NATIONAL INVENTORY REPORT 2006
2008 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
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Table of Contents

List of Tables

List of Figures

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 2008 submission

Requirements	Description	Information Submitted
3(1)a	Anthropogenic GHG emissions for 2006	2, 3, 4, 5, 6, 7, 8
3(1)b	Secondary GHG for 2006	2.4
3(1)c, 3(1)d	Land-use, land-use change and forestry	7
3(1)e	Changes in inventory system/ previously submitted data	3.5, 4.5, 5.3, 6.6, 7.4, 8.4
3(1)f	Quality assurance/quality control plan; Uncertainty evaluation; Assessment of completeness; Recalculations Institutional arrangements Description of methodologies EFs Comparison of sectoral with reference approach Description and interpretation of trends	1.6 1.7, 4.6 1.8 3.5, 4.5, 5.3, 6.6, 7.4, 8.4 1.2 1.4, 3.4, 4.3 3.5 2
3(1)g	National Registry	1.2.1
3(1)h	Legal Entities	1.2
3(1)i	Improvement of estimates	3.6, 4.7, 5.4, 6.7, 7.5, 8.5
3(1)j	Indicators	9
3(1)k	Change in the inventory system	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 for the Environment 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, of the 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.

1.3. Inventory preparation process

The preparation of the Cyprus GHG emissions inventory is based predominantly on the application of the CORINAIR (CORINe AIR emissions inventory) methodology. The compilation of the inventory is distinguished in three main stages:

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.
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 CRF tables and the compilation of the NIR, which is then commented by 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 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;
- Good Practice Guidance for Land Use, Land Use Change and Forestry; and
- CORINAIR methodology.

For the preparation of the 2006 GHG Emissions Inventory, the top-down approach has been followed based on the fuel consumed in each main sector. In many cases, sub-sectors are reported as NE (Not Estimated) due to the fact that the quantity of fuels consumed in the sub-sectors is unknown.

In the coming years, our target is to improve our inventory 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. For the compilation of the 2006 national inventory however, the UNFCCC CRF Reporter version 3.2 has been used.

Moreover, the chapter Recalculations and Improvements, containing information on Explanations and justifications for recalculations (3(1)f), Planned improvements to the inventory (3(1)i) and Changes in previously submitted data (3(1)e) has been removed, and the information contained are found in each of the sector chapters.

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

According to the “IPCC Greenhouse Gas Inventory Workbook” [1], 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. 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

SECTOR		STATISTICAL DATA	DATA SOURCES
1.A1	Electricity generation	Fuel consumption	▪ National Statistical Service ▪ Energy Service ▪ Cyprus Electricity Authority ▪ Verifiers Reports (2005, 2006)
1.A2	Manufacturing industry and construction	Fuel consumption	▪ National Statistical Service ▪ Energy Service ▪ Cyprus Electricity Authority
1.A3	Transport	Number of vehicles	▪ Ministry for Transport ▪ National Statistical Service
		Aircraft landing and take off cycles	▪ Civil Aviation Authority ▪ National Statistical Service
1.A4	Other sectors	Fuel consumption	▪ Energy Service
1.B	Fugitive emissions from fuels	Amount of fuels	▪ Energy Service
2	Industrial Processes	Industrial production	▪ National Statistical Service ▪ Industrial units
3	Solvents and other products use	Amount of solvents/other products use	▪ Department of Labour Inspection
4	Agriculture	Cultivated areas Agricultural production Livestock population	▪ National Statistical Service ▪ Ministry of Agriculture, Natural Resources and Environment
		Fertilizer use	▪ UN Food and Agricultural Organisation
5	Land use, Land use change and Forestry	Forest area Forest fires	▪ Ministry of Agriculture, Natural Resources and Environment ▪ General Directorate for the Forests and the Natural Environment
6	Waste	Quantities and composition of solid waste generated Recycling Population	▪ Ministry of Interior ▪ National Statistical Service

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			
CATEGORIES	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			

GREENHOUSE GAS SOURCE AND SINK	CO2				CH4				N2O			
CATEGORIES	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)
d. Navigation	Yes				No				No			
Gas/Diesel oil	Yes	C	NS	D	No				No			
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)
2. Industrial Processes																								
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			

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)
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			
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			
CATEGORIES	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)
3. Solvent and Other Product Use												
A. Paint Application	No								No			
B. Degreasing and Dry Cleaning	No								No			
C. Chemical Products, Manufacture and Processing	No								No			
D. Other	No								No			
4. Agriculture												
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			
CATEGORIES	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 procedures used for quality assurance and quality control procedures for the preparation of the national emission inventory are considered to be preliminary as it is the second time they have been implemented. In the following years our efforts will focus on the implementation of a more effective QA/QC procedure. 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

The uncertainty of the results depends on the available activity data and the emissions coefficients used. Regarding the activity data, the larger uncertainty arises from the diesel distribution to the final demand sectors, and consequently to the distribution (and not the total) of the carbon dioxide emissions among the sectors. The uncertainty from the diesel distribution affects the total emissions of other gases besides carbon dioxide, where emission coefficients are different according to the demand/ sector. Table 1.7 summarises the uncertainty calculated for 1990 to 2006. *1990 to 2005 uncertainty was not modified from the previously submissions of Cyprus.*

Table 1.7. Summary of uncertainties according to Tier I methodology for 1990 to 2006

	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**
1990	2.00%	4.44%	14.15%	21.07%
1991	1.96%	5.10%	14.01%	22.59%
1992	2.00%	6.26%	14.15%	25.02%
1993	1.89%	8.08%	13.76%	28.42%
1994	1.90%	8.93%	13.79%	29.88%
1995	1.86%	7.89%	13.65%	28.09%
1996	1.86%	8.79%	13.63%	29.65%
1997	1.81%	10.29%	13.46%	32.07%
1998	1.81%	11.85%	13.44%	34.42%
1999	1.84%	14.02%	13.56%	37.45%
2000	1.74%	15.67%	13.20%	39.59%
2001	1.74%	15.08%	13.20%	38.83%
2002	1.74%	19.50%	13.18%	44.15%
2003	1.61%	23.86%	12.68%	48.84%
2004	1.73%	24.84%	13.15%	49.84%
2005	1.59%	24.32%	12.62%	49.32%
***2005**	1.60%	24.47%	12.65%	49.47%
2006	0.02%	58.08%	1.37%	76.21%

* estimations based on 2008 submission

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.

Even though recalculations have been made with the introduction of 1990 - 2005 data to the CRF Reporter software, due to the large differences from the previously submitted data the new uncertainty calculations are presented here only for 2005 and 2006.

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

1. 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).
2. National experts opinion and estimations of uncertainty (1A4, 3, 4, 5, 6, 2)
3. 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 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. Therefore:

- The energy sector is limited to the areas under the effective control of the Government of the Republic of Cyprus. However, the electricity produced is also consumed by the occupied areas. Therefore, the emissions from electricity production (both in the CRF and summary tables) include the emissions due to the electricity "export" to the occupied area. The emissions caused by the "export" of electrical energy are handled as every other emission caused by export of electricity; i.e. included in the national total, since they are emitted from areas within the geographical boundaries of the country.
- Emissions caused by the sectors of industrial process, solvent and other product use, agriculture, land-use change and forestry and waste, are limited to the areas under the effective control of the Government of the Republic of Cyprus: no data is available from the Statistical Service for the whole of the country, data is only available for the areas under the effective control of the Government of the Republic of Cyprus.
- The source categories of forest fires and forest coverage in the sector of Land-use change and forestry for 1990 is for the whole of Cyprus (but only includes state forests). Consequently, the source and sinks of emissions are for the respective areas. This however, can lead to discontinuity in the data and the comparison that should be made to the base year.

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

Recalculations have been performed due to the introduction of the previously submitted data to the CRF reporter software. Considerable differences have been found in comparison to previous submissions for the estimations of certain years. For the 2008 submission, only the 2005 and 2006 results are commented, but here the new data for all the years is presented.

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

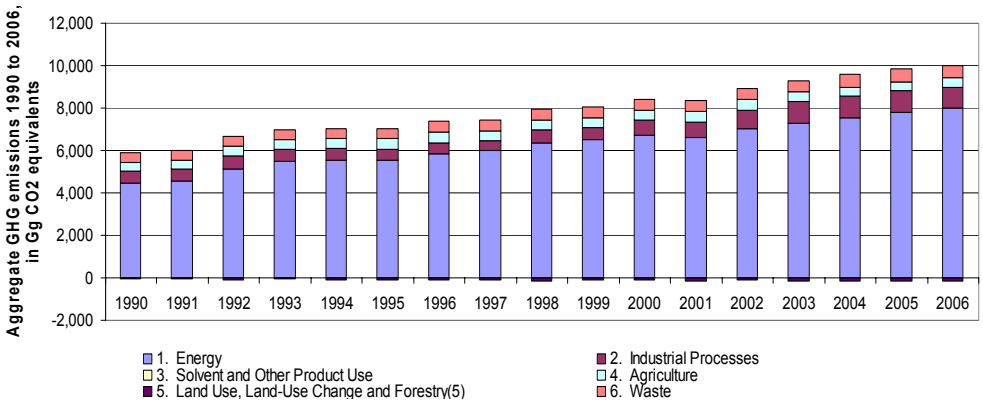

Figure 2.1. Aggregate GHG emissions from all the sectors for 1990 to 2006, in Gg CO_2 equivalents

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

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

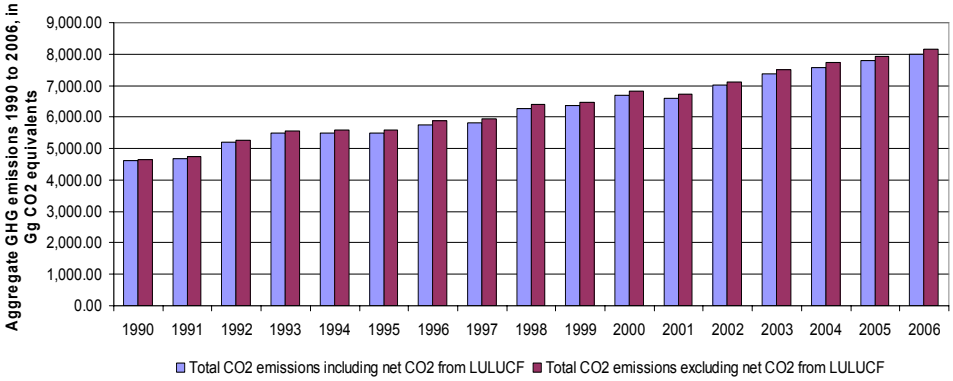

Figure 2.2. CO_2 emissions from all the sectors for 1990 to 2006, in Gg CO_2 equivalents; with and without LULUCF

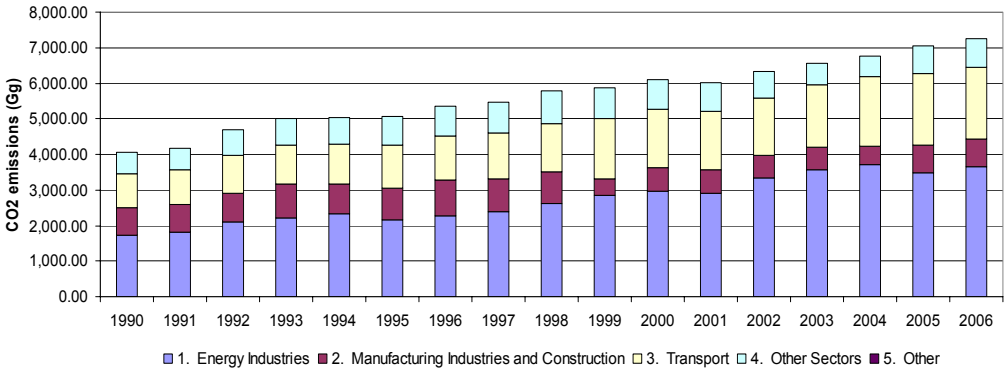

Figure 2.3. CO_2 emissions from the energy sector for 1990 to 2006, in Gg

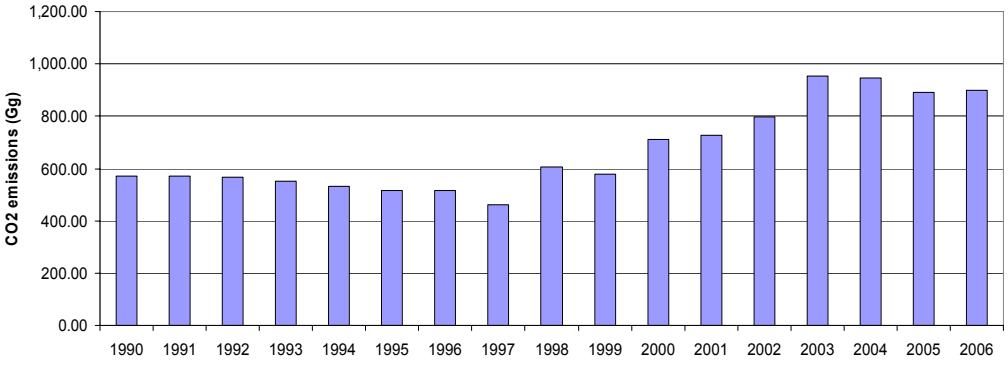

Figure 2.4. CO_2 emissions from the industrial sector for 1990 to 2006, in Gg

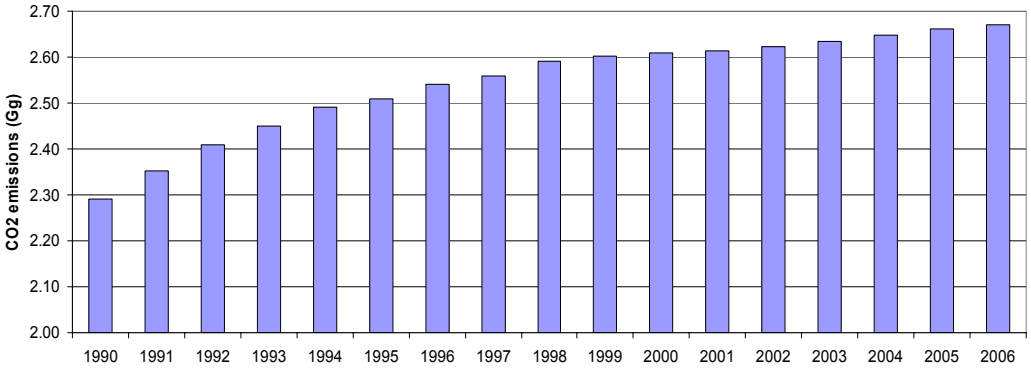

Figure 2.5. CO_2 emissions from the Solvent and Other Product Use sector for 1990 to 2006, in Gg

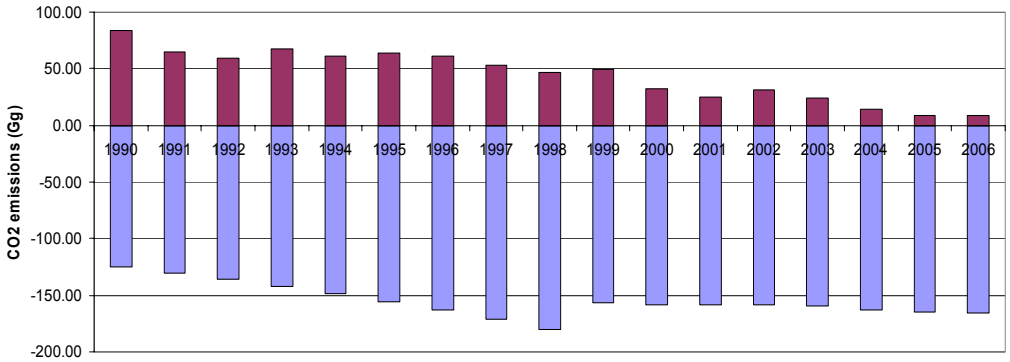

Figure 2.6. CO_2 emissions from the LULUCF sector for 1990 to 2006, in Gg CO_2

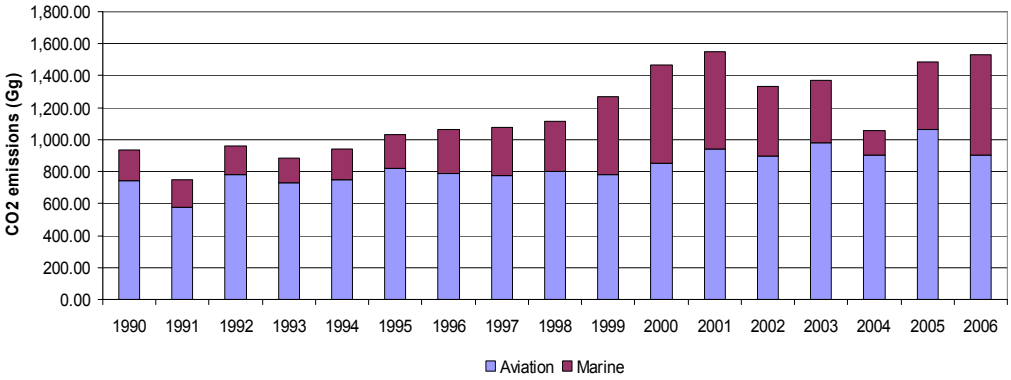

Figure 2.7. CO_2 emissions from the international bunkers (aviation and marine activities) for 1990 to 2006, in Gg CO_2

2.2.2. Methane emissions – for 3(1)a

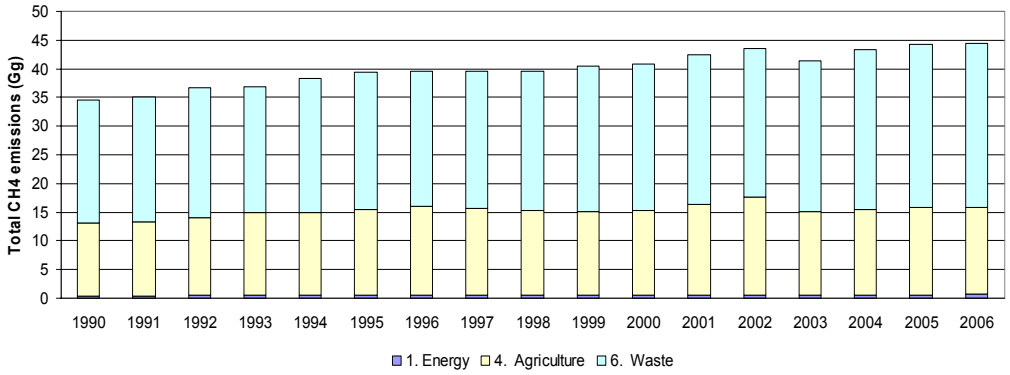

Figure 2.8. Total CH_4 emissions from all the sectors for 1990 to 2006, in Gg

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

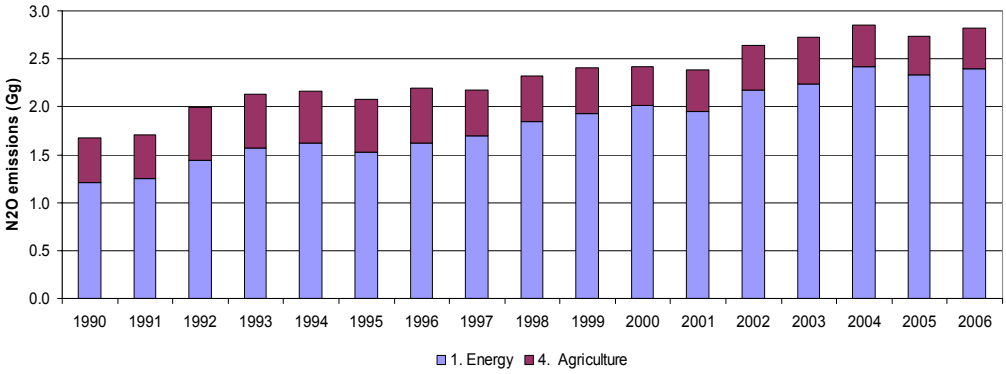

Figure 2.9. N_2Oemissions from all the sectors for 1990 to 2006, in Gg

2.2.4. HFCs, PFCs and SF_6 emissions – for 3(1)a

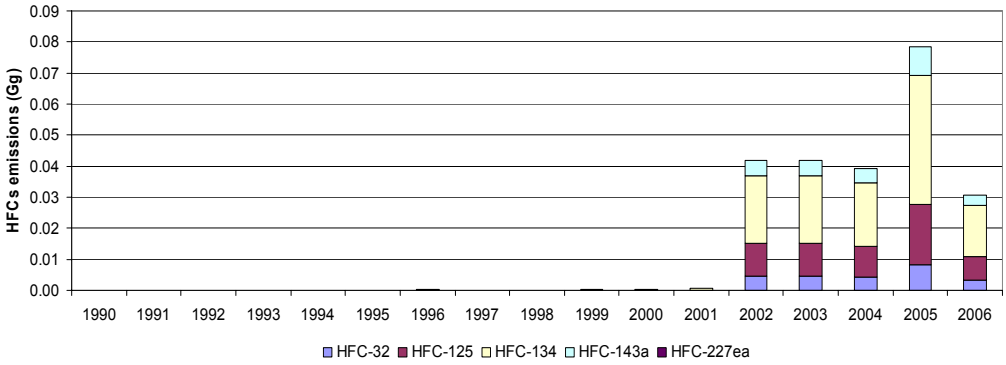

Figure 2.10. HFC and PFC emissions for 1990 to 2006, in Gg

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

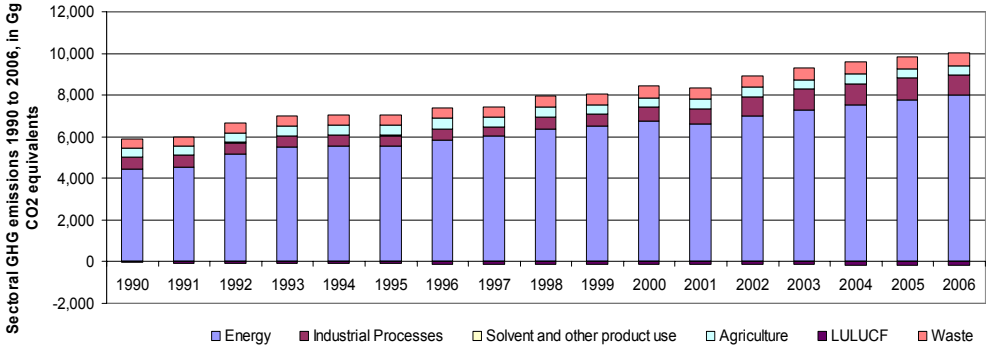

Figure 2.11. Sectoral greenhouse gases emissions from all the sectors for 1990 to 2006, in Gg CO_2 equivalents

2.3.1. Energy

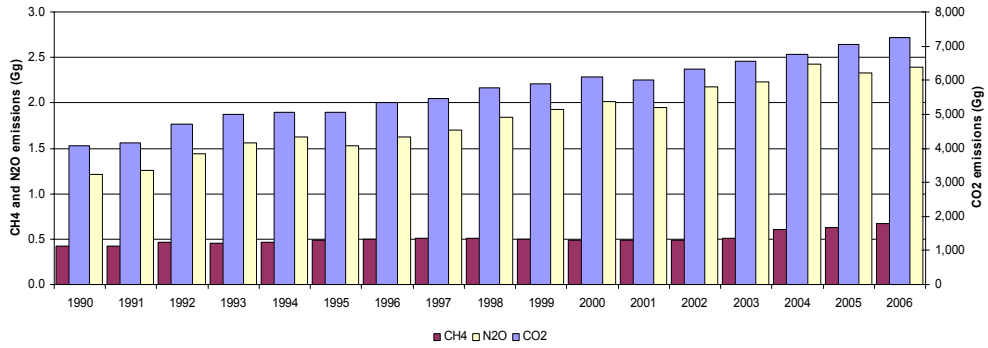

Figure 2.12. GHG emissions from the energy sectors for 1990 to 2006, in Gg CO_2 equivalents

2.3.2. Industrial Processes

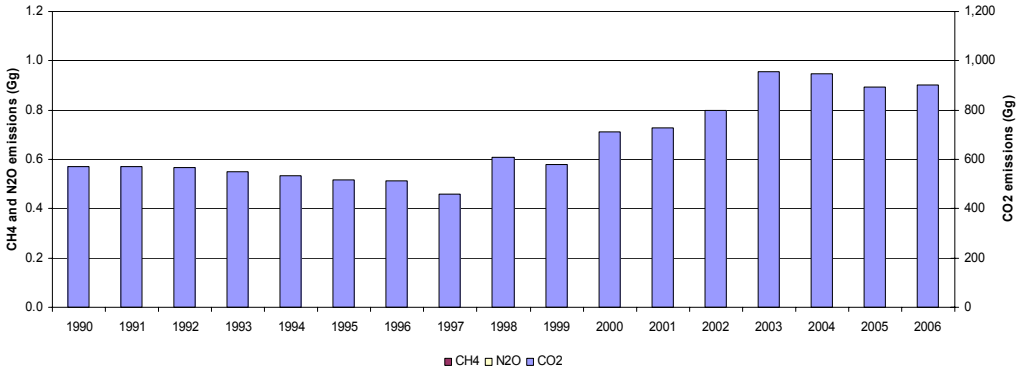

Figure 2.13. GHG emissions from the industrial processes for 1990 to 2006, in Gg CO_2 equivalents

2.3.3. Solvent and other product use

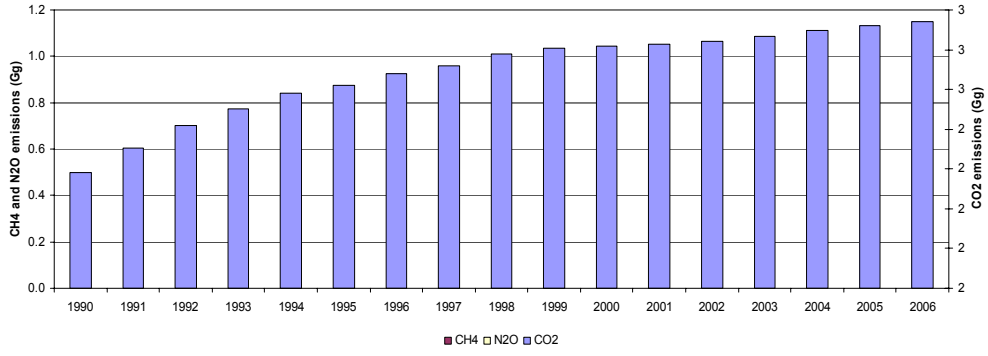

Figure 2.14. GHG emissions from solvent and other product use for 1990 to 2006, in Gg CO_2 equivalents

2.3.4. Agriculture

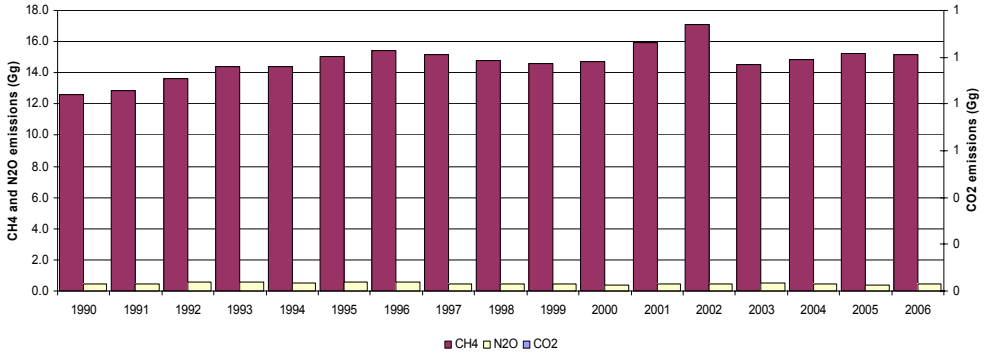

Figure 2.15. GHG emissions from agriculture for 1990 to 2006, in Gg CO_2 equivalents

2.3.5. LULUCF

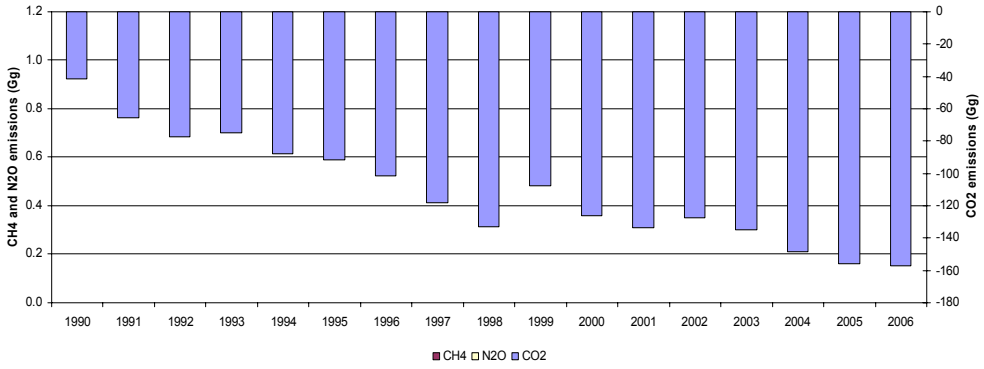

Figure 2.16. GHG emissions from LULUCF for 1990 to 2006, in Gg CO_2 equivalents

2.3.6. Waste

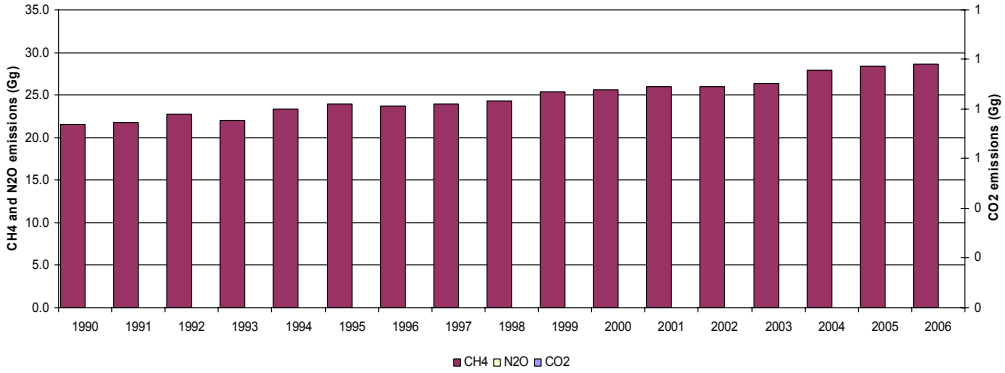

Figure 2.17. GHG emissions from the waste sector for 1990 to 2006, in Gg CO_2 equivalents

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

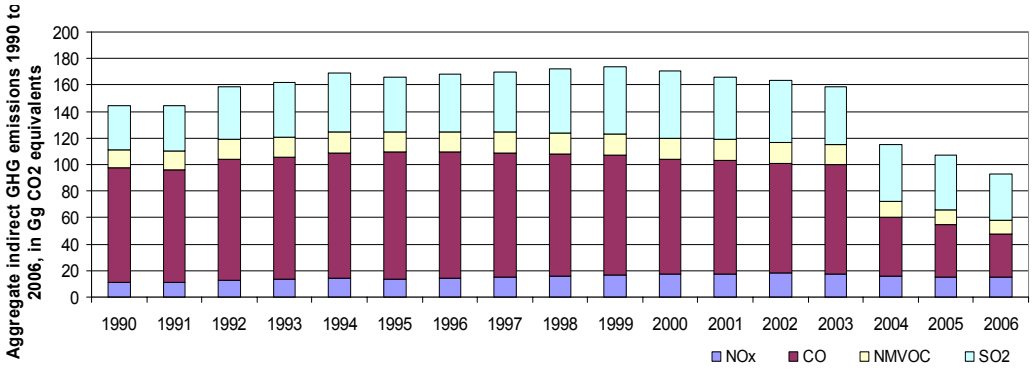

Figure 2.18. GHG emissions for indirect greenhouse gases and sulphur dioxide for 1990 to 2006, in Gg

3. Energy (CRF sector 1)

3.1. Overview of sector

53.9% of the emissions released by the sector of energy for 2006 are from the energy industries. The contribution of the energy industries in 2005 was 52.9% and 46.1% in 1990. Following is the sub-sector of transport with 26% in 2005, which was 26.7% in 2005 and 21.9% in 1990.

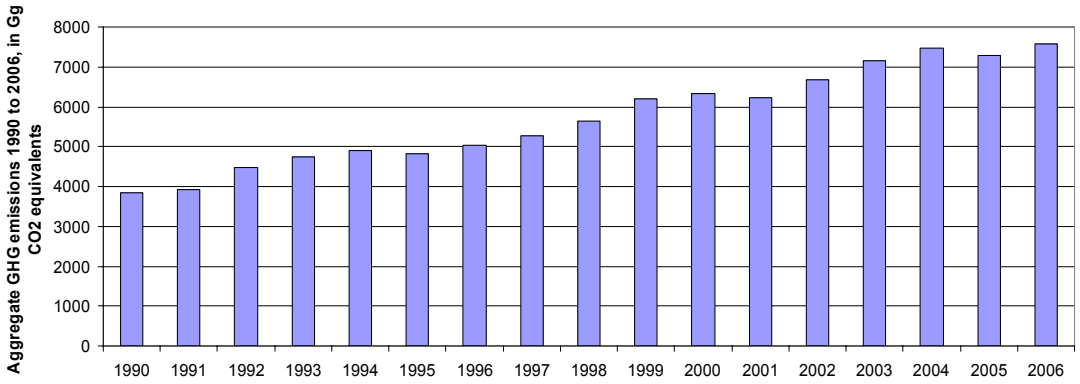

Figure 3.1. GHG emissions from the energy sector and sub-sectors for 1990 to 2006.

3.2. Fuel Combustion

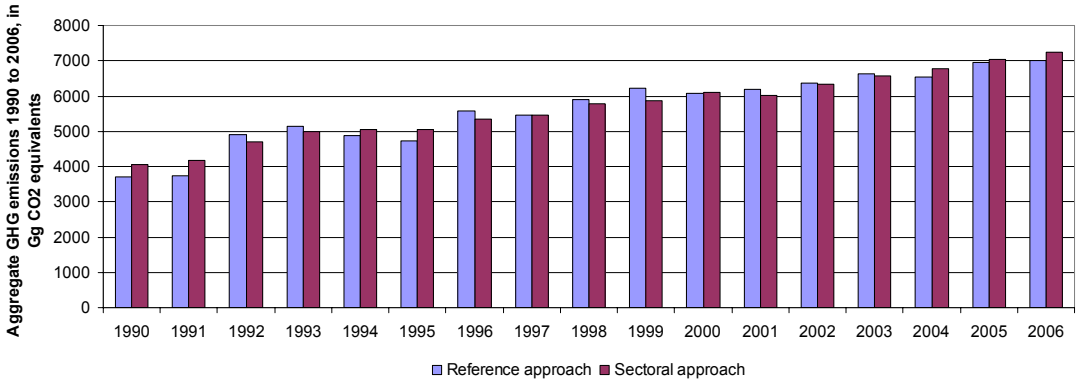

Figure 3.2. Difference between reference and sectoral approach for 1990 to 2006.

3.3. Memo items - International Bunkers

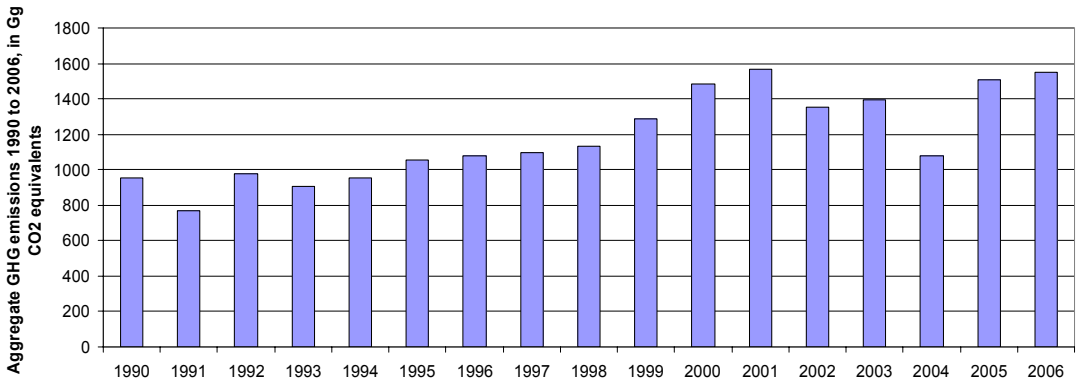

Figure 3.3. International bunkers (aviation and marine emissions) for 1990 to 2006.

3.4. Methodological Issues – for 3(1)f

3.4.1. Carbon Dioxide (CO_2)

For the estimation of carbon emissions from fossil fuel combustion, IPCC uses two methodologies:

1. the sectoral approach, which depends to the fuel consumption in all sectors; and
2. the reference approach, for which data is used on production, import and storage of primary and secondary fuels.

For the carbon dioxide emissions estimated in the current report, the sectoral approach was used, depending on the methodology of CORINAIR.

Carbon dioxide emissions arising from the use of biomass as fuel are not included in the total national emissions as recommended by IPCC. Similarly, emissions from marine air transport are not included but presented separately according to the international practice.

3.4.2. Other gases contributing to the Greenhouse Effect

The emissions of the remaining gases have been estimated with emissions coefficients, with the exception of sulphur dioxide in all sectors, and nitrogen oxides in electricity production. For better decision making in choosing the coefficients, the following sources were studied [1,2,3,4,5]:

- IPCC (“Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories”, 1997)
- CORINAIR (“Emission Inventory Guidebook”, 1999)
- EU/DG XVII (“NOx, SO_2, CH_4 and N_2O emissions on the basis of the four long term energy scenarios of DG XVII”, 1996).
- EPA AP-42 (“Compilation of Air Pollutant Emission Factors AP-42”, 1995)
- EPA-FIRE (“FIRE: Factor Information Retrieval System. Version 6.23”, 1999)

The emissions of indirect greenhouse gases were obtained by the competent authority for the emissions ceiling directive, the Department of Labour Inspection, as these were submitted for the 2008 inventory.

Table 3.1. Emission Coefficients for N_2O area sources [1]

SECTOR		LITERATURE	CYPRUS
COMMERCIAL	Light Fuel Oil	0.3 – 46.5	0.6
	Diesel Oil	0.4 – 17.8	0.6
	LPG	0.2 – 14	0.6
	Kerosene	0.1 – 14	0.1
RESIDENTIAL	Diesel Oil	0.2 – 17.8	0.6
	LPG	0.1 – 14	0.1
	Kerosene	0.2 – 14	0.6
	Motor Gasoline	0.2 – 14	2
	Biomass	1.6 – 20	4
AGRICULTURAL	Light Fuel Oil	0.8 – 46.5	0.6
(thermal uses)	Light Fuel Oil	0.2 – 17.8	0.6
	Diesel Oil	0.2 – 14	0.6
	LPG	0.1 – 14	0.1
(mobile sources, g/tn)			
	Diesel Oil	1290 – 1300	1290
	Motor Gasoline	20 – 70	70
INDUSTRY	Light Fuel Oil	0.3 – 46.5	0.6
(thermal uses)	Diesel Oil	0.4 – 25	0.6
	Kerosene	0.6 – 14	0.6
	LPG	0.1 – 14	0.1
(other uses)	Light Fuel Oil	1.1 – 2.1	0.6
	Diesel Oil	0.5 – 30	0.6
	Motor Gasoline	0.2 – 50	2
MARINE TRANSPORT			
kg/tn			
	Light Fuel Oil	0.08 [4]	0.08
	Diesel Oil	0.08 [4]	0.08
AVIATION			
g/LTO [3]			
	Jet – LTO < 1000	200 – 300 [3]	
g/TN			
	Jet – LTO < 1000	60 – 90 [3]	60
	Jet – LTO > 1000	100	100

[1] The values of the coefficients are in g/GJ, except where stated otherwise
[2] LTO: Landing and Take-Off.
[3] The values are for average fleet.
[4] Values are for international marine transport

Table 3.2. Emission Coefficients for CH_4 area sources [1]

SECTOR		LITERATURE	CYPRUS
COMMERCIAL	Light Fuel Oil	0.1 – 10	**1.4**
	Diesel Oil	0.7 – 5	**0.7**
	LPG	0.02 – 10	**0.7**
	Kerosene	0.5 – 7	**1.1**
RESIDENTIAL	Diesel	0.7 – 7	**0.7**
	LPG	0.02 – 7	**1.1**
	Kerosene	0.02 – 10	**0.7**
	Motor Gasoline	1 – 180	**82**
	Biomass	74 – 386	**210**
AGRICULTURAL	Light Fuel Oil		
(thermal uses)	Light Fuel Oil	3.5 – 10	**3.5**
	Diesel Oil	0.02 – 7	**3.5**
	LPG	1.1 – 7	**1.1**
(mobile sources, g/tn)			
	Diesel	170	**170**
	Motor Gasoline	1 – 6170	**3680**
INDUSTRY	Light Fuel Oil	0.02 – 7.5	**3**
(thermal uses)	Diesel Oil	0.04 – 21	**0.2**
	Kerosene	0.02 – 7.4	**1**
	LPG	0.02 – 6	**1**
(other uses)	Light Fuel Oil	0.02 – 7.5	**3**
	Diesel Oil	0.04 – 14	**0.2**
	Motor Gasoline	1 – 130	**82**
MARINE TRANSPORT			
kg/tn			
	Light Fuel Oil	0.3 [4]	**0.3**
	Diesel Oil	0.3 [4]	**0.3**
AVIATION			
g/LTO [3]			
	Jet – LTO < 1000	1500 [3]	
g/TN			
	Jet – LTO < 1000	441 [3	**441**
	Jet – LTO > 1000	0	**0**

[1] The values of the coefficients are in g/GJ, except where stated otherwise
[2] LTO: Landing and Take-Off.
[3] The values are for average fleet.
[4] Values are for international marine transport

Table 3.3. Emission Coefficients for point sources (g/ GJ)

SECTOR		LITERATURE RANGE	CYPRUS
ELECTRICITY PRODUCTION			
N_2O	Heavy Fuel Oil	0.3 – 46.5	46.5
	Diesel Oil	0.4 – 15.7	15.7
CH_4	Heavy Fuel Oil	0.7 – 3	0.7
	Diesel Oil	0.03 – 2.6	0.03
REFINERIES			
N_2O	Heavy Fuel Oil	0.3 – 46.5	14.8
	Refinery Gas	0.6 – 14	2.5
CH_4	Heavy Fuel Oil	2.9 – 3.5	3
	Refinery Gas	0.1 – 2.5	1.3
CEMENT PRODUCTION			
N_2O	Coal	3 – 12	12
	Petrocoke	0.6 – 14	14
	Heavy Fuel Oil	0.6 – 15	15
CH_4	Coal	0.3 – 15	8
	Petrocoke	1 – 15	8
	Heavy Fuel Oil	1 - 5	3

3.4.3. Fugitive emissions from fossil fuels

The emission coefficients used for CH_4 and NMVOCs are presented in Table 3.9.

Table 3.4. Fugitive emissions from fossil fuels: emission coefficients used for CH_4 and NMVOCs

Activity	Emissions coefficient	Comment/ Description	Source
Storage of crude oil	880 kg CH_4/PJ treated crude oil	mean of range proposed	IPCC [1]
Storage and management of oil products at the refinery	670 g NMVOC/ tn treated crude oil	proposed coefficient for floating roof with single fencing tank	EPA/ CORINAIR [2]
Loading from tankers and storage of crude oil at marine terminals	273 g NMVOC/tn treated crude oil		CORINAIR [2]
Other activities associated with crude oil management	20 g NMVOC/tn treated crude oil		CORINAIR [2]
Motor Gasoline management			
▪ Emissions from storage facilities (except petrol stations)	740 g NMVOC/tn treated crude oil		CORINAIR [2]
▪ Emissions from petrol stations	2880 g NMVOC/tn treated crude oil		CORINAIR [2]

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

Recalculations have been performed due to the introduction of the previously submitted data to the CRF reporter software. Considerable differences have been

found in comparison to previous submissions for the estimations of certain years. For the sector of energy the emissions found from the sectoral approach have been found the same for 1990 in particular. This is not the case for other years. New estimations of the emissions for 1990 – 2006 are presented in Table 3.5.

Table 3.5. Energy sector emissions as submitted in 2008 and 2007 submission

	Energy Industry			Industry			Transport			Other		
	2008 subm. (Gg)	2007 subm. (Gg)	2008 Vs 2007 (%)	2008 subm. (Gg)	2007 subm. (Gg)	2008 Vs 2007 (%)	2008 subm. (Gg)	2007 subm. (Gg)	2008 Vs 2007 (%)	2008 subm. (Gg)	2007 subm. (Gg)	2008 Vs 2007 (%)
1990	2053.6	2053.6	0.00	792.8	792.8	0.00	976.2	976.2	0.00	628.3	629.8	-0.23
1991	2133.4	2133.4	0.00	822.2	822.2	0.00	974.4	974.4	0.00	632.3	633.8	-0.23
1992	2466.8	2466.8	0.00	854.8	854.8	0.00	1087.4	1087.4	0.00	742.9	744.4	-0.20
1993	2636.2	2636.2	0.00	954.9	954.9	0.00	1132.6	1132.6	0.00	776.2	777.7	-0.19
1994	2760.1	2760.1	0.00	846.4	846.4	0.00	1165.9	1165.9	0.00	782.2	783.6	-0.19
1995	2541.4	2541.4	0.00	923.7	923.7	0.00	1232.2	1232.2	0.00	842.3	843.8	-0.17
1996	2681.1	2681.1	0.00	1036.8	1036.8	0.00	1272.1	1272.1	0.00	873.2	874.7	-0.17
1997	2834.3	2834.3	0.00	932.4	932.4	0.00	1326.6	1326.6	0.00	916.7	918.2	-0.16
1998	3106.3	3106.3	0.00	913.8	913.8	0.00	1385.7	1385.7	0.00	956.1	957.5	-0.15
1999	3357.3	3357.3	0.00	472.2	433.7	8.15	1740.0	1783.3	-2.49	922.2	923.7	-0.16
2000	3511.4	3511.4	0.00	654.7	591.1	9.72	1686.5	1775.2	-5.26	882.5	884.0	-0.17
2001	3432.0	3432.0	0.00	684.6	616.5	9.94	1675.0	1788.5	-6.77	825.2	826.7	-0.18
2002	3938.3	3938.3	0.00	664.7	592.2	10.91	1651.2	1780.8	-7.85	759.7	761.2	-0.20
2003	4199.8	4206.7	-0.16	654.6	566.5	13.46	1801.2	1868.4	-3.73	607.2	695.7	-14.58
2004	4391.7	4391.7	0.00	534.7	540.1	-1.00	2026.7	2049.9	-1.14	578.7	630.2	-8.90
2005	4118.2	4085.6	0.79	782.0	750.6	4.00	2076.7	2097.5	-1.00	801.8	656.0	18.18
2006	4317.6			776.5			2085.2			825.0		

3.6. 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.

4. Industrial Processes (CRF sector 2)

4.1. Overview of sector

The inventory of the industry sector is limited to the activity of mineral industries and consumption of HCFs, PCFs and SF_6. The emissions of the sector are presented in the Figure that follows.

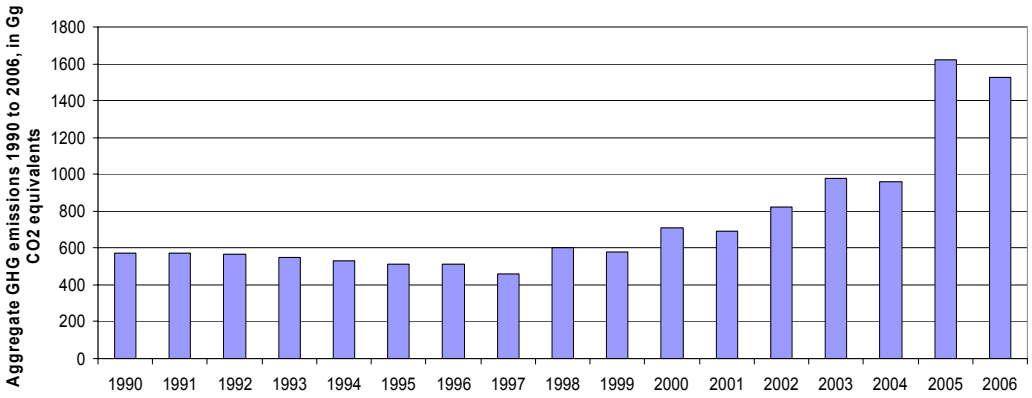

Figure 4.1. Emissions of the industry sector for 1990 - 2006.

4.2. Mineral Industry

The main activities in mineral industry in Cyprus are cement and ceramics. These are the other two sectors in addition to the electricity production that fall under the ETS. Therefore, data for 2005 and 2006 are far more accurate than previous years, since those are based on the submissions of the installations.

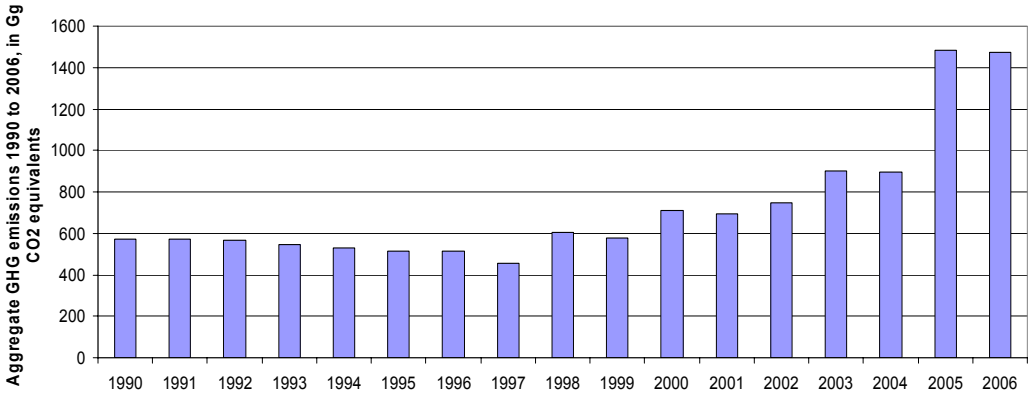

Figure 4.2. Emissions of the mineral industry for 1990 - 2006.

4.2.1. Methodological Issues – for 3(1)f

The CO_2 emissions of the mineral industry are based on the verified emissions of the installations that fall under the Directive 2003/87/EC, that have been calculated with Tier 3 of the UNFCCC 2006 guidelines.

4.3. Consumption of HCFs, PCFs and SF_6

In 2006, the emissions of HFCs, PFCs and SF_6 accounted for approximately 0.5% of the GHG emissions in Cyprus. The 99.9% of the hydrofluorocarbons emissions arise from refrigeration and air-conditioning, while the remaining 0.1% is from fire-extinguishers. Data for the use of the particular gases appears to have started after the mid 1990's – the first imports of the chemicals in bulk have been recorded in 1994 (approximately 200 kg). The methodology used for the estimation of the emissions is presented in the current report. The types of gases used in Cyprus are HFC-32, HFC-125, HFC-134, HFC-143a, HFC-227ea and SF_6. SF_6 is present only in equipment, i.e. no additional imports or stocks have been recorded. The majority of the gases are imported and used in Cyprus in the form of mixtures.

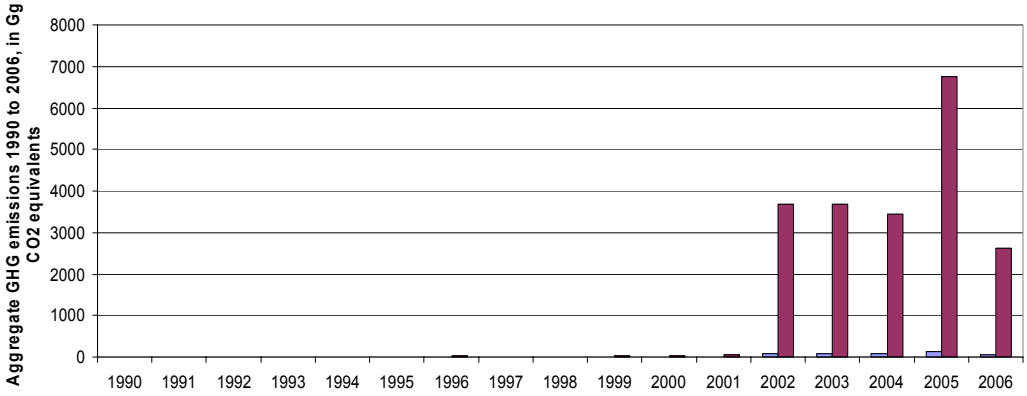

Figure 4.3. Actual vs potential emissions of fluorinated compounds

The data obtained according to the calculations is presented in Table 4.1.

Table 4.1. Actual and potential HFC emissions according to the compound (2006)

	HFC	GWP	Potential (t)	Actual (t)	Potential/ Actual ratio	Actual in CO2 eq (kt)
1	HFC-32	650	156.38	3.18	49.18	
2	HFC-125	2800	372.41	7.57	49.18	
3	HFC-134	1000	814.67	16.54	49.25	
4	HFC-143a	3800	173.18	3.52	49.18	
5	HFC-227ea	2900	0.07	0.01	8.77	
	TOTAL		2,617.34	30.82	49.19	53.21

4.3.1. Methodological Issues – for 3(1)f

The compounds taken into consideration for the calculations of the inventory are HFC-32, HFC-125, HFC-134, HFC-143a, and HFC-227ea, for which data for imports is available. According to the available data no PFCs are used in Cyprus.

Since there is no production, destruction or exports of the particular substances in Cyprus, the potential emissions (as described by the Tier 1 methodology in the

Revised 1996 IPCC Guidelines) equal to the imports. The Tier 2 methodology takes into account the amount of substances present in the equipment, which gradually leak.

The estimates for emissions have been made according to the following calculations and assumptions:

1. Using the statistics for imports provided by the Cyprus Statistical Service data has been found on
    a. the imports of equipment possibly containing HFCs and PFCs as identified in to Regulation (EC) No.2037/2000 on substances that deplete the ozone layer; and
    b. the amount of bulk chemical imports.
2. According to the importers
    a. HFC-227ea is imported only for use in fire extinguishing systems;
    b. pure HCF-134 is imported only for use in air-conditioning systems of vehicles;
    c. the imported mixtures (HFC-32, HFC-125 and HFC-143a) are all used in air-conditioning and refrigeration systems.
3. The quantities of particular compounds were estimated according to the composition of the mixtures and the amount of mixtures imported in bulk.
4. Emissions from all refrigeration uses was assumed 2% and 5% for fire extinguishing systems (IPCC, 1996), and assuming that all the amounts imported were used in a particular year, the emissions from consumption were estimated.
5. Finally, assuming the lifetime of refrigeration/ air conditioning equipment to be 15 years, all equipment imported in 1991 were assumed to have been disposed of in 2006 (no recovery is assumed to have taken place prior disposal).

4.4. SF_6 emissions

The import and use of SF_6 in Cyprus is limited to two companies (Vasilikos Cement Factory and Cyprus Electricity Authority). Both companies stated that no gas recharge takes place in their systems which are closed. It was also assumed that there are no leaks. Thus, since no amount of SF_6 is consumed, no emissions are produced. Therefore, it is assumed that no GHG emissions are caused by the use of SF_6 in Cyprus for this particular report.

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

Recalculations have been performed due to the introduction of the previously submitted data to the CRF reporter software. Considerable differences have been found in comparison to previous submissions for the estimations of certain years. New estimations of the emissions for 1990 – 2006 are presented in Table 4.2.

Table 4.2. Total Industrial sector emissions as submitted in 2008 and 2007 submission

	2008 subm. (Gg)	2007 subm. (Gg)	2008 Vs 2007 (%)
1990	572.2	570.5	0.30
1991	572.1	570.4	0.30
1992	568.2	566.6	0.30
1993	549.5	547.9	0.30
1994	532.4	530.8	0.30
1995	516.5	515.0	0.30
1996	515.5	513.5	0.39
1997	459.4	458.0	0.30
1998	606.4	604.6	0.30
1999	578.8	575.8	0.51
2000	710.8	707.6	0.45
2001	729.4	693.1	4.98
2002	872.4	746.5	14.43
2003	1027.3	836.0	18.62
2004	1015.4	893.3	12.02
2005	1029.3	902.9	12.28
2006	954.0		

It should be noted again, that the CO_2 emissions for 2005 and 2006 are the verified emissions submitted by the involved industries under the ETS.

4.6. Uncertainty

Due to the absence of detailed data, the only method that could be used for estimating the emissions is associated with high uncertainty.

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

In future submissions other small industries that are in operation in Cyprus shall be included in the inventory, and more accurate EF shall be found and used.

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

5.1. Overview of sector

The total aggregate emissions of the sector are shown in the Figure 5.1.

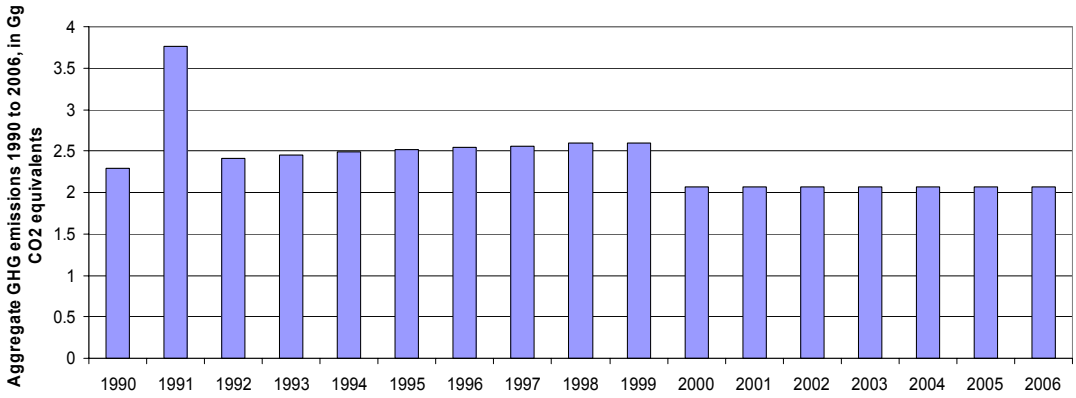

Figure 5.1. Aggregate GHG emissions from Solvent and other Product Use sector from 1990 to 2006, in Gg CO_2 equivalents

5.2. Source category

The data concerning population and production of products associated with solvents' use were obtained through the official statistics (**Table 5.1**). The CO_2 emissions for 2006 from the category are assumed the same as 1998.

Table 5.1. Activity data for 2006

	Unit	2006
a) Dyes b) Degreasing and dry-cleaning c) Pharmaceuticals d) Residential uses (except dyes)	000's population	778.7
Glue production	tn product	16235
Paint production	000's L product	4385
Varnish production	tn product	830

The emissions data for NMVOCs was obtained by the Department of Labour Inspection (Ministry of Labour and Social Insurance), which is the responsible authority for the National Emissions Inventory. The estimations were made with ENEP/ CORINAIR.

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

As in previous submissions, the CO_2 emissions for 2006 from the category are assumed the same as 1998. The data however for NMVOCs, has been changed to

the emissions calculated for the submitted National Emissions Inventory, of which responsible is the Department of Labour Inspection (Ministry of Labour and Social Insurance). The resulting changes in the 2008 submission compared to the 2007 submission are presented in Table 5.1.

Moreover, recalculations have been performed due to the introduction of the previously submitted data to the CRF reporter software. Considerable differences have been found in comparison to previous submissions for the estimations of certain years. New estimations of the emissions for 1990 – 2006 are presented in Table 5.2 compared to previously submitted data.

Table 5.2. Emissions from Solvents and other product use as submitted in 2008 and 2007

	2008 subm. (Gg)	2007 subm. (Gg)	2008 Vs 2007 (%)
1990	2.3	2.3	0.00
1991	3.8	2.4	37.50
1992	2.4	2.4	0.00
1993	2.5	2.5	0.00
1994	2.5	2.5	0.00
1995	2.5	2.5	0.00
1996	2.5	2.5	0.00
1997	2.6	2.6	0.00
1998	2.6	2.6	0.00
1999	2.6	2.6	0.00
2000	2.1	2.6	-25.12
2001	2.1	2.6	-25.12
2002	2.1	2.6	-25.12
2003	2.1	2.6	-25.12
2004	2.1	2.6	-25.12
2005	2.1	2.6	-25.12
2006	2.1		

5.4. 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.

6. Agriculture (CRF sector 4)

6.1. Overview of sector

The total aggregate emissions of the agriculture sector are shown in the Figure 6.1. It should be taken into consideration that no rice cultivation or prescribed burning of savannas takes place in Cyprus.

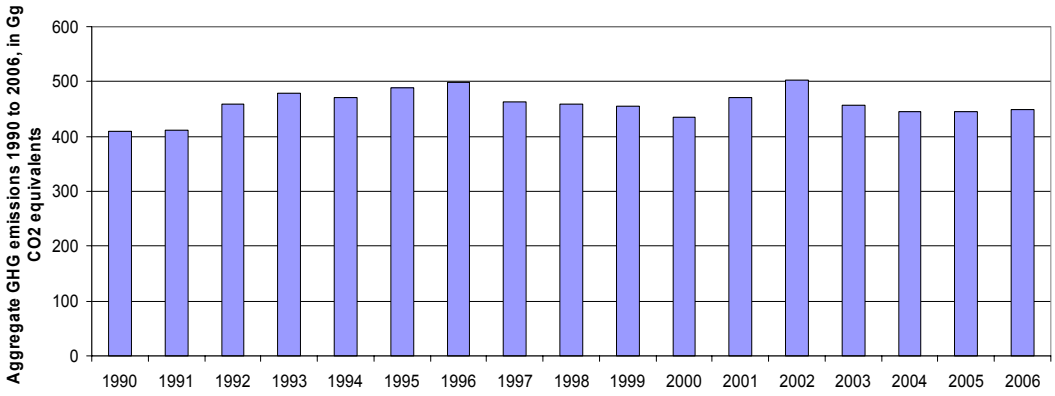

Figure 6.1. Aggregate GHG emissions from Agriculture sector from 1990 to 2006, in Gg CO_2 equivalents

6.2. Enteric Fermentation

The trend for 1990 – 2006 total emissions from Enteric Fermentation is presented in Figure 6.2.

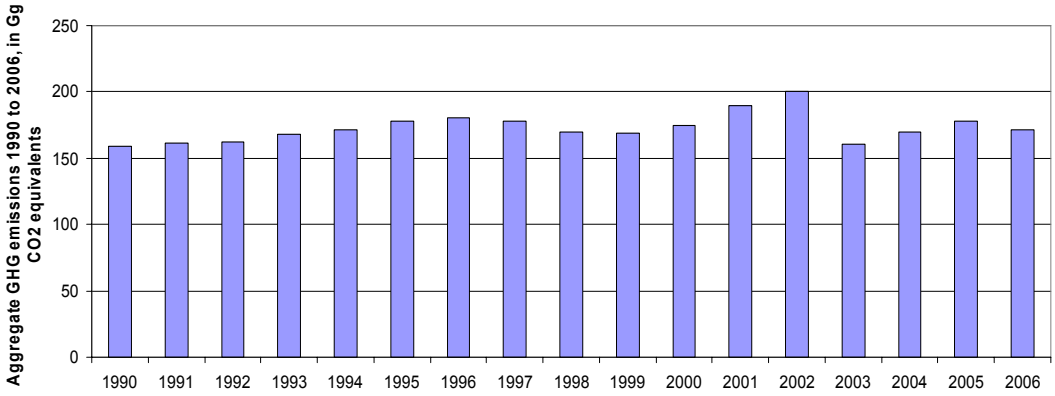

Figure 6.2. Aggregate GHG emissions from Enteric Fermentation from 1990 to 2006, in Gg CO_2 equivalents

The emission coefficients used are presented in **Chapter 3**, while the number of animals for 2006 is presented in **Table 6.1**. No horses, mules and asses are reported by the Statistical Service, thus it is assumed that their population is 0.

Table 6.1. Animal population for 2006.

	Dairy Cattle	Other Cattle	Poultry	Sheep	Pigs	Goats
2006 population	23,931	32,178	3,600,000	272,192	452,644	344,929

6.2.1. Methodological Issues – for 3(1)f

For the estimation of the emissions, the method Tier 1 proposed by IPCC [1] was applied. The emission coefficients used per animal are presented in **Table 6.2.**

Table 6.2. CH_4 emission coefficients from enteric fermentation (IPCC [1])

Animal	Enteric fermentation (kg CH_4 / animal/ year)	Comments
Dairy Cattle	100	EC used 4500 kg/ animal/ year[1]
Cattle	48	EC used same as for W. Europe
Poultry	NE[3]	EC used same as for W. Europe
Pigs	1.5	EC used same as for W. Europe
Sheep	8	EC used same as for W. Europe
Goats	5	EC used same as for W. Europe

[1] EC = Emission Coefficient
[2] For western countries the emission coefficient is 4200 kg CH_4 / animal/ year
[2] NE = Not Estimated

6.3. Manure Management

The total emissions for 1990 – 2006 from Manure Management are presented in Figure 6.3. the numbers of animals used are as Table 6.1.

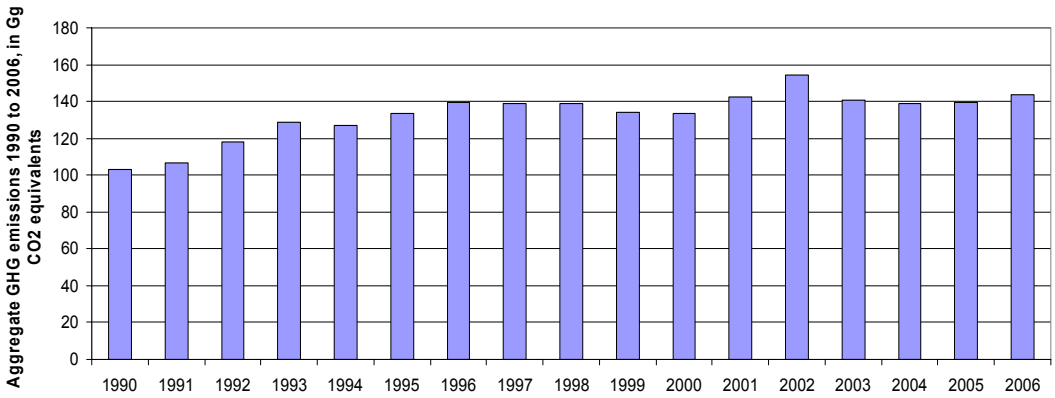

Figure 6.3. Aggregate GHG emissions from Manure Management from 1990 to 2006, in Gg CO_2 equivalents

6.3.1. Methodological Issues – for 3(1)f

For the estimation of the emissions, the method Tier 1 proposed by IPCC [1] was applied. The emission coefficients used per animal are presented in **Table 6.3.**

Table 6.3. CH_4 emission coefficients from animal wastes management (IPCC [1])

Animal	Animal waste management (kg CH_4 / animal/ year)	Comments
Dairy Cattle	44	EC for W. Europe and temperate climate (15 – 25 °C)
Cattle	20	EC for W. Europe and temperate climate (15 – 25 °C)
Poultry	0.117	EC for developed countries and temperate climate (15 – 25 °C)
Pigs	10	EC for W. Europe and temperate climate (15 – 25 °C)
Sheep	0.28	EC for developed countries and temperate climate (15 – 25 °C)
Goats	0.18	EC for W. Europe and temperate climate (15 – 25 °C)

[1] EC = Emission Coefficient
[2] For western countries the emission coefficient is 4200 kg CH_4 / animal/ year
[2] NE = Not Estimated

The emissions were estimated with the methodology proposed by IPCC [1]. Concerning the animal waste management systems, nitrogen production per animal and the animal waste distribution according to origin and type of system used is presented in Table 6.4.

Table 6.4. Nitrogen production and animal waste distribution according to waste management system

Animal	Nitrogen production (kg N/ animal/ year)	Animal waste management system (%)						
		Anaerobic	Liquid system	Daily Spread	Solid Storage & Dry lot	Pasture Range & Paddock	Used fuel	Other System
Dairy Cattle	70				100%			
Cattle	50				100%			
Poultry	0.6				100%			
Pigs	12					100%		
Sheep	16	32%			68%			
Goats	40				0%	100%		

6.4. Agricultural Soils

Figure 6.4, illustrates the total emissions of the sub-sector from 1990 – 2006.

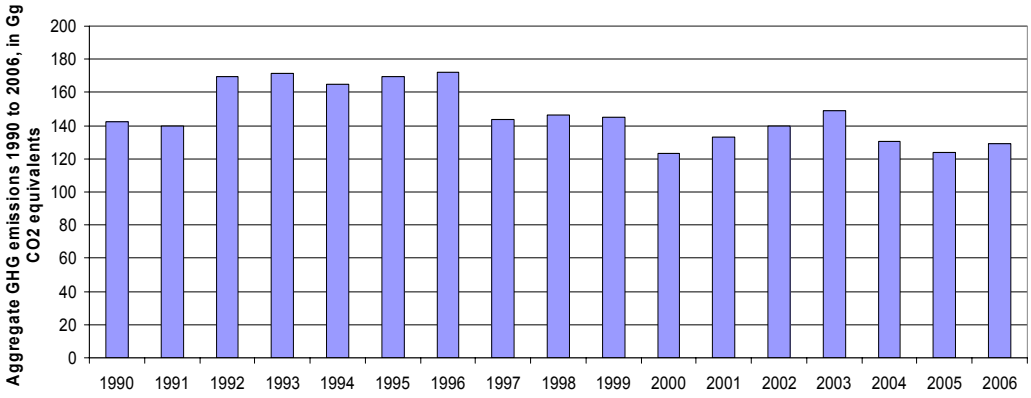

Figure 6.4. Aggregate GHG emissions from Agricultural Soils from 1990 to 2006, in Gg CO_2 equivalents

The quantity of fertilisers and the corresponding amount of nitrogen contained is presented in Table 6.5.

Table 6.5. Nitrogen contained in the fertilisers used for 2006, in ktn

FERTILISER	Bags of 50 kg	tn/y	% N	kg N/y
Ammonium sulphate	41304	2065.2	21%	433,692
Urea	21590	1079.5	46%	496,570
Calcium Ammonium Nitrate	16320	816	26%	212,160
Ammonium nitrate	63748	3187.4	33%	1,051,842
Triple Superphosphate	7700	385	0%	0
Potassium Sulphate	2040	102	0%	0
Mixed:				
13-0-46	13046	652.3	13%	84,799
20-20-0	292026	14601.3	20%	2,920,260
20-10-10	56660	2833	20%	566,600
14-22-9	117820	5891	14%	824,740
14-61-0	620	31	14%	4,340
15-15-6-4	3620	181	15%	27,150
TOTAL		31,825		6,622,153

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 (see Chapter 3). During this inventory, the indirect nitrous oxides were not estimated, nor have the nitrous oxide emissions arising from the combustion of animal wastes.

6.4.1. Methodological Issues – for 3(1)f

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 [1] was applied. The values

used as parameters/ coefficients for the application of the methodology, are presented in **Table 6.6.**

Table 6.6. Parameters used for the calculation of nitrous oxides emissions from agricultural soils

	Parameter	Description	Value	Comments
Composite fertilisers	FR_{GASF}	kg NH_3-N+NO_x-N/kg N in the fertiliser	0.1	Part of the composite fertiliser applied to land volatilising to NH_3 and NO_x
N-fixing crops & agricultural residuals		% humidity in the produced agricultural product	15%	Used for the estimation of dry biomass
	FR_{NCRO}	kg N/ kg dry biomass	0.015	
	FR_{NCRBF}	kg N/ kg dry biomass	0.03	
	FR_R		0.45	% removed from the field as final product of the crop
	FR_{BURN}		0.5	% of agricultural residuals burnt onsite
	EF_1	kg N_2O-N/kg N	0.0125	Emissions coefficient for direct emissions
Manure used on land as soil improver	FR_{FUEL}	kg N/kg produced nitrogen	0	% of manure used as fuel
	FR_{GRAZ}	kg N/kg produced nitrogen		According to the management system used (**Table 6.2**)
	FR_{GASM}	kg NH_3-N and NO_x-N/kg produced nitrogen	0.2	Part of the nitrogen volatilising to NH_3 and NO_x

6.5. Field burning of agricultural residuals

Figure 6.5, illustrates the total emissions arising from field burning of agricultural residuals for 1990 – 2006.

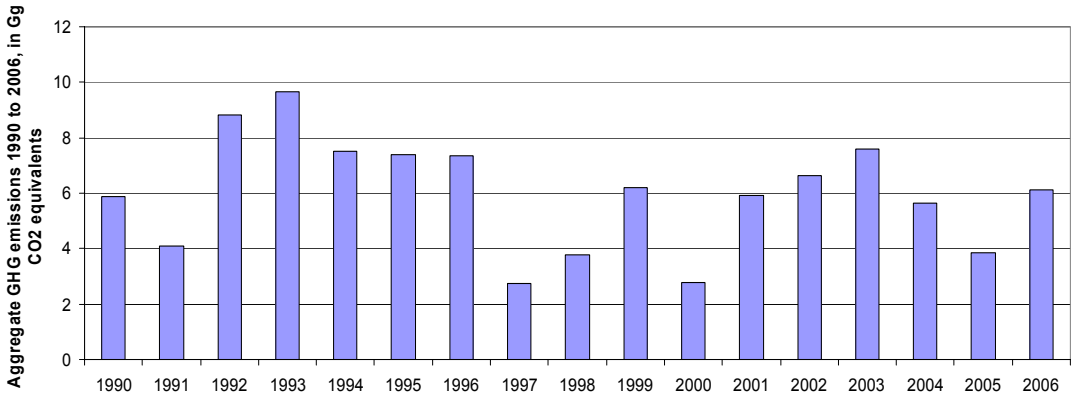

Figure 6.5. Aggregate GHG emissions from Field burning of agricultural residuals for 1990 to 2006, in Gg CO2 equivalents

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

the amount of wastes burnt. The assumptions and emissions coefficients used are presented in Chapter 3.

6.5.1. Methodological Issues – for 3(1)f

The values of parameters/ coefficients used for the estimation of nitrous oxides emissions from field burning of agricultural residuals are presented in Table 6.7.

Table 6.7. Parameters/ coefficients used for estimation of nitrous oxides emissions from field burning of agricultural residuals

Crop		Wheat	Barley	Oat	Beans	Lentil	Potatoes
Residual/ product		1.3	1.2	1.3	2.1	1.5	0.4
Dry biomass (tn dry biomass/ tn biomass)		0.83	0.83	1	1	1	0.45
% burnt onsite		50%	50%	50%	50%	50%	50%
% oxidised		90%	90%	90%	90%	90%	90%
C content in residual (tn C / tn dry biomass)		0.4853	0.4567	0.45	0.45	0.45	0.4226
N/C ratio		0.012	0.015	0.015	0.015	0.015	0.015
Specific emission coefficient	CH_4	0.01	0.01	0.01	0.01	0.01	0.01
	CO	0.1	0.1	0.1	0.1	0.1	0.1
	N_2O	0.01	0.01	0.01	0.01	0.01	0.01
	NO_x	0.12	0.12	0.12	0.12	0.12	0.12

6.6. Changes in previously submitted data – for 3(1)e / Recalculations – for 3(1)f

For the emissions from agricultural soils, the amounts of fertilisers used were assumed constant for 1998-2005. In the new submission of 2008, the correct data is used for the estimation of emissions. The differences between data sets are presented in Annex IV.

Moreover, recalculations have been performed due to the introduction of the previously submitted data to the CRF reporter software. Considerable differences have been found in comparison to previous submissions for the estimations of certain years. New estimations of the emissions for 1990 – 2006 are presented in Table 6.8 compared to previously submitted data.

Table 6.8. Emissions from the sector of agriculture as submitted in 2008 and 2007

	2008 subm. (Gg)	2007 subm. (Gg)	2008 Vs 2007 (%)
1990	410.0	570.6	-39.19
1991	411.9	573.4	-39.23
1992	458.7	621.6	-35.52
1993	478.2	645.2	-34.91
1994	470.6	639.5	-35.89
1995	488.4	663.5	-35.85
1996	499.4	684.6	-37.07
1997	463.5	666.0	-43.69
1998	458.9	671.7	-46.39
1999	454.0	666.9	-46.88
2000	434.4	671.8	-54.67
2001	471.1	695.6	-47.65
2002	501.7	718.4	-43.21
2003	457.7	721.8	-57.68
2004	445.0	671.7	-50.96
2005	445.6	671.7	-50.74
2006	449.9		

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

Under the application of the new Cypriot legislations, 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.

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

7.1. Overview of sector

The total aggregate emissions of the sector are shown in the Figure 7.1.

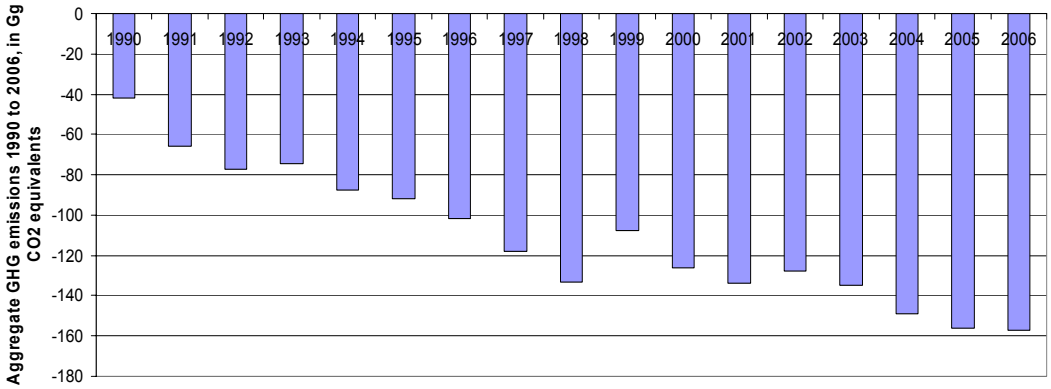

Figure 7.1. Aggregate GHG emissions from LULUCF sector from 1990 to 2006, in Gg CO_2 equivalents

7.2. Changes in forest and other woody biomass stocks

The extent of forest land for 2006 was 174.7 kHa, corresponding to 18.9% of the total area of the country. Other area covered by trees was 26 kHa, whereas other wooded land was 214 kHa. 2006 data is based on the data provided by the Department of Forests in 2007.

Concerning the annual rate of increase for Pinus brutia, the total rate estimated for the forests inventory of 1991-1992 using consecutive measurements was 1.08 m^3/Ha as provided by the Department of Forests; this value was used for the years 1990-1998, while for later years of the inventory the values reported by the Department of Forests in 2005 were used. Considering a conversion coefficient of 0.5 tn dry biomass/ m^3 [IPCC, 1996], the rate of woody biomass stock increase for Pinus bruntia is 0.57 t dry biomass/ Ha. The assumption is that this rate is the same for other pine trees that only make up a small part of the forests. The annual rate of increase for broadleaved trees was also estimated from data of the Forest Department; 0.53 t dry biomass/ Ha.

The Carbon stock change in living biomass was assumed to be 44.92 Gg C, resulting to 165.95 Gg CO_2 removals in 2006.

7.2.1. Methodological Issues – for 3(1)f

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. Forest and Grassland conversion

The only conversion of forest taking place in Cyprus is forest fires. According to the Department of Forests, the area burnt during 2006 is approximately 1200 Ha.

7.3.1. Methodological Issues – for 3(1)f

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]

GHG	NOx	CO	CH_4	NMVOCs	SO_2	CO_2	N_2O
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 particular changes have been made since August 2007 when the respond to Reason Opinion of Infringement no. 2006/2165 was submitted to the European Commission.

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.

8. Waste (CRF sector 6)

8.1. Overview of sector

As it shall be mentioned later in the chapter, new estimations on the emissions of this sector have been made in the 2008 submission. These include the correction of activity values used for the estimation of the emissions for 1998 – 2005. Consequently, the emissions of the sector change as shown in the Figure 8.1 for the total of the sector.

No incineration is currently used in Cyprus for treatment of waste other that abattoir waste. Moreover, the sludge arising from the treatment of municipal and/or industrial treatment has not been considered for GHG emissions inventory.

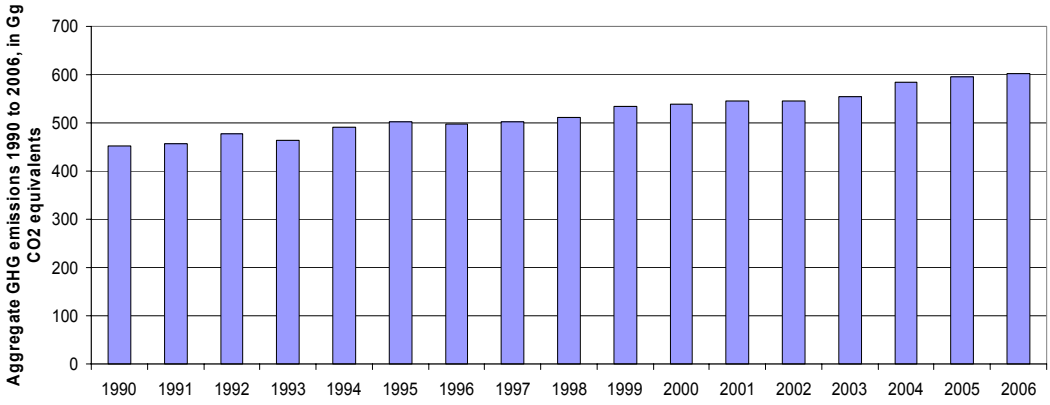

Figure 8.1. Aggregate GHG emissions from Waste sector from 1990 to 2006, in Gg CO_2 equivalents

8.2. Solid Waste

The emissions arising from solid waste disposal on land (Figure 8.2) are estimated on the basis of waste production and type of management, based on the methodology proposed by UNFCCC [1].

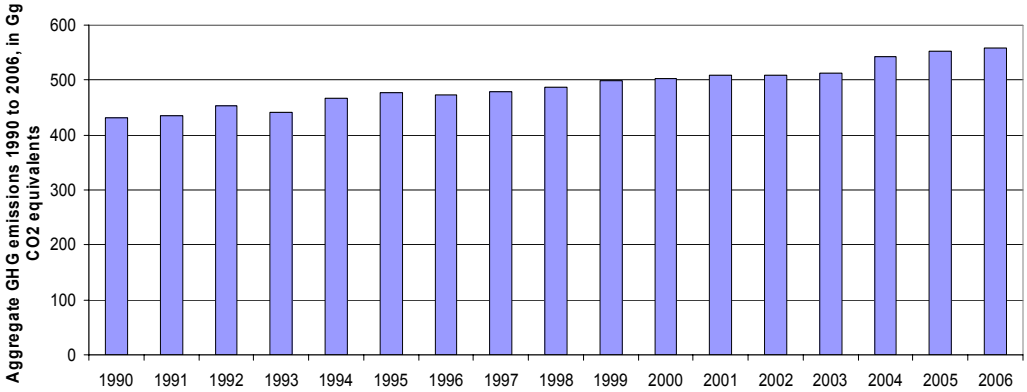

Figure 8.2. Aggregate GHG emissions from solid waste disposal on land from 1990 to 2006, in Gg CO2 equivalents

The solid waste production indicator was 1.1-1.3 kg/ capita/ day for the permanent population and 1.93 – 2.2 kg/capita/day for the tourists, and this was further distinguished according to the area. The waste quantities estimated to have been produced during 2006 by the permanent residents, tourists, industrial and commercial activity are shown in Table 8.1.

Table 8.1. Solid waste production for 2006 according to production category

	Nicosia	Ammochostos	Larnaca	Limassol	Pafos	TOTAL
Permanent residents (tn)	142,080	19,894	60,191	103,449	34,653	360,267
Tourists (tn)	820	4,340	2,247	11,655	10,375	29,436
Industrial/ others (tn)	26,200	4,000	11,100	23,229	5,500	70,029
TOTAL WASTE PRODUCED (tn)	169,100	28,234	73,538	138,333	50,527	459,732

The mean composition of the solids wastes for 2006 was calculated and the respective amounts of waste produced per material for 2006 have been thus estimated (Table 8.2).

Concerning the percent of solid waste disposed in controlled/organised landfills, it was assumed that the landfills of Nicosia and Limassol are fulfilling the requirements. Therefore, approximately 66% of the produced solid wastes are disposed to organised disposal sites.

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.

Table 8.2. Mean composition of solid wastes produced and composition of solid wastes produced for 2006

MATERIAL	Mean 2006 composition	2006 production (tn)
Plastic	6.9%	31,755
Aluminium	0.7%	3,142
Other metals	2.6%	12,108
Paper	14.6%	67,014
Glass	1.4%	6,284
Wood	1.4%	6,463
Compostables	41.4%	190,466
Fabrics	1.8%	8,242
Cardboard	8.0%	36,691
Construction materials	0.7%	3,079
Garden wastes	9.9%	45,402
Other material	10.7%	49,086
TOTAL	**100%**	**459,732**

Of these inert	*5.2%*	*23,813*

8.2.1. Methodological Issues – for 3(1)f

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_F: 0.6
- *F*: 50%
- L_0: 0.072 for organised disposal sites, and 0.029 for non-organised disposal sites
- *R*: 0
- *OX*: 0

8.3. Wastewater handling

The total emissions arising from wastewater handling are presented in Figure 8.3.

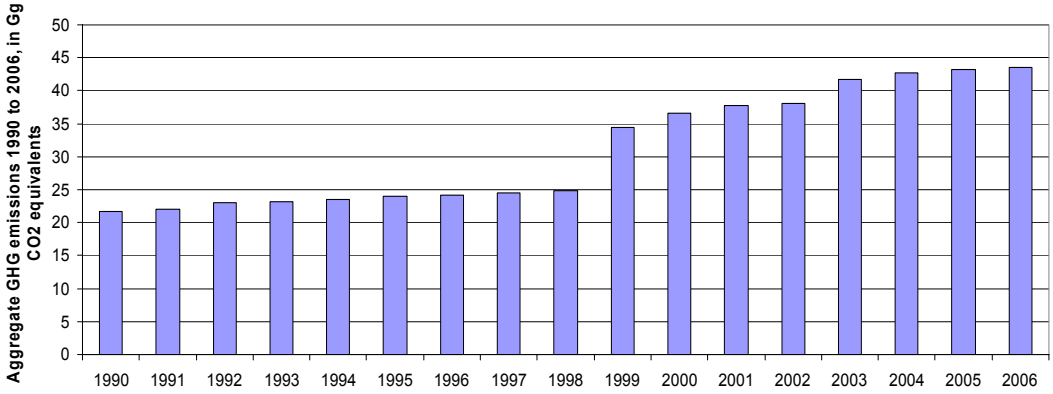

Figure 8.3. Aggregate GHG emissions from wastewater handling from 1990 to 2006, in Gg CO_2 equivalents

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 (**Tables 8.1**). It was assumed that the part of municipal wastewater subjected to aerobic treatment was constant; the value of 70% was used.

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 8.3**.

It should be noted here, that the industrial production used for 2006 was the values of 2005, since no data is yet available for the industrial production of 2006 by the Statistical Service.

Table 8.3. Volume of industrial wastewater produced and Chemical oxygen demand (COD) for industrial wastewaters for 2006

	PRODUCT	Wastewater Volume produced in 2006 (m^3)	COD (kg)
REFRESHMENTS	Alcohol	17,407	191,477
	Beer	188,535	546,752
	Wine	684,572	1,026,858
	Refreshments	286,436	572,872
	Fruit juices	730,040	3,650,200
FOOD	Canned fruits	24,500	122,500
	Canned vegetables	17,160	85,800
	Tomato paste	8,000	40,000
	Meat	1,001,416	4,105,806
	Poultry	262,093	1,074,581
	Pasteurised milk	211	571
	Fresh creams	3,080	8,316
	Halloumi cheese	17,526	47,320
	Cheese	3,761	10,153
	Butter	2,137	5,770
	Feta cheese	1,679	4,533
	Anari cheese	3,542	9,563
	Yogurt	31,060	83,861
	Ice cream	12,750	34,425
	Olive oil	29,400	1,234,800
	Plant oils	46,717	56,060
	Sugar	33,480	107,136
CHEMICALS	Soap	3,715	4,458
	Detergents	6,500	7,800
	Plastics	8,612	31,886
TOTAL		**3,424,329**	**13,063,479**

8.3.1. Methodological Issues – for 3(1)f

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_5/person/day or else 18250 kg BOD_5/1000 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_4/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_4/kg COD

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

CATEGORY	PRODUCT	Activity unit	m³ wastewater / activity unit	Source	kg COD/m³ wastewater	Source
REFRESHMENTS	Alcohol	m³ alcohol	13	IPCC [1]	11	IPCC [18]
	Beer	m³ 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]

8.4. Changes in previously submitted data – for 3(1)e / Recalculations – for 3(1)f

The estimation of emissions from waste sector in previous submissions was made on the assumption that the population, industrial activity, waste production etc. were

constant at 1998 numbers. The emissions from the waste sector were therefore assumed constant for 1998 – 2005; this has been corrected. Annex IV presents the all data used in previous submissions in comparison to the data corrected for 2008 inventory submission.

In addition, recalculations have been performed due to the introduction of the previously submitted data to the CRF reporter software. Considerable differences have been found in comparison to previous submissions for the estimations of certain years. New estimations of the emissions for 1990 – 2006 are presented in Table 8.5.

Table 8.5. Emissions from the Waste sector as submitted in 2008 and 2007

	2008 subm. (Gg)	2007 subm. (Gg)	2008 Vs 2007 (%)
1990	452.0	433.2	4.14
1991	457.6	440.0	3.85
1992	476.7	461.4	3.22
1993	463.2	465.2	-0.42
1994	490.2	475.4	3.01
1995	501.6	481.1	4.09
1996	496.9	474.0	4.61
1997	502.5	480.5	4.39
1998	511.3	489.3	4.31
1999	533.1	546.5	-2.52
2000	538.7	558.6	-3.68
2001	546.5	580.8	-6.27
2002	545.8	590.8	-8.25
2003	553.9	615.8	-11.17
2004	584.8	630.0	-7.73
2005	596.0	652.8	-9.54
2006	602.0		

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

Recently, data has been made available by the Statistical Service on the amounts and types of waste produced by various industrial sectors, and more recent and accurate data on the waste production is also available from the waste inventory produced by the Environment Service. These shall be taken into account for the inventories to come, for more accurate estimations of waste and therefore emissions. Moreover, data is also available on the type of treatment used for the municipal wastewaters.

9. Indicators – for 3(1)j

As previously mentioned several times, certain 1990-1998 data and emissions have been recalculated. These are also presented here in the indicator table for 2008 submission. It should be noted that the economic denominators have been converted to the new economic variable of Chain Volume Measures of 2000. Therefore indicators for 1990 to 2005 are resubmitted for the 2008 submission (Table 9.1) based on Chain Volume Measures of 2000.

NO OTHER CHANGES HAVE BEEN MADE ON THE INDICATORS ACCORDING TO THE NEW CALCULATIONS.

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

- TRANSPORT C0: no data available on passenger transport by cars
- INDUSTRY A1.1: not applicable
- INDUSTRY C0.1: not applicable
- TRANSPORT B0: no data available on passenger transport by diesel-driven cars
- TRANSPORT B0: no data available on passenger transport by petrol-driven cars
- TRANSPORT C0: no data available on passenger transport by cars
- TRANSPORT E1: no domestic flights in Cyprus
- HOUSEHOLDS A0: no data available on surface area covered by dwellings
- SERVICES B0: no data available on surface area covered by service buildings

Table 9.1. Priority, additional and supplementary Indicators according to Annex II table of the Decision with 2007 submission data (change on the economic variables)

	No.	Nomenclature in Eurostat energy efficiency indicators	Indicator	Numerator/denominator	1990		1991		1992		1993		1994		1995		1996		1997		1998		1999		2000		2001		2002		2003		2004		2005		2006
PRIORITY	1	MACRO	Total CO2 intensity of GDP, t/Mio EUR	Total CO2 emissions, kt		4617.70		4688.60		5204.20		5500.40		5503.80		5499.80		5779.40		5830.00		6267.34		6345.20		6715.70		6620.40		7012.20		7328.70		7622.70		7667.40		7993.63907
				GDP, Bio Euro (EC95)										671.08	8.20	692.40	8.35	682.44	8.54	698.41	8.97	674.40	9.41	679.51	9.88	644.20	10.28	668.26	10.49	685.36	10.69	684.12	11.14	661.99	11.58	663.33	12.05
	2	MACRO B0	Energy related CO2 intensity of GDP, t/Mio EUR	CO2 emissions from energy consumption, kt		4067.37		4165.03		4696.28		5005.85		5042.64		5058.19		5350.01		5472.87		5779.95		5886.58		6125.30		6044.52		6382.82		6609.87		6846.60		6881.67		7247.46153
				GDP, Bio Euro (EC95)										617.20	8.20	640.96	8.35	640.63	8.54	644.10	8.97	625.65	9.41	619.78	9.88	588.16	10.28	608.28	10.49	618.14	10.69	614.46	11.14	594.15	11.58	601.41	12.05
	3	TRANSPORT C0	CO2 emissions from passenger cars, kt	AVAILABLE																																
			Number of kilometres by passenger cars, Mkm																																	
	4	INDUSTRY A1	Energy related CO2 intensity of industry, t/Mio EUR	CO2 emissions from industry, kt		770.23		798.33		828.98		924.52		820.07		894.20		1003.41		903.41		886.29		421.33		573.90		598.83		576.41		551.12		524.66		748.59		900.74813
				Gross value-added total industry, Bio EUR (EC95)	1071.78	0.72	1053.86	0.76	997.02	0.83	1095.02	0.84	901.67	0.91	984.48	0.91	1132.90	0.89	1015.75	0.89	985.42	0.90	468.04	0.90	634.56	0.90	665.07	0.90	634.67	0.91	593.24	0.93	558.56	0.94	804.07	0.93	960.80	0.94
	5	HOUSEHOLDS A.1	Specific CO2 emissions of households, t/dwelling	CO2 emissions from fossil fuel consumption households, kt		202.43		204.29		240.22		244.62		241.54		257.62		266.14		278.20		285.38		286.34		287.27		289.03		290.76		292.49		294.24		370.10		349.294464
				Stock of permanently occupied dwellings, 1000		157.33		161.92	1.45	165.79		172.65	1.34	179.81	1.38	186.62	1.38	192.87	1.40	199.41	1.38	206.22	1.35	211.88	1.32	217.90	1.30	222.39	1.27	228.25	1.25	233.94	1.22	242.10	1.44	256.60	1.30	268.10
	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		182.20		182.26		212.88		220.71		221.02		237.18		245.69		256.72		266.52		263.22		260.47		254.75		248.96		243.24		237.53		190.64		342.541754
				Gross value-added services, Bio Euro (EC95)										861.22	0.28	862.07	0.29	832.70	0.31	809.11	0.33	781.76	0.34	721.92	0.36	675.19	0.38	644.47	0.39	618.46	0.39	589.84	0.40	465.09	0.41	811.33	0.42
	7	TRANSFORMATION B0	Specific CO2 missions of public and autoproducer power plants, t/TJ	CO2 emissions from public and autoproducer thermal power stations, kt		1663.72		1725.55		2013.07		2148.38		2241.64		2061.80		2181.65		2399.89		2533.49		2733.59		2864.72		2797.10		3220.55		3449.84		3691.28		3463.00		4429.41005
				All products — output by public and autoproducer thermal power stations, PJ	73.10	22.76	72.99	23.64	73.58	27.36	73.57	29.20	73.29	30.59	73.08	28.21	73.44	29.71	76.32	31.44	73.47	34.48	73.12	37.39	73.39	39.03	73.16	38.23	73.57	43.78	74.21	46.49	76.27	48.40	76.35	45.36	95.03	46.61
ADDITIONAL	1	TRANSPORT D0	CO2 emissions from freight transport on road, kt																											309.24		330.53		349.08		
			Freight transport on road, Mtkm																											1370.10		1100.20		1773.80		1143.6
	2	INDUSTRY A1.1	Total CO2 intensity — iron and steel industry, t/Mio EUR	Total CO2 emissions from iron and steel, kt	APPLICABLE																															
				Gross value-added iron and steel industry, Bio Euro (EC95)																																	
	3	INDUSTRY A1.2	Energy related intensity — chemical industry, t/Mio EUR	Energy related CO2 emissions chemical industries, kt		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		4.64		2.90		0.00		6.30775542
				Gross value-added chemical industry, Bio Euro (current prices)	0.21	51.34	0.17	59.06	0.17	65.04	0.15	72.40	0.14	78.61	0.13	83.72	0.14	81.66	0.28	40.59	0.26	44.57	0.11	50.00	0.08	60.04	0.07	59.54	0.10	58.71	0.08	57.92	0.04	66.48	0.00	68.09	0.09	73.42
	4	INDUSTRY A1.3	Energy related CO2 intensity — glass, pottery and building materials industry, t/Mio EUR	Energy related CO2 emissions glass, pottery and building materials, kt		570.72		570.35		566.55		547.85		530.82		514.95		513.48		458.04		604.61		575.84		707.60		693.09		746.54		836.00		893.30		902.90		722.258
				Gross value-added — glass, pottery and buildings materials industry, Bio Euro (current prices)	10081.69	0.06	9797.55	0.06	9020.06	0.06	7806.15	0.07	663.42	0.80	6111.67	0.08	5920.01	0.09	5372.56	0.09	7245.20	0.08	6527.15	0.09	7035.40	0.10	6515.70	0.11	6183.49	0.12	6375.54	0.13	5554.17	0.16	5244.56	0.17	3966.99	0.18
	5	INDUSTRY C0.1	Specific CO2 emissions of iron and steel industry, t/t	Total CO2 emissions from iron and steel, kt	APPLICABLE																															
				Production of oxygen steel, kt																																	
	6	INDUSTRY C0.2	Specific energy related CO2 emissions of cement industry, t/t	Energy related CO2 emissions from glass, pottery and building materials, kt		570.72		570.35		566.55		547.85		530.82		514.95		513.48		458.04		604.61		575.84		707.60		693.09		746.54		836.00		893.30		902.90		722.258
				Cement production, kt	0.50	1132.87	0.50	1133.72	0.50	1127.72	0.50	1089.37	0.50	1053.05	0.50	1023.53	0.50	1021.25	0.50	909.29	0.50	1203.77	0.50	1146.46	0.50	1409.98	0.50	1377.15	0.50	1479.41	0.50	1658.77	0.50	1772.68	0.50	1793.80	0.47	1541.38
SUPPLIMENTARY	1	TRANSPORT B0	Specific petrol related CO2 emissions of passenger cars, g/100 km	CO2 emissions from diesel-driven passenger cars, kt	AVAILABLE																															
				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	AVAILABLE																															
				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	AVAILABLE																															
				Passenger transport by cars, Mpkm																																	
	4	TRANSPORT E1	Specific air-transport emissions, t/ passenger	CO2 emissions from domestic air transport, kt	DOMESTIC FILGHTS IN																															
				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		2320.95		2097.55		2288.82		2331.57		2211.27		2306.09		2314.92		2292.85		2355.53		1285.82		1649.93		1815.19		2243.80		2014.04		1683.73		1714.03		42.5577167
				Gross value-added — food, drink and tobacco industry, Mio EUR	13.80	168.22	12.00	174.73	10.97	208.69	10.80	215.84	9.31	237.55	8.91	258.86	8.54	271.17	7.97	287.79	7.59	310.24	3.87	332.20	4.68	352.33	4.75	382.47	5.62	399.55	4.82	417.92	3.63	463.71	3.64	470.39	0.01	3806.78
	6	INDUSTRY A1.5	Energy related CO2 intensity — paper and printing industry, t/Mio EUR	Energy related CO2 emissions paper and printing, kt		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		96.24		47.65		0.00		4.90657346
				Gross value-added — paper and printing industry, Mio EUR	7.31	42.14	6.87	43.39	6.81	50.04	7.29	49.24	6.59	54.52	6.91	55.83	6.60	60.34	6.21	66.34	6.17	70.04	0.82	72.18	1.25	79.00	1.23	80.43	0.69	84.18	1.09	87.95	0.51	92.97	0.00	92.83	0.05	99.96
	7	HOUSEHOLDS A0	Specific CO2 emissions of households for space heating, kg/m2	CO2 emissions from space heating in households, kt	AVAILABLE																															
				Surface area of permanently occupied dwellings, Mio m2																																	
	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	AVAILABLE																															
				Surface area of services buildings, Mio m2	SURFACE																															
	9	TRANSFORMATION D0	Specific CO2 emissions of public power plants, t/TJ	CO2 emissions from public thermal power stations, kt		1663.72		1725.55		2013.07		2148.38		2241.64		2061.80		2181.65		2305.42		2533.49		2733.55		2864.72		2797.10		3220.55		3444.24		3675.14		3444.37		3653.38
				All products output by public thermal power stations, PJ	76.60	21719.53	76.60	22526.77	76.55	26296.90	76.58	28052.25	76.59	29267.35	76.56	26931.67	76.57	28492.08	76.57	30107.52	76.55	33095.73	76.55	35709.30	76.55	37422.93	76.55	36539.54	76.55	42071.22	76.55	44993.27	76.55	48009.71	76.55	44995.04	78.38	46610.9338
	10	TRANSFORMATION E0	Specific CO2 emissions of autoproducer plants, t/TJ	CO2 emissions from autoproducers, kt																										8.55		17.11		17.11				776.030046
				All products output by autoproducer thermal power stations, PJ																									0.18	47.30	0.18	94.61	0.18	94.61	0.96			804.578112
	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		2864.72		2797.10		3220.55		3449.84		3691.28		3463.00		4429.41
				All products output by public and autoproducer power stations, PJ	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	76.55	37.42	76.55	36.54	76.55	42.07	76.67	44.99	76.89	48.01	76.96	45.00	0.09	47415.51
	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		1730.77		1743.37		1735.60		1820.14		1997.37		2043.24		2030.86145
				Total final energy consumption from transport, PJ	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	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		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		96.24		47.65		0.00		4.90657346
				Physical output of paper, kt																																	
	14	INDUSTRY	CO2 emissions from the industry sector, kt			770.23		798.33		828.98		924.52		820.07		894.20		1003.41		903.41		886.29		421.33		573.90		598.83		576.41		551.12		524.66		748.59		900.74813
			Total final energy consumption from industry, PJ			11.93		11.58		12.01		13.28		12.18		12.71		13.93		13.01		13.34		6.45		8.80		9.17		8.74		8.38		8.03		9.87		17.8085704
	15	HOUSEHOLDS	CO2 emissions from households, kt			202.43		204.29		240.22		244.62		241.54		257.62		266.14		278.20		285.38		286.34		287.27		289.03		290.76		292.49		294.24		370.10		349.29464
			Total final energy consumption from households, PJ			3.29		3.32		3.84		3.88		3.83		4.06		4.18		4.34		4.43		4.45		4.46		4.49		4.51		4.54		4.92		5.17		5.4155002

* as required

*** Chain Volume Measures of 2000**

- physical output of paper from paper and printing industry recorded in items and not in kt

** provisional data

*current prices

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ANNEX I: Common Reporting Format (CRF) Summary tables

SUMMARY 2 SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [(1)]	CH_4	N_2O	HFCs [(2)]	PFCs [(2)]	SF_6 [(2)]	Total
	CO_2 equivalent (Gg)						
Total (Net Emissions) [(1)]	**4,600.15**	**725.95**	**519.98**	**NA,NE**	**NA**	**NA**	**5,846.08**
1. Energy	**4,067.37**	**8.84**	**375.18**				**4,451.39**
A. Fuel Combustion (Sectoral Approach)	4,067.37	8.34	375.18				4,450.89
1. Energy Industries	1,736.97	0.42	316.20				2,053.59
2. Manufacturing Industries and Construction	770.23	0.78	21.78				792.79
3. Transport	957.05	6.72	12.40				976.17
4. Other Sectors	603.12	0.42	24.80				628.34
5. Other	NA	NA	NA				NA
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	0.50	NA				0.50
2. Industrial Processes	**572.23**	**NA**	**NA**	**NA,NE**	**NA**	**NA**	**572.23**
A. Mineral Products	572.23	NA	NA				572.23
B. Chemical Industry				NA	NA	NA	NA
C. Metal Production	NA	NA	NA	NA	NA	NA	NA
D. Other Production							
E. Production of Halocarbons and SF_6				NA	NA	NA	NA
F. Consumption of Halocarbons and SF_6 [(2)]				NA,NE	NA	NA	NA,NE
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**2.29**		**NA**				**2.29**
4. Agriculture		**265.16**	**144.80**				**409.95**
A. Enteric Fermentation		158.59					158.59
B. Manure Management		102.23	0.77				103.00
C. Rice Cultivation		NA					NA
D. Agricultural Soils[(3)]		NA	142.47				142.47
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		4.33	1.56				5.89
G. Other		NA	NA				NA
5. Land Use, Land-Use Change and Forestry[(1)]	**-41.73**						**-41.73**
A. Forest Land	-125.22						-125.22
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	83.49						83.49
6. Waste	**NA,NE**	**451.95**	**NA**				**451.95**
A. Solid Waste Disposal on Land	NA,NE	430.21					430.21
B. Waste-water Handling		21.74	NA				21.74
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Memo Items: [(4)]							
International Bunkers	933.55	1.68	15.50				950.73
Aviation	744.81	1.26	6.20				752.27
Marine	188.74	0.42	9.30				198.46
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**NA,NO**						**NA,NO**

Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	5,887.81
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	5,846.08

(1) For CO_2 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 (+).

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

(3) Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

(4) See footnote 8 to table Summary 1.A.

SUMMARY 2 SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Inventory 1991
Submission 2007 v1.6
CYPRUS

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [1]	CH_4	N_2O	HFCs [2]	PFCs [2]	SF_6 [2]	Total
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**4,673.65**	**736.76**	**530.53**	**NA,NE**	**NA**	**NA**	**5,940.95**
1. Energy	**4,165.03**	**8.95**	**388.92**				**4,562.89**
A. Fuel Combustion (Sectoral Approach)	4,165.03	8.34	388.92				4,562.29
1. Energy Industries	1,804.34	0.42	328.60				2,133.36
2. Manufacturing Industries and Construction	798.33	0.78	23.12				822.23
3. Transport	955.26	6.72	12.40				974.38
4. Other Sectors	607.09	0.42	24.80				632.31
5. Other	NA	NA	NA				NA
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	0.60	NA				0.60
2. Industrial Processes	**572.05**	**NA**	**NA**	**NA,NE**	**NA**	**NA**	**572.05**
A. Mineral Products	572.05	NA	NA				572.05
B. Chemical Industry				NA	NA	NA	NA
C. Metal Production	NA	NA	NA	NA	NA	NA	NA
D. Other Production							
E. Production of Halocarbons and SF_6				NA	NA	NA	NA
F. Consumption of Halocarbons and SF_6 [2]				NA,NE	NA	NA	NA,NE
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**2.35**		**NA**				**2.35**
4. Agriculture		**270.25**	**141.61**				**411.87**
A. Enteric Fermentation		161.13					161.13
B. Manure Management		106.12	0.82				106.93
C. Rice Cultivation		NA					NA
D. Agricultural Soils [3]		NA	139.71				139.71
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		3.00	1.08				4.09
G. Other		NA	NA				NA
5. Land Use, Land-Use Change and Forestry [1]	**-65.77**						**-65.77**
A. Forest Land	-130.54						-130.54
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	64.76						64.76
6. Waste	**NA,NE**	**457.56**	**NA**				**457.56**
A. Solid Waste Disposal on Land	NA,NE	435.46					435.46
B. Waste-water Handling		22.10	NA				22.10
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Memo Items: [4]							
International Bunkers	752.10	1.47	12.40				765.97
Aviation	575.58	1.05	3.10				579.73
Marine	176.52	0.42	9.30				186.24
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**NA,NO**						**NA,NO**

Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	6,006.72
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	5,940.95

(1) For CO_2 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 (+).

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

(3) Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

(4) See footnote 8 to table Summary 1.A.

SUMMARY 2 SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [(1)]	CH_4	N_2O	HFCs [(2)]	PFCs [(2)]	SF_6 [(2)]	Total
	CO_2 equivalent (Gg)						
Total (Net Emissions) [(1)]	**5,189.90**	**772.26**	**619.37**	**NA,NE**	**NA**	**NA**	**6,581.53**
1. Energy	**4,696.28**	**9.70**	**446.50**				**5,152.48**
A. Fuel Combustion (Sectoral Approach)	4,696.28	9.13	446.50				5,151.90
1. Energy Industries	2,088.13	0.42	378.20				2,466.75
2. Manufacturing Industries and Construction	828.98	0.94	24.90				854.81
3. Transport	1,067.67	7.35	12.40				1,087.42
4. Other Sectors	711.50	0.42	31.00				742.92
5. Other	NA	NA	NA				NA
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	0.57	NA				0.57
2. Industrial Processes	**568.24**	**NA**	**NA**	**NA,NE**	**NA**	**NA**	**568.24**
A. Mineral Products	568.24	NA	NA				568.24
B. Chemical Industry				NA	NA	NA	NA
C. Metal Production	NA	NA	NA	NA	NA	NA	NA
D. Other Production							
E. Production of Halocarbons and SF_6				NA	NA	NA	NA
F. Consumption of Halocarbons and SF_6 [(2)]				NA,NE	NA	NA	NA,NE
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**2.41**		**NA**				**2.41**
4. Agriculture		**285.82**	**172.87**				**458.69**
A. Enteric Fermentation		162.01					162.01
B. Manure Management		117.34	0.94				118.28
C. Rice Cultivation		NA					NA
D. Agricultural Soils[(3)]		NA	169.60				169.60
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		6.47	2.34				8.81
G. Other		NA	NA				NA
5. Land Use, Land-Use Change and Forestry[(1)]	**-77.03**						**-77.03**
A. Forest Land	-136.18						-136.18
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	59.15						59.15
6. Waste	**NA,NE**	**476.74**	**NA**				**476.74**
A. Solid Waste Disposal on Land	NA,NE	453.76					453.76
B. Waste-water Handling		22.98	NA				22.98
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Memo Items: [(4)]							
International Bunkers	962.34	1.68	15.50				979.52
Aviation	779.75	1.26	6.20				787.21
Marine	182.59	0.42	9.30				192.31
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**NA,NO**						**NA,NO**

Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	6,658.55
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	6,581.53

(1) For CO_2 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 (+).

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

(3) Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

(4) See footnote 8 to table Summary 1.A.

SUMMARY 2 SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [(1)]	CH_4	N_2O	HFCs [(2)]	PFCs [(2)]	SF_6 [(2)]	Total
	CO_2 equivalent (Gg)						
Total (Net Emissions) [(1)]	**5,483.22**	**775.66**	**660.46**	**NA,NE**	**NA**	**NA**	**6,919.34**
1. Energy	**5,005.85**	**9.64**	**485.04**				**5,500.53**
A. Fuel Combustion (Sectoral Approach)	5,005.85	9.02	485.04				5,499.91
1. Energy Industries	2,229.69	0.42	406.10				2,636.21
2. Manufacturing Industries and Construction	924.52	1.04	29.34				954.91
3. Transport	1,109.98	7.14	15.50				1,132.62
4. Other Sectors	741.66	0.42	34.10				776.18
5. Other	NA	NA	NA				NA
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	0.62	NA				0.62
2. Industrial Processes	**549.49**	**NA**	**NA**	**NA,NE**	**NA**	**NA**	**549.49**
A. Mineral Products	549.49	NA	NA				549.49
B. Chemical Industry				NA	NA	NA	NA
C. Metal Production	NA	NA	NA	NA	NA	NA	NA
D. Other Production							
E. Production of Halocarbons and SF_6				NA	NA	NA	NA
F. Consumption of Halocarbons and SF_6 [(2)]				NA,NE	NA	NA	NA,NE
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**2.45**		**NA**				**2.45**
4. Agriculture		**302.83**	**175.42**				**478.25**
A. Enteric Fermentation		168.22					168.22
B. Manure Management		127.50	1.02				128.52
C. Rice Cultivation		NA					NA
D. Agricultural Soils[(3)]		NA	171.84				171.84
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		7.10	2.57				9.67
G. Other		NA	NA				NA
5. Land Use, Land-Use Change and Forestry[(1)]	**-74.57**						**-74.57**
A. Forest Land	-142.19						-142.19
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	67.61						67.61
6. Waste	**NA,NE**	**463.20**	**NA**				**463.20**
A. Solid Waste Disposal on Land	NA,NE	440.07					440.07
B. Waste-water Handling		23.13	NA				23.13
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Memo Items: [(4)]							
International Bunkers	886.39	1.68	15.50				903.57
Aviation	730.69	1.26	6.20				738.15
Marine	155.70	0.42	9.30				165.42
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**NA,NO**						**NA,NO**

Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	6,993.92
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	6,919.34

(1) For CO_2 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 (+).

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

(3) Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

(4) See footnote 8 to table Summary 1.A.

SUMMARY 2 SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [1]	CH_4	N_2O	HFCs [2]	PFCs [2]	SF_6 [2]	Total
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**5,489.97**	**802.82**	**670.66**	**0.00**	**NA**	**NA**	**6,963.46**
1. Energy	**5,042.64**	**9.85**	**502.82**				**5,555.31**
A. Fuel Combustion (Sectoral Approach)	5,042.64	9.14	502.82				5,554.60
1. Energy Industries	2,334.98	0.42	424.70				2,760.10
2. Manufacturing Industries and Construction	820.07	0.95	25.42				846.44
3. Transport	1,140.16	7.14	18.60				1,165.90
4. Other Sectors	747.43	0.63	34.10				782.16
5. Other	NA	NA	NA				NA
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	0.71	NA				0.71
2. Industrial Processes	**532.40**	**NA**	**NA**	**0.00**	**NA**	**NA**	**532.40**
A. Mineral Products	532.40	NA	NA				532.40
B. Chemical Industry				NA	NA	NA	NA
C. Metal Production	NA	NA	NA	NA	NA	NA	NA
D. Other Production							
E. Production of Halocarbons and SF_6				NA	NA	NA	NA
F. Consumption of Halocarbons and SF_6 [2]				0.00	NA	NA	0.00
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**2.49**		**NA**				**2.49**
4. Agriculture		**302.76**	**167.84**				**470.60**
A. Enteric Fermentation		171.10					171.10
B. Manure Management		126.13	0.98				127.12
C. Rice Cultivation		NA					NA
D. Agricultural Soils [3]		NA	164.86				164.86
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		5.52	2.00				7.52
G. Other		NA	NA				NA
5. Land Use, Land-Use Change and Forestry [1]	**-87.56**						**-87.56**
A. Forest Land	-148.61						-148.61
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	61.05						61.05
6. Waste	**NA,NE**	**490.22**	**NA**				**490.22**
A. Solid Waste Disposal on Land	NA,NE	466.68					466.68
B. Waste-water Handling		23.54	NA				23.54
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Memo Items: [4]							
International Bunkers	939.21	1.68	15.50				956.39
Aviation	748.34	1.26	6.20				755.80
Marine	190.87	0.42	9.30				200.59
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**NA,NO**						**NA,NO**

Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	7,051.01
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	6,963.46

[1] For CO_2 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 (+).

[2] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[3] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[4] See footnote 8 to table Summary 1.A.

SUMMARY 2 SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [(1)]	CH_4	N_2O	HFCs [(2)]	PFCs [(2)]	SF_6 [(2)]	Total
	CO_2 equivalent (Gg)						
Total (Net Emissions) [(1)]	**5,485.40**	**827.80**	**644.31**	**NA,NE**	**NA**	**NA**	**6,957.51**
1. Energy	**5,058.19**	**10.30**	**471.79**				**5,540.28**
A. Fuel Combustion (Sectoral Approach)	5,058.19	9.65	471.79				5,539.63
1. Energy Industries	2,153.44	0.42	387.50				2,541.36
2. Manufacturing Industries and Construction	894.20	1.04	28.49				923.73
3. Transport	1,206.05	7.56	18.60				1,232.21
4. Other Sectors	804.50	0.63	37.20				842.33
5. Other	NA	NA	NA				NA
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	0.65	NA				0.65
2. Industrial Processes	**516.49**	**NA**	**NA**	**NA,NE**	**NA**	**NA**	**516.49**
A. Mineral Products	516.49	NA	NA				516.49
B. Chemical Industry				NA	NA	NA	NA
C. Metal Production	NA	NA	NA	NA	NA	NA	NA
D. Other Production							
E. Production of Halocarbons and SF_6				NA	NA	NA	NA
F. Consumption of Halocarbons and SF_6 [(2)]				NA,NE	NA	NA	NA,NE
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**2.51**		**NA**				**2.51**
4. Agriculture		**315.87**	**172.52**				**488.40**
A. Enteric Fermentation		177.75					177.75
B. Manure Management		132.68	1.03				133.72
C. Rice Cultivation		NA					NA
D. Agricultural Soils[(3)]		NA	169.54				169.54
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		5.44	1.96				7.40
G. Other		NA	NA				NA
5. Land Use, Land-Use Change and Forestry[(1)]	**-91.79**						**-91.79**
A. Forest Land	-155.51						-155.51
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	63.72						63.72
6. Waste	**NA,NE**	**501.63**	**NA**				**501.63**
A. Solid Waste Disposal on Land	NA,NE	477.58					477.58
B. Waste-water Handling		24.04	NA				24.04
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Memo Items: [(4)]							
International Bunkers	1,034.46	2.10	15.50				1,052.06
Aviation	820.33	1.47	6.20				828.00
Marine	214.13	0.63	9.30				224.06
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**NA,NO**						**NA,NO**

Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	7,049.31
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	6,957.51

(1) For CO_2 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 (+).

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

(3) Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

(4) See footnote 8 to table Summary 1.A.

SUMMARY 2 SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [(1)]	CH_4	N_2O	HFCs [(2)]	PFCs [(2)]	SF_6 [(2)]	Total
	CO_2 equivalent (Gg)						
Total (Net Emissions) [(1)]	**5,766.09**	**831.43**	**678.68**	**0.48**	**NA**	**NA**	**7,276.68**
1. Energy	**5,350.01**	**10.47**	**503.37**				**5,863.84**
A. Fuel Combustion (Sectoral Approach)	5,350.01	9.87	503.37				5,863.24
1. Energy Industries	2,268.41	0.42	412.30				2,681.13
2. Manufacturing Industries and Construction	1,003.41	1.26	32.17				1,036.84
3. Transport	1,242.81	7.56	21.70				1,272.07
4. Other Sectors	835.38	0.63	37.20				873.21
5. Other	NA	NA	NA				NA
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	0.60	NA				0.60
2. Industrial Processes	**515.01**	**NA**	**NA**	**0.48**	**NA**	**NA**	**515.49**
A. Mineral Products	515.01	NA	NA				515.01
B. Chemical Industry	NA	NA	NA	NA	NA	NA	NA
C. Metal Production	NA	NA	NA	NA	NA	NA	NA
D. Other Production							
E. Production of Halocarbons and SF_6				NA	NA	NA	NA
F. Consumption of Halocarbons and SF_6 [(2)]				0.48	NA	NA	0.48
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**2.54**		**NA**				**2.54**
4. Agriculture		**324.11**	**175.31**				**499.42**
A. Enteric Fermentation		180.60					180.60
B. Manure Management		138.10	1.10				139.19
C. Rice Cultivation		NA					NA
D. Agricultural Soils[(3)]		NA	172.27				172.27
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		5.41	1.95				7.36
G. Other		NA	NA				NA
5. Land Use, Land-Use Change and Forestry[(1)]	**-101.47**						**-101.47**
A. Forest Land	-162.97						-162.97
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	61.51						61.51
6. Waste	**NA,NE**	**496.86**	**NA**				**496.86**
A. Solid Waste Disposal on Land	NA,NE	472.64					472.64
B. Waste-water Handling		24.21	NA				24.21
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Memo Items: [(4)]							
International Bunkers	1,062.33	2.10	15.50				1,079.93
Aviation	786.21	1.47	6.20				793.88
Marine	276.12	0.63	9.30				286.05
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**NA,NO**						**NA,NO**

Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	7,378.15
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	7,276.68

(1) For CO_2 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 (+).

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

(3) Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

(4) See footnote 8 to table Summary 1.A.

SUMMARY 2 SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [(1)]	CH_4	N_2O	HFCs [(2)]	PFCs [(2)]	SF_6 [(2)]	Total
	CO_2 equivalent (Gg)						
Total (Net Emissions) [(1)]	**5,816.84**	**831.28**	**672.69**	**NA,NE**	**NA**	**NA**	**7,320.81**
1. Energy	**5,472.87**	**10.80**	**527.13**				**6,010.80**
A. Fuel Combustion (Sectoral Approach)	5,472.87	9.97	527.13				6,009.98
1. Energy Industries	2,399.89	0.42	434.00				2,834.31
2. Manufacturing Industries and Construction	903.41	0.94	28.03				932.38
3. Transport	1,293.80	7.98	24.80				1,326.58
4. Other Sectors	875.78	0.63	40.30				916.71
5. Other	NA	NA	NA				NA
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	0.82	NA				0.82
2. Industrial Processes	**459.40**	**NA**	**NA**	**NA,NE**	**NA**	**NA**	**459.40**
A. Mineral Products	459.40	NA	NA				459.40
B. Chemical Industry	NA	NA	NA	NA	NA	NA	NA
C. Metal Production	NA	NA	NA	NA	NA	NA	NA
D. Other Production							
E. Production of Halocarbons and SF_6				NA	NA	NA	NA
F. Consumption of Halocarbons and SF_6 [(2)]				NA,NE	NA	NA	NA,NE
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**2.56**		**NA**				**2.56**
4. Agriculture		**317.95**	**145.55**				**463.51**
A. Enteric Fermentation		178.27					178.27
B. Manure Management		137.65	1.13				138.79
C. Rice Cultivation		NA					NA
D. Agricultural Soils[(3)]		NA	143.70				143.70
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		2.03	0.71				2.74
G. Other		NA	NA				NA
5. Land Use, Land-Use Change and Forestry[(1)]	**-117.99**						**-117.99**
A. Forest Land	-171.10						-171.10
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	53.10						53.10
6. Waste	**NA,NE**	**502.53**	**NA**				**502.53**
A. Solid Waste Disposal on Land	NA,NE	478.02					478.02
B. Waste-water Handling		24.51	NA				24.51
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Memo Items: [(4)]							
International Bunkers	1,079.08	2.10	15.50				1,096.68
Aviation	774.64	1.47	6.20				782.31
Marine	304.44	0.63	9.30				314.37
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**NA,NO**						**NA,NO**

Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	7,438.80
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	7,320.81

(1) For CO_2 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 (+).

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

(3) Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

(4) See footnote 8 to table Summary 1.A.

SUMMARY 2 SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [(1)]	CH_4	N_2O	HFCs [(2)]	PFCs [(2)]	SF_6 [(2)]	Total
	CO_2 equivalent (Gg)						
Total (Net Emissions) [(1)]	**6,255.87**	**832.24**	**720.74**	**NA,NE**	**NA**	**NA**	**7,808.85**
1. Energy	**5,779.95**	**10.59**	**572.19**				**6,362.73**
A. Fuel Combustion (Sectoral Approach)	5,779.95	9.74	572.19				6,361.88
1. Energy Industries	2,631.58	0.42	474.30				3,106.30
2. Manufacturing Industries and Construction	886.29	0.92	26.59				913.80
3. Transport	1,350.04	7.77	27.90				1,385.71
4. Other Sectors	912.04	0.63	43.40				956.07
5. Other	NA	NA	NA				NA
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	0.86	NA				0.86
2. Industrial Processes	**606.41**	**NA**	**NA**	**NA,NE**	**NA**	**NA**	**606.41**
A. Mineral Products	606.41	NA	NA				606.41
B. Chemical Industry	NA	NA	NA	NA	NA	NA	NA
C. Metal Production	NA	NA	NA	NA	NA	NA	NA
D. Other Production							
E. Production of Halocarbons and SF_6				NA	NA	NA	NA
F. Consumption of Halocarbons and SF_6 [(2)]				NA,NE	NA	NA	NA,NE
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**2.59**		**NA**				**2.59**
4. Agriculture		**310.32**	**148.54**				**458.86**
A. Enteric Fermentation		170.02					170.02
B. Manure Management		137.51	1.17				138.68
C. Rice Cultivation		NA					NA
D. Agricultural Soils[(3)]		NA	146.38				146.38
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		2.79	0.99				3.78
G. Other		NA	NA				NA
5. Land Use, Land-Use Change and Forestry[(1)]	**-133.08**						**-133.08**
A. Forest Land	-180.00						-180.00
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	46.92						46.92
6. Waste	**NA,NE**	**511.33**	**NA**				**511.33**
A. Solid Waste Disposal on Land	NA,NE	486.51					486.51
B. Waste-water Handling		24.83	NA				24.83
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Memo Items: [(4)]							
International Bunkers	1,115.35	2.10	15.50				1,132.95
Aviation	799.79	1.47	6.20				807.46
Marine	315.56	0.63	9.30				325.49
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**NA,NO**						**NA,NO**

Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	7,941.93
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	7,808.85

(1) For CO_2 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 (+).

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

(3) Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

(4) See footnote 8 to table Summary 1.A.

SUMMARY 2 SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [1]	CH_4	N_2O	HFCs [2]	PFCs [2]	SF_6 [2]	Total
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**6,356.69**	**849.69**	**746.94**	**0.27**	**NA**	**NA**	**7,953.59**
1. Energy	**5,883.08**	**10.40**	**599.13**				**6,492.61**
A. Fuel Combustion (Sectoral Approach)	5,883.08	9.49	599.13				6,491.70
1. Energy Industries	2,844.93	0.45	511.93				3,357.32
2. Manufacturing Industries and Construction	459.80	0.47	11.92				472.18
3. Transport	1,696.79	7.97	35.27				1,740.03
4. Other Sectors	881.55	0.60	40.01				922.16
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	NA,NE,NO	0.91	NA,NO				0.91
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE	0.91	NA				0.91
2. Industrial Processes	**578.50**	**NA**	**NA**	**0.27**	**NA**	**NA**	**578.77**
A. Mineral Products	578.50	NA	NA				578.50
B. Chemical Industry	NA	NA	NA	NA	NA	NA	NA
C. Metal Production	NA	NA	NA	NA	NA	NA	NA
D. Other Production							
E. Production of Halocarbons and SF_6				NA	NA	NA	NA
F. Consumption of Halocarbons and SF_6 [2]				0.27	NA	NA	0.27
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**2.60**		**NA**				**2.60**
4. Agriculture		**306.20**	**147.81**				**454.01**
A. Enteric Fermentation		168.57					168.57
B. Manure Management		133.08	1.14				134.22
C. Rice Cultivation		NA					NA
D. Agricultural Soils [3]		NA	145.02				145.02
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		4.55	1.65				6.19
G. Other		NA	NA				NA
5. Land Use, Land-Use Change and Forestry [1]	**-107.49**						**-107.49**
A. Forest Land	-156.98						-156.98
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	49.48						49.48
6. Waste	**NA,NE**	**533.09**	**NA**				**533.09**
A. Solid Waste Disposal on Land	NA,NE	498.60					498.60
B. Waste-water Handling		34.49	NA				34.49
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Memo Items: [4]							
International Bunkers	1,267.48	2.06	15.34				1,284.88
Aviation	778.64	1.43	6.04				786.11
Marine	488.84	0.63	9.30				498.77
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**NA,NO**						**NA,NO**

Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	8,061.08
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	7,953.59

[1] For CO_2 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 (+).

[2] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[3] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[4] See footnote 8 to table Summary 1.A.

SUMMARY 2 SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [(1)]	CH_4	N_2O	HFCs [(2)]	PFCs [(2)]	SF_6 [(2)]	Total
	CO_2 equivalent (Gg)						
Total (Net Emissions) [(1)]	**6,689.81**	**858.05**	**748.17**	**0.43**	**NA**	**NA**	**8,296.46**
1. Energy	**6,102.88**	**10.13**	**622.98**				**6,735.99**
A. Fuel Combustion (Sectoral Approach)	6,102.88	9.22	622.98				6,735.08
1. Energy Industries	2,974.64	0.47	536.28				3,511.39
2. Manufacturing Industries and Construction	637.53	0.64	16.54				654.71
3. Transport	1,644.72	7.54	34.21				1,686.48
4. Other Sectors	846.00	0.56	35.95				882.50
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	NA,NE,NO	0.91	NA,NO				0.91
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE	0.91	NA				0.91
2. Industrial Processes	**710.33**	**NA**	**NA**	**0.43**	**NA**	**NA**	**710.76**
A. Mineral Products	710.33	NA	NA				710.33
B. Chemical Industry	NA	NA	NA	NA	NA	NA	NA
C. Metal Production	NA	NA	NA	NA	NA	NA	NA
D. Other Production							
E. Production of Halocarbons and SF_6				NA	NA	NA	NA
F. Consumption of Halocarbons and SF_6 [(2)]				0.43	NA	NA	0.43
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**2.61**		**NA**				**2.61**
4. Agriculture		**309.18**	**125.19**				**434.37**
A. Enteric Fermentation		174.79					174.79
B. Manure Management		132.35	1.11				133.46
C. Rice Cultivation		NA					NA
D. Agricultural Soils[(3)]		NA	123.35				123.35
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		2.05	0.72				2.77
G. Other		NA	NA				NA
5. Land Use, Land-Use Change and Forestry[(1)]	**-126.01**						**-126.01**
A. Forest Land	-158.24						-158.24
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	32.23						32.23
6. Waste	**NA,NE**	**538.74**	**NA**				**538.74**
A. Solid Waste Disposal on Land	NA,NE	502.15					502.15
B. Waste-water Handling		36.59	NA				36.59
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Memo Items: [(4)]							
International Bunkers	1,465.31	2.20	15.90				1,483.41
Aviation	851.82	1.57	6.60				859.99
Marine	613.50	0.63	9.30				623.43
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**NA,NO**						**NA,NO**

Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	8,422.47
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	8,296.46

(1) For CO_2 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 (+).

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

(3) Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

(4) See footnote 8 to table Summary 1.A.

SUMMARY 2 SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [(1)]	CH_4	N_2O	HFCs [(2)]	PFCs [(2)]	SF_6 [(2)]	Total
	CO_2 equivalent (Gg)						
Total (Net Emissions) [(1)]	**6,600.19**	**891.95**	**740.85**	**0.83**	**NA**	**NA**	**8,233.83**
1. Energy	**6,002.56**	**10.24**	**604.94**				**6,617.74**
A. Fuel Combustion (Sectoral Approach)	6,002.56	9.34	604.94				6,616.85
1. Energy Industries	2,907.79	0.46	523.73				3,431.99
2. Manufacturing Industries and Construction	666.90	0.66	17.04				684.60
3. Transport	1,633.35	7.71	33.95				1,675.01
4. Other Sectors	794.52	0.51	30.22				825.25
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	NA,NE,NO	0.89	NA,NO				0.89
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE	0.89	NA				0.89
2. Industrial Processes	**728.56**	**NA**	**NA**	**0.83**	**NA**	**NA**	**729.39**
A. Mineral Products	728.56	NA	NA				728.56
B. Chemical Industry	NA	NA	NA	NA	NA	NA	NA
C. Metal Production	NA	NA	NA	NA	NA	NA	NA
D. Other Production							
E. Production of Halocarbons and SF_6				NA	NA	NA	NA
F. Consumption of Halocarbons and SF_6 [(2)]				0.83	NA	NA	0.83
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**2.61**		**NA**				**2.61**
4. Agriculture		**335.20**	**135.91**				**471.12**
A. Enteric Fermentation		189.56					189.56
B. Manure Management		141.29	1.22				142.52
C. Rice Cultivation		NA					NA
D. Agricultural Soils[(3)]		NA	133.13				133.13
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		4.35	1.56				5.91
G. Other		NA	NA				NA
5. Land Use, Land-Use Change and Forestry[(1)]	**-133.54**						**-133.54**
A. Forest Land	-158.55						-158.55
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	25.01						25.01
6. Waste	**NA,NE**	**546.51**	**NA**				**546.51**
A. Solid Waste Disposal on Land	NA,NE	508.83					508.83
B. Waste-water Handling		37.68	NA				37.68
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Memo Items: [(4)]							
International Bunkers	1,548.21	2.36	16.59				1,567.17
Aviation	940.99	1.73	7.29				950.02
Marine	607.22	0.63	9.30				617.15
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**NA,NO**						**NA,NO**

Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	8,367.37
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	8,233.83

(1) For CO_2 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 (+).

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

(3) Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

(4) See footnote 8 to table Summary 1.A.

SUMMARY 2 SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [1]	CH_4	N_2O	HFCs [2]	PFCs [2]	SF_6 [2]	Total
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**7,003.24**	**914.66**	**817.94**	**73.83**	**NA**	**NA**	**8,809.66**
1. Energy	**6,329.58**	**10.29**	**674.83**				**7,014.70**
A. Fuel Combustion (Sectoral Approach)	6,329.58	9.45	674.83				7,013.86
1. Energy Industries	3,335.13	0.53	602.61				3,938.27
2. Manufacturing Industries and Construction	648.90	0.60	15.18				664.69
3. Transport	1,609.87	7.87	33.43				1,651.16
4. Other Sectors	735.68	0.44	23.62				759.74
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	NA,NE,NO	0.84	NA,NO				0.84
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE	0.84	NA				0.84
2. Industrial Processes	**798.58**	**NA**	**NA**	**73.83**	**NA**	**NA**	**872.41**
A. Mineral Products	798.58	NA	NA				798.58
B. Chemical Industry	NA	NA	NA	NA	NA	NA	NA
C. Metal Production	NA	NA	NA	NA	NA	NA	NA
D. Other Production							
E. Production of Halocarbons and SF_6				NA	NA	NA	NA
F. Consumption of Halocarbons and SF_6 [2]				73.83	NA	NA	73.83
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**2.62**		**NA**				**2.62**
4. Agriculture		**358.56**	**143.10**				**501.66**
A. Enteric Fermentation		200.50					200.50
B. Manure Management		153.17	1.33				154.50
C. Rice Cultivation		NA					NA
D. Agricultural Soils[3]		NA	140.01				140.01
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		4.90	1.76				6.65
G. Other		NA	NA				NA
5. Land Use, Land-Use Change and Forestry[1]	**-127.55**						**-127.55**
A. Forest Land	-158.87						-158.87
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	31.32						31.32
6. Waste	**NA,NE**	**545.81**	**NA**				**545.81**
A. Solid Waste Disposal on Land	NA,NE	507.66					507.66
B. Waste-water Handling		38.16	NA				38.16
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Memo Items: [4]							
International Bunkers	1,333.44	2.28	16.24				1,351.96
Aviation	895.55	1.65	6.94				904.13
Marine	437.90	0.63	9.30				447.83
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**NA,NO**						**NA,NO**

Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	8,937.21
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	8,809.66

(1) For CO_2 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 (+).

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

(3) Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

(4) See footnote 8 to table Summary 1.A.

SUMMARY 2 SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [(1)]	CH_4	N_2O	HFCs [(2)]	PFCs [(2)]	SF_6 [(2)]	Total
	CO_2 equivalent (Gg)						
Total (Net Emissions) [(1)]	**7,382.22**	**870.11**	**844.62**	**73.39**	**NA**	**NA**	**9,170.34**
1. Energy	**6,560.33**	**10.78**	**692.34**				**7,263.45**
A. Fuel Combustion (Sectoral Approach)	6,560.33	10.03	692.34				7,262.70
1. Energy Industries	3,555.07	0.57	644.11				4,199.75
2. Manufacturing Industries and Construction	652.72	0.24	1.58				654.55
3. Transport	1,755.93	8.84	36.43				1,801.20
4. Other Sectors	596.61	0.37	10.21				607.19
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	NA,NE,NO	0.75	NA,NO				0.75
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE	0.75	NA				0.75
2. Industrial Processes	**953.88**	**NA**	**NA**	**73.39**	**NA**	**NA**	**1,027.26**
A. Mineral Products	953.88	NA	NA				953.88
B. Chemical Industry	NA	NA	NA	NA	NA	NA	NA
C. Metal Production	NA	NA	NA	NA	NA	NA	NA
D. Other Production							
E. Production of Halocarbons and SF_6				NA	NA	NA	NA
F. Consumption of Halocarbons and SF_6 [(2)]				73.39	NA	NA	73.39
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**2.63**		**NA**				**2.63**
4. Agriculture		**305.46**	**152.29**				**457.75**
A. Enteric Fermentation		160.58					160.58
B. Manure Management		139.30	1.17				140.48
C. Rice Cultivation		NA					NA
D. Agricultural Soils[(3)]		NA	149.11				149.11
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		5.58	2.01				7.59
G. Other		NA	NA				NA
5. Land Use, Land-Use Change and Forestry[(1)]	**-134.62**						**-134.62**
A. Forest Land	-159.08						-159.08
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	24.45						24.45
6. Waste	**NA,NE**	**553.87**	**NA**				**553.87**
A. Solid Waste Disposal on Land	NA,NE	512.12					512.12
B. Waste-water Handling		41.75	NA				41.75
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Memo Items: [(4)]							
International Bunkers	1,373.99	2.44	16.92				1,393.35
Aviation	983.02	1.81	7.62				992.44
Marine	390.97	0.63	9.30				400.90
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**NA,NO**						**NA,NO**

Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	9,304.96
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	9,170.34

(1) For CO_2 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 (+).

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

(3) Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

(4) See footnote 8 to table Summary 1.A.

SUMMARY 2 SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [1]	CH_4	N_2O	HFCs [2]	PFCs [2]	SF_6 [2]	Total
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**7,569.21**	**909.26**	**883.68**	**68.91**	**NA**	**NA**	**9,431.06**
1. Energy	**6,768.85**	**12.78**	**750.40**				**7,532.03**
A. Fuel Combustion (Sectoral Approach)	6,768.85	12.57	750.40				7,531.81
1. Energy Industries	3,706.56	0.61	684.53				4,391.70
2. Manufacturing Industries and Construction	519.52	0.55	14.63				534.69
3. Transport	1,974.79	11.09	40.85				2,026.73
4. Other Sectors	567.97	0.32	10.40				578.68
5. Other	NA	NA	NA				NA
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	0.22	NA				0.22
2. Industrial Processes	**946.47**	**NA**	**NA**	**68.91**	**NA**	**NA**	**1,015.39**
A. Mineral Products	946.47	NA	NA				946.47
B. Chemical Industry	NA	NA	NA	NA	NA	NA	NA
C. Metal Production	NA	NA	NA	NA	NA	NA	NA
D. Other Production							
E. Production of Halocarbons and SF_6				NA	NA	NA	NA
F. Consumption of Halocarbons and SF_6 [2]				68.91	NA	NA	68.91
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**2.65**		**NA**				**2.65**
4. Agriculture		**311.68**	**133.28**				**444.96**
A. Enteric Fermentation		170.02					170.02
B. Manure Management		137.51	1.17				138.68
C. Rice Cultivation		NA					NA
D. Agricultural Soils [3]		NA	130.61				130.61
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		4.16	1.50				5.66
G. Other		NA	NA				NA
5. Land Use, Land-Use Change and Forestry [1]	**-148.76**						**-148.76**
A. Forest Land	-163.17						-163.17
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	14.41						14.41
6. Waste	**NA,NE**	**584.80**	**NA**				**584.80**
A. Solid Waste Disposal on Land	NA,NE	542.03					542.03
B. Waste-water Handling		42.77	NA				42.77
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Memo Items: [4]							
International Bunkers	1,058.55	2.29	16.29				1,077.12
Aviation	901.66	1.66	6.99				910.31
Marine	156.89	0.63	9.30				166.82
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**NA,NO**						**NA,NO**

Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	9,579.82
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	9,431.06

(1) For CO_2 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 (+).

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

(3) Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

(4) See footnote 8 to table Summary 1.A.

SUMMARY 2 SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [1]	CH_4	N_2O	HFCs [2]	PFCs [2]	SF_6 [2]	Total
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**7,782.68**	**928.66**	**848.74**	**136.17**	**NA**	**NA**	**9,696.25**
1. Energy	**7,042.92**	**13.20**	**722.62**				**7,778.74**
A. Fuel Combustion (Sectoral Approach)	7,042.92	13.20	722.62				7,778.74
1. Energy Industries	3,471.84	0.57	645.80				4,118.21
2. Manufacturing Industries and Construction	781.68	0.15	0.13				781.96
3. Transport	2,023.10	11.86	41.78				2,076.74
4. Other Sectors	766.29	0.62	34.92				801.83
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	NA,NE,NO	NA,NO	NA,NO				NA,NE,NO
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE	NA	NA				NA,NE
2. Industrial Processes	**893.09**	**NA**	**NA**	**136.17**	**NA**	**NA**	**1,029.25**
A. Mineral Products	893.09	NA	NA				893.09
B. Chemical Industry	NA	NA	NA	NA	NA	NA	NA
C. Metal Production	NA	NA	NA	NA	NA	NA	NA
D. Other Production							
E. Production of Halocarbons and SF_6				NA	NA	NA	NA
F. Consumption of Halocarbons and SF_6 [2]				136.17	NA	NA	136.17
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**2.66**		**NA**				**2.66**
4. Agriculture		**319.50**	**126.12**				**445.62**
A. Enteric Fermentation		178.17					178.17
B. Manure Management		138.49	1.17				139.66
C. Rice Cultivation		NA					NA
D. Agricultural Soils [3]		NA	123.93				123.93
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		2.85	1.02				3.87
G. Other		NA	NA				NA
5. Land Use, Land-Use Change and Forestry [1]	**-155.98**						**-155.98**
A. Forest Land	-164.69						-164.69
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	8.71						8.71
6. Waste	**NA,NE**	**595.96**	**NA**				**595.96**
A. Solid Waste Disposal on Land	NA,NE	552.79					552.79
B. Waste-water Handling		43.17	NA				43.17
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Memo Items: [4]							
International Bunkers	1,486.05	2.59	17.56				1,506.20
Aviation	1,065.08	1.96	8.26				1,075.29
Marine	420.98	0.63	9.30				430.91
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**3.56**						**3.56**

Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	9,852.24
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	9,696.25

[1] For CO_2 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 (+).

[2] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[3] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[4] See footnote 8 to table Summary 1.A.

SUMMARY 2 SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [(1)]	CH_4	N_2O	HFCs [(2)]	PFCs [(2)]	SF_6 [(2)]	Total
	CO_2 equivalent (Gg)						
Total (Net Emissions) [(1)]	**7,993.64**	**934.05**	**874.77**	**53.21**	**NA**	**NA**	**9,855.68**
1. Energy	**7,247.46**	**14.04**	**742.86**				**8,004.36**
A. Fuel Combustion (Sectoral Approach)	7,247.46	14.04	742.86				8,004.36
1. Energy Industries	3,653.38	0.59	663.66				4,317.63
2. Manufacturing Industries and Construction	776.03	0.38	0.13				776.54
3. Transport	2,030.86	12.42	41.88				2,085.16
4. Other Sectors	787.19	0.66	37.18				825.03
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	NA,NE,NO	NA,NO	NA,NO				NA,NE,NO
1. Solid Fuels	NA,NO	NA,NO	NA,NO				NA,NO
2. Oil and Natural Gas	NA,NE	NA	NA				NA,NE
2. Industrial Processes	**900.75**	**NA**	**NA**	**53.21**	**NA**	**NA**	**953.96**
A. Mineral Products	900.75	NA	NA				900.75
B. Chemical Industry	NA	NA	NA	NA	NA	NA	NA
C. Metal Production	NA	NA	NA	NA	NA	NA	NA
D. Other Production							
E. Production of Halocarbons and SF_6				NA	NA	NA	NA
F. Consumption of Halocarbons and SF_6 [(2)]				53.21	NA	NA	53.21
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**2.67**		**NA**				**2.67**
4. Agriculture		**318.00**	**131.92**				**449.92**
A. Enteric Fermentation		171.26					171.26
B. Manure Management		142.16	1.23				143.39
C. Rice Cultivation		NA					NA
D. Agricultural Soils[(3)]		NA	129.17				129.17
E. Prescribed Burning of Savannas		NA	NA				NA
F. Field Burning of Agricultural Residues		4.59	1.51				6.10
G. Other		NA	NA				NA
5. Land Use, Land-Use Change and Forestry[(1)]	**-157.24**						**-157.24**
A. Forest Land	-165.95						-165.95
B. Cropland							
C. Grassland							
D. Wetlands							
E. Settlements							
F. Other Land							
G. Other	8.71						8.71
6. Waste	**NA,NE**	**602.01**	**NA**				**602.01**
A. Solid Waste Disposal on Land	NA,NE	558.53					558.53
B. Waste-water Handling		43.47	NA				43.47
C. Waste Incineration	NA	NA	NA				NA
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Memo Items: [(4)]							
International Bunkers	1,531.60	2.29	16.31				1,550.20
Aviation	904.07	1.66	7.01				912.74
Marine	627.53	0.63	9.30				637.46
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**9.14**						**9.14**

Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	10,012.92
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	9,855.68

(1) For CO_2 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 (+).

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

(3) Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

(4) See footnote 8 to table Summary 1.A.

ANNEX II: Uncertainty Tier I Table

Tier I UNCERTAINTY CALCULATION AND REPORTING - 2006

IPCC Source category	Gas	Base year emissions (1990)*	2006 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	1736.97	3653.38	1%	1.0%	1.4%	0.63%	21.39%	60.84%	0.00	0.01	0.89%	D	R		
1A2. Manufacturing Industries and Construction	CO2	770.23	776.03	1%	1.0%	1.4%	0.13%	-4.54%	12.92%	0.00	0.00	0.19%	D	R		
1A3. Transport	CO2	957.05	2030.86	5%	1.4%	5.2%	1.29%	12.10%	33.82%	0.00	0.02	2.40%	D	R		
1A4. Other sectors	CO2	603.12	787.19	5%	2.0%	5.4%	0.52%	-0.57%	13.11%	0.00	0.01	0.93%	D	R		
2A. Mineral Products	CO2	570.52	900.75	5%	2.2%	5.5%	0.60%	2.06%	15.00%	0.00	0.01	1.06%	D	R		
3. Solvent and other product use	CO2	2.29	2.67	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	-157.24	5%	50%	50.2%	-0.97%	-2.11%	-2.62%	-0.01	0.00	1.07%	D	R		
TOTAL	**CO2**	**4617.74**	**7993.64**				**0.0002**					6.54%				
1A1. Energy Industries	CH4	0.42	0.03	1%	50%	50.0%	0.00%	-0.01%	0.00%	0.00	0.00	0.00%	D	R		
1A2. Manufacturing Industries and Construction	CH4	0.78	0.02	3%	50%	50.1%	0.00%	-0.02%	0.00%	0.00	0.00	0.01%	D	R		
1A3. Transport	CH4	6.72	0.59	5%	50%	50.2%	0.00%	-0.14%	0.01%	0.00	0.00	0.07%	D	R		
1A4. Other sectors	CH4	1.89	0.03	5%	2.0%	5.4%	0.00%	-0.04%	0.00%	0.00	0.00	0.00%	D	R		
4A. Enteric Fermentation	CH4	158.55	8.16	3%	20%	20.2%	0.02%	-3.46%	0.14%	-0.01	0.00	0.69%	D	R		
4B. Manure Management	CH4	102.48	6.77	3%	30%	30.1%	0.02%	-2.21%	0.11%	-0.01	0.00	0.66%	D	R		
4F. Field Burning of Agricultural Residues	CH4	4.33	0.22	5%	50%	50.2%	0.00%	-0.09%	0.00%	0.00	0.00	0.05%	D	R		
6A. Solid Waste Disposal on Land	CH4	411.39	26.60	5%	46%	46.3%	0.15%	-8.88%	0.44%	-0.04	0.00	4.08%	D	R		
6B. Wastewater Handling	CH4	21.84	2.07	5%	50%	50.2%	0.01%	-0.46%	0.03%	0.00	0.00	0.23%	D	R		
TOTAL	**CH4**	**708.40**	**44.48**				**0.0000**					5.80%				
1A1. Energy Industries	N2O	316.20	2.14	1%	195%	195.0%	0.05%	-7.13%	0.04%	-0.14	0.00	13.90%	D	R		
1A2. Manufacturing Industries and Construction	N2O	21.78	0.00	3%	195%	195.0%	0.00%	-0.49%	0.00%	-0.01	0.00	0.96%	D	R		
1A3. Transport	N2O	12.4	0.14	5%	170%	170.1%	0.00%	-0.28%	0.00%	0.00	0.00	0.47%	D	R		
1A4. Other sectors	N2O	24.80	0.12	5%	170%	170.1%	0.00%	-0.56%	0.00%	-0.01	0.00	0.95%	D	R		
4B. Manure Management	N2O	78.11	0.00	5%	414%	414.0%	0.00%	-1.77%	0.00%	-0.07	0.00	7.33%	D	R		
4D. Agricultural Soils	N2O	225.59	0.42	7%	424%	424.1%	0.02%	-5.11%	0.01%	-0.22	0.00	21.65%	D	R		
TOTAL	**N2O**	**678.88**	**2.82**				**0.0000**					45.27%				
2F. Consumption of Halocarbons and SF6	HCFs	0.00	135.30	10%	15%	18.0%	0.30%	2.25%	2.25%	0.00	0.00	0.46%	D	R		
TOTAL	**HCFs**	**0.00**	**135.30**				**0.000004**					0.46%				
TOTAL EMISSIONS		**6005.02**	**8176.23**				**0%**					**58%**				
TOTAL UNCERTAINTIES						**Percentage uncertainty in total inventory**	**1%**				**Trend uncertainty:**	**76%**				

* 1990 inventory as submited in 2007

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	1736.97	3444.37	1%	1.0%	1.4%	0.50%	10.32%	57.33%	0.00	0.01	0.82%	D	R		
1A2. Manufacturing Industries and Construction	CO2	770.23	748.59	1%	1.0%	1.4%	0.11%	-8.36%	12.46%	0.00	0.00	0.20%	D	R		
1A3. Transport	CO2	957.05	2043.24	5%	1.4%	5.2%	1.09%	8.11%	34.01%	0.00	0.02	2.41%	D	R		
1A4. Other sectors	CO2	603.12	645.46	5%	2.0%	5.4%	0.36%	-5.56%	10.74%	0.00	0.01	0.77%	D	R		
2A. Mineral Products	CO2	570.52	902.90	5%	2.2%	5.5%	0.51%	-0.40%	15.03%	0.00	0.01	1.06%	D	R		
3. Solvent and other product use	CO2	2.29	2.59	7%	50%	50.5%	0.01%	-0.02%	0.04%	0.00	0.00	0.01%	D	R		
5. Land-Use Change and Forestry	CO2	-22.44	-146.70	5%	50%	50.2%	-0.76%	-1.83%	-2.44%	-0.01	0.00	0.93%	D	R		
TOTAL	**CO2**	**4617.74**	**7640.46**				**0.0001**					6.19%				
1A1. Energy Industries	CH4	0.42	0.57	1%	50%	50.0%	0.00%	0.00%	0.01%	0.00	0.00	0.00%	D	R		
1A2. Manufacturing Industries and Construction	CH4	0.78	0.15	3%	50%	50.1%	0.00%	-0.02%	0.00%	0.00	0.00	0.01%	D	R		
1A3. Transport	CH4	6.72	11.86	5%	50%	50.2%	0.06%	0.02%	0.20%	0.00	0.00	0.02%	D	R		
1A4. Other sectors	CH4	1.89	0.62	5%	2.0%	5.4%	0.00%	-0.04%	0.01%	0.00	0.00	0.00%	D	R		
4A. Enteric Fermentation	CH4	158.55	178.17	3%	20%	20.2%	0.37%	-1.32%	2.97%	0.00	0.00	0.29%	D	R		
4B. Manure Management	CH4	102.48	138.49	3%	30%	30.1%	0.43%	-0.47%	2.31%	0.00	0.00	0.17%	D	R		
4F. Field Burning of Agricultural Residues	CH4	4.33	2.85	5%	50%	50.2%	0.01%	-0.07%	0.05%	0.00	0.00	0.04%	D	R		
6A. Solid Waste Disposal on Land	CH4	411.39	552.79	5%	46%	46.3%	2.62%	-1.92%	9.20%	-0.01	0.01	1.10%	D	R		
6B. Wastewater Handling	CH4	21.84	43.17	5%	50%	50.2%	0.22%	0.13%	0.72%	0.00	0.00	0.08%	D	R		
TOTAL	**CH4**	**708.40**	**928.66**				**0.0004**					1.71%				
1A1. Energy Industries	N2O	316.20	640.65	1%	195%	195.0%	12.80%	2.11%	10.66%	0.04	0.00	4.12%	D	R		
1A2. Manufacturing Industries and Construction	N2O	21.78	1.77	3%	195%	195.0%	0.04%	-0.56%	0.03%	-0.01	0.00	1.09%	D	R		
1A3. Transport	N2O	12.4	42.16	5%	170%	170.1%	0.73%	0.37%	0.70%	0.01	0.00	0.62%	D	R		
1A4. Other sectors	N2O	24.80	10.40	5%	170%	170.1%	0.18%	-0.50%	0.17%	-0.01	0.00	0.85%	D	R		
4B. Manure Management	N2O	78.11	99.68	5%	414%	414.0%	4.23%	-0.45%	1.66%	-0.02	0.00	1.88%	D	R		
4D. Agricultural Soils	N2O	225.59	260.61	7%	424%	424.1%	11.32%	-1.76%	4.34%	-0.07	0.00	7.49%	D	R		
4F. Field Burning of Agricultural Residues	N2O	1.56	0.99	5%	230%	230.1%	0.02%	-0.03%	0.02%	0.00	0.00	0.06%	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		
TOTAL	**N2O**	**681.56**	**1057.39**				**0.0155**					16.11%				
2F. Consumption of Halocarbons and SF6	HCFs	0.00	135.30	10%	15%	18.0%	0.25%	2.25%	2.25%	0.00	0.00	0.46%	D	R		
TOTAL	**HCFs**	**0.00**	**135.30**				**0.000003**					0.46%				
TOTAL EMISSIONS		**6007.71**	**9761.81**				**2%**					**24%**				
TOTAL UNCERTAINTIES				**Percentage uncertainty in total inventory**			**13%**				**Trend uncertainty:**	**49%**				

* based on 2008 recalculations

ANNEX III: Fertiliser data used for re-calculations of 1999–2005 agricultural emissions

1. Fertiliser needs

1999								
Cultivation	kg N/Ha min	kg N/Ha max	kg N/Ha average	Ha	kg N min	kg N max	kg N average	% N (average)
ARABLE				92,347	348,171	592,018	470,094	76.9%
Cereals	3	6	4.5	52,300	156,900	313,800	235,350	
Wheat soft	6.5	7	6.75	6,600	42,900	46,200	44,550	
Wheat hard	4.5	6	5.25	0	0	0	0	
Maise	9	12	10.5	0	0	0	0	
Βαμβακι	6	7.5	6.75	0	0	0	0	
Τεύτλα	4	8	6	0	0	0	0	
Οσπρια	2	2.5	2.25	900	1,800	2,250	2,025	
Industrial plants	1.5	2.5	2	697	1,046	1,743	1,394	
Κτηνοτροφικά φυτά	3	6	4.5	24,100	72,300	144,600	108,450	
Πατάτα	10	11.5	10.75	6,800	68,000	78,200	73,100	
Καρπούζια-πεπ	5.5	5.5	5.5	950	5,225	5,225	5,225	
RICE				0	0	0	0	0.0%
Ρύζι	2.5	5	3.75	0	0	0	0	
MARKET GARDEN				2,891	15,901	28,910	22,405	3.7%
Ντομάτα	5.5	10	7.75	350	1,925	3,500	2,713	
Other	5.5	10	7.75	2,541	13,976	25,410	19,693	
PERMANENT				41,800	56,220	157,920	107,070	17.5%
Δέντρα	0.3	0.6	0.45	15,400	4,620	9,240	6,930	
Ελιές	0.5	0.65	0.575	7,200	3,600	4,680	4,140	
Αμπέλια	2.5	7.5	5	19,200	48,000	144,000	96,000	
TOTAL FERTILIZED				137,038	420,291	778,848	599,569	98.1%
NON - FERTILIZED				24,531				
GRASSLAND				1,100				
FALLOWS				6,000				

2000								
Cultivation	kg N/Ha min	kg N/Ha max	kg N/Ha average	Ha	kg N min	kg N max	kg N average	% N (average)
ARABLE				90,294	338,906	579,140	459,023	75.1%
Cereals	3	6	4.5	45,350	136,050	272,100	204,075	
Wheat soft	6.5	7	6.75	6,150	39,975	43,050	41,513	
Wheat hard	4.5	6	5.25	0	0	0	0	
Maise	9	12	10.5	0	0	0	0	
Βαμβακι	6	7.5	6.75	0	0	0	0	
Τεύτλα	4	8	6	0	0	0	0	
Οσπρια	2	2.5	2.25	800	1,600	2,000	1,800	
Industrial plants	1.5	2.5	2	359	539	898	718	
Κτηνοτροφικά φυτά	3	6	4.5	30,200	90,600	181,200	135,900	
Πατάτα	10	11.5	10.75	6,500	65,000	74,750	69,875	
Καρπούζια-πεπ	5.5	5.5	5.5	935	5,143	5,143	5,143	
RICE				0	0	0	0	0.0%
Ρύζι	2.5	5	3.75	0	0	0	0	
MARKET GARDEN				3,042	16,731	30,420	23,576	3.9%
Ντομάτα	5.5	10	7.75	450	2,475	4,500	3,488	
Other	5.5	10	7.75	2,592	14,256	25,920	20,088	
PERMANENT				42,100	56,310	158,100	107,205	17.5%
Δέντρα	0.3	0.6	0.45	15,700	4,710	9,420	7,065	
Ελιές	0.5	0.65	0.575	7,200	3,600	4,680	4,140	
Αμπέλια	2.5	7.5	5	19,200	48,000	144,000	96,000	
TOTAL FERTILIZED				135,436	411,947	767,660	589,804	96.5%
NON - FERTILIZED				32,369				
GRASSLAND				1,100				
FALLOWS				5,000				

2001

Cultivation	kg N/Ha min	kg N/Ha max	kg N/Ha average	Ha	kg N min	kg N max	kg N average	% N (average)
ARABLE				**88,486**	**325,159**	**562,649**	**443,904**	**72.6%**
Cereals	3	6	4.5	50,600	151,800	303,600	227,700	
Wheat soft	6.5	7	6.75	5,400	35,100	37,800	36,450	
Wheat hard	4.5	6	5.25	0	0	0	0	
Maise	9	12	10.5	0	0	0	0	
Βαμβακι	6	7.5	6.75	0	0	0	0	
Τεύτλα	4	8	6	0	0	0	0	
Οσπρια	2	2.5	2.25	832	1,664	2,080	1,872	
Industrial plants	1.5	2.5	2	490	735	1,225	980	
Κτηνοτροφικά φυτά	3	6	4.5	24,504	73,512	147,024	110,268	
Πατάτα	10	11.5	10.75	5,715	57,150	65,723	61,436	
Καρπούζια-πεπ	5.5	5.5	5.5	945	5,198	5,198	5,198	
RICE				**0**	**0**	**0**	**0**	**0.0%**
Ρύζι	2.5	5	3.75	0	0	0	0	
MARKET GARDEN				**3,030**	**16,665**	**30,300**	**23,483**	**3.8%**
Ντομάτα	5.5	10	7.75	465	2,558	4,650	3,604	
Other	5.5	10	7.75	2,565	14,108	25,650	19,879	
PERMANENT				**41,281**	**53,967**	**150,683**	**102,325**	**16.7%**
Δέντρα	0.3	0.6	0.45	15,289	4,587	9,173	6,880	
Ελιές	0.5	0.65	0.575	7,800	3,900	5,070	4,485	
Αμπέλια	2.5	7.5	5	18,192	45,480	136,440	90,960	
TOTAL FERTILIZED				**132,797**	**395,790**	**743,632**	**569,711**	**93.2%**
NON - FERTILIZED				**27,706**				
GRASSLAND				**1,000**				
FALLOWS				**5,600**				

2002

Cultivation	kg N/Ha min	kg N/Ha max	kg N/Ha average	Ha	kg N min	kg N max	kg N average	% N (average)
ARABLE				**90,977**	**339,059**	**581,878**	**460,468**	**75.4%**
Cereals	3	6	4.5	53,300	159,900	319,800	239,850	
Wheat soft	6.5	7	6.75	5,900	38,350	41,300	39,825	
Wheat hard	4.5	6	5.25	0	0	0	0	
Maise	9	12	10.5	0	0	0	0	
Βαμβακι	6	7.5	6.75	0	0	0	0	
Τεύτλα	4	8	6	0	0	0	0	
Οσπρια	2	2.5	2.25	847	1,694	2,118	1,906	
Industrial plants	1.5	2.5	2	405	608	1,013	810	
Κτηνοτροφικά φυτά	3	6	4.5	23,200	69,600	139,200	104,400	
Πατάτα	10	11.5	10.75	6,360	63,600	73,140	68,370	
Καρπούζια-πεπ	5.5	5.5	5.5	965	5,308	5,308	5,308	
RICE				**0**	**0**	**0**	**0**	**0.0%**
Ρύζι	2.5	5	3.75	0	0	0	0	
MARKET GARDEN				**3,007**	**16,539**	**30,070**	**23,304**	**3.8%**
Ντομάτα	5.5	10	7.75	460	2,530	4,600	3,565	
Other	5.5	10	7.75	2,547	14,009	25,470	19,739	
PERMANENT				**38,288**	**46,187**	**127,247**	**86,717**	**14.2%**
Δέντρα	0.3	0.6	0.45	15,333	4,600	9,200	6,900	
Ελιές	0.5	0.65	0.575	7,900	3,950	5,135	4,543	
Αμπέλια	2.5	7.5	5	15,055	37,638	112,913	75,275	
TOTAL FERTILIZED				**132,272**	**401,785**	**739,195**	**570,490**	**93.4%**
NON - FERTILIZED				**24,576**				
GRASSLAND				**800**				
FALLOWS				**6,500**				

2003

Cultivation	kg N/Ha min	kg N/Ha max	kg N/Ha average	Ha	kg N min	kg N max	kg N average	% N (average)
ARABLE				**104,003**	**376,738**	**657,198**	**516,968**	**84.6%**
Cereals	3	6	4.5	65,475	196,425	392,850	294,638	
Wheat soft	6.5	7	6.75	7,225	46,963	50,575	48,769	
Wheat hard	4.5	6	5.25	0	0	0	0	
Maise	9	12	10.5	0	0	0	0	
Βαμβακι	6	7.5	6.75	0	0	0	0	
Τεύτλα	4	8	6	0	0	0	0	
Οσπρια	2	2.5	2.25	729	1,458	1,823	1,640	
Industrial plants	1.5	2.5	2	391	587	978	782	
Κτηνοτροφικά φυτά	3	6	4.5	23,800	71,400	142,800	107,100	
Πατάτα	10	11.5	10.75	5,511	55,110	63,377	59,243	
Καρπούζια-πεπ	5.5	5.5	5.5	872	4,796	4,796	4,796	
RICE				**0**	**0**	**0**	**0**	**0.0%**
Ρύζι	2.5	5	3.75	0	0	0	0	
MARKET GARDEN				**2,998**	**16,489**	**29,980**	**23,235**	**3.8%**
Ντομάτα	5.5	10	7.75	450	2,475	4,500	3,488	
Other	5.5	10	7.75	2,548	14,014	25,480	19,747	
PERMANENT				**40,613**	**42,255**	**111,400**	**76,827**	**12.6%**
Δέντρα	0.3	0.6	0.45	15,480	4,644	9,288	6,966	
Ελιές	0.5	0.65	0.575	12,611	6,306	8,197	7,251	
Αμπέλια	2.5	7.5	5	12,522	31,305	93,915	62,610	
TOTAL FERTILIZED				**147,614**	**435,482**	**798,578**	**617,030**	**101.0%**
NON - FERTILIZED				**11,208**				
GRASSLAND				**400**				
FALLOWS				**5,400**				

2004

Cultivation	kg N/Ha min	kg N/Ha max	kg N/Ha average	Ha	kg N min	kg N max	kg N average	% N (average)
ARABLE				**99,493**	**363,172**	**630,217**	**496,694**	**84.3%**
Cereals	3	6	4.5	59,267	177,801	355,602	266,702	
Wheat soft	6.5	7	6.75	7,133	46,365	49,931	48,148	
Wheat hard	4.5	6	5.25	0	0	0	0	
Maise	9	12	10.5	0	0	0	0	
Βαμβακι	6	7.5	6.75	0	0	0	0	
Τεύτλα	4	8	6	0	0	0	0	
Οσπρια	2	2.5	2.25	834	1,668	2,085	1,877	
Industrial plants	1.5	2.5	2	374	561	935	748	
Κτηνοτροφικά φυτά	3	6	4.5	25,500	76,500	153,000	114,750	
Πατάτα	10	11.5	10.75	5,591	55,910	64,297	60,103	
Καρπούζια-πεπ	5.5	5.5	5.5	794	4,367	4,367	4,367	
RICE				**0**	**0**	**0**	**0**	**0.0%**
Ρύζι	2.5	5	3.75	0	0	0	0	
MARKET GARDEN				**2,919**	**16,055**	**29,190**	**22,622**	**3.8%**
Ντομάτα	5.5	10	7.75	380	2,090	3,800	2,945	
Other	5.5	10	7.75	2,539	13,965	25,390	19,677	
PERMANENT				**39,899**	**38,983**	**101,286**	**70,134**	**11.9%**
Δέντρα	0.3	0.6	0.45	16,002	4,801	9,601	7,201	
Ελιές	0.5	0.65	0.575	12,780	6,390	8,307	7,349	
Αμπέλια	2.5	7.5	5	11,117	27,793	83,378	55,585	
TOTAL FERTILIZED				**142,311**	**418,209**	**760,692**	**589,451**	**100.0%**
NON - FERTILIZED				**76,611**				
GRASSLAND				**400**				
FALLOWS				**10,500**				

2005

Cultivation	kg N/Ha min	kg N/Ha max	kg N/Ha average	Ha	kg N min	kg N max	kg N average	% N (average)
ARABLE				**98,753**	**358,585**	**627,533**	**493,059**	**80.7%**
Cereals	3	6	4.5	56,836	170,508	341,016	255,762	
Wheat soft	6.5	7	6.75	5,264	34,216	36,848	35,532	
Wheat hard	4.5	6	5.25	0	0	0	0	
Maise	9	12	10.5	0	0	0	0	
Βαμβακι	6	7.5	6.75	0	0	0	0	
Τεύτλα	4	8	6	0	0	0	0	
Οσπρια	2	2.5	2.25	796	1,592	1,990	1,791	
Industrial plants	1.5	2.5	2	325	488	813	650	
Κτηνοτροφικά φυτά	3	6	4.5	28,600	85,800	171,600	128,700	
Πατάτα	10	11.5	10.75	6,190	61,900	71,185	66,543	
Καρπούζια-πεπ	5.5	5.5	5.5	742	4,081	4,081	4,081	
RICE				**0**	**0**	**0**	**0**	**0.0%**
Ρύζι	2.5	5	3.75	0	0	0	0	
MARKET GARDEN				**2,867**	**15,769**	**28,670**	**22,219**	**3.6%**
Ντομάτα	5.5	10	7.75	360	1,980	3,600	2,790	
Other	5.5	10	7.75	2,507	13,789	25,070	19,429	
PERMANENT				**42,617**	**41,889**	**108,919**	**75,404**	**12.3%**
Δέντρα	0.3	0.6	0.45	16,897	5,069	10,138	7,604	
Ελιές	0.5	0.65	0.575	13,740	6,870	8,931	7,901	
Αμπέλια	2.5	7.5	5	11,980	29,950	89,850	59,900	
TOTAL FERTILIZED				**144,237**	**416,242**	**765,122**	**590,682**	**96.7%**
NON - FERTILIZED				**21,807**				
GRASSLAND				**400**				
FALLOWS				**20,500**				

2006

Cultivation	kg N/Ha min	kg N/Ha max	kg N/Ha average	Ha	kg N min	kg N max	kg N average	% N (average)
ARABLE				**96,801**	**339,933**	**605,651**	**472,792**	**77.4%**
Cereals	3	6	4.5	56,711	170,133	340,266	255,200	
Wheat soft	6.5	7	6.75	5,389	35,029	37,723	36,376	
Wheat hard	4.5	6	5.25	0	0	0	0	
Maise	9	12	10.5	0	0	0	0	
Βαμβακι	6	7.5	6.75	0	0	0	0	
Τεύτλα	4	8	6	0	0	0	0	
Οσπρια	2	2.5	2.25	845	1,690	2,113	1,901	
Industrial plants	1.5	2.5	2	233	350	583	466	
Κτηνοτροφικά φυτά	3	6	4.5	28,600	85,800	171,600	128,700	
Πατάτα	10	11.5	10.75	4,290	42,900	49,335	46,118	
Καρπούζια-πεπ	5.5	5.5	5.5	733	4,032	4,032	4,032	
RICE				**0**	**0**	**0**	**0**	**0.0%**
Ρύζι	2.5	5	3.75	0	0	0	0	
MARKET GARDEN				**2,894**	**15,917**	**28,940**	**22,429**	**3.7%**
Ντομάτα	5.5	10	7.75	355	1,953	3,550	2,751	
Other	5.5	10	7.75	2,539	13,965	25,390	19,677	
PERMANENT				**40,608**	**34,980**	**87,538**	**61,259**	**10.0%**
Δέντρα	0.3	0.6	0.45	17,130	5,139	10,278	7,709	
Ελιές	0.5	0.65	0.575	14,427	7,214	9,378	8,296	
Αμπέλια	2.5	7.5	5	9,051	22,628	67,883	45,255	
TOTAL FERTILIZED				**140,303**	**390,830**	**722,129**	**556,479**	**91.1%**
NON - FERTILIZED				**21,850**				
GRASSLAND				**400**				
FALLOWS				**20,500**				

2. Fertiliser consumption

1999

FERTLIZER	Bags of 50 kg	tn/y	% N	kg N/y
Ammonium sulphate	98180	4909	21%	1,030,890
Urea	29220	1461	46%	672,060
Calcium Ammonium Nitrate	31900	1595	26%	414,700
Ammonium nitrate	114780	5739	33%	1,893,870
Triple Superphosphate	14210	710.5	0%	0
Potassium Sulphate	6360	318	0%	0
Potassium nitrate		0	13%	0
Mixed:				
13-0-46	18280	914	13%	118,820
20-20-0	453580	22679	20%	4,535,800
20-10-10	93780	4689	20%	937,800
14-22-9	149870	7493.5	14%	1,049,090
14-61-0	3680	184	14%	25,760
15-15-6-4	11580	579	15%	86,850
2/4-21-21	17220	861	3%	25,830
Other mixed				
Crystallic				
Liquid				
Other				
TOTAL		**52,132**		**10,791,470**

2000

FERTLIZER	Bags of 50 kg	tn/y	% N	kg N/y
Ammonium sulphate	66234	3311.7	21%	695,457
Urea	25742	1287.1	46%	592,066
Calcium Ammonium Nitrate	30000	1500	26%	390,000
Ammonium nitrate	102491	5124.55	33%	1,691,102
Triple Superphosphate	13109	655.45	0%	0
Potassium Sulphate	6240	312	0%	0
Potassium nitrate		0	13%	0
Mixed:				
13-0-46	18214	910.7	13%	118,391
20-20-0	261860	13093	20%	2,618,600
20-10-10	73472	3673.6	20%	734,720
14-22-9	99346	4967.3	14%	695,422
14-61-0	4680	234	14%	32,760
15-15-6-4	16520	826	15%	123,900
2/4-21-21		0	3%	0
Other mixed				
Crystallic				
Liquid				
Other				
TOTAL		**35,895**		**7,692,418**

2001

FERTLIZER	Bags of 50 kg	tn/y	% N	kg N/y
Ammonium sulphate	63732	3186.6	21%	669,186
Urea	22597	1129.85	46%	519,731
Calcium Ammonium Nitrate	31162	1558.1	26%	405,106
Ammonium nitrate	93902	4695.1	33%	1,549,383
Triple Superphosphate	9858	492.9	0%	0
Potassium Sulphate	4872	243.6	0%	0
Potassium nitrate		0	13%	0
Mixed:				
13-0-46	15991	799.55	13%	103,942
20-20-0	287967	14398.35	20%	2,879,670
20-10-10	76374	3818.7	20%	763,740
14-22-9	109389	5469.45	14%	765,723
14-61-0	4265	213.25	14%	29,855
15-15-6-4	12101	605.05	15%	90,758
2/4-21-21		0	3%	0
Other mixed				
Crystallic				
Liquid				
Other				
TOTAL		**36,611**		**7,777,093**

2002

FERTLIZER	Bags of 50 kg	tn/y	% N	kg N/y
Ammonium sulphate	61848	3092.4	21%	649,404
Urea	21400	1070	46%	492,200
Calcium Ammonium Nitrate	25874	1293.7	26%	336,362
Ammonium nitrate	79839	3991.95	33%	1,317,344
Triple Superphosphate	10084	504.2	0%	0
Potassium Sulphate	3980	199	0%	0
Potassium nitrate		0	13%	0
Mixed:				
13-0-46	14227	711.35	13%	92,476
20-20-0	320105	16005.25	20%	3,201,050
20-10-10	83840	4192	20%	838,400
14-22-9	137288	6864.4	14%	961,016
14-61-0	3220	161	14%	22,540
15-15-6-4	7000	350	15%	52,500
2/7-21-21	16240	812	3%	24,360
Other mixed				
Crystallic				
Liquid				
Other				
TOTAL		**39,247**		**7,987,651**

2003

FERTLIZER	Bags of 50 kg	tn/y	% N	kg N/y
Ammonium sulphate	58,331	2916.55	21%	612,476
Urea	23,560	1178	46%	541,880
Calcium Ammonium Nitrate	22,270	1113.5	26%	289,510
Ammonium nitrate	88,017	4400.85	33%	1,452,281
Triple Superphosphate	10,710	535.5	0%	0
Potassium Sulphate	4,260	213	0%	0
Potassium nitrate		0	13%	0
Mixed:				
13-0-46	19,463	973.15	13%	126,510
20-20-0	421,742	21087.1	20%	4,217,420
20-10-10	75,403	3770.15	20%	754,030
14-22-9	143,968	7198.4	14%	1,007,776
14-61-0	3,080	154	14%	21,560
15-15-6-4	3,600	180	15%	27,000
2/4-21-21		0	3%	0
Other mixed				
Crystallic				
Liquid				
Other				
TOTAL		**43,720**		**9,050,442**

2004

FERTLIZER	Bags of 50 kg	tn/y	% N	kg N/y
Ammonium sulphate	50,685	2534.25	21%	532,193
Urea	24,044	1202.2	46%	553,012
Calcium Ammonium Nitrate	25,606	1280.3	26%	332,878
Ammonium nitrate	83,813	4190.65	33%	1,382,915
Triple Superphosphate	8,469	423.45	0%	0
Potassium Sulphate	2,941	147.05	0%	0
Potassium nitrate		0	13%	0
Mixed:				
13-0-46	20,082	1004.1	13%	130,533
20-20-0	317,188	15859.4	20%	3,171,880
20-10-10	69,230	3461.5	20%	692,300
14-22-9	124,554	6227.7	14%	871,878
14-61-0	2,022	101.1	14%	14,154
15-15-6-4	5,660	283	15%	42,450
2/4-21-21		0	3%	0
Other mixed				
Crystallic				
Liquid				
Other				
TOTAL		**36,715**		**7,724,192**

2005

FERTLIZER	Bags of 50 kg	tn/y	% N	kg N/y
Ammonium sulphate	32263	1613.15	21%	338,762
Urea	24010	1200.5	46%	552,230
Calcium Ammonium Nitrate	15920	796	26%	206,960
Ammonium nitrate	65956	3297.8	33%	1,088,274
Triple Superphosphate	9350	467.5	0%	0
Potassium Sulphate	2300	115	0%	0
Potassium nitrate		0	13%	0
Mixed:				
13-0-46	13243	662.15	13%	86,080
20-20-0	288400	14420	20%	2,884,000
20-10-10	68190	3409.5	20%	681,900
14-22-9	124540	6227	14%	871,780
14-61-0	1275	63.75	14%	8,925
15-15-6-4	6500	325	15%	48,750
2/4-21-21		0	3%	0
Other mixed				
Crystallic				
Liquid				
Other				
TOTAL		**32,597**		**6,767,660**

2006

FERTLIZER	Bags of 50 kg	tn/y	% N	kg N/y
Ammonium sulphate	41304	2065.2	21%	433,692
Urea	21590	1079.5	46%	496,570
Calcium Ammonium Nitrate	16320	816	26%	212,160
Ammonium nitrate	63748	3187.4	33%	1,051,842
Triple Superphosphate	7700	385	0%	0
Potassium Sulphate	2040	102	0%	0
Potassium nitrate		0	13%	0
Mixed:				
13-0-46	13046	652.3	13%	84,799
20-20-0	292026	14601.3	20%	2,920,260
20-10-10	56660	2833	20%	566,600
14-22-9	117820	5891	14%	824,740
14-61-0	620	31	14%	4,340
15-15-6-4	3620	181	15%	27,150
2/4-21-21		0	3%	0
Other mixed				
Crystallic				
Liquid				
Other				
TOTAL		**31,825**		**6,622,153**

3. On-field burning

1999		A		B	C	D	E	F	G	H	I	J	K	L
Crops	Cultivated Area (Ha)	Annual Production	Productivity (tn/Ha)	Residue to Crop Ratio	Quantity of Residue	Dry Matter Fraction	Quantity of Dry Residue	Fraction Burned in Fields	Fraction Oxidised	Total Biomass Burned	Carbon Fraction of Residue	Total Carbon Released	Nitrogen-Carbon Ratio	Total Nitrogen Released
		(t)			(t)		(t)			(t)		(t)		(t)
					=AxB		=CxD			=ExFxG		=HxI		=JxK
Wheat (Σιτάρι)	6600	14000	2.12	1.3	18200	0.83	15106	0.5	0.9	6.7977	0.4853	3.30	0.012	0.04
Barley (Κριθάρι)	52000	112700	2.17	1.2	135240	0.83	112249.2	0.5	0.9	50.5121	0.4567	23.07	0.015	0.35
Oats (Βρώμη)	340	400	1.18	1.3	520	1	520	0.5	0.9	0.234	0.45	0.11	0.015	0.00
Rye (Σίκαλη)				1.6	0	1	0	0.5	0.9	0	0.45	0.00	0.015	0.00
Maize (Καλαμπόκι)				1	0	0.4	0	0.5	0.9	0	0.4709	0.00	0.02	0.00
Rice				1.4	0	0.83	0	0.5	0.9	0	0.4144	0.00	0.014	0.00
Sugarbeet				0.2	0	0.15	0	0.5	0.9	0	0.4072	0.00	0.015	0.00
Beans	430	1000	2.33	2.1	2100	1	2100	0.5	0.9	0.945	0.45	0.43	0.015	0.01
Peas	100	130	1.30	1.5	195	1	195	0.5	0.9	0.08775	0.45	0.04	0.015	0.00
Potatoes	6800	161500	23.75	0.4	64600	0.45	29070	0.5	0.9	13.0815	0.4226	5.53	0.015	0.08
	66,270	**289,730**					**159,240**			**72**		**32**		**0.48**

Area (Ha)		CH4	CO	N2O	NOx			ktn (Gg)	CH4	CO	N2O	NOx
Cereals burned	**58940**	**0.2**	**3.7**	**0.0**	**0.2**	tn		Cereals	0.00	0.00	0.00	0.00
		3	63	0	3	g/Ha		Pulse	0.00	0.00	0.00	0.00
Pulses burned	**530**	**0.0**	**0.1**	**0.0**	**0.0**	tn		Tuber & root	0.00	0.00	0.00	0.00
		6	123	0	5	g/Ha						
Tuber & roots	**6,800**	**0.0**	**0.8**	**0.0**	**0.0**	tn						
		5	114	0	5	g/Ha						

2000		A		B	C	D	E	F	G	H	I	J	K	L
Crops	Cultivated Area (Ha)	Annual Production	Productivity (tn/Ha)	Residue to Crop Ratio	Quantity of Residue	Dry Matter Fraction	Quantity of Dry Residue	Fraction Burned in Fields	Fraction Oxidised	Total Biomass Burned	Carbon Fraction of Residue	Total Carbon Released	Nitrogen-Carbon Ratio	Total Nitrogen Released
		(t)			(t)		(t)			(t)		(t)		(t)
					=AxB		=CxD			=ExFxG		=HxI		=JxK
Wheat (Σιτάρι)	6150	10000	1.63	1.3	13000	0.83	10790	0.5	0.9	4.8555	0.4853	2.36	0.012	0.03
Barley (Κριθάρι)	45000	37600	0.84	1.2	45120	0.83	37449.6	0.5	0.9	16.8523	0.4567	7.70	0.015	0.12
Oats (Βρώμη)	330	350	1.06	1.3	455	1	455	0.5	0.9	0.20475	0.45	0.09	0.015	0.00
Rye (Σίκαλη)				1.6	0	1	0	0.5	0.9	0	0.45	0.00	0.015	0.00
Maize (Καλαμπόκι)				1	0	0.4	0	0.5	0.9	0	0.4709	0.00	0.02	0.00
Rice				1.4	0	0.83	0	0.5	0.9	0	0.4144	0.00	0.014	0.00
Sugarbeet				0.2	0	0.15	0	0.5	0.9	0	0.4072	0.00	0.015	0.00
Beans	430	1100	2.56	2.1	2310	1	2310	0.5	0.9	1.0395	0.45	0.47	0.015	0.01
Peas	70	80	1.14	1.5	120	1	120	0.5	0.9	0.054	0.45	0.02	0.015	0.00
Potatoes	6500	117000	18.00	0.4	46800	0.45	21060	0.5	0.9	9.477	0.4226	4.00	0.015	0.06
	58,480	**166,130**					**72,185**			**32**		**15**		**0.21**

Area (Ha)		CH4	CO	N2O	NOx			ktn (Gg)	CH4	CO	N2O	NOx
Cereals burned	**51480**	**0.1**	**1.4**	**0.0**	**0.1**	tn		Cereals	0.00	0.00	0.00	0.00
		1	28	0	1	g/Ha		Pulse	0.00	0.00	0.00	0.00
Pulses burned	**500**	**0.0**	**0.1**	**0.0**	**0.0**	tn		Tuber & root	0.00	0.00	0.00	0.00
		7	138	0	6	g/Ha						
Tuber & roots	**6,500**	**0.0**	**0.6**	**0.0**	**0.0**	tn						

2001		A		B	C	D	E	F	G	H	I	J	K	L
Crops	Cultivated Area (Ha)	Annual Production	Productivity (tn/Ha)	Residue to Crop Ratio	Quantity of Residue	Dry Matter Fraction	Quantity of Dry Residue	Fraction Burned in Fields	Fraction Oxidised	Total Biomass Burned	Carbon Fraction of Residue	Total Carbon Released	Nitrogen-Carbon Ratio	Total Nitrogen Released
		(t)			(t)		(t)			(t)		(t)		(t)
					=AxB		=CxD			=ExFxG		=HxI		=JxK
Wheat (Σιτάρι)	5400	10500	1.94	1.3	13650	0.83	11329.5	0.5	0.9	5.09828	0.4853	2.47	0.012	0.03
Barley (Κριθάρι)	50200	116500	2.32	1.2	139800	0.83	116034	0.5	0.9	52.2153	0.4567	23.85	0.015	0.36
Oats (Βρώμη)	370	380	1.03	1.3	494	1	494	0.5	0.9	0.2223	0.45	0.10	0.015	0.00
Rye (Σίκαλη)				1.6	0	1	0	0.5	0.9	0	0.45	0.00	0.015	0.00
Maize (Καλαμπόκι)				1	0	0.4	0	0.5	0.9	0	0.4709	0.00	0.02	0.00
Rice				1.4	0	0.83	0	0.5	0.9	0	0.4144	0.00	0.014	0.00
Sugarbeet				0.2	0	0.15	0	0.5	0.9	0	0.4072	0.00	0.015	0.00
Beans	430	1050	2.44	2.1	2205	1	2205	0.5	0.9	0.99225	0.45	0.45	0.015	0.01
Peas	70	100	1.43	1.5	150	1	150	0.5	0.9	0.0675	0.45	0.03	0.015	0.00
Potatoes	5715	121000	21.17	0.4	48400	0.45	21780	0.5	0.9	9.801	0.4226	4.14	0.015	0.06
	62,185	**249,530**					**151,993**			**68**		**31**		**0.46**

Area (Ha)		CH4	CO	N2O	NOx			ktn (Gg)	CH4	CO	N2O	NOx
Cereals burned	**55970**	**0.2**	**3.7**	**0.0**	**0.2**	tn		Cereals	0.00	0.00	0.00	0.00
		3	66	0	3	g/Ha		Pulse	0.00	0.00	0.00	0.00
Pulses burned	**500**	**0.0**	**0.1**	**0.0**	**0.0**	tn		Tuber & root	0.00	0.00	0.00	0.00
		6	134	0	6	g/Ha						
Tuber & roots	**5,715**	**0.0**	**0.6**	**0.0**	**0.0**	tn						

2002		A		B	C	D	E	F	G	H	I	J	K	L
Crops	Cultivated Area (Ha)	Annual Production	Productivity (tn/Ha)	Residue to Crop Ratio	Quantity of Residue	Dry Matter Fraction	Quantity of Dry Residue	Fraction Burned in Fields	Fraction Oxidised	Total Biomass Burned	Carbon Fraction of Residue	Total Carbon Released	Nitrogen-Carbon Ratio	Total Nitrogen Released
		(t)			(t)		(t)			(t)		(t)		(t)
					=AxB		=CxD			=ExFxG		=HxI		=JxK
Wheat (Σιτάρι)	5900	12900	2.19	1.3	16770	0.83	13919.1	0.5	0.9	6.2636	0.4853	3.04	0.012	0.04
Barley (Κριθάρι)	51300	128400	2.50	1.2	154080	0.83	127886.4	0.5	0.9	57.5489	0.4567	26.28	0.015	0.39
Oats (Βρώμη)	400	400	1.00	1.3	520	1	520	0.5	0.9	0.234	0.45	0.11	0.015	0.00
Rye (Σίκαλη)				1.6	0	1	0	0.5	0.9	0	0.45	0.00	0.015	0.00
Maize (Καλαμπόκι)				1	0	0.4	0	0.5	0.9	0	0.4709	0.00	0.02	0.00
Rice				1.4	0	0.83	0	0.5	0.9	0	0.4144	0.00	0.014	0.00
Sugarbeet				0.2	0	0.15	0	0.5	0.9	0	0.4072	0.00	0.015	0.00
Beans	430	1000	2.33	2.1	2100	1	2100	0.5	0.9	0.945	0.45	0.43	0.015	0.01
Peas	85	105	1.24	1.5	157.5	1	157.5	0.5	0.9	0.07088	0.45	0.03	0.015	0.00
Potatoes	6360	148500	23.35	0.4	59400	0.45	26730	0.5	0.9	12.0285	0.4226	5.08	0.015	0.08
	64,475	**291,305**					**171,313**			**77**		**35**		**0.52**
										0.01033				

Area (Ha)		CH4	CO	N2O	NOx			ktn (Gg)	CH4	CO	N2O	NOx
Cereals burned	**57600**	**0.2**	**4.1**	**0.0**	**0.2**	tn		Cereals	0.00	0.00	0.00	0.00
		3	72	0	3	g/Ha		Pulse	0.00	0.00	0.00	0.00
Pulses burned	**515**	**0.0**	**0.1**	**0.0**	**0.0**	tn		Tuber & root	0.00	0.00	0.00	0.00
		6	124	0	5	g/Ha						
Tuber & roots	**6,360**	**0.0**	**0.7**	**0.0**	**0.0**	tn						

2003		A		B	C	D	E	F	G	H	I	J	K	L
Crops	Cultivated Area (Ha)	Annual Production	Productivity (tn/Ha)	Residue to Crop Ratio	Quantity of Residue	Dry Matter Fraction	Quantity of Dry Residue	Fraction Burned in Fields	Fraction Oxidised	Total Biomass Burned	Carbon Fraction of Residue	Total Carbon Released	Nitrogen-Carbon Ratio	Total Nitrogen Released
		(t)			(t)		(t)			(t)		(t)		(t)
					=AxB		=CxD			=ExFxG		=HxI		=JxK
Wheat (Σιτάρι)	7225	14280	1.98	1.3	18564	0.83	15408.12	0.5	0.9	6.93365	0.4853	3.36	0.012	0.04
Barley (Κριθάρι)	65007	150000	2.31	1.2	180000	0.83	149400	0.5	0.9	67.23	0.4567	30.70	0.015	0.46
Oats (Βρώμη)	513	410	0.80	1.3	533	1	533	0.5	0.9	0.23985	0.45	0.11	0.015	0.00
Rye (Σίκαλη)				1.6	0	1	0	0.5	0.9	0	0.45	0.00	0.015	0.00
Maize (Καλαμπόκι)				1	0	0.4	0	0.5	0.9	0	0.4709	0.00	0.02	0.00
Rice				1.4	0	0.83	0	0.5	0.9	0	0.4144	0.00	0.014	0.00
Sugarbeet				0.2	0	0.15	0	0.5	0.9	0	0.4072	0.00	0.015	0.00
Beans	287	2500	8.71	2.1	5250	1	5250	0.5	0.9	2.3625	0.45	1.06	0.015	0.02
Peas	97	920	9.48	1.5	1380	1	1380	0.5	0.9	0.621	0.45	0.28	0.015	0.00
Potatoes	5511	127500	23.14	0.4	51000	0.45	22950	0.5	0.9	10.3275	0.4226	4.36	0.015	0.07
	78,640	**295,610**					**194,921**			**88**		**40**		**0.59**
										0.01033				

Area (Ha)		CH4	CO	N2O	NOx			ktn (Gg)	CH4	CO	N2O	NOx
Cereals burned	**72745**	**0.2**	**4.8**	**0.0**	**0.2**	tn		Cereals	0.00	0.00	0.00	0.00
		3	66	0	3	g/Ha		Pulse	0.00	0.00	0.00	0.00
Pulses burned	**384**	**0.0**	**0.2**	**0.0**	**0.0**	tn		Tuber & root	0.00	0.00	0.00	0.00
		23	489	1	21	g/Ha						
Tuber & roots	**5,511**	**0.0**	**0.6**	**0.0**	**0.0**	tn						

2004		A		B	C	D	E	F	G	H	I	J	K	L
Crops	Cultivated Area (Ha)	Annual Production	Productivity (tn/Ha)	Residue to Crop Ratio	Quantity of Residue	Dry Matter Fraction	Quantity of Dry Residue	Fraction Burned in Fields	Fraction Oxidised	Total Biomass Burned	Carbon Fraction of Residue	Total Carbon Released	Nitrogen-Carbon Ratio	Total Nitrogen Released
		(t)			(t)		(t)			(t)		(t)		(t)
					=AxB		=CxD			=ExFxG		=HxI		=JxK
Wheat (Σιτάρι)	7450	9930	1.33	1.3	12909	0.83	10714.47	0.5	0.9	4.82151	0.4853	2.34	0.012	0.03
Barley (Κριθάρι)	58448	100990	1.73	1.2	121188	0.83	100586.04	0.5	0.9	45.2637	0.4567	20.67	0.015	0.31
Oats (Βρώμη)	808	3280	4.06	1.3	4264	1	4264	0.5	0.9	1.9188	0.45	0.86	0.015	0.01
Rye (Σίκαλη)				1.6	0	1	0	0.5	0.9	0	0.45	0.00	0.015	0.00
Maize (Καλαμπόκι)				1	0	0.4	0	0.5	0.9	0	0.4709	0.00	0.02	0.00
Rice				1.4	0	0.83	0	0.5	0.9	0	0.4144	0.00	0.014	0.00
Sugarbeet				0.2	0	0.15	0	0.5	0.9	0	0.4072	0.00	0.015	0.00
Beans	285	2502	8.78	2.1	5254.2	1	5254.2	0.5	0.9	2.36439	0.45	1.06	0.015	0.02
Peas	92	873	9.49	1.5	1309.5	1	1309.5	0.5	0.9	0.58928	0.45	0.27	0.015	0.00
Potatoes	5380	131650	24.47	0.4	52660	0.45	23697	0.5	0.9	10.6637	0.4226	4.51	0.015	0.07
	72,463	**249,225**					**145,825**			**66**		**30**		**0.44**
										0.01066				

Area (Ha)		CH4	CO	N2O	NOx			ktn (Gg)	CH4	CO	N2O	NOx
Cereals burned	**66706**	**0.2**	**3.3**	**0.0**	**0.1**	tn		Cereals	0.00	0.00	0.00	0.00
		2	50	0	2	g/Ha		Pulse	0.00	0.00	0.00	0.00
Pulses burned	**377**	**0.0**	**0.2**	**0.0**	**0.0**	tn		Tuber & root	0.00	0.00	0.00	0.00
		24	494	1	21	g/Ha						
Tuber & roots	**5,380**	**0.0**	**0.6**	**0.0**	**0.0**	tn						

2005		A		B	C	D	E	F	G	H	I	J	K	L
Crops	Cultivated Area (Ha)	Annual Production	Productivity (tn/Ha)	Residue to Crop Ratio	Quantity of Residue	Dry Matter Fraction	Quantity of Dry Residue	Fraction Burned in Fields	Fraction Oxidised	Total Biomass Burned	Carbon Fraction of Residue	Total Carbon Released	Nitrogen-Carbon Ratio	Total Nitrogen Released
		(t)			(t)		(t)			(t)		(t)		(t)
					=AxB		=CxD			=ExFxG		=HxI		=JxK
Wheat (Σιτάρι)	5264	9249	1.76	1.3	12023.7	0.83	9979.671	0.5	0.9	4.49085	0.4853	2.18	0.012	0.03
Barley (Κριθάρι)	52517	60286	1.15	1.2	72343.2	0.83	60044.856	0.5	0.9	27.0202	0.4567	12.34	0.015	0.19
Oats (Βρώμη)	4368	650	0.15	1.3	845	1	845	0.5	0.9	0.38025	0.45	0.17	0.015	0.00
Rye (Σίκαλη)				1.6	0	1	0	0.5	0.9	0	0.45	0.00	0.015	0.00
Maize (Καλαμπόκι)				1	0	0.4	0	0.5	0.9	0	0.4709	0.00	0.02	0.00
Rice				1.4	0	0.83	0	0.5	0.9	0	0.4144	0.00	0.014	0.00
Sugarbeet				0.2	0	0.15	0	0.5	0.9	0	0.4072	0.00	0.015	0.00
Beans	358	950	2.65	2.1	1995	1	1995	0.5	0.9	0.89775	0.45	0.40	0.015	0.01
Peas	20	91	4.55	1.5	136.5	1	136.5	0.5	0.9	0.06143	0.45	0.03	0.015	0.00
Potatoes	6190	152500	24.64	0.4	61000	0.45	27450	0.5	0.9	12.3525	0.4226	5.22	0.015	0.08
	68,717	**223,726**					**100,451**			**45**		**20**		**0.30**

Area (Ha)		CH4	CO	N2O	NOx			ktn (Gg)	CH4	CO	N2O	NOx
Cereals burned	**62149**	**0.1**	**2.1**	**0.0**	**0.1**	tn		Cereals	0.00	0.00	0.00	0.00
		2	33	0	1	g/Ha		Pulse	0.00	0.00	0.00	0.00
Pulses burned	**378**	**0.0**	**0.1**	**0.0**	**0.0**	tn		Tuber & root	0.00	0.00	0.00	0.00
		8	160	0	7	g/Ha						
Tuber & roots	**6,190**	**0.0**	**0.7**	**0.0**	**0.0**	tn						

2006		A		B	C	D	E	F	G	H	I	J	K	L
Crops	Cultivated Area (Ha)	Annual Production	Productivity (tn/Ha)	Residue to Crop Ratio	Quantity of Residue	Dry Matter Fraction	Quantity of Dry Residue	Fraction Burned in Fields	Fraction Oxidised	Total Biomass Burned	Carbon Fraction of Residue	Total Carbon Released	Nitrogen-Carbon Ratio	Total Nitrogen Released
		(t)			(t)		(t)			(t)		(t)		(t)
					=AxB		=CxD			=ExFxG		=HxI		=JxK
Wheat (Σιτάρι)	5389	66833	12.40	1.3	86882.9	0.83	72112.807	0.5	0.9	32.4508	0.4853	15.75	0.012	0.19
Barley (Κριθάρι)	48914	58372	1.19	1.2	70046.4	0.83	58138.512	0.5	0.9	26.1623	0.4567	11.95	0.015	0.18
Oats (Βρώμη)	4919	943	0.19	1.3	1225.9	1	1225.9	0.5	0.9	0.55166	0.45	0.25	0.015	0.00
Rye (Σίκαλη)				1.6	0	1	0	0.5	0.9	0	0.45	0.00	0.015	0.00
Maize (Καλαμπόκι)				1	0	0.4	0	0.5	0.9	0	0.4709	0.00	0.02	0.00
Rice				1.4	0	0.83	0	0.5	0.9	0	0.4144	0.00	0.014	0.00
Sugarbeet				0.2	0	0.15	0	0.5	0.9	0	0.4072	0.00	0.015	0.00
Beans	376	1000	2.66	2.1	2100	1	2100	0.5	0.9	0.945	0.45	0.43	0.015	0.01
Peas	27	92	3.41	1.5	138	1	138	0.5	0.9	0.0621	0.45	0.03	0.015	0.00
Potatoes	4290	127500	29.72	0.4	51000	0.45	22950	0.5	0.9	10.3275	0.4226	4.36	0.015	0.07
	63,915	**254,740**					**156,665**			**70**		**33**		**0.44**

Area (Ha)		CH4	CO	N2O	NOx			ktn (Gg)	CH4	CO	N2O	NOx
Cereals burned	**59222**	**0.2**	**3.9**	**0.0**	**0.1**	tn		Cereals	0.00	0.00	0.00	0.00
		3	66	0	2	g/Ha		Pulse	0.00	0.00	0.00	0.00
Pulses burned	**403**	**0.0**	**0.1**	**0.0**	**0.0**	tn		Tuber & root	0.00	0.00	0.00	0.00
		7	157	0	7	g/Ha						
Tuber & roots	**4,290**	**0.0**	**0.6**	**0.0**	**0.0**	tn						

4. CH4 emissions from agriculture

Enteric fermentation

	g CH4/head	
DAIRY COWS	100,000	Western Europe (4200 kg milk/head, Cyprus: 4570 kg/head)
OTHER CATTLE	48,000	Western Europe
POULTRY		
SHEEP (OVINES)	8,000	
FATTENING PIGS (SWINE	1,500	
HORSES	18,000	
MULES AND ASSES	10,000	
GOATS	5,000	

1994	Γάλα	126000 tn	345.205479
	Αγελάδες γαλ	27574	
	kg/head y	4570	

Manure Management

	g CH4/head		
DAIRY COWS	44,000	Temperate climate (15 °C - 25 °C)	Western Europe
OTHER CATTLE	20,000	Temperate climate (15 °C - 25 °C)	Western Europe
POULTRY	117	Temperate climate (15 °C - 25 °C)	Developed countries
SHEEP (OVINES)	280	Temperate climate (15 °C - 25 °C)	Developed countries
FATTENING PIGS (SWINE	10,000	Temperate climate (15 °C - 25 °C)	Western Europe
HORSES	2,080	Temperate climate (15 °C - 25 °C)	Developed countries
MULES AND ASSES	1,140	Temperate climate (15 °C - 25 °C)	Developed countries
GOATS	180	Temperate climate (15 °C - 25 °C)	Developed countries

Number of animals (same as N2O_manure_soils sheet), 1000 animals

FOR 4A&B IN UNFCCC REPORTER

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
DAIRY COWS	22.41	23.12	23.90	25.65	27.57	29.48	27.32	25.49	23.82	23.80	24.00	24.40	26.20	24.59	23.82	24.59	23.93
OTHER CATTLE	32.27	31.91	31.92	35.46	36.79	38.65	42.77	36.94	32.02	30.20	30.20	29.20	32.10	32.99	32.02	32.99	32.18
POULTRY	2,900,000	2,700,000	3,100,000	3,650,000	3,300,000	3,400,000	3,500,000	3,600,000	3,600,000	3,200,000	3,600,000	3,400,000	3,590,000	4,185,500	3,600,000	3,600,000	3,600,000
SHEEP (OVINES)	290.00	295.00	285.00	275.00	255.00	250.00	252.00	265.00	240.00	230.00	246.00	296.60	294.00	199.02	240.00	268.87	272.19
FATTENING PIGS	277.94	296.23	341.95	369.41	356.21	374.07	399.53	414.79	431.30	418.50	408.40	451.30	491.40	429.70	431.30	429.72	452.64
HORSES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MULES AND ASSES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOATS	205.00	205.00	200.00	198.00	210.00	220.00	240.00	285.00	322.00	346.00	378.60	427.10	459.50	273.45	322.00	329.30	272.19

CH4 emissions from enteric fermentation (Gg)

FOR 4A IN UNFCCC REPORTER

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
DAIRY COWS	2.24	2.31	2.39	2.56	2.76	2.95	2.73	2.55	2.38	2.38	2.40	2.44	2.62	2.46	2.38	2.46	2.39
OTHER CATTLE	1.55	1.53	1.53	1.70	1.77	1.86	2.05	1.77	1.54	1.45	1.45	1.40	1.54	1.58	1.54	1.58	1.54
POULTRY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SHEEP (OVINES)	2.32	2.36	2.28	2.20	2.04	2.00	2.02	2.12	1.92	1.84	1.97	2.37	2.35	1.59	1.92	2.15	2.18
FATTENING PIGS	0.42	0.44	0.51	0.55	0.53	0.56	0.60	0.62	0.65	0.63	0.61	0.68	0.74	0.64	0.65	0.64	0.68
HORSES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MULES AND ASSES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOATS	1.03	1.03	1.00	0.99	1.05	1.10	1.20	1.43	1.61	1.73	1.89	2.14	2.30	1.37	1.61	1.65	1.36

CH4 emissions from manure management (Gg)

FOR 4B IN UNFCCC REPORTER

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
DAIRY COWS	0.99	1.02	1.05	1.13	1.21	1.30	1.20	1.12	1.05	1.05	1.06	1.07	1.15	1.08	1.05	1.08	1.05
OTHER CATTLE	0.65	0.64	0.64	0.71	0.74	0.77	0.86	0.74	0.64	0.60	0.60	0.58	0.64	0.66	0.64	0.66	0.64
POULTRY	0.34	0.32	0.36	0.43	0.39	0.40	0.41	0.42	0.42	0.37	0.42	0.40	0.42	0.49	0.42	0.42	0.42
SHEEP (OVINES)	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.06	0.07	0.08	0.08	0.06	0.07	0.08	0.08
FATTENING PIGS	2.78	2.96	3.42	3.69	3.56	3.74	4.00	4.15	4.31	4.19	4.08	4.51	4.91	4.30	4.31	4.30	4.53
HORSES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MULES AND ASSES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOATS	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.06	0.06	0.07	0.08	0.08	0.05	0.06	0.06	0.05

ANNEX IV: Waste data used for re-calculations of 1990–2005 emissions

Table V1. Solid Waste Production used for 2008 submissions

PERMANENT RESIDENTS

QUANTITIES (tn)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
NICOSIA	110,274	111,936	116,264	118,300	119,827	122,418	123,991	125,379	126,489	127,599	128,571	129,681	131,162	133,753	136,991	139,998	142,080
AMMOCHOSTOS	13,713	14,736	14,666	13,200	15,082	15,915	16,239	16,563	16,887	17,164	17,488	17,812	18,090	18,552	19,061	19,524	19,894
LARNACA	45,103	46,992	47,884	49,600	49,365	50,707	51,447	52,095	52,696	53,251	53,760	54,362	55,194	56,397	57,924	59,266	60,191
LIMASSOL	79,743	81,648	82,630	74,900	85,313	87,349	88,598	89,708	90,587	91,512	92,299	93,271	94,659	96,787	99,378	101,737	103,449
PAFOS	22,791	23,712	25,029	25,000	25,723	27,250	27,990	28,638	29,286	29,934	30,581	31,275	31,738	32,432	33,265	34,051	34,653
TOTAL	**271,623**	**279,025**	**286,474**	**281,000**	**295,310**	**303,638**	**308,265**	**312,382**	**315,945**	**319,461**	**322,699**	**326,401**	**330,842**	**337,921**	**346,619**	**354,576**	**360,267**

TOURISTS

QUANTITIES (tn)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
NICOSIA	732	564	789	478	618	640	619	581	563	770	801	866	769	650	758	736	820
AMMOCHOSTOS	7,245	6,542	10,653	11,319	11,147	11,427	10,204	11,293	12,265	6,640	6,913	7,058	5,847	5,135	4,930	4,768	4,340
LARNACA	2,914	2,366	3,485	0	3,032	2,709	2,415	2,082	2,226	2,871	2,989	3,125	2,414	2,033	2,259	2,440	2,247
LIMASSOL	5,418	4,601	7,090	5,057	6,750	6,297	5,503	5,369	5,618	13,844	14,413	15,639	13,003	11,331	11,455	12,169	11,655
PAFOS	4,524	4,143	6,885	7,006	7,623	7,864	7,124	7,462	8,704	9,985	10,395	11,692	10,911	10,326	10,599	10,587	10,375
TOTAL	**20,833**	**18,215**	**28,901**	**23,861**	**29,172**	**28,936**	**25,865**	**26,786**	**29,377**	**34,109**	**35,512**	**38,380**	**32,943**	**29,475**	**30,001**	**30,700**	**29,436**

INDUSTRIAL/ OTHERS

QUANTITIES (tn)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
NICOSIA	26,200	26,200	26,200	26,200	26,200	26,200	26,200	26,200	26,200	26,200	26,200	26,200	26,200	26,200	26,200	26,200	26,200
AMMOCHOSTOS	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
LARNACA	11,100	11,100	11,100	11,100	11,100	11100	11,100	11,100	11,100	11,100	11,100	11,100	11,100	11,100	11,100	11,100	11,100
LIMASSOL	14,600	14,600	14,600	***14,600***	16,037	***17,474***	20,352	***23,229***	24,345	23,229	23,229	23,229	23,229	23,229	23,229	23,229	23,229
PAFOS	5,500	5,500	5,500	5,500	5,500	5,500	5,500	*1,410*	5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500
TOTAL	**61,400**	**61,400**	**61,400**	**61,400**	**62,837**	**64,274**	**67,152**	**65,939**	**71,145**	**70,029**	**70,029**	**70,029**	**70,029**	**70,029**	**70,029**	**70,029**	**70,029**

TOTAL

QUANTITIES (tn)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
NICOSIA	137,206	138,701	143,253	144,978	**146,645**	149,257	150,810	152,159	153,252	154,569	155,572	156,748	158,130	160,603	163,950	166,934	169,100
AMMOCHOSTOS	24,957	25,278	29,319	28,519	30,230	31,343	30,443	31,856	33,152	27,804	28,401	28,870	27,937	27,688	27,991	28,292	28,234
LARNACA	59,117	60,458	62,469	**60,700**	63,497	64,515	64,962	65,277	66,022	67,222	67,849	68,587	68,708	69,530	71,283	72,806	73,538
LIMASSOL	99,761	100,849	104,319	94,557	108,100	**111,119**	114,452	**118,306**	120,551	128,586	129,941	132,138	130,890	131,347	134,062	137,135	138,333
PAFOS	32,814	33,355	37,414	37,506	38,847	40,614	40,614	**37,510**	43,490	45,418	46,476	48,467	48,149	48,258	49,364	50,138	50,527
TOTAL	**353,855**	**358,640**	**376,775**	**366,261**	**387,319**	**396,849**	**401,281**	**405,108**	**416,467**	**423,599**	**428,240**	**434,810**	**433,814**	**437,425**	**446,649**	**455,306**	**459,732**

index (kg/cap day)	**1.65**	**1.63**	**1.67**	**1.59**	**1.66**	**1.66**	**1.65**	**1.64**	**1.67**	**1.68**	**1.70**	**1.71**	**1.68**	**1.68**	**1.68**	**1.66**	**1.64**

% Managed																	
Λευκωσία + Λεμεσός	**67.0%**	**66.8%**	**65.7%**	**65.4%**	**65.8%**	**65.6%**	**66.1%**	**66.8%**	**65.7%**	**66.8%**	**66.7%**	**66.4%**	**66.6%**	**66.7%**	**66.7%**	**66.8%**	**66.9%**