0.00	0.00%	D	R		
<b>TOTAL</b>	<b>N2O</b>	<b>388.83</b>	<b>566.67</b>				<b>0.0117</b>					<b>38.53%</b>				
2F. Consumption of Halocarbons and SF6	HCFs	0.00	73.82	10%	15%	18.0%	0.14%	1.36%	1.36%	0.00	0.00	0.28%	D	R		
<b>TOTAL</b>	<b>HCFs</b>	<b>0.00</b>	<b>73.82</b>				<b>0.000001</b>					<b>0.28%</b>				
<b>TOTAL EMISSIONS</b>		<b>5446.93</b>	<b>9209.58</b>				<b>1%</b>					<b>47%</b>				
<b>TOTAL UNCERTAINTIES</b>				<b>Percentage uncertainty in total inventory</b>			<b>11%</b>				<b>Trend uncertainty:</b>	<b>68%</b>				

Tier I UNCERTAINTY CALCULATION AND REPORTING - 2003

IPCC Source category	Gas	Base year emissions (1990)	2003 emissions	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in year t	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions	Emission factor quality indicator	Activity data quality indicator	Expert judgement reference numbers	Footnote reference number
		CO2 equiv. (Gg)	CO2 equiv. (Gg)													
1A1. Energy Industries	CO2	1781.45	3245.92	1%	1.0%	1.4%	0.50%	4.15%	59.59%	0.00	0.01	0.84%	D	R		
1A2. Manufacturing Industries and Construction	CO2	679.76	1631.14	1%	1.0%	1.4%	0.25%	8.78%	29.95%	0.00	0.00	0.43%	D	R		
1A3. Transport	CO2	761.17	1334.99	5%	1.4%	5.2%	0.75%	0.82%	24.51%	0.00	0.02	1.73%	D	R		
1A4. Other sectors	CO2	281.63	440.33	5%	2.0%	5.4%	0.26%	-0.68%	8.08%	0.00	0.01	0.57%	D	R		
1A5. Other	CO2	17.29	27.04													
2A. Mineral Products	CO2	666.59	819.10	5%	2.2%	5.5%	0.48%	-5.70%	15.04%	0.00	0.01	1.07%	D	R		
3. Solvent and other product use	CO2	2.29	2.77	7%	50%	50.5%	0.02%	-0.02%	0.05%	0.00	0.00	0.01%	D	R		
5. Land-Use Change and Forestry	CO2	-22.44	-128.44	5%	50%	50.2%	-0.70%	-1.66%	-2.36%	-0.01	0.00	0.85%	D	R		
<b>TOTAL</b>	<b>CO2</b>	<b>4167.74</b>	<b>7372.84</b>				<b>0.0001</b>					<b>5.51%</b>				
1A1. Energy Industries	CH4	2.30	4.28	1%	50%	50.0%	0.02%	0.01%	0.08%	0.00	0.00	0.00%	D	R		
1A2. Manufacturing Industries and Construction	CH4	139.58	142.68	3%	50%	50.1%	0.77%	-1.72%	2.62%	-0.01	0.00	0.87%	D	R		
1A3. Transport	CH4	5.60	7.77	5%	50%	50.2%	0.04%	-0.03%	0.14%	0.00	0.00	0.02%	D	R		
1A4. Other sectors	CH4	0.80	1.25	5%	2.0%	5.4%	0.00%	0.00%	0.02%	0.00	0.00	0.00%	D	R		
1A5. Other	CH4	0.05	0.08	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
1B2. Oil and Natural Gas	CH4	0.50	0.77	1%	20%	20.0%	0.00%	0.00%	0.01%	0.00	0.00	0.00%	D	R		
4A. Enteric Fermentation	CH4	172.49	204.76	3%	20%	20.2%	0.45%	-1.61%	3.76%	0.00	0.00	0.36%	D	R		
4B. Manure Management	CH4	164.10	254.23	3%	30%	30.1%	0.83%	-0.44%	4.67%	0.00	0.00	0.24%	D	R		
4F. Field Burning of Agricultural Residues	CH4	5.77	6.34	5%	50%	50.2%	0.03%	-0.06%	0.12%	0.00	0.00	0.03%	D	R		
5. Land-Use Change and Forestry	CH4	2.41	2.41	5%	20%	20.6%	0.01%	-0.03%	0.04%	0.00	0.00	0.01%	D	R		
6A. Solid Waste Disposal on Land	CH4	375.02	560.34	5%	46%	46.3%	2.81%	-1.38%	10.29%	-0.01	0.01	0.97%	D	R		
6B. Wastewater Handling	CH4	21.74	41.75	5%	50%	50.2%	0.23%	0.09%	0.77%	0.00	0.00	0.07%	D	R		
<b>TOTAL</b>	<b>CH4</b>	<b>890.36</b>	<b>1226.68</b>				<b>0.0005</b>					<b>2.57%</b>				
1A1. Energy Industries	N2O	57.34	104.57	1%	195%	195.0%	2.21%	0.14%	1.92%	0.00	0.00	0.27%	D	R		
1A2. Manufacturing Industries and Construction	N2O	8.39	10.91	3%	195%	195.0%	0.23%	-0.06%	0.20%	0.00	0.00	0.12%	D	R		
1A3. Transport	N2O	17.47	37.53	5%	170%	170.1%	0.69%	0.15%	0.69%	0.00	0.00	0.25%	D	R		
1A4. Other sectors	N2O	0.71	1.11	5%	170%	170.1%	0.02%	0.00%	0.02%	0.00	0.00	0.00%	D	R		
1A5. Other	N2O	0.05	0.07	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
4B. Manure Management	N2O	0.04	106.10	5%	414%	414.0%	4.76%	1.95%	1.95%	0.08	0.00	8.06%	D	R		
4D. Agricultural Soils	N2O	78.11	295.77	7%	424%	424.1%	13.59%	3.00%	5.43%	0.13	0.01	12.73%	D	R		
4F. Field Burning of Agricultural Residues	N2O	225.59	1.72	5%	230%	230.1%	0.04%	-6.98%	0.03%	-0.16	0.00	16.07%	D	R		
5. Land-Use Change and Forestry	N2O	1.13	1.13	5%	20%	20.6%	0.00%	-0.01%	0.02%	0.00	0.00	0.00%	D	R		
<b>TOTAL</b>	<b>N2O</b>	<b>388.83</b>	<b>558.91</b>				<b>0.0106</b>					<b>37.50%</b>				
2F. Consumption of Halocarbons and SF6	HCFs	0.00	73.38	10%	15%	18.0%	0.14%	1.35%	1.35%	0.00	0.00	0.28%	D	R		
<b>TOTAL</b>	<b>HCFs</b>	<b>0.00</b>	<b>73.38</b>				<b>0.000001</b>					<b>0.28%</b>				
<b>TOTAL EMISSIONS</b>		<b>5446.93</b>	<b>9231.82</b>				<b>1%</b>					<b>46%</b>				
<b>TOTAL UNCERTAINTIES</b>				<b>Percentage uncertainty in total inventory</b>			<b>11%</b>				<b>Trend uncertainty:</b>	<b>68%</b>				

Tier I UNCERTAINTY CALCULATION AND REPORTING - 2004

IPCC Source category	Gas	Base year emissions (1990)	2004 emissions	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in year t	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions	Emission factor quality indicator	Activity data quality indicator	Expert judgement reference numbers	Footnote reference number
		CO2 equiv. (Gg)	CO2 equiv. (Gg)													
1A1. Energy Industries	CO2	1781.45	3339.30	1%	1.0%	1.4%	0.50%	4.76%	61.31%	0.00	0.01	0.87%	D	R		
1A2. Manufacturing Industries and Construction	CO2	679.76	1100.11	1%	1.0%	1.4%	0.17%	-1.37%	20.20%	0.00	0.00	0.29%	D	R		
1A3. Transport	CO2	761.17	1882.56	5%	1.4%	5.2%	1.04%	10.39%	34.56%	0.00	0.02	2.45%	D	R		
1A4. Other sectors	CO2	281.63	470.56	5%	2.0%	5.4%	0.27%	-0.30%	8.64%	0.00	0.01	0.61%	D	R		
1A5. Other	CO2	17.29	28.81													
2A. Mineral Products	CO2	666.59	881.67	5%	2.2%	5.5%	0.51%	-4.96%	16.19%	0.00	0.01	1.15%	D	R		
3. Solvent and other product use	CO2	2.29	2.84	7%	50%	50.5%	0.02%	-0.02%	0.05%	0.00	0.00	0.01%	D	R		
5. Land-Use Change and Forestry	CO2	-22.44	-139.45	5%	50%	50.2%	-0.74%	-1.85%	-2.56%	-0.01	0.00	0.94%	D	R		
<b>TOTAL</b>	<b>CO2</b>	<b>4167.74</b>	<b>7566.40</b>				<b>0.0001</b>					<b>6.32%</b>				
1A1. Energy Industries	CH4	2.30	4.47	1%	50%	50.0%	0.02%	0.01%	0.08%	0.00	0.00	0.00%	D	R		
1A2. Manufacturing Industries and Construction	CH4	139.58	150.67	3%	50%	50.1%	0.80%	-1.66%	2.77%	-0.01	0.00	0.84%	D	R		
1A3. Transport	CH4	5.60	7.93	5%	50%	50.2%	0.04%	-0.03%	0.15%	0.00	0.00	0.02%	D	R		
1A4. Other sectors	CH4	0.80	1.34	5%	2.0%	5.4%	0.00%	0.00%	0.02%	0.00	0.00	0.00%	D	R		
1A5. Other	CH4	0.05	0.08	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
1B2. Oil and Natural Gas	CH4	0.50	0.22	1%	20%	20.0%	0.00%	-0.01%	0.00%	0.00	0.00	0.00%	D	R		
4A. Enteric Fermentation	CH4	172.49	199.25	3%	20%	20.2%	0.43%	-1.82%	3.66%	0.00	0.00	0.39%	D	R		
4B. Manure Management	CH4	164.10	243.84	3%	30%	30.1%	0.78%	-0.73%	4.48%	0.00	0.00	0.29%	D	R		
4F. Field Burning of Agricultural Residues	CH4	5.77	4.85	5%	50%	50.2%	0.03%	-0.09%	0.09%	0.00	0.00	0.05%	D	R		
5. Land-Use Change and Forestry	CH4	2.41	2.41	5%	20%	20.6%	0.01%	-0.03%	0.04%	0.00	0.00	0.01%	D	R		
6A. Solid Waste Disposal on Land	CH4	375.02	579.43	5%	46%	46.3%	2.85%	-1.26%	10.64%	-0.01	0.01	0.95%	D	R		
6B. Wastewater Handling	CH4	21.74	42.77	5%	50%	50.2%	0.23%	0.10%	0.79%	0.00	0.00	0.07%	D	R		
<b>TOTAL</b>	<b>CH4</b>	<b>890.36</b>	<b>1237.29</b>				<b>0.0005</b>					<b>2.63%</b>				
1A1. Energy Industries	N2O	57.34	107.64	1%	195%	195.0%	2.23%	0.16%	1.98%	0.00	0.00	0.31%	D	R		
1A2. Manufacturing Industries and Construction	N2O	8.39	9.90	3%	195%	195.0%	0.20%	-0.08%	0.18%	0.00	0.00	0.17%	D	R		
1A3. Transport	N2O	17.47	46.86	5%	170%	170.1%	0.85%	0.31%	0.86%	0.01	0.00	0.52%	D	R		
1A4. Other sectors	N2O	0.71	1.19	5%	170%	170.1%	0.02%	0.00%	0.02%	0.00	0.00	0.00%	D	R		
1A5. Other	N2O	0.05	0.07	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
4B. Manure Management	N2O	0.04	100.83	5%	414%	414.0%	4.43%	1.85%	1.85%	0.08	0.00	7.66%	D	R		
4D. Agricultural Soils	N2O	78.11	274.26	7%	424%	424.1%	12.35%	2.56%	5.04%	0.11	0.00	10.85%	D	R		
4F. Field Burning of Agricultural Residues	N2O	225.59	1.21	5%	230%	230.1%	0.03%	-7.13%	0.02%	-0.16	0.00	16.41%	D	R		
5. Land-Use Change and Forestry	N2O	1.13	1.13	5%	20%	20.6%	0.00%	-0.02%	0.02%	0.00	0.00	0.00%	D	R		
<b>TOTAL</b>	<b>N2O</b>	<b>388.83</b>	<b>543.08</b>				<b>0.0089</b>					<b>35.92%</b>				
2F. Consumption of Halocarbons and SF6	HCFs	0.00	68.91	10%	15%	18.0%	0.13%	1.27%	1.27%	0.00	0.00	0.26%	D	R		
<b>TOTAL</b>	<b>HCFs</b>	<b>0.00</b>	<b>68.91</b>				<b>0.000001</b>					<b>0.26%</b>				
<b>TOTAL EMISSIONS</b>		<b>5446.93</b>	<b>9415.68</b>				<b>1%</b>					<b>45%</b>				
<b>TOTAL UNCERTAINTIES</b>				<b>Percentage uncertainty in total inventory</b>			<b>10%</b>				<b>Trend uncertainty:</b>	<b>67%</b>				

Tier I UNCERTAINTY CALCULATION AND REPORTING - 2005

IPCC Source category	Gas	Base year emissions (1990)	2005 emissions	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in year t	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions	Emission factor quality indicator	Activity data quality indicator	Expert judgement reference numbers	Footnote reference number	
		CO2 equiv. (Gg)	CO2 equiv. (Gg)														
1A1. Energy Industries	CO2	1781.45	3471.84	1%	1.0%	1.4%	0.50%	4.18%	63.99%	0.00	0.01	0.91%	D	R			
1A2. Manufacturing Industries and Construction	CO2	679.76	1141.78	1%	1.0%	1.4%	0.16%	-1.77%	21.04%	0.00	0.00	0.30%	D	R			
1A3. Transport	CO2	761.17	2049.25	5%	1.4%	5.2%	1.08%	12.20%	37.77%	0.00	0.03	2.68%	D	R			
1A4. Other sectors	CO2	281.63	395.53	5%	2.0%	5.4%	0.22%	-2.16%	7.29%	0.00	0.01	0.52%	D	R			
1A5. Other	CO2	17.29	28.63														
2A. Mineral Products	CO2	666.59	889.84	5%	2.2%	5.5%	0.49%	-5.97%	16.40%	0.00	0.01	1.17%	D	R			
3. Solvent and other product use	CO2	2.29	2.91	7%	50%	50.5%	0.01%	-0.02%	0.05%	0.00	0.00	0.01%	D	R			
5. Land-Use Change and Forestry	CO2	-22.44	-150.36	5%	50%	50.2%	-0.76%	-2.02%	-2.77%	-0.01	0.00	1.03%	D	R			
<b>TOTAL</b>	<b>CO2</b>	<b>4167.74</b>	<b>7829.42</b>				<b>0.0001</b>					<b>6.61%</b>					
1A1. Energy Industries	CH4	2.30	4.76	1%	50%	50.0%	0.02%	0.01%	0.09%	0.00	0.00	0.01%	D	R			
1A2. Manufacturing Industries and Construction	CH4	139.58	152.87	3%	50%	50.1%	0.77%	-1.87%	2.82%	-0.01	0.00	0.94%	D	R			
1A3. Transport	CH4	5.60	8.43	5%	50%	50.2%	0.04%	-0.03%	0.16%	0.00	0.00	0.02%	D	R			
1A4. Other sectors	CH4	0.80	1.62	5%	2.0%	5.4%	0.00%	0.00%	0.03%	0.00	0.00	0.00%	D	R			
1A5. Other	CH4	0.05	0.08	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R			
1B2. Oil and Natural Gas	CH4	0.50															
4A. Enteric Fermentation	CH4	0.50	193.94	1%	20%	20.0%	0.39%	3.56%	3.57%	0.01	0.00	0.71%	D	R			
4B. Manure Management	CH4	172.49	228.00	3%	20%	20.2%	0.47%	-1.59%	4.20%	0.00	0.00	0.36%	D	R			
4F. Field Burning of Agricultural Residues	CH4	164.10	2.37	3%	30%	30.1%	0.01%	-5.46%	0.04%	-0.02	0.00	1.64%	D	R			
5. Land-Use Change and Forestry	CH4	5.77	2.41	5%	50%	50.2%	0.01%	-0.15%	0.04%	0.00	0.00	0.07%	D	R			
6A. Solid Waste Disposal on Land	CH4	2.41	589.90	5%	20%	20.6%	1.23%	10.79%	10.87%	0.02	0.01	2.29%	D	R			
6B. Wastewater Handling	CH4	375.02	43.17	5%	46%	46.3%	0.20%	-11.78%	0.80%	-0.05	0.00	5.42%	D	R			
<b>TOTAL</b>	<b>CH4</b>	<b>869.11</b>	<b>1227.55</b>				<b>0.0001</b>					<b>11.47%</b>					
1A1. Energy Industries	N2O	57.34	173.01	1%	195%	195.0%	3.41%	1.26%	3.19%	0.02	0.00	2.46%	D	R			
1A2. Manufacturing Industries and Construction	N2O	8.39	113.89	3%	195%	195.0%	2.25%	1.82%	2.10%	0.04	0.00	3.55%	D	R			
1A3. Transport	N2O	17.47	10.04	5%	170%	170.1%	0.17%	-0.40%	0.19%	-0.01	0.00	0.68%	D	R			
1A4. Other sectors	N2O	0.71	48.01	5%	170%	170.1%	0.83%	0.86%	0.88%	0.01	0.00	1.47%	D	R			
1A5. Other	N2O	0.05	1.00	5%	2.0%	5.4%	0.00%	0.02%	0.02%	0.00	0.00	0.00%	D	R			
4B. Manure Management	N2O	0.04	0.07	5%	414%	414.0%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R			
4D. Agricultural Soils	N2O	78.11	97.04	7%	424%	424.1%	4.16%	-0.83%	1.79%	-0.04	0.00	3.54%	D	R			
4F. Field Burning of Agricultural Residues	N2O	225.59	245.24	5%	230%	230.1%	5.71%	-3.05%	4.52%	-0.07	0.00	7.02%	D	R			
5. Land-Use Change and Forestry	N2O	1.13	0.73	5%	20%	20.6%	0.00%	-0.02%	0.01%	0.00	0.00	0.00%	D	R			
<b>TOTAL</b>	<b>N2O</b>	<b>388.83</b>	<b>689.02</b>				<b>0.0034</b>					<b>18.73%</b>					
2F. Consumption of Halocarbons and SF6	HCFs	0.00	135.30	10%	15%	18.0%	0.25%	2.49%	2.49%	0.00	0.00	0.51%	D	R			
<b>TOTAL</b>	<b>HCFs</b>	<b>0.00</b>	<b>135.30</b>				<b>0.000003</b>					<b>0.51%</b>					
<b>TOTAL EMISSIONS</b>		<b>5425.69</b>	<b>9881.29</b>				<b>0%</b>					<b>37%</b>					
<b>TOTAL UNCERTAINTIES</b>				<b>Percentage uncertainty in total inventory</b>				<b>6%</b>				<b>Trend uncertainty:</b>	<b>61%</b>				

Tier I UNCERTAINTY CALCULATION AND REPORTING - 2006

IPCC Source category	Gas	Base year emissions (1990)	2007 emissions	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in year t	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions	Emission factor quality indicator	Activity data quality indicator	Expert judgement reference numbers	Footnote reference number
		CO2 equiv. (Gg)	CO2 equiv. (Gg)													
1A1. Energy Industries	CO2	1781.45	3801.67	1%	1.0%	1.4%	0.53%	9.34%	69.79%	0.00	0.01	0.99%	D	R		
1A2. Manufacturing Industries and Construction	CO2	679.76	1052.84	1%	1.0%	1.4%	0.15%	-3.72%	19.33%	0.00	0.00	0.28%	D	R		
1A3. Transport	CO2	761.17	2193.70	5%	1.4%	5.2%	1.13%	14.44%	40.27%	0.00	0.03	2.85%	D	R		
1A4. Other sectors	CO2	281.63	351.27	5%	2.0%	5.4%	0.19%	-3.10%	6.45%	0.00	0.00	0.46%	D	R		
1A5. Other	CO2	17.29	29.46													
2A. Mineral Products	CO2	666.59	895.66	5%	2.2%	5.5%	0.49%	-6.16%	16.44%	0.00	0.01	1.17%	D	R		
3. Solvent and other product use	CO2	2.29	2.99	7%	50%	50.5%	0.02%	-0.02%	0.05%	0.00	0.00	0.01%	D	R		
5. Land-Use Change and Forestry	CO2	-22.44	-160.33	5%	50%	50.2%	-0.80%	-2.18%	-2.94%	-0.01	0.00	1.11%	D	R		
<b>TOTAL</b>	<b>CO2</b>	<b>4167.74</b>	<b>8167.26</b>				<b>0.0001</b>					<b>6.88%</b>				
1A1. Energy Industries	CH4	2.30	5.08	1%	50%	50.0%	0.03%	0.02%	0.09%	0.00	0.00	0.01%	D	R		
1A2. Manufacturing Industries and Construction	CH4	139.58	152.55	3%	50%	50.1%	0.76%	-1.93%	2.80%	-0.01	0.00	0.97%	D	R		
1A3. Transport	CH4	5.60	9.24	5%	50%	50.2%	0.05%	-0.02%	0.17%	0.00	0.00	0.02%	D	R		
1A4. Other sectors	CH4	0.80	2.28	5%	2.0%	5.4%	0.00%	0.01%	0.04%	0.00	0.00	0.00%	D	R		
1A5. Other	CH4	0.05	0.08	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
1B2. Oil and Natural Gas	CH4	0.50														
4A. Enteric Fermentation	CH4	172.49	187.90	3%	20%	20.2%	0.38%	-2.40%	3.45%	0.00	0.00	0.50%	D	R		
4B. Manure Management	CH4	164.10	233.42	3%	30%	30.1%	0.70%	-1.28%	4.29%	0.00	0.00	0.42%	D	R		
4F. Field Burning of Agricultural Residues	CH4	5.77	2.21	5%	50%	50.2%	0.01%	-0.16%	0.04%	0.00	0.00	0.08%	D	R		
5. Land-Use Change and Forestry	CH4	2.41	2.41	5%	20%	20.6%	0.00%	-0.04%	0.04%	0.00	0.00	0.01%	D	R		
6A. Solid Waste Disposal on Land	CH4	375.02	618.87	5%	46%	46.3%	2.85%	-1.36%	11.36%	-0.01	0.01	1.02%	D	R		
6B. Wastewater Handling	CH4	21.74	43.55	5%	50%	50.2%	0.22%	0.06%	0.80%	0.00	0.00	0.06%	D	R		
<b>TOTAL</b>	<b>CH4</b>	<b>890.36</b>	<b>1257.59</b>				<b>0.0005</b>					<b>3.09%</b>				
1A1. Energy Industries	N2O	57.34	117.04	1%	195%	195.0%	2.27%	0.20%	2.15%	0.00	0.00	0.40%	D	R		
1A2. Manufacturing Industries and Construction	N2O	8.39	9.84	3%	195%	195.0%	0.19%	-0.10%	0.18%	0.00	0.00	0.20%	D	R		
1A3. Transport	N2O	17.47	52.34	5%	170%	170.1%	0.88%	0.37%	0.96%	0.01	0.00	0.63%	D	R		
1A4. Other sectors	N2O	0.71	1.03	5%	170%	170.1%	0.02%	-0.01%	0.02%	0.00	0.00	0.01%	D	R		
1A5. Other	N2O	0.05	0.07	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
4B. Manure Management	N2O	0.04	97.26	5%	414%	414.0%	4.00%	1.78%	1.79%	0.07	0.00	7.39%	D	R		
4D. Agricultural Soils	N2O	78.11	224.78	7%	424%	424.1%	9.47%	1.48%	4.13%	0.06	0.00	6.28%	D	R		
4F. Field Burning of Agricultural Residues	N2O	225.59	1.27	5%	230%	230.1%	0.03%	-7.62%	0.02%	-0.18	0.00	17.54%	D	R		
5. Land-Use Change and Forestry	N2O	1.13	1.13	5%	20%	20.6%	0.00%	-0.02%	0.02%	0.00	0.00	0.00%	D	R		
<b>TOTAL</b>	<b>N2O</b>	<b>388.83</b>	<b>502.36</b>				<b>0.0056</b>					<b>14.90%</b>				
2F. Consumption of Halocarbons and SF6	HCFs	0.00	135.30	10%	15%	18.0%	0.24%	2.48%	2.48%	0.00	0.00	0.51%	D	R		
<b>TOTAL</b>	<b>HCFs</b>	<b>0.00</b>	<b>135.30</b>				<b>0.000003</b>					<b>0.51%</b>				
<b>TOTAL EMISSIONS</b>		<b>5446.93</b>	<b>10062.51</b>				<b>0.62%</b>					<b>25.39%</b>				
<b>TOTAL UNCERTAINTIES</b>				<b>Percentage uncertainty in total inventory</b>			<b>7.86%</b>				<b>Trend uncertainty:</b>	<b>50.39%</b>				

Tier I UNCERTAINTY CALCULATION AND REPORTING - 2007

IPCC Source category	Gas	Base year emissions (1990)	2007 emissions	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in year t	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions	Emission factor quality indicator	Activity data quality indicator	Expert judgement reference numbers	Footnote reference number
		CO2 equiv. (Gg)	CO2 equiv. (Gg)													
1A1. Energy Industries	CO2	1781.45	3653.38	1%	1.0%	1.4%	0.53%	8.13%	67.07%	0.00	0.01	0.95%	D	R		
1A2. Manufacturing Industries and Construction	CO2	679.76	1124.97	1%	1.0%	1.4%	0.16%	-1.83%	20.65%	0.00	0.00	0.29%	D	R		
1A3. Transport	CO2	761.17	2053.63	5%	1.4%	5.2%	1.09%	12.51%	37.70%	0.00	0.03	2.67%	D	R		
1A4. Other sectors	CO2	281.63	407.90	5%	2.0%	5.4%	0.22%	-1.82%	7.49%	0.00	0.01	0.53%	D	R		
1A5. Other	CO2	17.29	28.42													
2A. Mineral Products	CO2	666.59	905.49	5%	2.2%	5.5%	0.50%	-5.41%	16.62%	0.00	0.01	1.18%	D	R		
3. Solvent and other product use	CO2	2.29	2.95	7%	50%	50.5%	0.02%	-0.02%	0.05%	0.00	0.00	0.01%	D	R		
5. Land-Use Change and Forestry	CO2	-22.44	-151.62	5%	50%	50.2%	-0.78%	-2.04%	-2.78%	-0.01	0.00	1.04%	D	R		
<b>TOTAL</b>	<b>CO2</b>	<b>4167.74</b>	<b>8025.13</b>				<b>0.0001</b>					<b>6.68%</b>				
1A1. Energy Industries	CH4	2.30	4.89	1%	50%	50.0%	0.02%	0.01%	0.09%	0.00	0.00	0.01%	D	R		
1A2. Manufacturing Industries and Construction	CH4	139.58	150.67	3%	50%	50.1%	0.77%	-1.85%	2.77%	-0.01	0.00	0.93%	D	R		
1A3. Transport	CH4	5.80	9.08	5%	50%	50.2%	0.05%	-0.02%	0.17%	0.00	0.00	0.01%	D	R		
1A4. Other sectors	CH4	0.80	1.78	5%	2.0%	5.4%	0.00%	0.01%	0.03%	0.00	0.00	0.00%	D	R		
1A5. Other	CH4	0.05	0.08	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
1B2. Oil and Natural Gas	CH4	0.50														
4A. Enteric Fermentation	CH4	172.49	186.86	3%	20%	20.2%	0.39%	-2.27%	3.43%	0.00	0.00	0.48%	D	R		
4B. Manure Management	CH4	164.10	234.59	3%	30%	30.1%	0.72%	-1.12%	4.31%	0.00	0.00	0.38%	D	R		
4F. Field Burning of Agricultural Residues	CH4	5.77	4.23	5%	50%	50.2%	0.02%	-0.11%	0.08%	0.00	0.00	0.06%	D	R		
5. Land-Use Change and Forestry	CH4	2.41	2.41	5%	20%	20.6%	0.01%	-0.04%	0.04%	0.00	0.00	0.01%	D	R		
6A. Solid Waste Disposal on Land	CH4	375.02	603.52	5%	46%	46.3%	2.85%	-1.32%	11.08%	-0.01	0.01	0.99%	D	R		
6B. Wastewater Handling	CH4	21.74	43.25	5%	50%	50.2%	0.22%	0.07%	0.79%	0.00	0.00	0.07%	D	R		
<b>TOTAL</b>	<b>CH4</b>	<b>890.36</b>	<b>1241.36</b>				<b>0.0005</b>					<b>2.94%</b>				
1A1. Energy Industries	N2O	57.34	121.39	1%	195%	195.0%	2.41%	0.33%	2.23%	0.01	0.00	0.65%	D	R		
1A2. Manufacturing Industries and Construction	N2O	8.39	9.85	3%	195%	195.0%	0.20%	-0.10%	0.18%	0.00	0.00	0.19%	D	R		
1A3. Transport	N2O	17.47	56.09	5%	170%	170.1%	0.97%	0.45%	1.03%	0.01	0.00	0.77%	D	R		
1A4. Other sectors	N2O	0.71	0.89	5%	170%	170.1%	0.02%	-0.01%	0.02%	0.00	0.00	0.01%	D	R		
1A5. Other	N2O	0.05	0.07	5%	2.0%	5.4%	0.00%	0.00%	0.00%	0.00	0.00	0.00%	D	R		
4B. Manure Management	N2O	0.04	96.57	5%	414%	414.0%	4.07%	1.77%	1.77%	0.07	0.00	7.33%	D	R		
4D. Agricultural Soils	N2O	78.11	239.79	7%	424%	424.1%	10.36%	1.82%	4.40%	0.08	0.00	7.72%	D	R		
4F. Field Burning of Agricultural Residues	N2O	225.59	0.66	5%	230%	230.1%	0.02%	-7.45%	0.01%	-0.17	0.00	17.12%	D	R		
5. Land-Use Change and Forestry	N2O	1.13	1.13	5%	20%	20.6%	0.00%	-0.02%	0.02%	0.00	0.00	0.00%	D	R		
<b>TOTAL</b>	<b>N2O</b>	<b>388.83</b>	<b>524.65</b>				<b>0.0065</b>					<b>16.68%</b>				
2F. Consumption of Halocarbons and SF6	HCFs	0.00	20.91	10%	15%	18.0%	0.04%	0.38%	0.38%	0.00	0.00	0.08%	D	R		
<b>TOTAL</b>	<b>HCFs</b>	<b>0.00</b>	<b>20.91</b>				<b>0.000000</b>					<b>0.08%</b>				
<b>TOTAL EMISSIONS</b>		<b>5446.93</b>	<b>9812.05</b>				<b>0.71%</b>					<b>26.38%</b>				
<b>TOTAL UNCERTAINTIES</b>				<b>Percentage uncertainty in total inventory</b>			<b>8.44%</b>				<b>Trend uncertainty:</b>	<b>51.36%</b>				

