National Inventory Report

Iceland 2005

Submitted under the United Nations Framework
Convention on Climate Change

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Preface

The United Nations Framework Convention on Climate Change (UNFCCC) was adopted in 1992 and entered into force in 1994. According to Articles 4 and 12 of the Convention, Parties are required to develop and to submit annually to the UNFCCC national inventories of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol.

To comply with this requirement, Iceland has prepared a National Inventory Report (NIR) for the year 2005. The NIR together with the associated Common Reporting Format tables (CRF) is Iceland's contribution to this round of reporting under the Convention, and covers emissions and removals in the period 1990 – 2003. The report has been prepared in accordance with the UNFCCC Reporting Guidelines on Annual Inventories adopted in November 2002 by the Conference of the Parties to the Convention (Decision 18/CP.8). The methodologies used to calculate emissions and removals are in accordance with the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories and the IPCC Good Practice Guidance and Uncertainty management in National Greenhouse Gas Inventories.

The Ministry for the Environment is responsible for the reporting. The Environment and Food Agency of Iceland (EFA) and the Agricultural Research Institute (ARI) have been the principle contributors to the preparation of the report.

Ministry of the Environment, Reykjavík, July 2005

Hugi Ólafsson, director
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EXECUTIVE SUMMARY

Kyoto accounting:

For 2003, Iceland's total greenhouse gas emissions were estimated to be 3.083 Gg CO_2-equivalents, excluding emissions falling under Decision 14/CP.7. Iceland's total emissions in 2003 were 6% below the 1990 levels. Iceland's net greenhouse gas emissions, including CO_2-removals with LUCF, were estimated to be 2.876 Gg CO_2-equivalents in 2003.

Background

The 1992 United Nations Framework Convention on Climate Change (UNFCCC) requires that the Parties report annually on their greenhouse gas emissions by sources and removals by sinks. In response to these requirements, Iceland has prepared the present National Inventory Report (NIR).

Iceland is a party of the UNFCCC, and Iceland acceded to the Kyoto Protocol on May 23rd, 2002. Earlier that year the government adopted a new climate change policy that was formulated in close cooperation between several ministries. The aim of the policy is to curb emissions of greenhouse gases so that they will not exceed the limits of Iceland´s obligations under the Kyoto Protocol. A second objective is to increase the level of carbon sequestration resulting from reforestation and revegetation programs.

Iceland's National Greenhouse Gas Inventory Report 2005 has the dual purpose of providing estimates of Iceland's net greenhouse emissions for the United Nations Convention on Climate Change (UNFCCC) and of tracking Iceland's progress towards its internationally agreed target of limiting emissions to 110% of the 1990 levels over the period 2008-2012.

The IPCC Good Practice Guidelines, the Revised 1996 Guidelines and national estimation methods are used in producing the greenhouse gas emissions inventories. The Common Reporting Format (CRF) tables are used in reporting the emission figures. The responsibility of producing the emissions data is by the Environment and Food Agency, which is responsible for compiling and maintaining the greenhouse gas inventory. The CO_2 removals with LUCF are compiled by the Hvanneyri Agricultural University. The national inventory and reporting system is constantly being developed and improved.

Trends in emissions and removals

In 1990, the total emissions of greenhouse gases in Iceland were 3.282 Gg of CO_2-equivalents. In 2003 total emissions were 3.083 Gg CO_2-equivalents, excluding emissions falling under Decision 14/CP.7. This is a decrease of 6% over the time period. On the other hand, when all emissions are included, the emissions from 1990 to 2003 have increased by 8%. Total emissions show a decrease between 1990 and 1994, with an exception in 1993, and an increase thereafter.

A summary of the Icelandic national emissions for 1990, 2002 and 2003 is presented in Table ES1 (without LUCF). Empty cells indicate emissions not occurring.

Table ES1. Emissions of greenhouse gases during the period 1990, 2002 and 2003, Gg CO_2-eq.

	1990	2002	2003	Changes 90-03	Changes 02-03
CO_2	2084,1	2241,2	2175,4	4%	-3%
CH_4	413,1	473,0	471,6	14%	-0,3%
N_2O	360	308,3	301,6	-16%	-2%
HFC 32		0,0	0,1		138%
HFC 125		15,7	26,3		68%
HFC 134a		3,8	13,4		254%
HFC 143a		15,6	29,4		88%
HFC 152		0,0	0,1		147%
CF_4	355,0	61,4	50,6	-86%	-18%
C_2F_6	64,6	11,2	9,2	-86%	-18%
SF_6	5,4	5,4	5,4	0%	0%
Total	**3282,2**	**3135,5**	**3083,2**	**-6%**	**-2%**
CO_2 emissions fulfilling 14/CP.7		441,3	450,8		2%
Total emissions, including CO_2 emissions fulfilling 14/CP.7		**3576,8**	**3534,0**	**8%**	**-1%**

The largest contributor of greenhouse gas emissions in Iceland is the energy sector, followed by industrial processes and agriculture, then waste and solvent and other product use. From 1990 to 2003 the contribution of the energy sector to the total net emissions increased from 52% to 60% respectively. At the same time the contribution from industrial processes decreased from 26% in 1990 to 17% in 2003. If all industrial process emissions in 2003 were included (also those emissions falling under Decision 14/CP.7) the contribution of industrial processes to total emissions would be 27% in 2003 and the contribution of the energy sector 53%.

Table ES2. Total emissions of greenhouse gases by sources and CO_2 removals from LUCF in 1990, 2002 and 2003, Gg CO_2-eq.

	1990	2002	2003
Energy	1704	1916	1861
Industrial Processes	867	495	509
Emissions fulfilling 14/CP.7*	-	441	451
Solvent Use	6	4	4
Agriculture	571	503	489
LUCF	-8	-193	-208
Waste	134	217	220
Total without LUCF	**3282**	**3136**	**3083**
Total with LUCF	3274	2943	2876

* Industrial process carbon dioxide emissions fulfilling Decision 14/CP.7 are not included in national totals

The distribution of the total greenhouse gas emissions (excluding emissions falling under Decision 14/CP.7) over the UNFCCC sectors in 2003 is shown in figure ES1. Emissions from the energy sector account for 60% of the national total emissions and industrial processes and agriculture account for 17 and 16% respectively. The waste sector accounts for 9% and solvent and other product use for 0,1%.

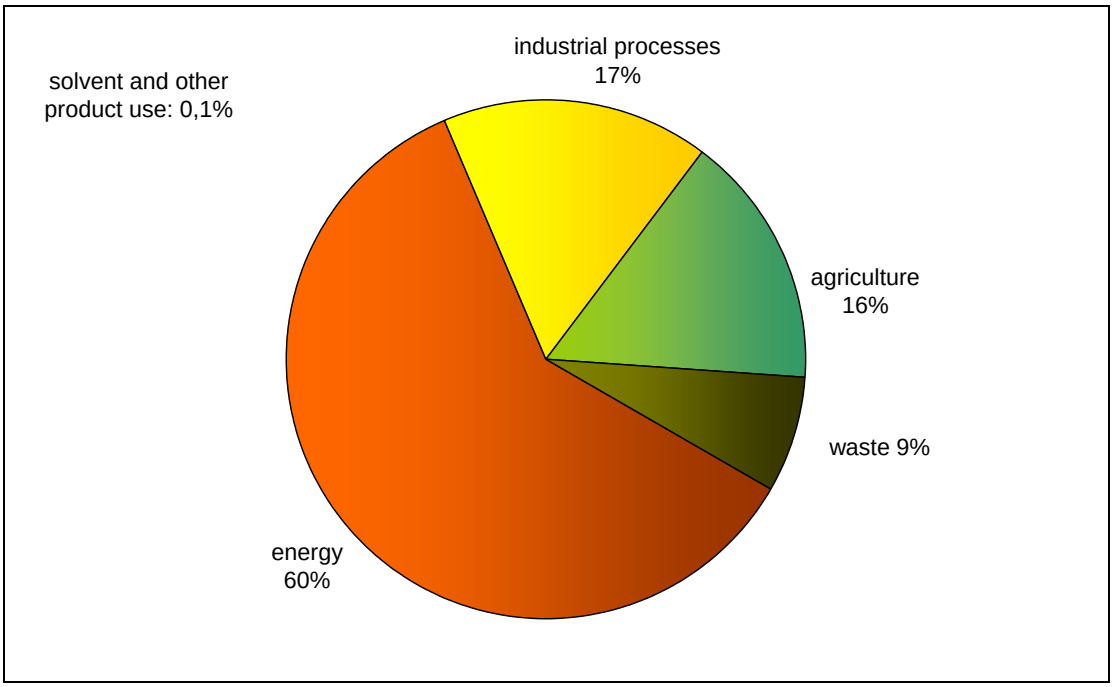

Figure ES1. Emissions of greenhouse gases by UNFCCC sector in 2003, excluding emissions falling under Decision 14/CP.7

The distribution of the total greenhouse gas emissions (including emissions falling under Decision 14/CP.7) over the UNFCCC sectors in 2003 is shown in figure ES2. Emissions from the energy sector account for 53% of the national total emissions, industrial processes account for 27 and agriculture for 14%. The waste sector accounts for 9% and solvent and other product use for 0,1%.

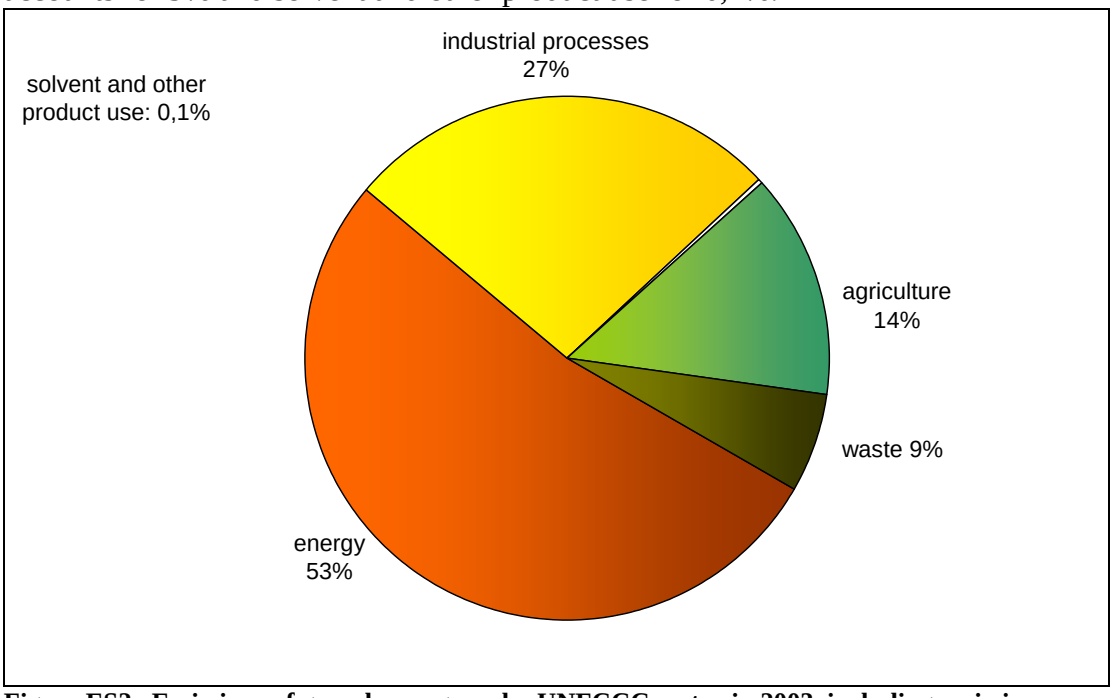

Figure ES2. Emissions of greenhouse gases by UNFCCC sector in 2003, including emissions falling under Decision 14/CP.7

1 INTRODUCTION

1.1 Background information

The 1992 United Nations Framework Convention on Climate Change (UNFCCC) was ratified by Iceland in 1993 and entered into force in 1994. One of the requirements under the Convention is that Parties are to report their national anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, using methodologies agreed upon by the Conference of the Parties to the Convention (COP).

In 1995 the Government of Iceland adopted an implementation strategy based on the commitments in the Framework Convention. The domestic implementation strategy was revised in 2002, based on the commitments in the Kyoto Protocol and the provisions of the Marrakech Accords. Iceland acceded to the Kyoto Protocol on May 23rd 2002. The Kyoto Protocol commits Annex I Parties to individual, legally binding targets for their greenhouse gas emissions in the "commitment period" 2008-2012. Iceland's obligations according to the Kyoto Protocol are as follows:

- For the first commitment period, from 2008 to 2012, the greenhouse gas emissions shall not increase more than 10% from the level of emissions in 1990.
- For the first commitment period, from 2008 to 2012, the mean annual carbon dioxide emissions falling under decision 14/CP.7 on the "Impact of single project on emissions in the commitment period" shall not exceed 1,600,000 tons.

The Ministry for the Environment formulated the climate change policy in close collaboration with the ministries of Transport and Communications, Fisheries, Finance, Agriculture, Industry and Commerce, Foreign Affairs and the Prime Minister's Office. The aim of the policy is to curb emissions of greenhouse gases so that they will not exceed the limits of Iceland's obligations under the Kyoto Protocol. A second objective is to increase the level of carbon sequestration resulting from reforestation and revegetation programs. The climate change policy is currently under revision and will be finalized later this year.

The greenhouse gas emissions profile for Iceland is in many regards unusual. Three features stand out. First, emissions from the generation of electricity and from spatial heating are essentially non-existent since they are generated from renewable non-emitting energy sources. Second, more than 80% of emissions from energy come from mobile sources (transport, mobile machinery and fishing vessels). The third distinctive feature is that individual sources of industrial process emissions have a significant proportional impact on emissions at the national level. Most noticeable in this regard is abrupt increases in emissions from aluminum production associated with the expanded production capacity of this industry. This last aspect of Iceland's emission profile made it difficult to set meaningful targets for Iceland during the Kyoto Protocol negotiations. This fact was acknowledged in Decision 1/CP.3 paragraph 5(d), which established a process for considering the issue and taking appropriate action. This process was completed with Decision 14/CP.7 on the Impact of Single Projects on Emissions in the Commitment Period.

The problem associated with the significant proportional impact of single projects on emissions is fundamentally a problem of scale. In small economies, single projects can dominate the changes in emissions from year to year. When the impact of such projects becomes several times larger than the combined effects of available greenhouse gas abatement measures, it becomes very difficult for the party involved to adopt quantified emissions limitations. It does not take a large source to strongly influence the total emissions from Iceland. A single aluminum plant can add more than 15% to the country's total greenhouse gas emissions. A plant of the same size would have negligible effect on emissions in most industrialized countries. Decision 14/CP.7 sets a threshold for significant proportional impact of single projects at 5% of total carbon dioxide emissions of a party in 1990. Projects exceeding this threshold shall be reported separately and carbon dioxide emissions from them not included in national totals to the extent that they would cause the party to exceed its assigned amount. Iceland can therefore not transfer assigned amount units to other Parties through international emissions trading. The total amount that can be reported separately under this decision is set at 1.6 million tons of carbon dioxide. The scope of Decision 14/CP.7 is explicitly limited to small economies, defined as economies emitting less than 0.05% of total Annex I carbon dioxide emissions in 1990. In addition to the criteria above, which relate to the fundamental problem of scale, additional criteria are included that relate to the nature of the project and the emission savings resulting from it. Only projects, where renewable energy is used, and where this use of renewable energy results in a reduction in greenhouse gas emissions per unit of production, will be eligible. The use of best environmental practice and best available technology is also required. It should be underlined that the decision only applies to carbon dioxide emissions from industrial processes. Other emissions, such as energy emissions or process emissions of other gases, such as PFCs, will not be affected.

Paragraph 4 of Decision 14/CP.7 requests any Party intending to avail itself of the provisions of that decision to notify the Conference of the Parties, prior to its eighth session, of its intention. The Government of Iceland notified the Conference of the Parties with a letter, dated October 17th 2002, of its intention to avail itself of the provisions of Decision 14/CP.7. Decision 14/CP.7 further requests any Party with projects meeting the requirements specified in the Decision, to report emission factors, total process emissions from these projects, and an estimate of the emission savings resulting from the use of renewable energy in these projects in their annual inventory submissions. The secretariat is requested to compile information submitted by Parties in accordance with the above request, to provide comparisons with relevant emission factors reported by other Parties, and to report this information to the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol. Iceland has already initiated preparations for the implementation of these special reporting provisions. One part of these changes in reporting was first reflected in the inventory report for the year 2000 submitted in April 2002. This inventory was presented as called for in Decision 14/CP.7. This was done to facilitate evaluation of the emission trends in Iceland and the policies and measures being implemented or planned. It was considered more consistent with the intent of 14/CP.7 to use this approach to reporting also for the period leading up to the commitment period rather than to introduce an abrupt change in the reporting approach in 2008. In the CRF for the year 2003 submitted in May 2005 three projects fall under the single project definition and are reported in accordance to Decision 14/CP.7. Those tables where

changes occur when emissions falling under Decision 14/CP.7 are included, are to be found in Annex II.

The present report together with the associated Common Reporting Format tables (CRF) is Iceland's contribution to this round of reporting under the Convention, and covers emissions and removals in the period 1990 – 2003. It has been prepared in accordance with the UNFCCC Reporting Guidelines on Annual Inventories adopted by the COP by its Decision 18/CP.8. The methodology used in calculating the emissions is according to the revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories as set out by the IPCC Good Practice Guidance, to the extent possible.

IPCC finalized a "Good Practice Guidance Report for Land-Use, Land-Use Change and Forestry" in 2004. New tables for reporting this sector have also been established. It was not possible for Iceland to report LULUCF emissions/removals according to these new requirements in this reporting round.

The greenhouse gases included in the national inventory are the following: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluorid (SF_6). Emissions of the precursors NOx, NMVOC and CO as well as SO_2 are also included, in compliance with the reporting guidelines.

1.2 Institutional arrangement

The Environment and Food Agency of Iceland (EFA), an agency under the Ministry for the Environment, has overall responsibility for the national inventory. EFA compiles and maintains the greenhouse gas emission inventory, except LULUCF which is compiled by the Hvanneyri Agricultural University (HAU). EFA reports to the Ministry for the Environment, which reports to the Convention. Figure 1.1 illustrates the flow of information and allocation of responsibilities.

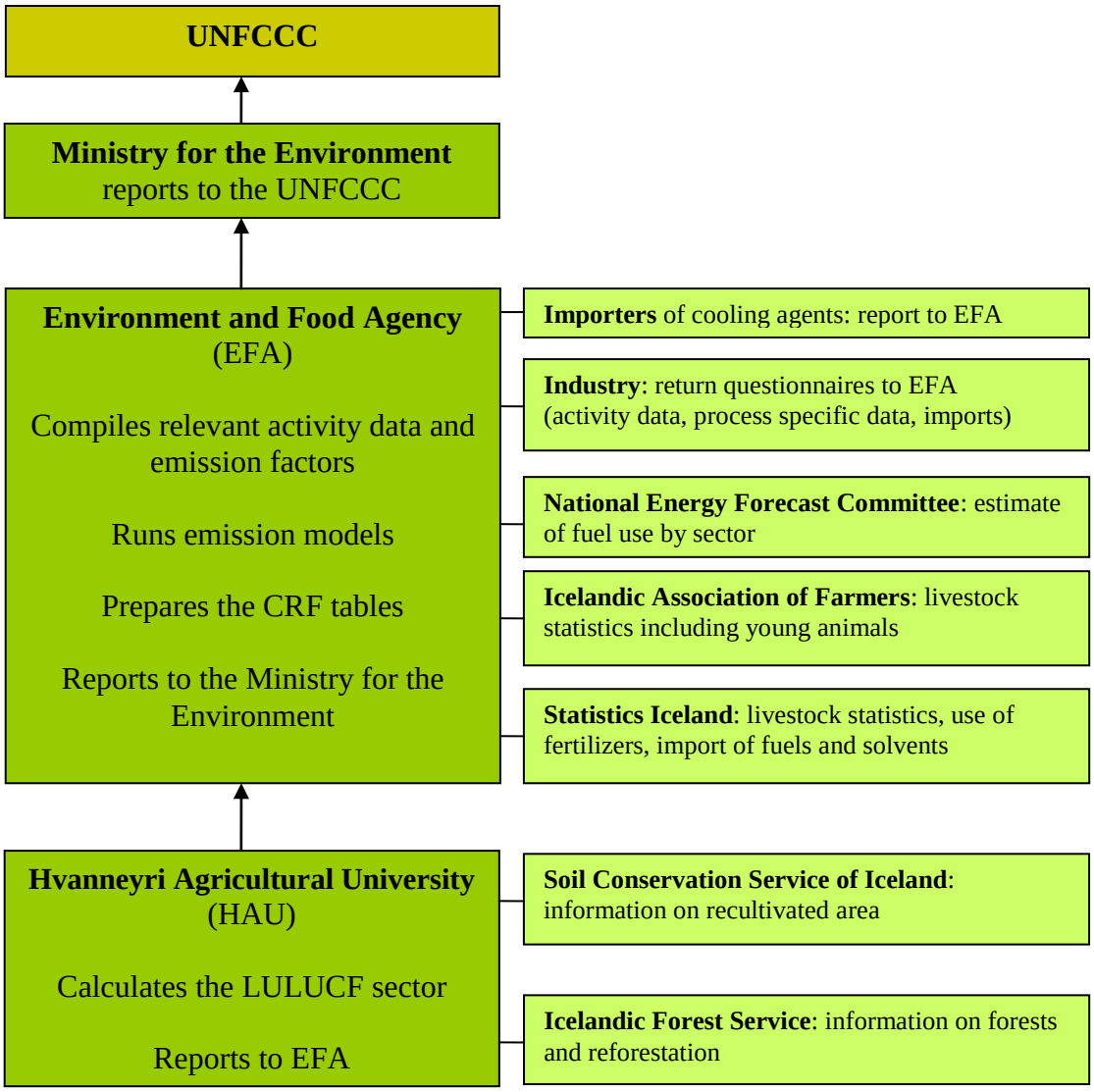

Figure 1.1 Information flow and distribution of responsibilities in the Icelandic emission inventory system for reporting to the UNFCCC

A formal procedure for the cooperation between the Ministry for the Environment on the one hand and the EFA and HAU on the other hand has not yet been established.

1.3 Process of inventory preparation

The EFA collects the bulk of data necessary to run the general emission model, i.e. activity data and emission factors. Activity data is collected from various institutions and companies, as well as by EFA directly. HAU receives information on recultivated area from the Soil Conservation Service of Iceland and information on forests and reforestation from the Icelandic Forest Service. HAU then calculates the LULUCF sector, based on a country specific method, and reports to the EFA.

The National Energy Forecast Committee (NEFC) collects annual information on fuel sales from the oil companies. This information has been provided on an informal basis. Since sales statistics were not provided by all the oil companies for the year 2003, fuel use by sector has been estimated by the NEFC. The Icelandic Association of Farmers (IAF), on the behalf of the Ministry of Agriculture, is responsible for

assessing the size of the animal population each year. On request from the EFA the IAF also accounts for young animals that are mostly excluded from national statistics on animal population. Statistics Iceland provides information on imports of solvents, use of fertilizers in agriculture and imports/exports of fuels. The EFA collects various additional data directly. Annually a questionnaire is sent out to the industry regarding imports, use of feedstock, and production and process specific information. Importers of HFCs submit reports on their annual imports by different types of HFCs to the EFA. EFA also estimates activity data with regard to waste. Emission factors are mainly taken from the revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, since limited information is available from measurements of emissions in Iceland.

1.4 Methodologies and used data sources

The estimation methods of all greenhouse gases are harmonized with the IPCC Guidelines for National Greenhouse Gas Inventories and are, to the extent possible, in accordance with IPCC's Good Practice Guidance.

The general emission model is based on the equation:

$$\text{Emission (E)} = \text{Activity level (A)} \cdot \text{Emission Factor (EF)}$$

The model includes the greenhouse gases and in addition the precursors and indirect greenhouse gases NOx, SO_2, NMVOC and CO as well as some other pollutants (POPs).

1.5 Key source categories

According to the IPCC definition, key sources are those that add up to 90% of the total uncertainty in level and/or in trend. In the Icelandic Emission Inventory key source categories are identified by means of Tier 1 method.

A key source analysis was prepared for this round of reporting. The table below lists the 16 identified key sources. Tables showing key source analysis (trend and level assessment) can be found in Annex I. The key source analysis gives basically the same result as last year. The only change from the key source analysis performed in 2004 is that CO_2 emissions from stationary oil combustion no longer constitutes a key source in trend but still is an key source in level. Also, CO_2 emissions from cement production now constitute a key source in trend as well as in level, but not only in level like last year.

Table 1.1 Key sources

IPCC SOURCE CATEGORIES	Direct GHG	Key source	
		Level	Trend
ENERGY SECTOR			
Mobile combustion: fishing	CO_2	ν	ν
Mobile combustion: road vehicles	CO_2	ν	ν
Mobile combustion: road vehicles	N_2O		ν
Mobile combustion: construction	CO_2	ν	ν
CO_2 emissions from stationary combustion, oil	CO_2	ν	
CO_2 emissions from stationary combustion, coal	CO_2		ν
INDUSTRIAL PROCESSES			
CO_2 emissions from Ferroalloys	CO_2	ν	
CO_2 emissions from cement production	CO_2	ν	ν
CO_2 emissions from aluminium production	CO_2	ν	
PFC emissions from aluminium production	PFC	ν	ν
Emissions from substitutes for Ozone Depleting Substances	HFC	ν	ν
AGRICULTURE			
CH_4 emissions from enteric fermentation	CH_4	ν	ν
Direct N_2O emissions from agricultural soils	N_2O	ν	ν
Indirect N_2O emissions from Nitrogen used in agriculture	N_2O	ν	
WASTE			
CH_4 emissions from solid waste disposal sites	CH_4	ν	ν
Emissions from waste incineration	CO_2		ν

1.6 Quality assurance and quality control (QA/QC)

No formal QA/QC plan exists yet, but calculations and units have been checked internally within the EFA. Data consistency between years is also checked.

1.7 Uncertainty evaluation

The quantitative uncertainty of the Icelandic emission inventory has not been evaluated yet. This is a priority issue before the next submission. A qualitative uncertainty assessment can be found in the CRF tables.

1.8 General assessment of the completeness

An assessment of the completeness of the emission inventory should, according to the IPCC´s Good Practice Guidance, address the issues of spatial, temporal and sectoral coverage along with all underlying source categories and activities.

In terms of spatial coverage, the emission reported under the UNFCCC covers all activities within Iceland's jurisdiction.

In the case of temporal coverage, CRF tables are reported for the whole time series from 1990 to 2003.

With regard to sectoral coverage the few sources listed in table 9 of the CRF are not estimated.

The main sources not estimated are:

- Emissions of CO_2 and CH_4 from distribution of oil products (1B2a v)
- Only the potential emissions of HFCs are estimated and SF_6 emissions are not estimated but held constant over the whole time series (2F)
- Emissions of N_2O and CH_4 from wastewater handling (6B)
- Emissions and removals of CO_2, CH_4 and N_2O from Forest and Grassland Conversion
- Emissions and removals of CO_2, CH_4 and N_2O from Abandonment of Managed Land
- Emissions and removals of CO_2 from Soil

The reason for not including the above activities/gases in the present submission is lack of data or methods, and/or that additional work was impossible due to time constraints in the preparation of the emission inventory.

1.9 Planned and implemented improvements

In 2004 the UNFCCC secretariat coordinated an in-country review of the 2004 greenhouse gas inventory submission of Iceland, in accordance with decision 19/CP.8 of the Conference of the Parties. The review took place from 20th to 24th of September 2004 in Iceland. The review was based on a complete set of common reporting format tables for the years 1990-2002, as well as a national inventory report from 2004. The expert review team concluded that the Icelandic emissions inventory is largely complete and largely consistent with the UNFCCC reporting guidelines. However, the expert review team noted some departures from the UNFCCC guidelines in that not all CO_2 emissions/removals from the Industrial Processes and LUCF sectors are included and the lack of data on actual emissions of HFCs and SF_6. There are other gaps in the data, for instance, with regard to emissions from waste-waster handling, N_2O and CH_4 emissions from fuel combustion of various combustion sourcers, CO_2 and N_2O emissions from solvent and other product use, and CO_2 emissions and removals from soils.

The expert review team pointed out the following issues of high importance for improving the inventory:

- The establishment of a more robust institutional and legal framework for fulfilling the reporting requirements under the UNFCCC, for example, as a basis for the preparation of the national energy balance;
- The reporting of all LUCF activities and Industrial Processes emissions in accordance with the UNFCCC reporting guidelines;
- Closing other estimation and reporting gaps in the inventory (e.g. emissions from wastewater handling, and actual emissions from HFCs and SF_6);
- Improving the quality of the activity data (e.g. in the LUCF and Waste sectors);
- Further implementation of the IPCC good practice guidance (e.g. the use of additional country-specific methodologies for key sources such as road transportation; quantitative estimation of uncertainties for total and sectoral emissions, as well as for the main key sources; and the introduction of a more advanced quality assurance/quality control system, including verfication of information provided by industry, including the fishing industry);

- Improvement of the transparancy of the inventory by providing more detailed information in the national inventory report (e.g. on recalculations, on the choice of methodologies, on details of country-specific methodologies and on activity data, and references to background material);
- Improvement of consistency with other national and international data sets (e.g. waste-related activity data, cement production data) and of explanation for inconsistencies, if any.

Based on the in-country review report, some important improvements have already been implemented, while other are to be implemented. A list of planned and implemented improvements can be seen in table 1.2.

Table 1.2 Planned and implemented improvements

Implemented improvements:

- The reporting of Industrial Processes falling under Decision 14/CP.7 will be as before, and as explained in 1.1 Background Information. Those tables where changes occur when emissions falling under Decision 14/CP.7 are included, are to be found in Annex II.
- N_2O and CH_4 emissions from fuel combustion of various combustion sourcers have been estimated.
- N_2O emissions from solvent and other product use have been estimated.

Planned improvements:

- Iceland has until now not prepared a national energy balance. Following the recommendations from the In-country review team, Iceland will now start preparing annually a national energy balance
- The Ministry for the Environment, in close co-operation with other relevant ministries will be establishing a comprehensive institutional and legal framework in to further strengthen the Icelandic climate change policy. This will include an improved framework for fulfilling the reporting requirements under the UNFCCC. This work has already started.

Improvements under consideration:

- Estimate quantitative uncertainty.
- Develop a quality assurance/quality control system.
- Improve methodologies to estimate emissions from road transportation.
- Improve activity data and methodologies in the waste sector.
- Estimate actual emissions of HFCs and SF_6.
- Develop country-specific emission factor for enteric fermentation
- Revise country-specific N excretion factors.

2 TRENDS IN GREENHOUSE GAS EMISSIONS

2.1 Emission trends for aggregated greenhouse gas emissions

The total amount of greenhouse gases emitted in Iceland during the period 1990 – 2003 is presented in the following tables, expressed in terms of contribution by gases and by sources. Emissions falling under Decision 14/CP.7 are not included in this discussion unless specifically noted.

Table 2.1 below presents emission figures for all direct greenhouse gases, expressed in CO_2-equivalents along with the percentage change indicated for both the time period 1990 – 2003 and 2002 – 2003.

Table 2.1. Emissions of greenhouse gases in Iceland during the period 1990 – 2003 (without LUCF). Empty cells indicate emissions not occurring. Units: Gg CO_2-eq

	Year													
Gas	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CO_2	2084	2005	2132	2237	2200	2216	2307	2411	2292	2458	2309	2188	2241	2175
CH_4	413	415	417	425	440	466	478	482	488	495	488	490	473	472
N_2O	360	350	329	337	341	339	356	355	353	373	348	342	308	301
HFC 32									0	0	0	0	0	0
HFC 125						11	12	11	27	23	15	23	16	26
HFC 134a			1	2	3	4	6	7	8	8	6	7	4	13
HFC 143a						10	10	19	29	28	12	24	16	29
HFC 152a						0	0	0	0	0	0	0	0	0
CF_4	355	295	131	63	38	50	21	70	152	147	108	78	61	51
C_2F_6	65	54	24	12	7	9	4	13	28	27	20	14	11	9
SF_6	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Total	**3282**	**3123**	**3039**	**3080**	**3035**	**3110**	**3201**	**3374**	**3382**	**3564**	**3309**	**3170**	**3136**	**3083**
CO2 emissions fulfilling 14/CP.7									108	115	273	404	441	451
Total emissions including CO2 emissions fulfilling 14/CP.7									**3490**	**3679**	**3582**	**3574**	**3577**	**3534**

Gas	**1990**	**2002**	**2003**	**Changes 90-03**	**Changes 02-03**
CO_2	2084	2241	2175	4%	-3%
CH_4	413	473	472	14%	-0,3%
N_2O	360	308	302	-16%	-2%
HFC 32		0	0		138%
HFC 125		16	26		68%
HFC 134a		4	13		254%
HFC 143a		16	29		88%
HFC 152		0	0		147%
CF_4	355	61	51	-86%	-18%
C_2F_6	65	11	9	-86%	-18%
SF_6	5	5	5	0%	0%
Total	**3282**	**3136**	**3083**	**-6%**	**-2%**
CO_2 emissions fulfilling 14/CP.7		441	451		2%
Total emissions, including CO_2 emissions fulfilling 14/CP.7		**3577**	**3534**	**8%**	**-1%**

In 1990, the total emissions of greenhouse gases in Iceland were 3.282 Gg of CO_2-equivalents. In 2003 total emissions were 3.083 Gg CO_2-equivalents, excluding emissions falling under Decision 14/CP.7. This implies a decrease of 6% over the time period. On the other hand, when all emissions are included, the emissions from 1990 to 2003 have increased by 8%. Total emissions show a decrease between 1990 and 1994, with an exception in 1993, and an increase thereafter. So far, 1999 has been the year with the highest emissions recorded.

Iceland has experienced economic growth since 1990, which explains the general growth in emissions. This has resulted in higher emissions from most sources, but in particular from transport and industrial processes. Since 1990 the number of private cars has been increasing much faster than the population. Also the number of passengers using the public transport system has declined. More traffic is thus not mainly due to population growth, but much rather because a larger share of the population owns and uses private cars for their daily travel. During the late nineties large-scale industry expanded in Iceland. The existing aluminium plant and the ferroalloys industry experienced enlargement in 1997 and 1999, and in 1998 a new aluminium plant was established. As mentioned before industrial process carbon dioxide emissions from a single project falling under decision 14/CP.7 are to be reported separately and are not included in national totals. Today three projects fall under the single project definition and are reported in accordance with Decision 14/CP.7

Methane emissions have increased between 1990 and 2003 mainly due to increasing amount of landfilled waste. Nitrous oxide emissions have, however, decreased since 1990, despite the fact that nitrous oxide emissions from road transport have increased. This is due to a decrease in animal livestock and because fertilizer production in Iceland was terminated in 2001.

Before 1992 there were no imports of HFCs, but since then, imports have increased rapidly in response to the phase-out of CFCs and HCFCs. The potential emissions of HFCs have risen from 0,5 Gg CO_2-equivalent in 1990 to 69,3 Gg CO_2-equivalent in 2003.

The overall increasing trend of greenhouse gas emissions has to some extent been counteracted by decreased emissions of PFCs, caused by improved technology and process control in the aluminium industry.

The overall emissions and removals of greenhouse gases have declined by 12% when emissions falling under Decision 14/CP.7 are excluded. This means that the net greenhouse gas emissions are within the Kyoto target set for Iceland.

2.2 Emission trends by gas

As shown in figure 2.1, the largest contributor by far (71%) to the total GHG emissions is CO_2, followed by CH_4 (15%) and N_2O (10%) and then by the fluorinated gases PFCs, HFCs and SF_6 (4%). Compared with 1990 the share of fluorinated gases in 2003 was higher (13%), the share of CH_4 and N_2O about the same (13% and 11% respectively) and the share of CO_2 lower (63%).

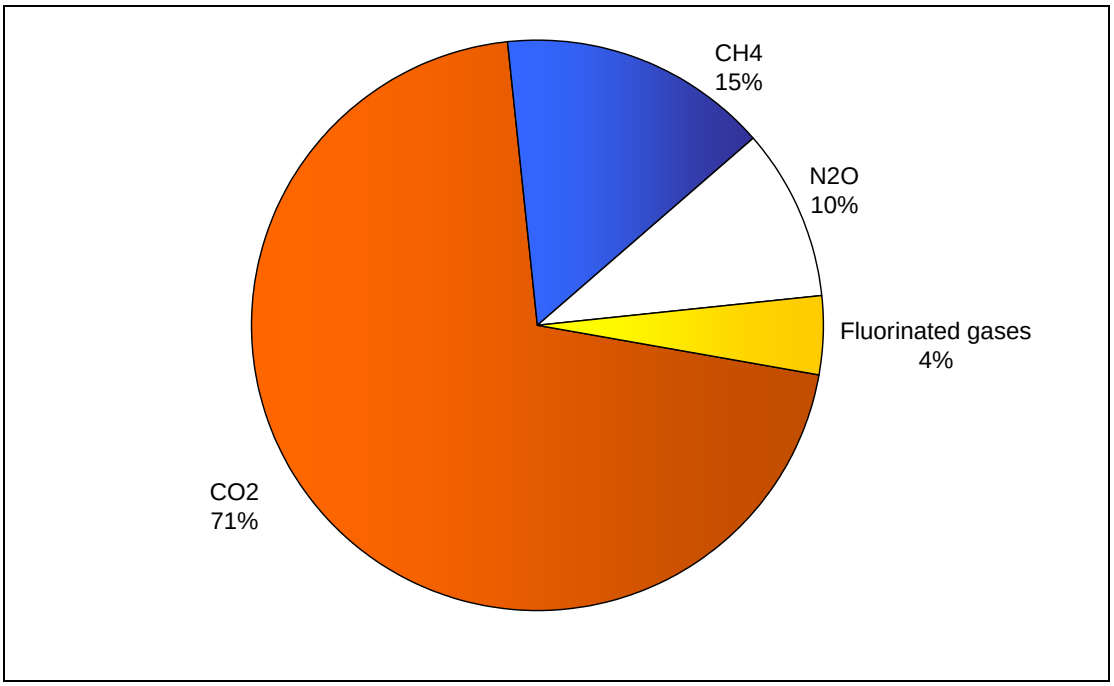

Figure 2.1 Distribution of emissions of greenhouse gases by gas in 2003

Figure 2.2 illustrates the percentage change in emissions of greenhouse gases by gas in Iceland from 1990 to 2003, compared with 1990.

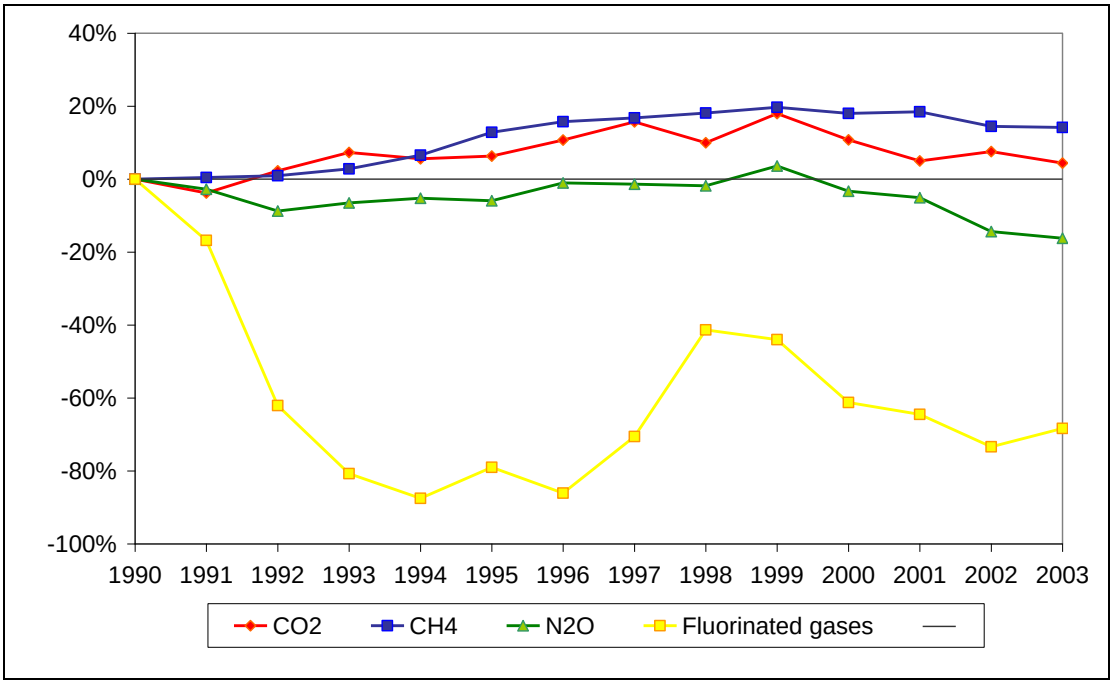

Figure 2.2 Percentage changes in emissions of greenhouse gases by gas 1990 – 2003, compared with 1990

2.2.1 Carbon dioxide (CO_2)

Fisheries, road transport and industrial processes are the three main sources of CO_2 emissions in Iceland. Since emissions from the generation of electricity and from spatial heating are essentially non-existent because they are generated from renewable non-emitting energy sources, emissions from stationary combustion are dominated by industrial sources. Thereof the fishmeal industry is by far the largest user of fossil fuels. 'Other sources' consist mainly of emissions from the construction industry.

Table 2.2 lists CO_2 emissions from each source category for the period 1990 – 2003. Figure 2.3 illustrates the distribution of CO_2 emissions by main source categories, and figure 2.4 shows the percentage change in emissions of CO_2 by source from 1990 to 2003, compared with 1990.

Table 2.2 Emissions of CO_2 by sector 1990 – 2002, Gg.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Fishing	655	676	740	770	760	772	828	810	781	765	720	640	705	662
Road vehicles	509	527	540	537	544	534	514	545	552	577	589	595	604	628
Stationary combustion, oil	237	168	241	253	229	219	270	285	261	264	203	245	275	228
Industrial processes	393	359	262	410	411	427	426	485	405	544	493	399	381	374
Other	290	275	248	267	257	265	269	288	292	307	304	309	277	284
Total	2084	2005	2132	2237	2200	2216	2307	2411	2292	2458	2309	2188	2241	2175

In 2003 the total CO_2 emissions in Iceland, excluding emissions falling under Decision 14/CP.7, were 2.175 Gg. This is implies a decrease of about 3% from the preceding year but an increase of about 4% from 1990. This decrease in emissions, between 2002 and 2003 can be explained by decreased emissions from fisheries (6%) and stationary combustion (17%, which are as mentioned above mainly due to the fishmeal industry and thus related to the decreased emissions from fisheries). Emissions from road vehicles increased by 4% between 2002 and 2003. The increase in CO_2 emissions between 1990 and 2003 can be explained by increased emissions from road transport (23%). In the 1990s the vehicle fleet in Iceland almost doubled. Emissions from fishing in 2003 were at the same level as in 1990 and emissions from other sources as well as industrial processes declined from 1990 to 2003. Inclusion of emissions falling under Decision 14/CP.7 shows that total CO_2 emissions from industrial processes have increased by 110% from 1990 to 2003.

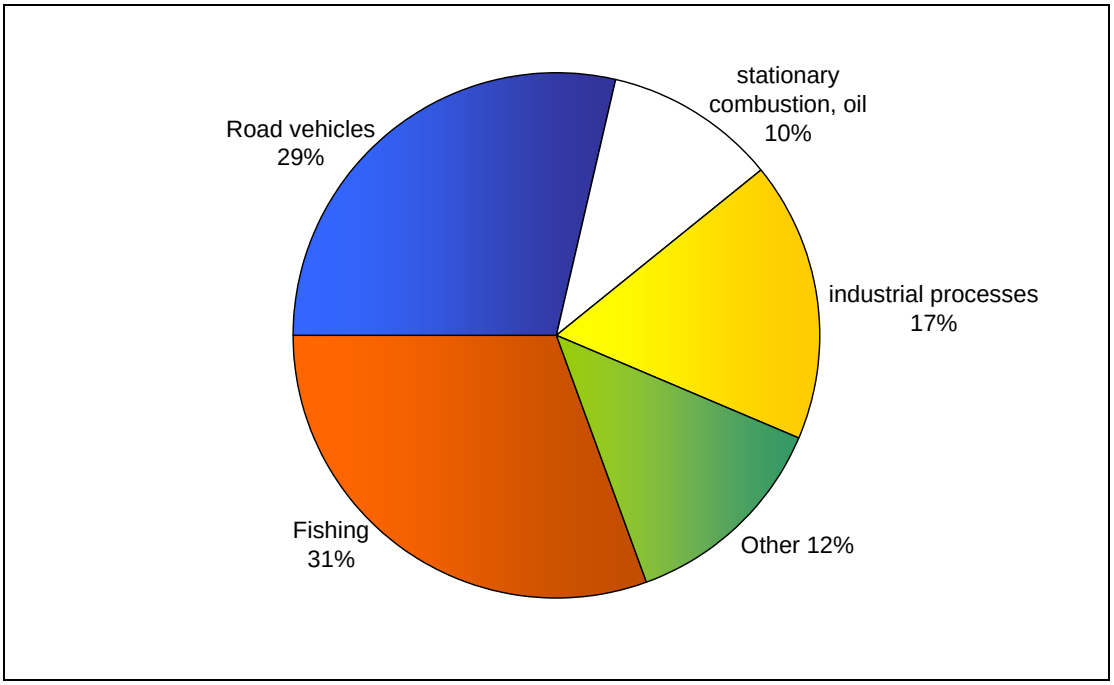

Figure 2.3 Distribution of CO_2 emissions by source in 2003

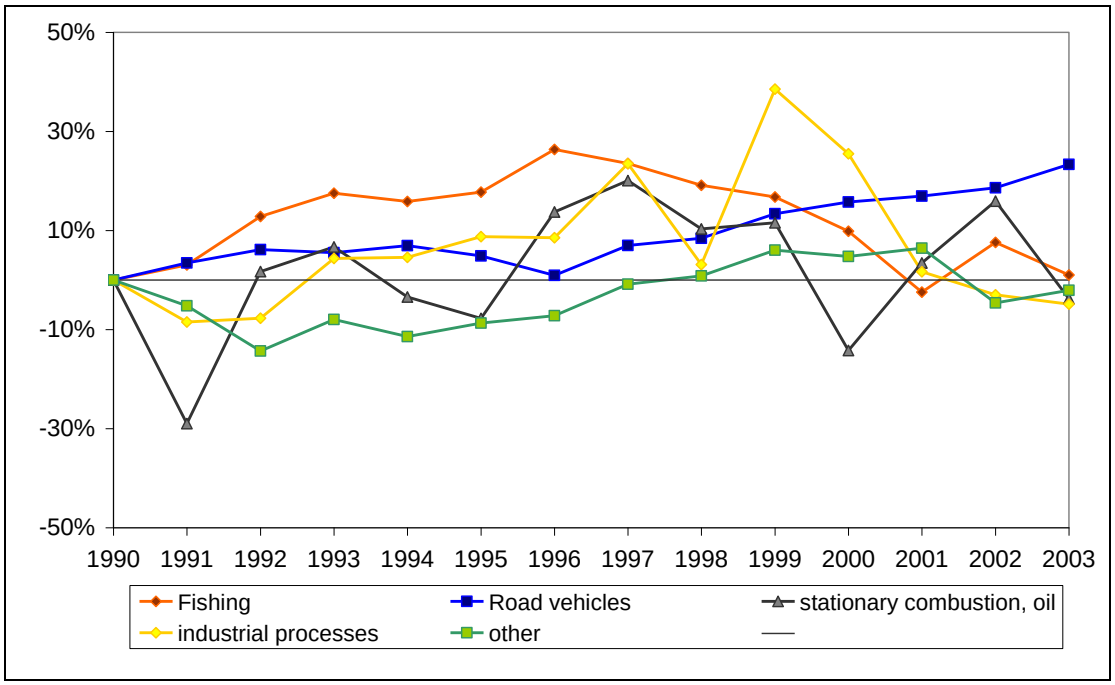

Figure 2.4 Percentage changes in emissions of CO_2 by major sources 1990 – 2003, compared with 1990

2.2.2 Methane (CH_4)

As can be seen from table 2.3 and figure 2.5, about 45% and 54% of the emissions of methane in 2003 originated from waste treatment and agriculture respectively. The emissions from agriculture are relatively stable from year to year with a slight decrease, but the emissions from waste treatment increase steadily from 1990 to 2001. This is due to an increased amount of waste generated and increased ratio of landfilled wastes in managed waste disposal sites. The emissions from landfills decreased slightly from 2001 to 2003, due to increased methane recovery.

In the same way the overall emissions of methane show a slight increase every year from 1990 to 1999 and a slight decrease thereafter.

Table 2.3 Emissions of CH_4 by sector 1990 – 2003, Gg

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Agriculture	14	14	13	13	13	13	13	13	13	13	13	13	12	12
Landfills	5	6	6	7	7	9	10	10	10	10	10	11	10	10
Other	0,3	0,3	0,3	0,3	0,3	0,2	0,3	0,2	0,2	0,2	0,2	0,2	0,2	0,2
Total	20	20	20	20	21	22	23	23	23	24	23	23	23	22

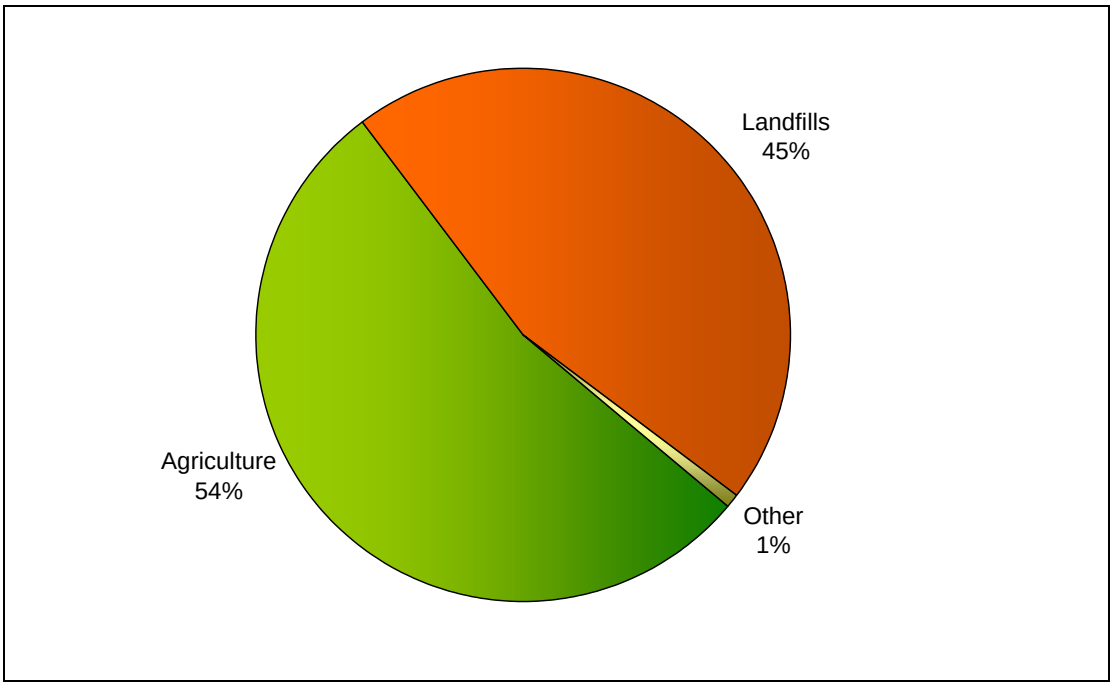

Figure 2.5 Distribution of CH_4 emissions by source in 2003

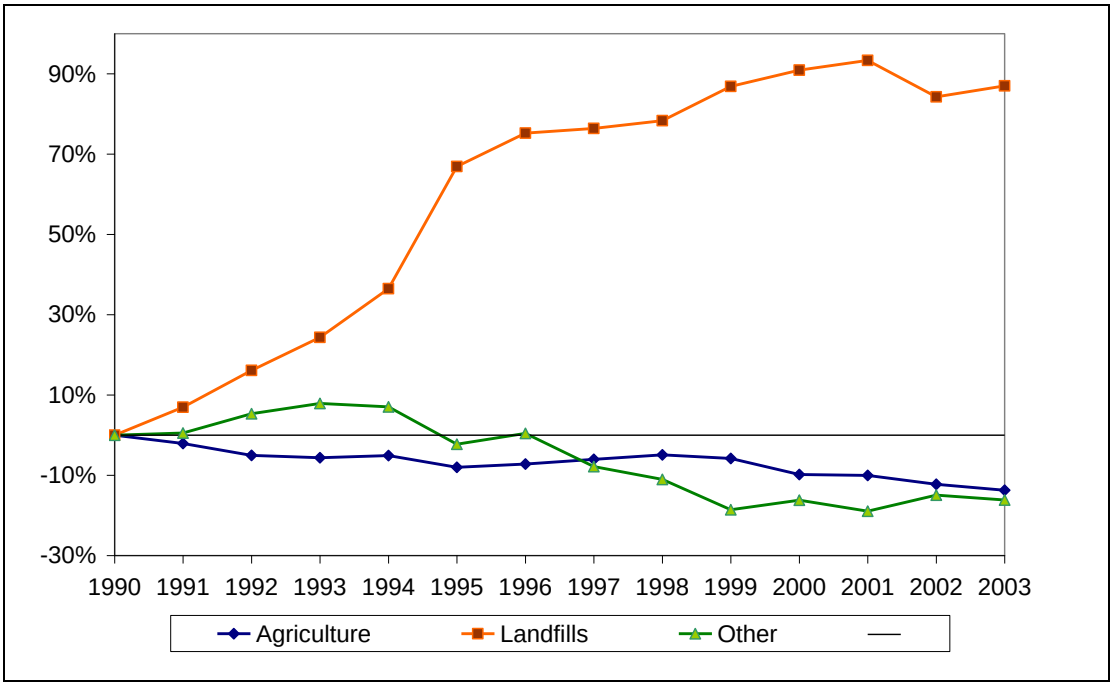

Figure 2.6 Percentage changes in emissions of CH_4 by major sources 1990 – 2003, compared to 1990

2.2.3 Nitrous oxide (N_2O)

As can be seen from table 2.4 and figure 2.7 agriculture accounts for around 80% of N_2O emissions in Iceland, with agricultural soils as the most prominent contributor. The second most important source is road transport, which has increased rapidly after the use of catalytic converters in all new vehicles became obligatory in 1995.

The overall nitrous oxide emissions decreased by 15% from 1990 to 2003, due to a decrease in the number of animal livestock and because fertilizer production in Iceland was terminated in 2001.

Table 2.4 Emissions of N_2O by sector 1990 – 2003, Gg

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Agriculture	0,9	0,9	0,8	0,8	0,9	0,8	0,9	0,8	0,8	0,9	0,9	0,8	0,8	0,8
Road traffic	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,1	0,1	0,1	0,1	0,1	0,1
Other	0,3	0,2	0,2	0,2	0,2	0,2	0,3	0,2	0,2	0,2	0,2	0,2	0,1	0,1
Total	1,2	1,1	1,1	1,1	1,1	1,1	1,1	1,1	1,1	1,2	1,1	1,1	1,0	1,0

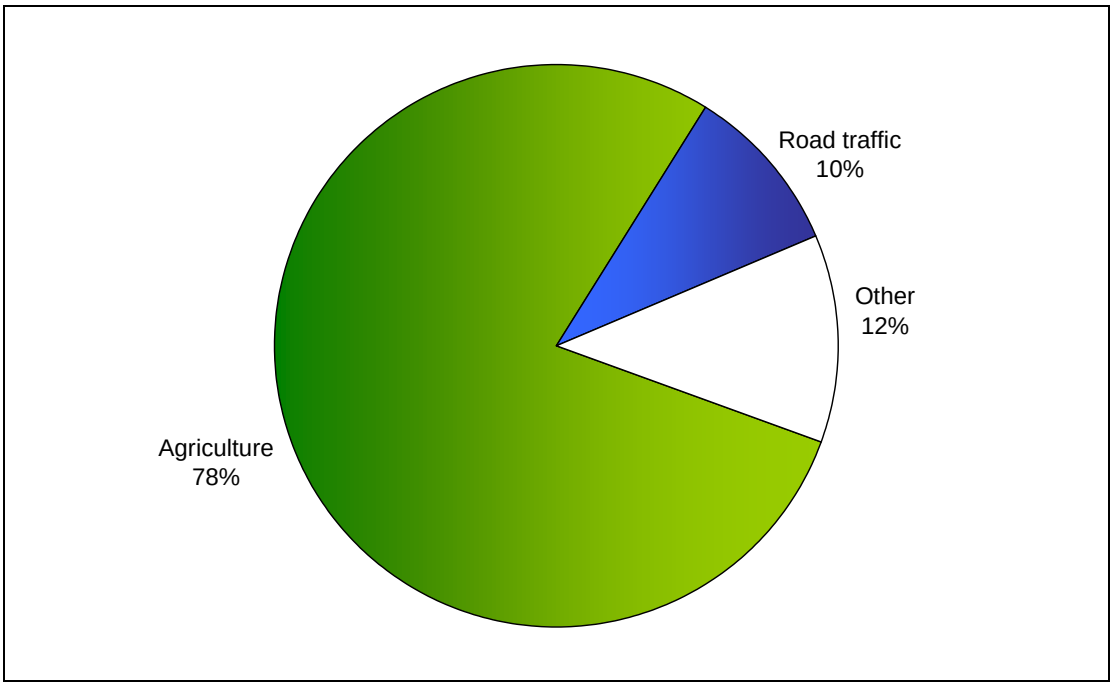

Figure 2.7 Distribution of N_2O emissions by source in 2003

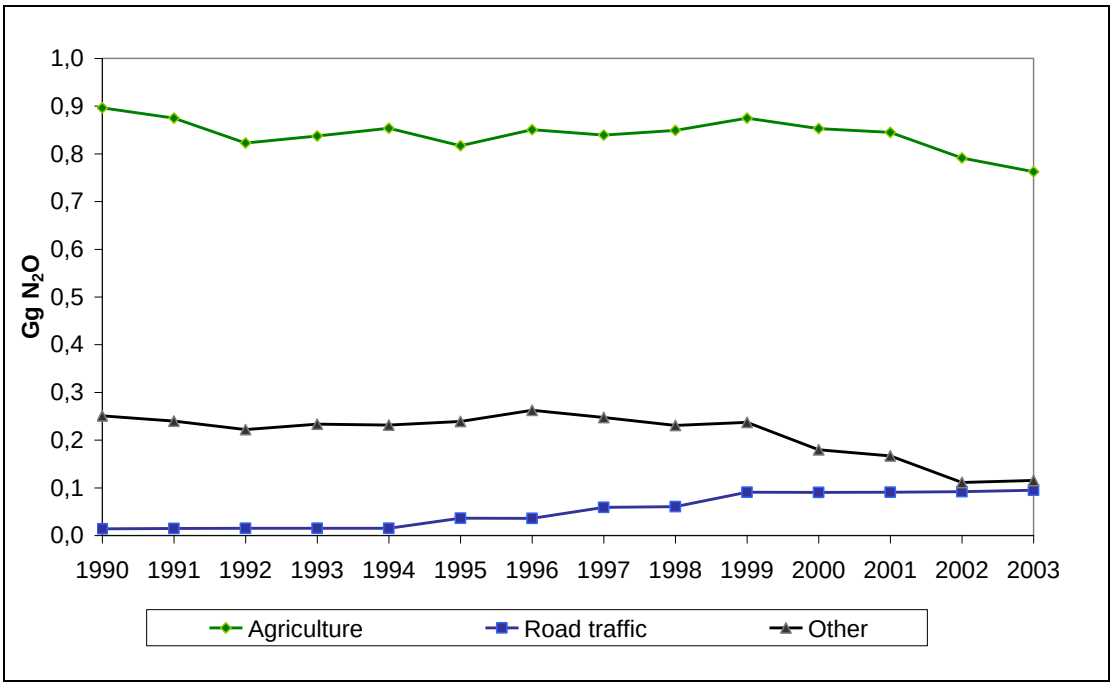

Figure 2.8 Changes in N_2O emission for major sources between 1990 and 2003

2.2.4 Perfluorcarbons

The emissions of the perfluorcarbons, tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6) from the aluminium industry were 50,6 and 9,2 Gg CO_2-equivalents respectively in 2003.

The total emissions of PFCs decreased by 86% in the period of 1990 – 2003. As can be seen from figure 2.9 the emissions decreased steadily from 1990 to 1996 with the exception of 1995. In 1997 and 1998 the emissions increase again due to enlargement of the existing aluminium plant in 1997 and the establishment of a new aluminium plant in 1998. Since 1998 the emissions show again a steady downward trend. PFCs reduction is caused by improved technology and process control, which has led to a 95% decrease in the amount of PFCs emitted per tonne of aluminium produced during the period of 1990 – 2003.

Table 2.5 Emissions of PFCs by species 1990 – 2002, Gg CO_2-equivalent

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CF_4	355	295	131	63	38	50	21	70	152	147	108	78	61	51
C_2F_6	65	54	24	12	7	9	4	13	28	27	20	14	11	9
Total	423	348	155	75	45	59	25	82	180	173	127	92	73	60

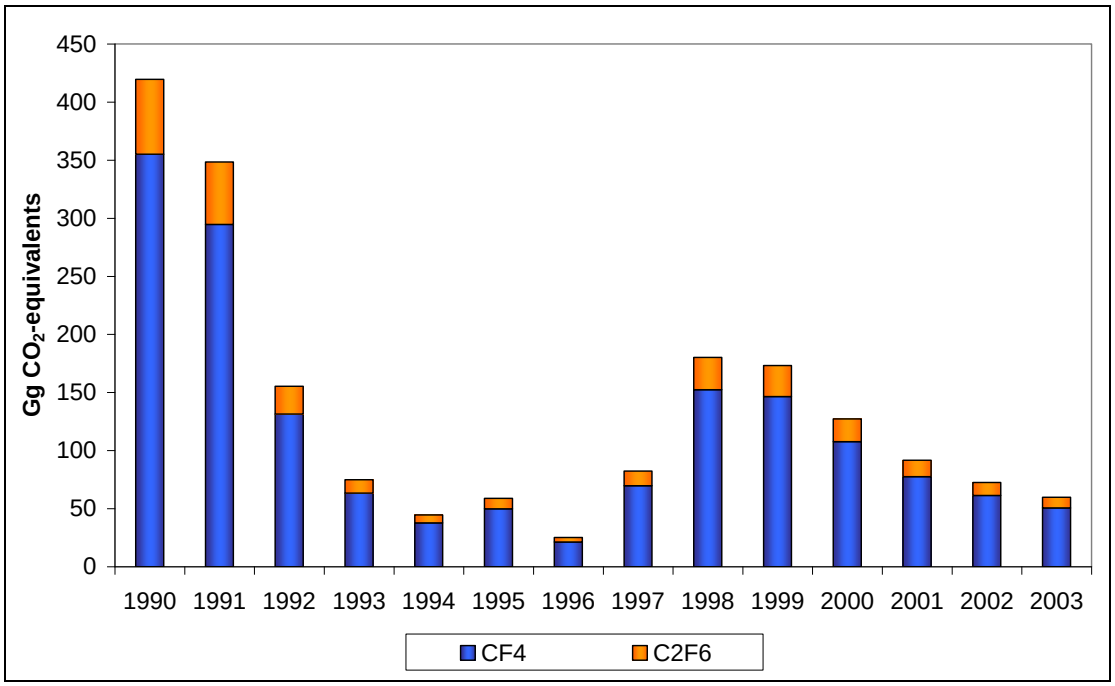

Figure 2.9 Emissions of PFCs from 1990 to 2003, Gg CO_2-equivalent

2.2.5 Hydrofluorocarbons (HFCs)

The total potential emissions of HFCs, used as substitutes for ozone depleting substances, amounted to 69,3 Gg CO_2-equivalents in 2003. The import of HFCs started in 1992 and increased until 1998. Since then annual imports have ranged been between 30 and 70 Gg CO_2-equivalents. Sufficient data is not available to calculate actual emissions. This means that only potential emissions, based on imports, are estimated. The potential method is likely to overstate emissions, since chemicals used e.g. in refrigerators are emitted over a period of several years. The application category refrigeration contributes by far the largest part of HFCs emissions but foam blowing is also thought to be a minor source.

Table 2.6 Emissions of HFCs by species 1990 – 2002, Gg CO_2-equivalent

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
HFC 32	-	-	-	-	-	-	-	-	0,0	0,0	0,1	0,0	0,0	0,1
HFC 125	-	-	-	-	-	10,8	11,7	11,1	27,1	23,5	14,5	23,2	15,7	26,3
HFC 134a	-	-	0,5	1,6	3,1	4,1	6,5	7,1	8,0	8,2	6,0	6,8	3,8	13,4
HFC 143a	-	-	-	-	-	10,0	10,3	19,0	28,6	27,6	11,6	23,8	15,6	29,4
HFC 152a	-	-	-	-	-	0,1	0,1	0,2	0,1	0,1	0,1	0,1	0,0	0,1
Total	-	-	0,5	1,6	3,1	25,0	28,6	37,5	63,9	59,4	32,3	53,8	35,2	69,3

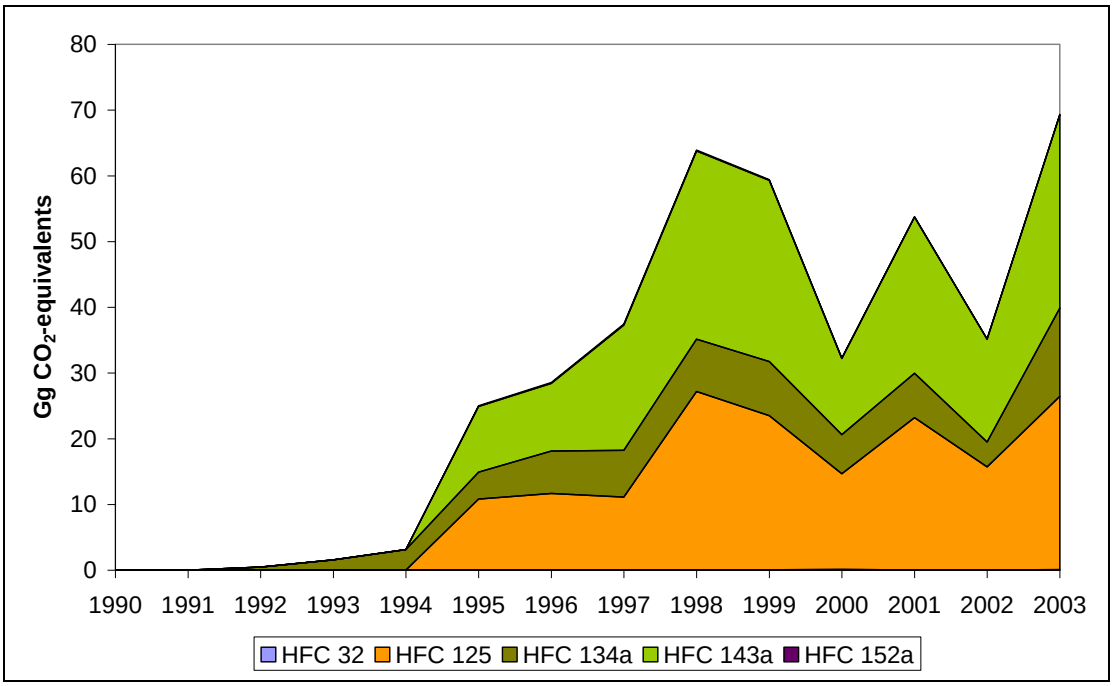

Figure 2.10 Potential emissions of HFCs by species 1990 – 2003, Gg CO_2-eq

2.2.6 Sulphur hexafluorid (SF_6)

Sulphur hexafluorid emissions are not estimated but held constant over the whole time series. The largest source of SF_6 emissions is thought to be leakages from electrical equipment.

2.3 Emission trends by source

The largest contributor of greenhouse gas emissions in Iceland is the energy sector, followed by industrial processes, agriculture, waste and solvent and other product use. From 1990 to 2003 the contribution of the energy sector to the total net emissions increased from 52% to 60% respectively. At the same time the contribution from industrial processes decreased from 26% in 1990 to 17% in 2003. If all industrial process emissions in 2003 are included (i.e. also emissions falling under Decision 14/CP.7) the contribution of industrial processes to total emissions would be 27% and the contribution of the energy sector 53%.

Table 2.7 Total emissions of greenhouse gases by sources and CO_2 removals from LUCF in Iceland 1990 – 2003, Gg CO_2-equivalents

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Energy	1704	1657	1782	1844	1808	1819	1912	1968	1931	1971	1873	1845	1916	1861
Industrial Processes	867	760	566	536	509	559	535	652	691	819	677	567	495	509
Emissions fulfilling 14/CP.7*	-	-	-	-	-	-	-	-	108	115	273	404	441	451
Solvent Use	6	5	5	5	4	5	5	5	5	5	5	4	4	4
Agriculture	571	558	534	536	543	523	536	536	542	548	529	526	503	489
LUCF	-8	-19	-32	-47	-59	-70	-82	-99	-114	-135	-156	-173	-193	-208
Waste	134	142	152	159	171	204	213	213	214	222	226	228	217	220
Total emissions (without lucf)	3282	2123	3039	3080	3035	3110	3201	3374	3382	3564	3309	3170	3136	3083
Total net emissions (with lucf)	3274	3104	3007	3033	2976	3040	3119	3275	3268	3429	3153	2997	2943	2876

* Industrial process carbon dioxide emissions fulfilling decision 14/CP.7 are not included in national totals

The distribution of the total greenhouse gas emissions (excluding emissions falling under Decision 14/CP.7) over the UNFCCC sectors in 2003 is shown in figure 2.11. Emissions from the energy sector account for 60% of the national total emissions and industrial processes and agriculture account for 17 and 16% respectively. The waste sector accounts for 9% and solvent and other product use for 0,1%.

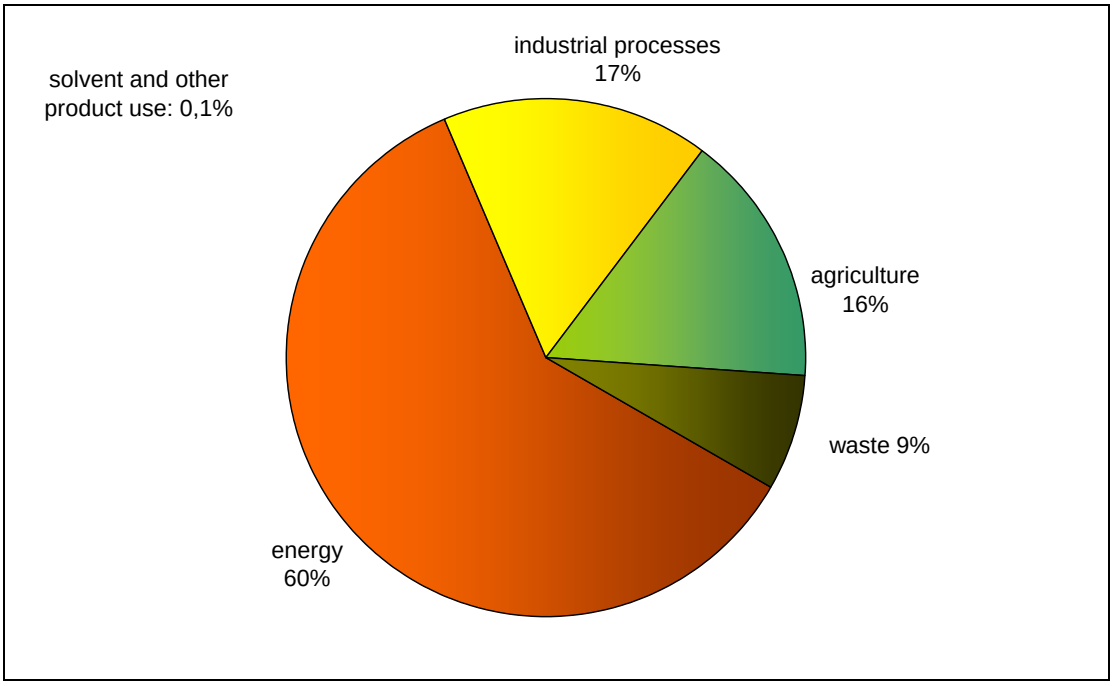

Figure 2.11 Emissions of greenhouse gases by UNFCCC sector in 2003, excluding emissions falling under Decision 14/CP.7

The distribution of the total greenhouse gas emissions (including emissions falling under Decision 14/CP.7) over the UNFCCC sectors in 2003 is shown in figure 2.12. Emissions from the energy sector account for 53% of the national total emissions, industrial processes account for 27 and agriculture for 14%. The waste sector accounts for 9% and solvent and other product use for 0,1%.

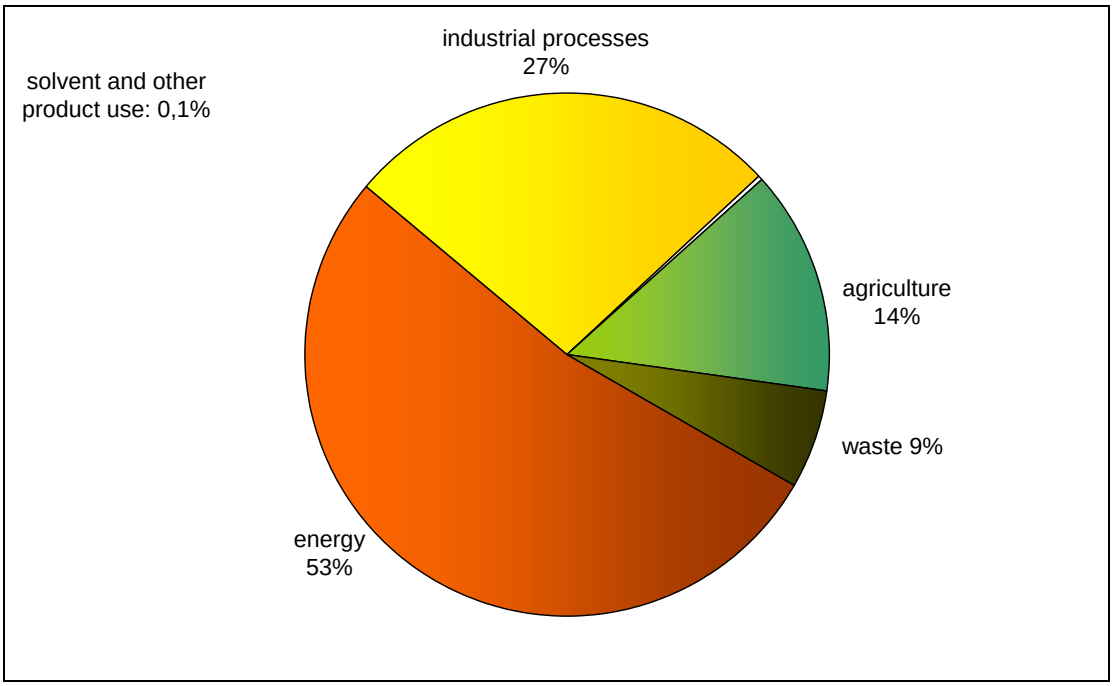

Figure 2.12 Emissions of greenhouse gases by UNFCCC sector in 2003, including emissions falling under Decision 14/CP.7

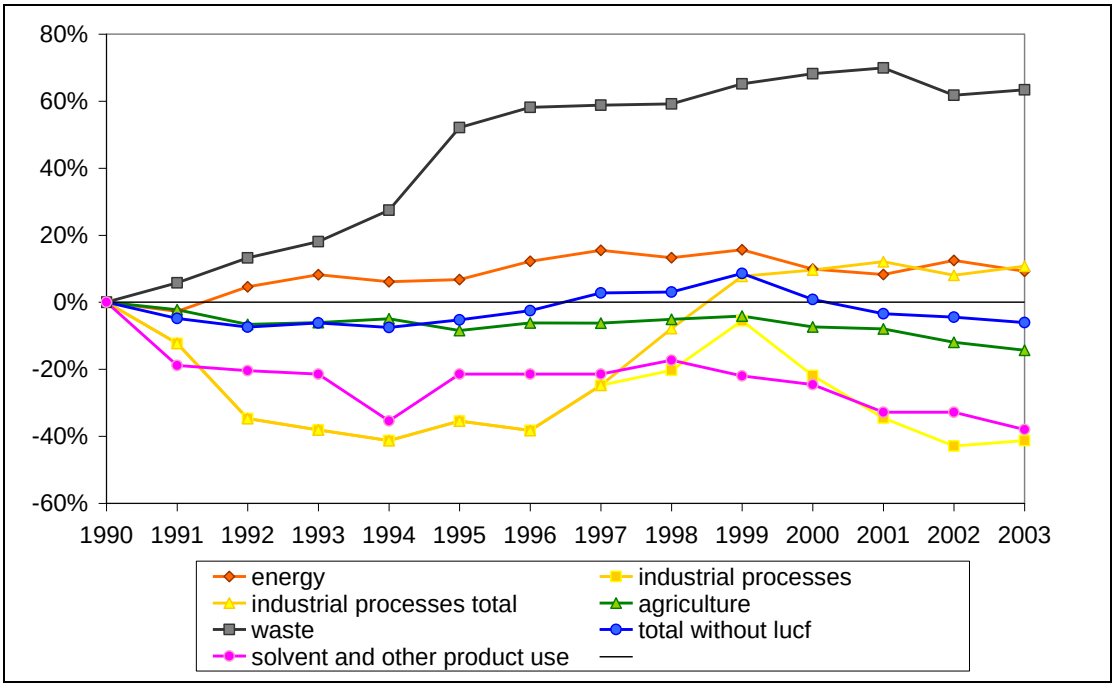

Figure 2.13 Percentage changes in emissions of total greenhouse gas emissions by UNFCCC source categories during the period 1990 – 2003, compared to 1990

2.3.1 Energy

The energy sector in Iceland is unique in many ways. In 2000 the per capita energy use was close to 500 MJ, which is high compared to other industrial countries, but the proportion of domestic renewable energy in the total energy budget is 70%, which is a much higher than in most other countries. The cool climate and sparse population

calls for high energy use for spatial heating and transport. Iceland relies heavily on geothermal energy for spatial heating and on hydropower for electricity production.

The total emissions of greenhouse gases from the energy sector over the period of 1990 – 2003 are listed in table 2.8. Figure 2.14 shows the distribution of emissions in 2003 in different source categories. The percentage changes detected in the various source categories in the energy sector between 1990 and 2003, compared with 1990 are illustrated in figure 2.15.

Table 2.8 Total emissions of greenhouse gases from the energy sector in 1990 – 2003, Gg CO_2-eq.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Energy industries	21	22	21	23	22	25	20	16	38	21	15	15	15	14
Manufacturing ind. & constr.	377	300	352	380	360	376	419	491	465	492	445	477	477	451
Transport	608	620	630	631	634	615	605	624	627	657	660	670	674	698
Other sectors	698	715	779	811	792	803	867	838	801	801	753	683	750	698
Fugitive emissions	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Total	1704	1658	1782	1844	1808	1819	1912	1968	1931	1971	1873	1845	1916	1861

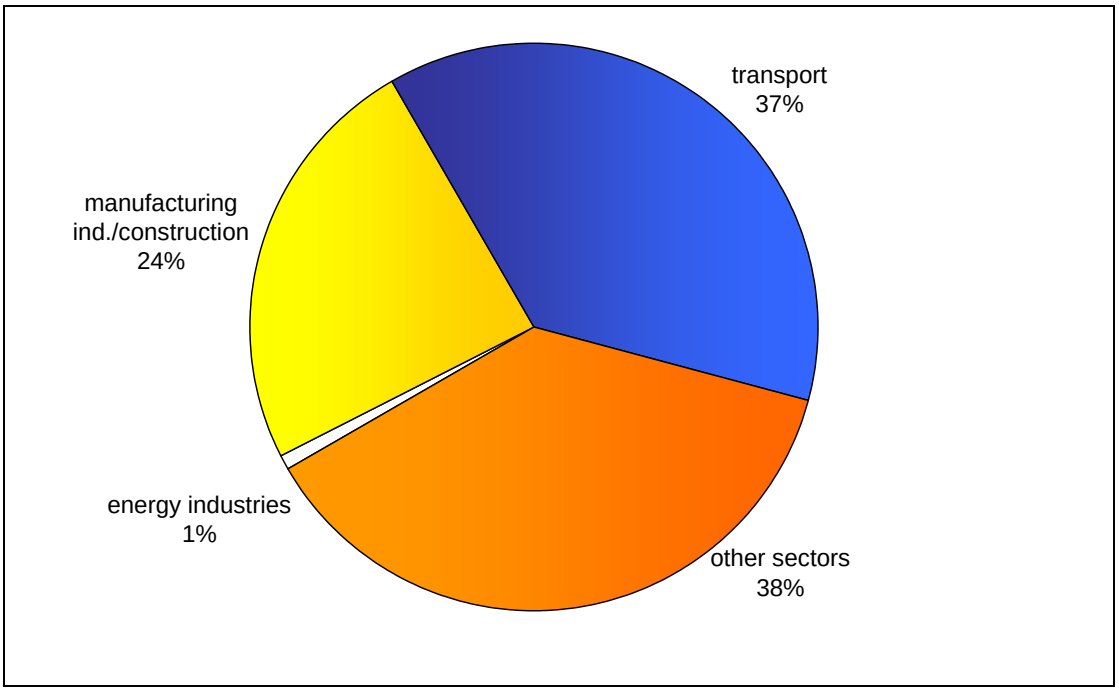

Figure 2.14 Greenhouse gas emissions in the energy sector 2003, distributed by source categories

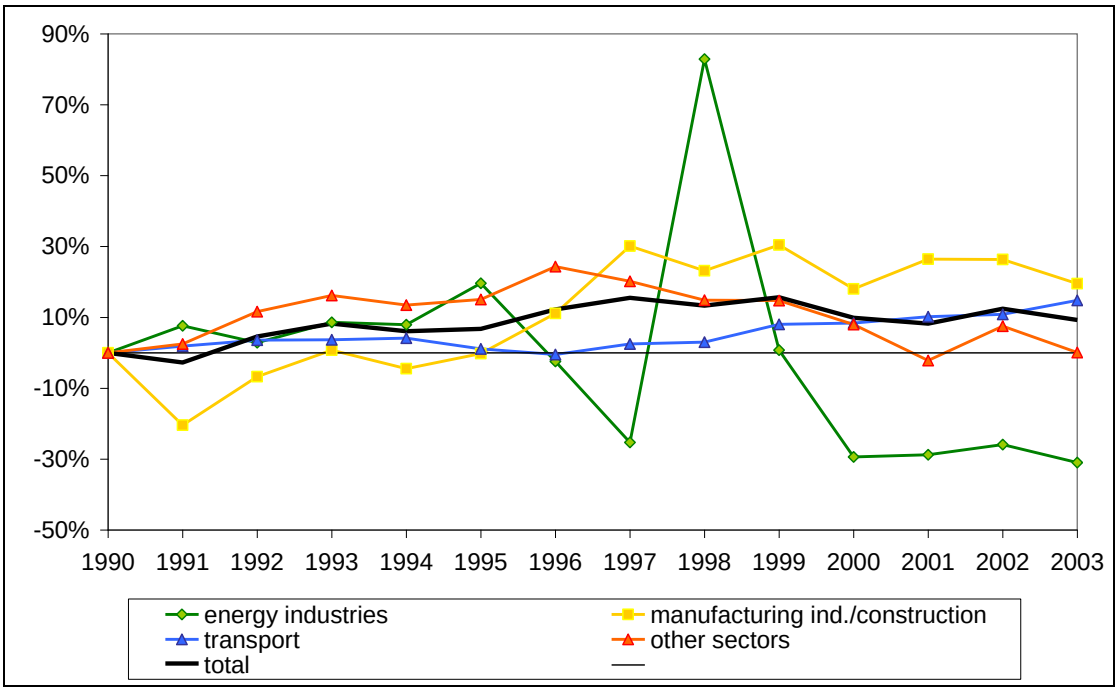

Figure 2.15 Percentage changes in emissions in various source categories in the energy sector during the period 1990 – 2003, compared to 1990

As can been seen from table 2.8 and figure 2.15 emissions from all source categories except energy industries and the sector 'other sources' have increased during the period. The peak in the energy industries in 1998 was due to unusual weather condition during the winter of 1997/1998, which led to unfavorable water conditions for the hydropower plants reservoirs. This created shortage of electricity, which was compensated by using oil for electricity and heat production.

Increased emissions from the manufacturing industries and construction source category are explained by the increased activity in the construction sector during the period.

The fisheries dominate the 'other sector'. Emissions from fisheries rose from 1990 to 1996 because a substantial portion of the fishing fleet was operating in distant fishing grounds. From 1996, the emissions decreased again reaching 1990 levels in 2001. Emissions increased again by 10% between 2001 and 2002. In 2003 emissions again reached the 1990 level. Annual changes are inherent in the nature of fisheries.

In the 1990s the vehicle fleet in Iceland almost doubled. This has led to increased emissions from the transport sector, a trend that is still ongoing. The latest trend has been towards larger passenger cars, which consume more fuel. Since 1999 the average fuel consumption of newly registered passenger cars has increased by over 6%. A decrease in navigation and aviation has however compensated the effect of rising emissions in the transport sector to some extend.

2.3.2 Industrial processes

Production of raw materials is the main source of process related industrial emissions for both CO_2 and other greenhouse gases such as N_2O and PFCs. The industrial process sector accounts for about 17% of the national greenhouse gas emissions,

excluding emissions falling under Decision 14/CP.7 and about 27% of the total national greenhouse gas emissions if emissions falling under Decision 14/CP.7 are included. As can be seen from figure 2.16 and table 2.9 emissions decreased from 1990 to 1996, mainly because of decrease in PFC-emissions. During the late nineties large-scale industry expanded in Iceland. The existing aluminium plant and the ferroallyos industry experienced enlargement in 1997 and 1999, and in 1998 a new aluminium plant was established. This led again to an increase in industrial process emissions. As mentioned before industrial process carbon dioxide emissions from a single project falling under Decision 14/CP.7 are to be reported separately and are not included in national totals. Industrial process emissions, excluding emissions fulfilling decision 14/CP.7, have decreased since 1999.

Table 2.9 Total greenhouse gas emissions from the industry sector 1990 – 2003, Gg CO_2-eq.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Mineral Products	52	49	46	40	37	38	42	47	54	62	66	59	41	33
Chemical Industry	48	47	42	44	44	42	49	41	36	36	19	16	0	0
Metal Production	760	659	472	445	417	448	409	520	530	655	554	432	413	400
- Ferroalloys	*203*	*171*	*182*	*231*	*225*	*238*	*227*	*249*	*192*	*250*	*203*	*203*	*203*	*203*
- Aluminium	*556*	*488*	*289*	*214*	*193*	*210*	*182*	*271*	*338*	*405*	*350*	*228*	*209*	*196*
- Aluminium CO_2	*136*	*139*	*134*	*139*	*148*	*151*	*157*	*189*	*158*	*232*	*223*	*136*	*136*	*136*
- Aluminium PFC	*420*	*348*	*155*	*75*	*45*	*59*	*25*	*82*	*180*	*173*	*127*	*92*	*73*	*60*
Other production	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Consumption of HFCs and SF_6	5	5	6	7	8	30	34	43	69	65	38	59	41	75
Total	866	760	565	535	508	558	534	651	690	818	676	566	494	507
Emissions fulfilling 14/CP.7									108	115	273	404	441	451
Total with 14/CP.7	866	760	565	535	508	558	534	651	798	933	949	970	935	958

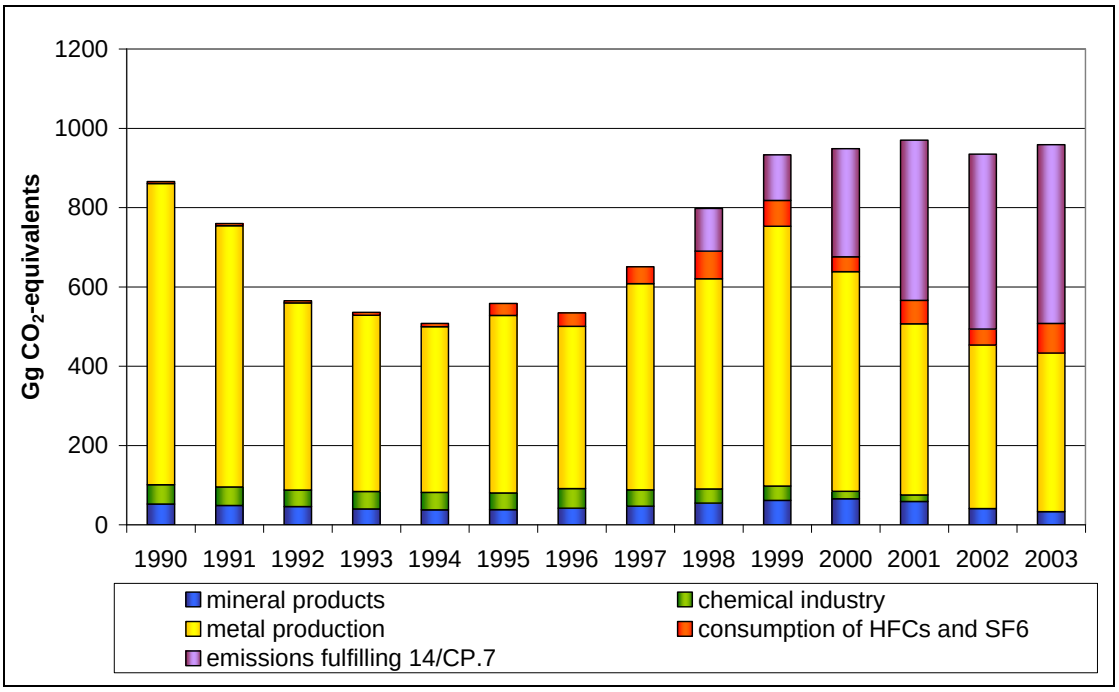

Figure 2.16 Total greenhouse gas emissions in the industrial process sector during the period from 1990 – 2003, Gg CO_2-eq. Emissions fulfilling decision 14/CP.7 are reported separately and not included in national totals.

The main category within the industrial process sector is metal production, which accounted for 88% of the sector's emissions in 1990 and 81% in 2003. Aluminium production is the main source within the metal production category, accounting for 39% of the total industrial process emissions, excluding emissions falling under Decision 14/CP.7, and 48% including all industrial process emissions. The production technology in both existing plants is based on using prebake anode cells. The main energy source is electricity, and industrial process CO_2 is mainly due to the anodes that are consumed during the electrolysis. In addition, the production of aluminium gives rise to emissions of PFCs. From 1990 to 1996 PFC emissions were reduced by 94%. Because of the enlargement of the existing aluminium plant in 1997 and the establishment of new aluminium plant in 1998 emissions increased again from 1997 to 1999, but have decreased since. In 2003 the emissions had decreased by 86% from the 1990 level. The reduction in PFC emissions was effectuated by improved technology and process control. PFC emissions per tonne aluminium produced went from 4,78 tonnes CO_2-equivalents, in 1990, to 0,22 tonnes CO_2-equivalents in 2003.

Production of ferroalloys is another major source of emissions. CO_2 is emitted due to the use of coal and coke as reducing agents and from consumption of electrodes. In 1998 a power shortage caused a temporary closure of the ferroalloy plant, resulting in exceptionally low emissions that year. In 1999, however, the existing plant was expanded and emissions have therefore increased considerably. These emissions fall under Decision 14/CP.7 and are reported separately.

Production of minerals is the sector's second most important category accounting for 7% of the emissions in 2003. Cement production is the dominant contributor. Cement is produced in one plant in Iceland, emitting CO_2 derived from carbon in the shell sand used as raw material in the process. Emissions from the cement industry reached a peak in 2000 but have declined since then, partly because imports of cement.

Production of fertilizers used to be the main contributor to the process emissions from the chemical industry. The production was terminated in 2001.

Imports of HFCs started in 1992 and increased until 1998. Since then annual imports have been between 30 and 70 Gg CO_2-equivalents. Sufficient data is not available to calculate actual emissions. This means that only potential emissions, based on imports, are estimated. The potential method is likely to overstate emissions, since the chemicals used, e.g. in refrigerators, are emitted over a period of several years. The application category refrigeration contributes by far the largest part of HFCs emissions but foam blowing is also thought to be a source.

Sulphur hexafluorid emissions are not estimated but held constant over the whole time series. The largest source of SF_6 emissions is thought to be leakages from electrical equipment.

2.3.3 Solvent and other product use

The use of solvents and products containing solvents leads to emissions of non-methane volatile organic compounds (NMVOC), which are regarded as indirect greenhouse gases. The NMVOC emissions will over a period of time oxidize to CO_2 in the atmosphere. This conversion has not been estimated. The only emissions reported here are due to use of N_2O, mainly for medical purposes but also to a smaller extent for car racing. Those emissions were 4 Gg CO_2-equivalents in 2003 and have declined by 38% since 1990.

2.3.4 Agriculture

As can be seen from table 2.10 and figure 2.17 the emissions from agriculture were relatively stable between 1990 and 2003, with emission levels of around 500 Gg CO_2-equivalents per year. During that period emissions decreased by 11%, due to decreasing number of livestock.

Table 2.10 Total greenhouse gas emissions from agriculture in 1990 – 2003, Gg CO_2-eq.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Enteric Fermentation	270	264	256	254	256	247	250	253	256	254	243	242	237	233
Manure Management	56	55	53	53	53	50	51	51	52	51	49	49	47	46
Agricultural Soils	245	240	225	229	234	225	235	232	234	242	238	235	219	211
Total	571	558	534	536	543	523	536	536	542	548	529	526	503	489

Greenhouse gas emissions from agriculture comprise emissions of methane and nitrous oxide. The greenhouse gas emissions from the agricultural sector accounted for 16% of the overall greenhouse gas emissions in 2003. The largest sources for agricultural greenhouse gas emissions are CH_4 from enteric fermentation and N_2O from agricultural soils.

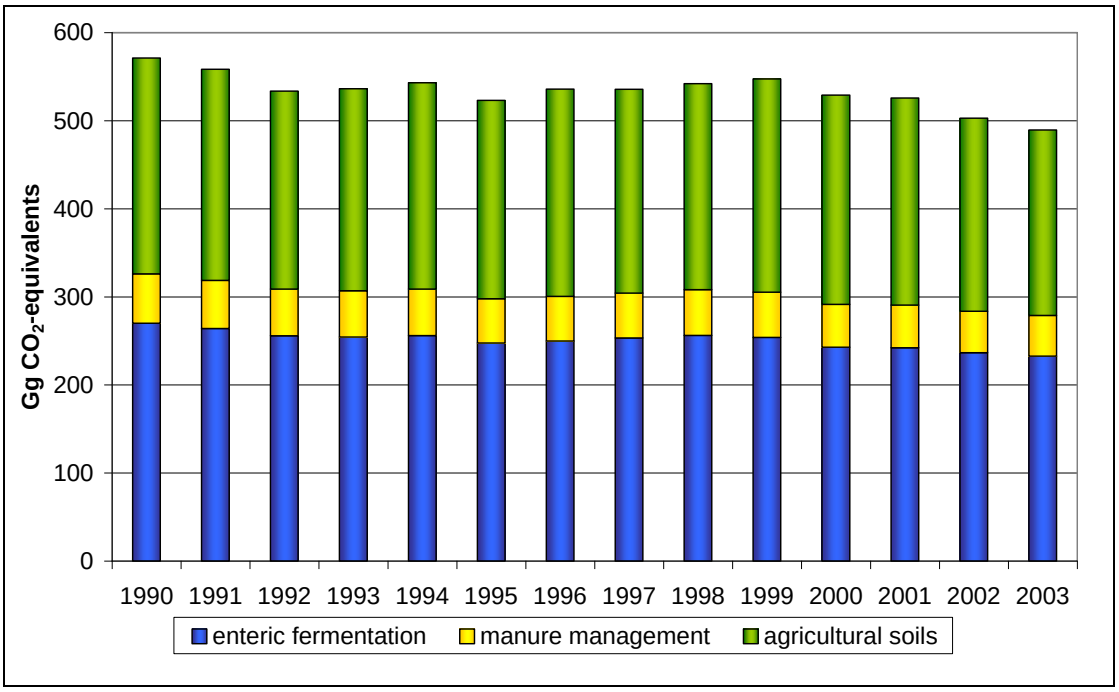

Figure 2.17 Total greenhouse gas emissions from agriculture from 1990 – 2003, Gg CO_2-eq.

2.3.5 Waste

As can be seen from table 2.11 and figure 2.18 the amount of greenhouse gases (CH_4) from landfills have been steadily increasing from 1990 to 2001. From 2001 to 2003 a minor decrease in emissions occurred. From 1990 to 2003 the emissions rose by 62%. There are two reasons for this, increasing amounts of waste being landfilled and a larger percentage of that waste being landfilled in managed waste disposal sites. The amount of landfilled waste increased by 39% over the period. The percentage of waste landfille in managed waste disposal sites increased from 39% in 1990 to almost 100% in 2003. Since methane production rate is higher for managed waste disposal sites than for unmanaged sites, the emissions have increased. The emissions from landfills show a slight decrease from 2001 to 2003, due to increasing amount of methane recovered. Methane recovery started at the largest operating landfill site in 1997, and the amount recovered has increased steadily since then.

Emissions from waste incineration have decreased constantly since 1990 because total amount of waste being incinerated in Iceland has decreased. A higher percentage of the waste has concurrently been incinerated with energy recovery and is thus reported under 1A1a (public electricity and heat production).

Table 2.11 Emissions from the waste sector from 1990 – 2003, Gg CO_2-eq.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Landfills	115	123	133	142	156	191	201	202	204	214	219	221	211	214
Wastewater Handling	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Waste Incineration	19	19	18	15	14	13	11	11	9	8	7	7	6	5
	133	141	151	158	171	204	212	213	213	222	226	228	217	219

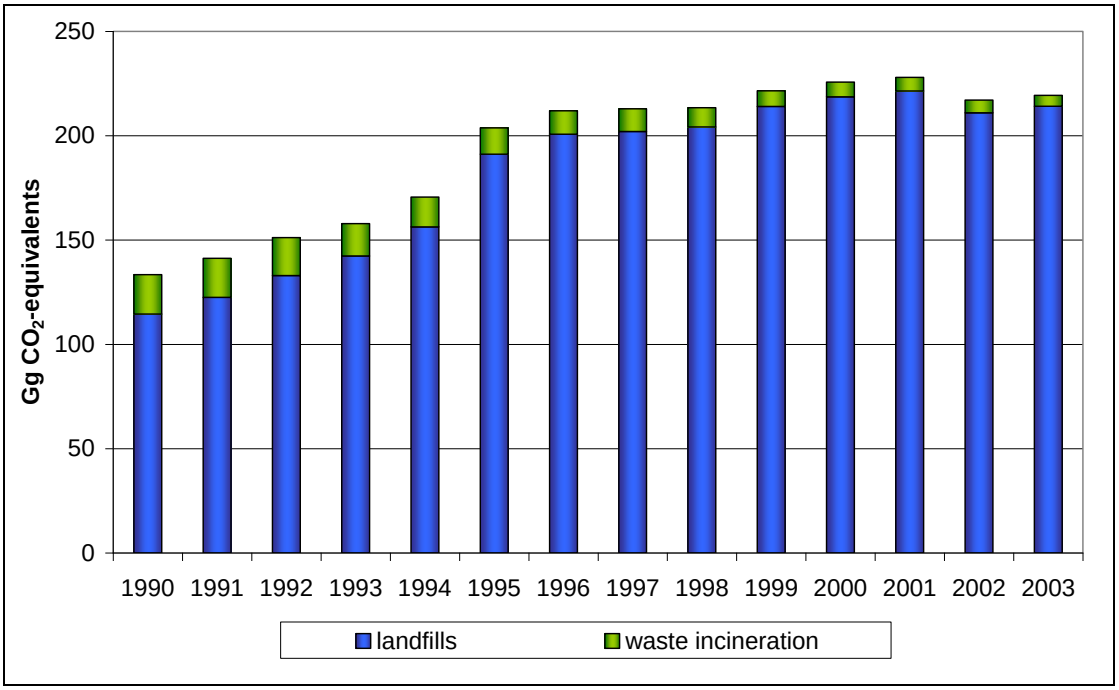

Figure 2.18 Emissions of greenhouse gases in the waste sector 1990 – 2003, Gg CO_2-eq.

2.4 Emission trends for indirect greenhouse gases and SO_2

Nitrogen oxides (NOx), non-methane volatile organic compounds (NMVOC) and carbon monoxide (CO) have an indirect effect on climate through their influence on greenhouse gases, especially ozone. Sulphur dioxide (SO_2) affects climate by increasing the level of aerosols that have in turn a cooling effect on the atmosphere.

2.4.1 Nitrogen oxides (NOx)

As can be seen in Figure 2.19, the main sources of nitrogen oxides in Iceland are fishing, transport and manufacturing industry and construction. The NOx emissions from fishing rose from 1990 to 1996 when a substantial portion of the fishing fleet was operating in distant fishing grounds. From 1996 emissions decreased, reaching the 1990 levels in 2001. The emissions increased again by 10% between 2001 and 2002. In 2003 emissions reached the 1990 level again. Annual changes are inherent in the nature of fisheries. Emissions from transport are dominated by road transport. These emissions have decreased rapidly after the use of catalytic converters in all new vehicles became obligatory in 1995. The rise in emissions from the manufacturing industries and construction are dominated by increased activity in the construction sector during the period. Total NOx emissions show, like the emissions from fishing, an increase until 1996 and a decrease thereafter. The emissions in 2003 were 3% below the 1990 level.

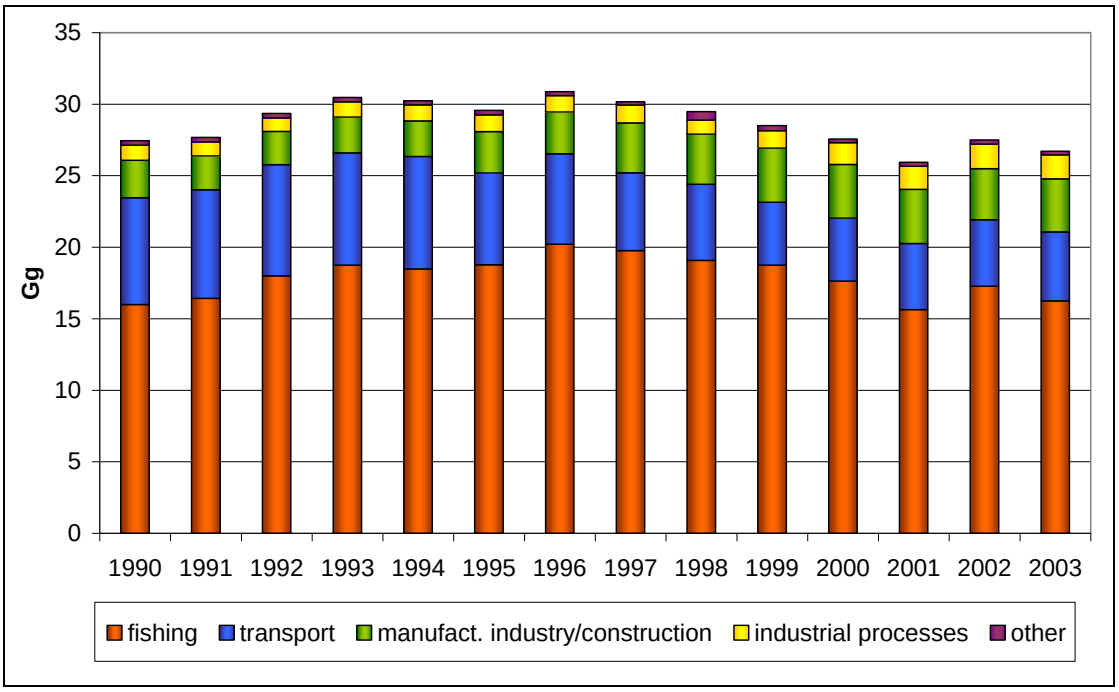

Figure 2.19 Emissions of NOx by sector 1990 – 2003, Gg

2.4.2 Non-methane volatile organic compounds (NMVOC)

As can be seen in Figure 2.20 the main sources of non-methane volatile organic compounds are transport and solvent use. Emissions from transport are dominated by road transport. These emissions have decreased rapidly after the use of catalytic converters in all new vehicles became obligatory in 1995. Emissions from solvent use vary between 2 Gg and 4 Gg during the period with no obvious trend. The total emissions show a downward trend from 1994 to 2003 with exception of 2000 and 2001. The emissions in 2003 were 44% below the 1990 level.

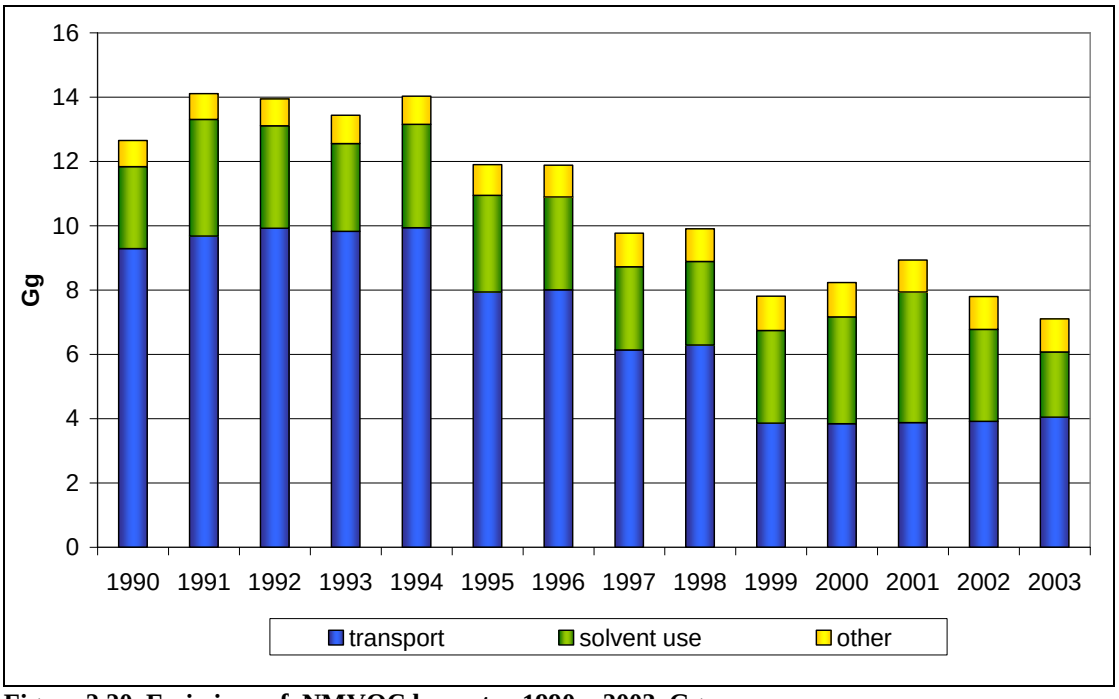

Figure 2.20 Emissions of NMVOC by sector 1990 – 2003, Gg

2.4.3 Carbon monoxide (CO)

As can be seen in Figure 2.21 transport is the prominent contributor to CO emissions in Iceland. Emissions from transport are dominated by road transport. These emissions have decreased rapidly after the use of catalytic converters in all new vehicles became obligatory in 1995. Total CO emissions show, like the emissions from transport, a rapid decrease after 1990. The emissions in 2003 were 49% below the 1990 level.

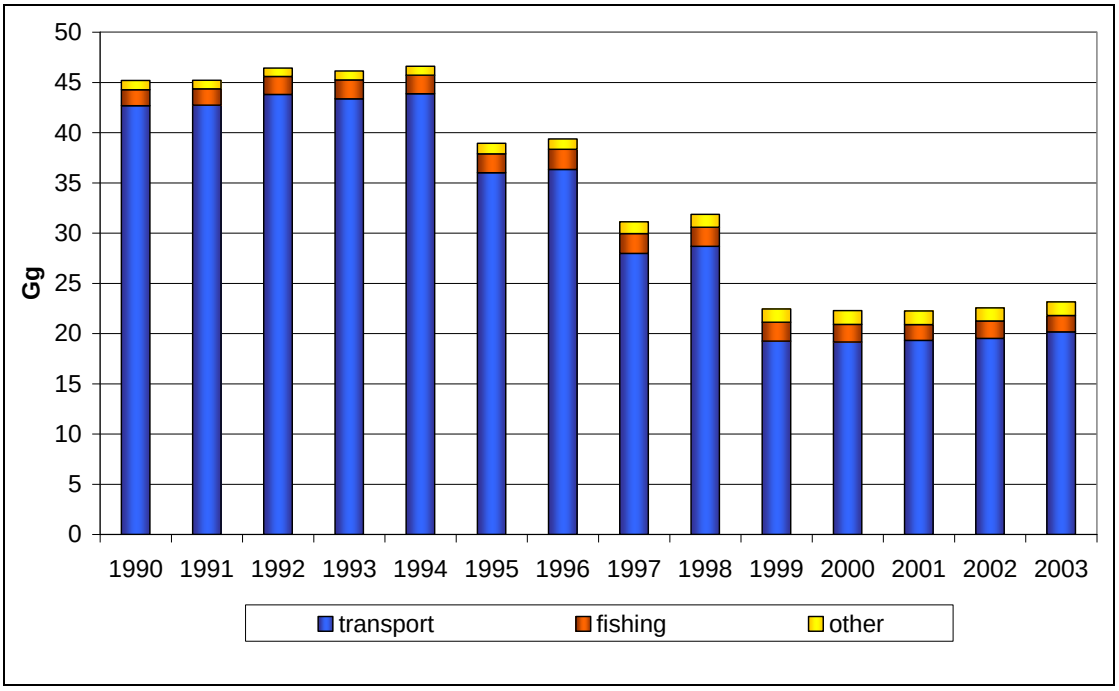

Figure 2.21 Emissions of CO by sector 1990 – 2003, Gg

2.4.4 Sulphur dioxide (SO_2)

As can be seen in Figure 2.21 the main sources of sulphur dioxide in Iceland are industrial processes and manufacturing industry and construction. Emissions from industrial processes are dominated by the metal production. Until 1996 sulphur dioxide emissions were relatively stable. During the late nineties the metal industry expanded. The existing aluminium plant and the ferroalloys industry experienced enlargement in 1997 and 1999, and in 1998 a new aluminium plant was established. This led to increased emissions of sulphur dioxide. The fishmeal industry is the main contributor to sulphur dioxide emissions in the sector 'manufacturing industries and construction'. Emissions from the fishmeal industry increased generally from 1990 to 1997 but have declined since and were in 2003 8% below the 1990 level.

Total SO_2 emissions in 2003 were 108% above the 1990 level.

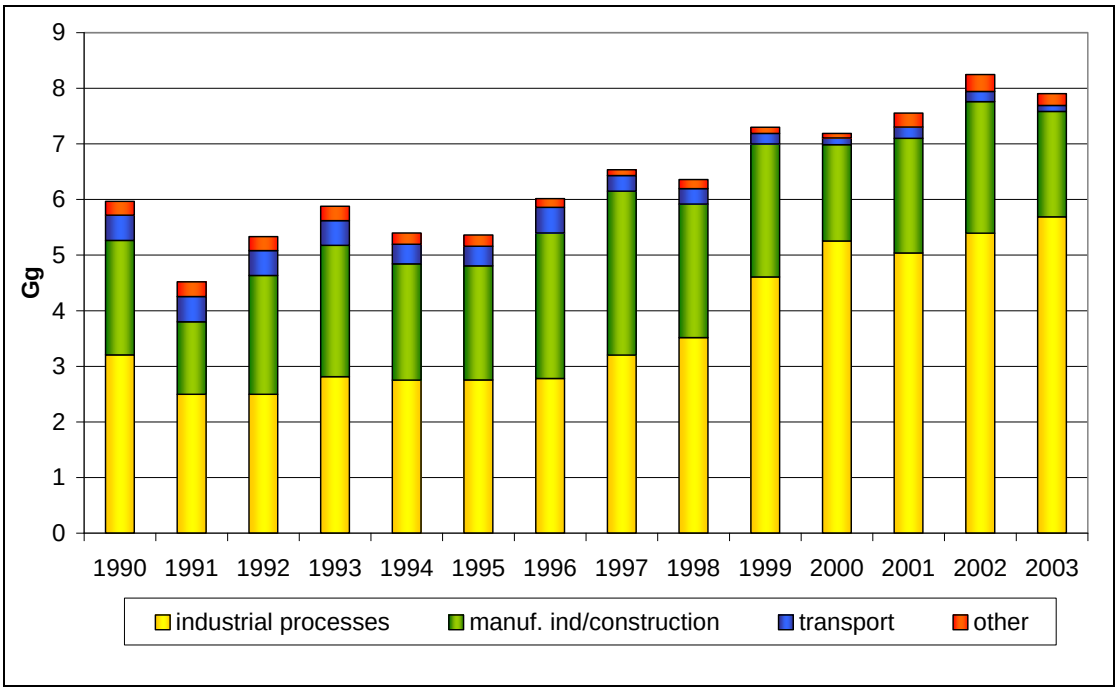

Figure 2.22 Emissions of SO_2 by sector 1990 – 2003, Gg

3 ENERGY

3.1 Overview

The energy sector accounts for 60% of the GHG emissions in Iceland. Emissions increased by 9% from 1990 to 2003. From 2002 to 2003 the emissions decreased by 3%. Fisheries and road traffic are the sector's largest single contributors. Combustion in the manufacturing industries and construction is also an important source.

The key source analysis performed for 2003 has revealed, as indicated in table 1.1, that in terms of total level and/or trend uncertainty the key sources in the Energy sector are the following:

- Stationary combustion: oil – CO_2 (1A1, 1A2, 1A4)
- Stationary combustion: coal – CO_2 (1A2f)
- Mobile combustion: construction – CO_2 (1A2f)
- Mobile combustion: road vehicles – CO_2 (1A3b)
- Mobile combustion: road vehicles – N_2O (1A3b)
- Mobile combustion: fishing – CO_2 (1A4c)

A discussion of the above key sources is presented below, followed by a brief description of crosscutting issues in this sector.

3.2 Stationary fuel combustion, Oil: CO_2 (1A1, 1A2, 1A4)

3.2.1 Description

This key source refers to CO_2 from combustion of liquid fuels in the energy industries, in the manufacturing industries and construction and in sectors involving commercial/institutional and residential activities. The key source analysis shows that CO_2 emissions from stationary combustion of oil constitute a key source in both level and trend.

Emissions of CO_2 from stationary liquid fuel combustion decreased by 4% between 1990 and 2003. In 2003 they constituted about 12% of the total CO_2 emissions in the energy sector and 7% of the total national greenhouse gas emissions.

3.2.2 Methodological issues

Emissions from fuel combustion are estimated at the sectoral level. They are calculated by multiplying energy use by source and sector with pollutant specific emission factors. Activity data is provided by the National Energy Forecast Committee (NEFC), which collects data from the oil companies on fuel sales by sector. Since not all oil companies provided sales statistics for the year 2003, fuel use by sector has been estimated by the NEFC. Iceland relies heavily on geothermal energy for spatial heating and hydropower for electricity production. Emissions in this key source originate predominantly from the combustions in the manufacturing industries, the fishmeal industry in particular.

Activity data

Total use of different oil products is based on the NEFCs annual sales statistics for fossil fuels. The data is, with the exception of 2003, considered very reliable since all the oil companies have reported their sale statistics. There is thus a given total, which the usage in the different sectors must sum up to. There is not a clear distinction between the energy industries sector and residential sector in fuel sales statistics. The National Energy Authority (NEA) has on request by the Environment and Food Agency (EFA) divided the fuel consumption between the two sectors. The EFA collects consumption data from all major industry installations and the consumption in the fishmeal industry is estimated from production statistics.

Emission factors

For liquid fuels the CO_2 emission factors used reflect the average carbon content of the fuels. They are taken from the revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories and are presented in table 3.1.

Table 3.1 Emission factors for CO_2 from the combustion of oil

	NCV [TJ/kt]	Carbon EF [t C/TJ]	Fraction oxidised	CO_2 EF [t CO_2/t fuel]
Kerosene (heating)	44,75	19,60	0,99	3,18
Gas / Diesel Oil	43,33	20,20	0,99	3,18
Residual fuel oil	40,19	21,10	0,99	3,08

3.2.3 Uncertainties

The quantitative uncertainty has not been evaluated. The activity data are considered reliable and the uncertainty of the emissions factors is likely to be less than 5%.

3.2.4 QA/QC and verification

No formal QA/QC has been performed. Calculations and units have been checked by the EFA as well as data consistency between years.

3.2.5 Recalculations

No recalculations have been performed for this sector.

3.2.6 Planned improvements

There are at present no plans for further improvements in this sector.

3.3 Stationary fuel combustion, coal: CO_2 (1A2f)

3.3.1 Description

This key source refers to CO_2 from combustion of coal in the cement industry. The key source analysis states that this is a key source in trend. Emissions of CO_2 from stationary coal combustion decreased by 36% between 1990 and 2003.

3.3.2 Methodological issues

Emissions are calculated by multiplying energy use with pollutant specific emission factors.

Activity data

The EFA collects activity data directly from the single operating cement production plant and the data is thus considered very reliable.

Emission factors

NCV for Coking Coal is taken from NEA and CO_2 emission factors are taken from the revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories. These are presented in table 3.2.

Table 3.2 Emission factors for CO_2 from the combustion of coal

	NCV [TJ/kt]	Carbon EF [t C/TJ]	Fraction oxidised	CO_2 EF [t CO_2/t fuel]
Coking Coal	28,05	25,80	0,98	2,60

3.3.3 Uncertainties

The quantitative uncertainty has not been evaluated. The activity data are considered reliable and the uncertainty of the emissions factors is likely to be less than 5%.

3.3.4 QA/QC and verification

No formal QA/QC has been performed. Calculations and units have been checked by the EFA as well as data consistency between years.

3.3.5 Recalculations

Activity data for coal consumption in the cement industry in 1997 was revised. The data in EFA's database proved to be wrong.

3.3.6 Planned improvements

There are at present no plans for further improvements in this sector.

3.4 Mobile combustion: construction – CO_2 (1A2f)

3.4.1 Description

This key source refers to CO_2 from mobile combustion in the construction sector. The key source analysis shows that CO_2 emissions from combustion in the construction sector constitute a key source in both level and trend.

Emissions of CO_2 from stationary liquid fuel combustion increased by 64% between 1990 and 2003. In 2003 they constituted about 11% of the total CO_2 emissions in the energy sector.

3.4.2 Methodological issues

Emissions are calculated by multiplying energy use with a pollutant specific emission factor. Activity data is provided by the National Energy Forecast Committee (NEFC), which collects data on fuel sales by sector.

Activity data

Total use of oil products in the construction sector is based on the NEFC's annual sales statistics for fossil fuels. The data is, with the exception of 2003, considered

very reliable since all the oil companies have reported their sales statistics. In some instances oil, which is reported to fall under vehicle usage, is actually used for machinery and vice versa. This is, however, very minimal and the deviation is believed to level out.

Emission factors

The emission factors are taken from the revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories and are presented in table 3.3.

Table 3.3 Emission factors for CO_2 and N_2O from combustion in the construction sector

	NCV [TJ/kt]	Carbon EF [t C/TJ]	Fraction oxidised	CO_2 EF [t CO_2/t fuel]	N_2O EF [t N_2O/kt fuel]
Gas / Diesel Oil	43,33	20,20	0,99	3,18	1,3

3.4.3 Uncertainties

The quantitative uncertainty has not been evaluated. The activity data are considered reliable and the uncertainty of the emissions factors for CO_2 is likely to be less than 5%. The uncertainty of the emission factor for N_2O is likely to be much higher.

3.4.4 QA/QC and verification

No formal QA/QC has been performed. Calculations and units have been checked by the EFA as well as data consistency between years.

3.4.5 Recalculations

No recalculations have been performed for this sector.

3.4.6 Planned improvements

There are at present no plans for further improvements in this sector.

3.5 Mobile combustion: road vehicles – CO_2 and N_2O (1A3b)

3.5.1 Description

CO_2

Emissions of CO_2 from road traffic dominate the total emissions in the transport sector and are an important part of the total national greenhouse gas emissions. In 2003 the emissions contributed 90% of the transport sector and 20% of the total national greenhouse gas emissions. Emissions increased by 23% between 1990 and 2003 due to the increasing number of vehicles, annual mileage driven and increased average fuel consumption. This source category is key source in both level and trend.

N_2O

Emissions of N_2O from road traffic accounted for around 10% of the total N_2O emissions in 2003. Since 1990 the emissions have increased by 570%, but the main increase has been after 1995 when catalytic converters became an obligation in all new vehicles. This source category is a key source with respect to trend.

3.5.2 Methodological issues

Emissions from road traffic are estimated by multiplying the fuel use by type of fuel and vehicle, and fuel and vehicle pollutant specific emission factors. Activity data is

provided by the National Energy Forecast Committee (NEFC), which collects data on fuel sales by sector.

Activity data

Total use of diesel oil and gasoline are based on the NEFC's annual sales statistics for fossil fuels. The data is, with the exception of 2003, considered very reliable since all the oil companies have reported sales statistics. The EFA estimates how fuel sale is divided between the different types of vehicles, but the method used is considered to be inaccurate.

Emission factors

For CO_2 the standard emission factors based on carbon content of the fuels are used. Emission factors for CH_4 and N_2O depend upon vehicle type and emission control. They are taken from the revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories and are presented in table 3.4.

Table 3.4 Emission factors for greenhouse gases from european vehicles, g/kg fuel

	CH_4	N_2O	CO_2
Passenger car – gasoline, uncontrolled	0,8	0,06	3070
Passenger car – gasoline, non catalyst control	1,1	0,08	3070
Passenger car – gasoline, three way catalyst	0,3	0,8	3070
Light duty vehicle – gasoline	0,8	0,06	3070
Heavy duty vehicle – gasoline	0,7	0,04	3070
Passenger car – diesel	0,08	0,2	3180
Light duty vehicle – diesel	0,06	0,2	3180
Heavy duty vehicle – diesel	0,2	0,1	3180

3.5.3 Uncertainties

The quantitative uncertainty has not been evaluated. For CO_2, emissions from road transport the activity data are considered reliable and the uncertainty of the emission factors is likely to be less than 5%. For N_2O, both activity data and emission factors are highly uncertain, depending on factors like mileage per vehicle type, age of vehicle, maintenance, individual driving manners, cold start emissions, functionality of catalytic converters in cold climates, etc.

3.5.4 QA/QC and verification

No formal QA/QC has been performed. Calculations and units have been checked by EFA as well as data consistency between years.

3.5.5 Recalculations

No recalculations were performed for this sector.

3.5.6 Planned improvements

Improved estimates on how fuel sale is divided between the different types of vehicles.

3.6 Mobile combustion: fishing – CO_2 (1A4c)

3.6.1 Description

Emissions of CO_2 from fishing are a major source in Iceland. In 2003, CO_2 emissions from fishing contributed 36% of the energy sector and 21% of the total greenhouse gas emissions in Iceland. Emissions of CO_2 from fisheries increased by 1% between 1990 and 2003. The key source analysis shows that CO_2 emissions from fishing constitute a key source in both level and trend.

3.6.2 Methodological issues

Emissions are calculated by multiplying energy use with a pollutant specific emission factor. Activity data is provided by the National Energy Forecast Committee (NEFC), which collects data on fuel sales by sector.

Activity data

Total use of residual fuel oil and gas/diesel oil for the fishing is based on the NEFC's annual sales statistics for fossil fuels. The data is, with the exception of 2003, considered very reliable since all the oil companies reported their sales statistics.

Emission factors

The emission factors are taken from the revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories for ocean-going ships and are presented in table 3.5.

Table 3.5 Emission factors for CO_2, CH_4 and N_2O for ocean going ships

	NCV [TJ/kt]	Carbon EF [t C/TJ]	Fraction oxidised	EF CO_2 [t CO_2/t]	EF N_2O [kg N_2O/TJ]	N_2O EF [kg N_2O/t]	EF CH_4 [kg CH_4/TJ]	EF CH_4 [kg CH_4/t]
Gas / Diesel Oil	43,33	20,20	0,99	3,18	2	0,086	7	0,30
Residual fuel oil	40,19	22,00	0,99	3,08	2	0,084	7	0,28

3.6.3 Uncertainties

The quantitative uncertainty has not been evaluated. The activity data are considered reliable and the uncertainty of the emissions factors for CO_2 is likely to be less than 5%. The uncertainty of the emission factor for N_2O and CH_4 is likely to be much higher.

3.6.4 QA/QC and verification

No formal QA/QC has been performed. Calculations and units have been checked by the EFA as well as data consistency between years.

3.6.5 Recalculations

No recalculations have been done in this sector since last submission.

3.6.6 Planned improvements

There are at present no plans for further improvements in this sector.

3.7 Non-key sources

This section will be completed for the next submission.

3.8 International bunker fuels

Emissions from international aviation and marine bunker fuels are excluded from national totals as required according to the IPCC Guidelines. Emissions are presented separately for information and can be seen in table 3.6.

In 2003, greenhouse gas emissions from ships and aircraft in international traffic bunkered in Iceland amounted to a total of 514 Gg CO_2-equivalents, which corresponds to about 17% of the total Icelandic greenhouse gas emissions. Greenhouse gas emissions from marine and aviation bunkers increased by around 60% from 1990 to 2003, and between 2002 and 2003 emissions declined by 1%.

Looking at the two categories, international marine and aviation bunkers separately, it can be seen that greenhouse gas emissions from international marine bunkers increased by 81% from 1990 to 2003, while emissions from aircrafts increased by 50% during the same period. Between 2002 and 2003 emissions from marine bunkers increased by 39%, but at the same time emissions from aviation bunkers decreased by 11%.

Table 3.6 Greenhouse gas emissions from international aviation and marine bunkers, Gg CO_2-eq.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Marine	100	38	61	98	94	146	125	150	178	166	221	151	209	181
Aviation	222	224	205	197	216	238	274	295	341	367	411	352	313	333
Total	322	262	266	296	310	384	399	445	520	532	632	503	522	514

3.8.1 Methodological issues

Emissions are calculated by multiplying energy use with pollutant specific emission factors. Activity data is provided by the National Energy Forecast Committee (NEFC), which collects data on fuel sales by sector. These data distinguish between national and international usage. The data is with the exception of 2003 considered very reliable since all oil companies selling oil products report those statistics. The emission factors for marine bunkers are taken from the revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories for ocean-going ships and are presented in table 3.5 above. Emission factors for aviation bunkers are also taken from the IPCC Guidelines (Tier 1 method).

3.9 Cross-cutting issues

3.9.1 Sectoral versus reference approach

This section will be completed for the next submission.

3.9.2 Feedstock and non-energy use of fuels

Emissions from the use of feedstocks are according to the Good Practice Guidance accounted for in the industrial processes sector in the Icelandic inventory. This includes all use of petroleum coke, other bituminous coal and coke oven coke.

Iceland uses a carbon storage factor of 1 for bitumen and 0,5 for lubricants for the non-energy use in the Reference Approach, CRF table 1(A)d.

4 INDUSTRIAL PROCESSES

The industrial process sector accounts for 17% of the GHG emissions in Iceland when emission falling under Decision 14/CP.7 are excluded but 27% when they are included. Emissions decreased by 41% from 1990 to 2003 when emissions falling under Decision 14/CP.7 are excluded but increased by 11% when they are included. The main category within the industrial process sector is metal production, which accounted for 79% of the sectors emissions in 2003 when emission falling under Decision 14/CP.7 are excluded but 89% when they are included.

As indicated in table 1.1, the key source analysis performed for 2003 has revealed that in terms of total level and/or trend uncertainty the key sources in the Industrial Processes sector are the following:

- Emissions from Ferroalloys – CO_2 (2C2)
- Emissions from Aluminium Production – CO_2 (2C3)
- Emissions from Aluminium Production – PFCs (2C3)
- Emissions from Cement Production – CO_2 (2A1)
- Emissions from Substitutes for Ozone Depleting Substances – HFCs (2F)

A discussion of the above key sources is presented below.

4.1 Emissions from Ferroalloys – CO_2 (2C2)

4.1.1 Description

Emissions of CO_2 from the single operating ferroalloy production plant accounted for 6% of the national total greenhouse gas emissions in 1990. In 2003, it's share of the total national emissions was 7% when emissions fulfilling decision 14/CP.7 are excluded but 11% when the emissions are included in national totals. This source category is key source in level.

4.1.2 Methodological issues

Emissions of CO_2 originate from the use of coal and coke as reducing agent, as well as from consumption of electrodes. Emissions are calculated according to the Tier 1 method based on the consumption of reducing agents and electrodes and emission factors from the IPCC Guidelines.

Activity data

The consumption of reducing agents and electrodes are collected by the EFA directly from the single operating ferroalloys production plant. The data is thus considered very reliable.

Emission factors

For CO_2, the standard emission factors based on carbon content of the reducing agents and electrodes are used. They are taken from the revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories and are presented in table 4.1. Values for NCV are from NEA.

Table 4.1 Emission factors for CO_2 from production of ferroalloys

	NCV [TJ/kt]	Carbon EF [t C/TJ]	Fraction oxidised	CO_2 EF [t CO_2/t input]
Other Bituminous Coal	28,00	25,80	0,98	2,60
Coke Oven Coke	28,00	29,50	0,98	2,97
Electrodes	28,00	32,14	0,98	3,23

4.1.3 Uncertainties

The quantitative uncertainty has not been evaluated. The activity data are considered reliable and the uncertainty of the emissions factors is likely to be less than 5%.

4.1.4 QA/QC and verification

No formal QA/QC has been performed. Calculations and units have been checked by the EFA as well as data consistency between years.

4.1.5 Recalculations

No recalculation has been performed for this source.

4.1.6 Planned improvements

There are at present no plans for further improvements in this sector.

4.2 Emissions from Aluminium Production – PFCs, CO_2 (2C3)

4.2.1 Description

Emissions from the aluminium industry accounted for 17% of the national total greenhouse gas emissions in 1990. In 2003, the industry's share of the total national emissions was 6% when emissions falling under Decision 14/CP.7 are excluded but was 13% when the emissions are included in national totals. Total emissions from the aluminium industry, including emissions falling under Decision 14/CP.7, decreased by 17% from 1990 to 2003 although yearly production has increased from 88.000 t to 267.000 t in the same period. Total CO_2 emissions from the aluminium industry increased by 194% over the period but PFC emissions decreased by 86% from the 1990 level. From 1990 to 1996 PFC emissions were reduced by 94%. Due to the enlargement of the existing aluminium plant in 1997 and the establishment of new aluminium plant in 1998 emissions increased again from 1997 to 1999, but have decreased since. The reduction in PFC emissions was effectuated by improved technology and process control. PFC emissions per tonne aluminium produced went from 4,78 tonnes CO_2-equivalents, in 1990, to 0,22 tonnes CO_2-equivalents in 2003.
CO_2 emissions from the aluminium industry are a key source category in level and PFC emissions both in level and trend. The production technology in both existing plants is based on using prebake anode cells.

4.2.2 Methodological issues

CO_2
CO_2 emissions originate from the consumption of electrodes. Emissions are calculated according to the Tier 1 method based on the quantity of electrodes used in the process and the emission factors from the IPCC Guidelines.

PFCs

PFCs are produced during anode effects (AE) in the prebake cells, when the voltage of the cells increases from the normal 4 – 5 V to 25 – 40 V. Emissions of PFCs are dependent on the number of anode effects and their intensity and duration. Anode effect characteristics are different from plant to plant. Emission factors are calculated according to the Tier 2 Slope Method. Default coefficients are taken from the IPCC Good Practice Guidance for Centre Worked Prebaked Technology. Emission factors are calculated with the following formula:

EF (kg CF_4 or C_2F_6 per tonne of Al) = Slope • AE min/cell day

Emissions are then calculated by multiplying the emission factors with the amount of aluminium produced.

Activity data

The EFA collects annual process specific data from the two operating aluminium plants. The data is considered reliable.

Emission factors

For CO_2, the standard emission factors based on carbon content of the electrodes are used. They are taken from the revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories and are presented in table 4.2. The default coefficients for the calculation of PFC emissions are taken from the IPCC Good Practice Guidance for Centre Worked Prebaked Technology (0,14 for CF_4 and 0,018 for C_2F_6). The emissions calculated in this way seem to fit well to the measurements that have been performed at both plants. The measurements took place in 1997 at the old plant and in 2001 at the new one.

Table 4.2 Emission factors CO_2 from aluminium production

	NCV [TJ/kt]	Carbon EF [t C/TJ]	Fraction oxidised	CO_2 EF [t CO_2/t input]
Electrodes	31,35	31,42	0,98	3,54

4.2.3 Uncertainties

The quantitative uncertainty has not been evaluated. The activity data are considered reliable and the uncertainty of the emissions factors for CO_2 emissions is likely to be less than 5%. The emission factors for calculating PFC emissions have more uncertainty but still seem to fit well to the measurements that have been performed so far at the aluminium production plants.

4.2.4 QA/QC and verification

No formal QA/QC has been performed. Calculations and units have been checked by the EFA as well as data consistency between years.

4.2.5 Recalculations

No recalculations have been performed for this source.

4.2.6 Planned improvements

There are at the present no plans for further improvements in this sector.

4.3 Emissions from Cement Production – CO_2 (2A1)

4.3.1 Description

Emissions of CO_2 from the single operating cement production plant accounted for 6% of the industrial process emissions in 2003 and 1% of the national total greenhouse gas emissions in 2003. Emissions decreased by 37% from 1990 to 2003. This source category is key source in level and trend.

4.3.2 Methodological issues

Emissions of CO_2 originate from calcination of the raw material calcium carbonate, which comes from shell sand in the production process. The resulting calcium oxide is heated to form clinker and then crushed to form cement. Emissions are calculated according to the Tier 2 method based on clinker production data and data on the CaO content of the clinker. Cement Kiln Dust (CKD) is non-calcined dust produced in the kiln. CKD may be partly or completely recycled to the kiln. Any CKD that is not recycled can be considered lost to the system in terms of CO_2 emissions. Emissions are thus corrected with plant specific cement kiln dust correction factor.

Activity data

Process specific data on clinker production, CaO content of the clinker and non-recycled CKD are collected by the EFA directly from the cement production plant. The data is considered reliable.

Emission factors

It has been estimated by the cement production plant that CaO content of the clinker is 63%. The corrected emission factor for CO_2 is thus 0,495. For CKD it is 7,5%.

4.3.3 Uncertainties

The quantitative uncertainty has not been evaluated. The activity data are considered reliable.

4.3.4 QA/QC and verification

No formal QA/QC has been performed. Calculations and units have been checked by the EFA as well as data consistency between years.

4.3.5 Recalculations

No recalculations have been performed for this source.

4.3.6 Planned improvements

There are at present no plans for further improvements in this sector.

4.4 Emissions from Substitutes for Ozone Depleting Substances – HFCs (2F)

4.4.1 Description

Import of HFCs started in 1992 and increased until 1998. The annual imports have since then stayed between 30 and 70 Gg CO_2-equivalents. Sufficient data is not available to calculate actual emissions. This means that only potential emissions are estimated, based on imports. In 2003 the potential emissions of HFCs were about 2% of national total greenhouse gas emissions. This source category is key source in both level and trend.

4.4.2 Methodological issues

Data on imports of HFCs is reported directly to EFA. The data is considered reliable.

4.4.3 Uncertainties

The quantitative uncertainty has not been evaluated. The activity data are considered reliable. Emissions are likely to be overestimated since only potential emissions are calculated.

4.4.4 QA/QC and verification

No formal QA/QC has been performed. Calculations and units have been checked by the EFA as well as data consistency between years.

4.4.5 Recalculations

No recalculations have been performed for this source.

4.4.6 Planned improvements

Estimating actual HFC emissions.

4.5 Non-key sources

This section will be completed for the next submission.

5 SOLVENT AND OTHER PRODUCT USE

The use of solvents and products containing solvents leads to emissions of non-methane volatile organic compounds (NMVOC), which are regarded as indirect greenhouse gases. The NMVOC emissions will over a period of time oxidize to CO_2 in the atmosphere. This conversion has not been estimated.

The only emissions reported under the sector solvent and other product use are due to use of N_2O, mainly for medical purposes, and also, to a smaller extent, for car racing. Those emissions were 4 Gg CO_2-equivalents in 2003 and have declined by 38% since 1990. These emissions were not estimated before.

6 AGRICULTURE

Icelanders are self-sufficient in all major livestock products such as meat, milk and eggs. Traditional livestock production is grassland-based and all the native breeds, i.e. of dairy cattle, sheep, horses and goats are of ancient Nordic origin, one of each species. These animals are generally smaller than in Europe. Beef production, however, is partly based on imported breeds. The more intensive agricultural sector, pig- poultry- and fur animal production, is based on imported breeds.

The agriculture sector accounts for 16% of the GHG emissions in Iceland. Emissions decreased by 14% from 1990 to 2003. The two largest large sources within the agriculture sector are CH_4 emissions from enteric fermentation (48% of the sector's total) and N_2O emissions from agricultural soils (43% of the sector's total).

As indicated in table 1.1, the key source analysis performed for 2003 has revealed that in terms of total level and/or trend uncertainty the key sources in the agriculture sector are the following:

- Emissions from Enteric Fermentation – CH_4 (4A)
- Direct Emissions from Agricultural Soils – N_2O (4D1)
- Indirect Emissions from Agricultural Soils – N_2O (4D2)

A discussion of the above key sources is presented below.

6.1 Emissions from Enteric Fermentation – CH_4 (4A)

6.1.1 Description

The production of CH_4 by enteric fermentation in animals varies with digestive systems and feed intake. Ruminants such as cattle and sheep produce the largest amount of methane. However, enteric fermentation in pseudo-ruminants (e.g. horses) and monogastric animals (e.g. pigs) is also of significance. CH_4 emissions from enteric fermentation amounted to 233 Gg CO_2-equivalents in 2003 and have decreased by 12% since 1990. This source category is key source in level and trend.

6.1.2 Methodological issues

The methodology for calculating methane from enteric fermentation is in accordance with the Tier 1 method. The number of animals of each kind and emission factors for each kind of animals are used to calculate the emissions.

Activity data

The Icelandic Association of Farmers (IAF) is in charge of assessing the size of the animal population each year. On request from the EFA the IAF also accounts for young animals, but those are mostly excluded from national statistics on animal population. The data is considered relatively reliable.

Emission factors

Emission factors are taken from the IPCC Guidelines. They are presented in table 6.1. The emission factors are likely to be too high, since domestic animals in Iceland are generally smaller (sheep, horses) than in other European countries.

Table 6.1 Emission factors for CH_4 from enteric fermentation

	kg CH_4 per head per year
Dairy cattle	100
Non-dairy cattle	48
Sheep	8
Goats	5
Horses	18
Swine	1,5

6.1.3 Uncertainties

The quantitative uncertainty has not been evaluated. The activity data are considered relatively reliable but the uncertainty of the emissions factors is likely to be high.

6.1.4 QA/QC and verification

No formal QA/QC has been performed. Calculations and units have been checked by the EFA as well as data consistency between years.

6.1.5 Recalculations

Figures for the number of swine have been corrected, since previous statistics had a minor flaw. Emissions from goats are estimated for the first time. These recalculations have only lead to minor changes in this sector.

6.1.6 Planned improvements

Develop country-specific emission factors from feed intake according to the Tier 2 method, in particular for the special Icelandic livestock.

6.2 Emissions from Agricultural Soils – N_2O (4D)

6.2.1 Description

Three sources of N_2O from agricultural soils are distinguished in the IPCC methodology:

- Direct emissions from agricultural soils (applying for Iceland: use of synthetic fertilizers, applied animal manure, crop residue, cultivation of soils (NE)). This is a key source in both level and trend.
- Direct soil emissions from production of animals
- N_2O emissions indirectly induced by agricultural activities (N losses by volatilization, leaching and runoff). This is key source in level.

6.2.2 Methodological issues

The methodology for calculating N_2O from agricultural soil is in accordance with the Tier 1b method.

Use of synthetic fertilizer

The direct emissions of N_2O from the use of synthetic fertilizers are calculated from data on annual usage of fertilizers and their nitrogen content, multiplied by the IPCC default emission factor. The emissions are corrected for ammonia that volatilizes during application.

Manure applied to soil

It is assumed that all animal excreta that are not deposited during grazing are used as manure. The total amount of nitrogen in manure is estimated from the number of animals and the country-specific nitrogen factors for each kind of animal, presented in table 6.2. They are taken from Óskarsson, M. and Eggertsson, M. (1991).

Table 6.2 Nitrogen excretion factors

	kg N per head per year
Dairy cattle	60
Non-dairy cattle	33,6
Sheep	5,76
Goats	5,76*
Horses	28,8
Swine	13,3
Poultry	0,42

* N-excretion from goats are assumed to be the same as by sheep

Crop residue

This source is negligible.

Cultivation of organic histosols

This source is not estimated.

Direct soil emission from animal production

The fraction of the total amount of animal manure produced, which is deposited on pastures during grazing, is set to be 40 - 45% and differs between years. The Hvanneyri Agricultural University has estimated the proportion of excreted nitrogen from different types of livestock subject to different types of animal waste management systems. The level of animal manure deposited on pastures has been changing slightly due to changes in farming practices.

N losses by volatilization

Atmospheric deposition of nitrogen compounds fertilizes soils and surface waters, and enhances biogenic N_2O formation. Climate and the type of fertilizer influence the ammonia volatilization. The IPCC default values for volatilization are used (10% for synthetic fertilizers and 20% for animal manure).

N_2O from leaching and runoff

A considerable amount of nitrogen from fertilizers is lost from agricultural soils through leaching and runoff. Fertilizer nitrogen in ground water and surface waters enhances biogenic production of N_2O as the nitrogen undergoes nitrification and denitrification. The IPCC default value of 30% is used.

Emission factors

The IPCC default emission factor of 0,0125 kg N_2O-N/kg N has been used for all sources of direct N_2O emissions from agricultural soils, except for the emissions of N_2O from animal production which are calculated using the IPCC default factor of 0,02 kg N_2O-N/kg N.

The IPCC default emission factor of 0,025 kg N_2O-N/kg N is used for leaching and runoff.

6.2.3 Uncertainties

The quantitative uncertainty has not been evaluated. The overall uncertainty of N_2O emissions from agricultural soils is likely to be very high.

6.2.4 QA/QC and verification

No formal QA/QC has been performed. Calculations and units have been checked by the EFA as well as data consistency between years.

6.2.5 Recalculations

Figures for the number of swine have been corrected, since previous statistics had a minor flaw. Emissions from goats are estimated for the first time. These recalculations have only lead to minor changes in this sector.

6.2.6 Planned improvements

Revise country-specific N excretion factors.

6.3 Non-key sources

This section will be completed for next submission

7 LUCF

7.1 Overview

IPCC has finalized a "Good Practice Guidance Report for Land-Use, Land-Use Change and Forestry" in 2004. New tables for reporting this sector have also been established. It was not possible for Iceland to report LULUCF emissions/removals according to these new requirements in this reporting round.

The Revised IPCC 1996 Guidelines (IPCC 1997) divide the sectoral report for Land-Use Changes and Forestry on greenhouse gasses emission and removal into five categories. Emission and removal from Forest and Grassland Conversion, Abandonment of Managed Lands and CO_2 Emission and Removals from Soil have not been estimated in Iceland due to lack of information. Changes in Forest and Other Woody Biomass Stocks and changes due to Revegetation under the category "Other" are reported. The reporting is limited to activities since 1990 in accordance with the Kyoto protocol.

7.2 Changes in forest and woody biomass stock

7.2.1 Overview

The changes in forest and woody biomass stock reported include only afforestation since 1990, meeting the requirements of the Kyoto protocol. The total area of native woodlands in Iceland has been inventoried twice in the 20th century 1972-1975 and 1987-1991 resulting in estimates of 125 and 118 kha respectively. Total woody C-stock was from these data estimated at 1300 ktonn C with average of 11 t C ha^{-1} in 1990. The two inventories are not comparable in methodology and can not be directly compared to show changes in area or woody stock during this period (Sigurðsson and Snorrason 2000).

The C stock of the native birch woodlands is assumed to remain constant, and no changes reported.

Afforestation and reforestation started in Iceland 1899. Before 1970 plantation of forest was mostly done in natural woodlands. The total area of plantations from 1970 to 1989 has been estimated to be 3 kha. The annual changes of the woody biomass of these plantations have not been estimated directly with inventories.

Most of afforestation areas in Iceland are relatively young and clear cutting have not started. The only exceptions of deforestation are when natural woodland and plantations have to give way for road or house building. A preliminary investigation of deforestation have shown that they are very rare and in small scale. Neither the clear cuttings nor the thinning of managed forests is presently systematically recorded.

The whole process of forest inventories and aggregation of forestry data is under total revision and total recalculations will not be conducted until that revision is completed.

7.2.2 Methodological issues

The area of new plantations is estimated from number of seedlings delivered from plant breeding stations. The estimation of afforested area is based on following

assumptions. On average planting density was 2350 seedlings ha^{-1}, 25% of afforested area is lost to various reasons (Sigurðsson and Snorrason 2000).

The annual C uptake factor used in report is 1.2 t C ha^{-1} is a precautionary estimate of data from Icelandic Forest Research (Snorrason 2003). The estimated removal of C is based on this factor.

7.2.3 Uncertainties

The use of average annual C removal factor introduces an overestimate of the removal of C by young plantations. The C uptake factor is based on measurements where the biomass of forest plantations of known age was measured. These measurements have resulted in highly variable results ranging from 0.9-3.8 t C ha^{-1} (Jónsson 1996) (Snorrason 2003).

How well the used factor represents the actual plantations is thus a source of error, which acts both on age of plantation and spatial variability. The area estimate is based on indirect data source and no evaluation of its precision has been done.

7.2.4 Source specific QA/QC and verification

No assessment or control of data quality has been undertaken. The ongoing improvement and data base establishment will improve control and verification options.

7.2.5 Recalculations

The area of forest/biomass stock was revised due to changed assumptions on average planting density. This has lead to over 60% increase in CO_2 removal from this subsector and around 20% increase for the LUCF sector.

7.2.6 Planed improvements

A national forest inventory that consists of area based (GIS) database and measurements of carbon stock and carbon stock changes on 3000 systematically spread plots is under construction where all natural woodlands and forest plantations are included. This work started 2 years ago and in summer 2004 the measurement on field plot started and the country will be covered in a 5 years period. One can therefore expect gradually improved estimate of carbon stock and carbon stock changes in both managed and unmanaged woodlands in Iceland.

7.3 Other - Revegetation

Changes in soil and vegetation carbon stock in land which has been revegetated are reported under the category “Other” in the Land Use Changes and Forestry sector.

7.3.1 Overview

Since settlement of Iceland large areas of the former vegetated areas have been severely eroded and in large areas the entire soil mantel has been swept away. It has recently been estimated that total of 60-250 $*10^3$ kt C has been oxidised and released to the atmosphere in past millennium (Óskarsson, Arnalds et al. 2004).

The current ongoing loss of SOC due to erosion was in the same study estimated 50-100 kt C yr^{-1} (Óskarsson, Arnalds et al. 2004). No attempt is made to include that estimation in the CRF.

By revegetation of deserted areas some of the carbon lost previously is sequestrated back into the soil.

The Icelandic Soil Conservation was established in 1907. Its main obligation has from that time and still is to stop the ongoing erosion and revegetate the lost areas. Until 1970 recording of soil conservation and revegetation activities was very limited only occasional maps and reports. From 1970 to 1990 most of the activities included spreading of seeds and/or fertilizers by airplanes. These activities are to large extent recorded. From 1990 the importance of the flight has decreased as other methods have taken over and cooperation with farmers and other parties of interest has increased. At the same time recording of activities has developed.

The reported removal of CO_2 is what is estimated to have been removed in areas established since 1990 and is accountable with respect to the Kyoto protocol. Older revegetations are not included.

No effort has been taken to estimate separately the emission or removal of other GHG. The emission of N_2O due to use of N-fertilizers on revegetation sites is included in the national total release due to fertilizers usage.

7.3.2 Methodological issues

The Icelandic Soil Conservation records the revegetation efforts conducted. In 1998-2000 a special governmental effort to sequester carbon with revegetation and afforestation was carried out. Along with that effort a research effort to document carbon sequestration and estimate its rate was carried out (Arnalds, Guðbergsson et al. 2000).

An effort in GIS mapping of the revegetation areas and improvements of the precession of size estimate of the areas has been ongoing since 1998. Both the rate estimate and area recording aim at establishing a transparent, verifiable inventory for revegetation efforts accountable according to the Kyoto protocol.

7.3.3 Uncertainties

There are two main sources of error regarding carbon sequestration by revegetation. First is variability in sequestration rate and the second is estimate of area size.
The areas where revegetation is carried out are very variable regarding soil, and climate condition and method used. Success of revegetation efforts is also very variable. Consequently to this variability the rate of sequestration is highly variable. Although some of the sources of this variability have been identified, it is far from being totally explained (Arnalds, Aradóttir et al. 1999; Arnalds, Guðbergsson et al. 2000; Arnalds 2002).

The mapping method and registration of the revegetation on the first year of recording 1998 was based on recording the site name and estimate of hectares where activity were taking place. The estimated number of hectares is partly based on amount of seeds and fertilizers used. This method possible introduced relative large error into the area estimates and also there is a risk of double counting or not counting some areas.

Generally it is a necessary part of the revegetation effort to protect the area from grazing by establishing permanent fences. In some cases the whole area inside such fences are possible reported as revegetated although only a part of it has been directly the field of activities such as fertilization or seed spreading. It is important to bear in mind that the registration was designed to serve other purposes than the needs of greenhouse gas inventories.

7.3.4 Source specific QA/QC and verification

The Icelandic Soil Conservation is working on improvements of recording the revegetion activities. In the first phase the improvements are on the activities conducted since 1990. The estimation of sequestration rate was carried out along with the special governmental sequestration effort described above. Since then no verification of real sequestration has been carried out.

7.3.5 Recalculations

No recalculations are carried out in this report, but re-estimations are needed as soon as the mapping of the revegetation areas is completed.

7.3.6 Planed improvements

Two main improvements are planed and partly already being carried out. First there is improvement in recording of activities both, in location and description of activities and management. Second improvement planed is pre activity sampling to establish a baseline fore comparison of SOC to later time.

7.4 Planed improvements regarding LULUCF reporting

To meet the requirements of this new Good Practice Guidance for LULUCF Iceland needs to:

1. Establish a land-use database relevant to GHG inventory.
2. Provide funding for research and monitoring of most relevant parameters for converting land-use and land-use changes to emission and removal of GHG.

The preparation of this work is ongoing.
Iceland would like to call attention in this NIR to the results of new research on emissions of greenhouse gases from drained wetlands and land damaged by overgrazing and erosion, which indicate that these land types are significant sources of GHG emissions, and this could have big impact on the estimated total GHG emissions in Iceland.

More research and analysis of data is required to improve the estimates of emissions from these sources. The possible impact of this research on Iceland's inventory data also needs to be examined and clarified. The drainage of wetlands was encouraged by government subsidies after WWII, reached its peak in the 1970s, and had all but stopped in 1990. Some of the drained wetlands are presently used for cultivation, mainly for grazing or haymaking, others are not cultivated but are used for grazing, and still others have been abandoned in the sense that it is not used for any kind of agricultural activity. Most of the dryland damaged by overgrazing and erosion continues to be used for grazing. Iceland will aim to clarify the classification of these types of land with regard to IPCC methodology and examine possible implication of this new research to inventory information before the end of 2006. The research

conclusions have received great attention in Iceland, and point to great potential of decreasing GHG emissions and of carbon sequestration by reclaiming drained wetlands, regardless of any uncertainties of data and classification of land types.

8 WASTE

8.1 Overview

Practices of waste disposal have undergone a radical change in Iceland since 1990. Open burning that used to be the most common means of waste disposal outside the capital area, has gradually decreased since 1990, as landfills have become the main option. Recycling of waste has also increased due to efforts made by local municipalities. A twofold increase was noted between 1994 and 2004. Municipalities have also increasingly cooperated to run waste collection schemes and operate common landfill sites. This has resulted in larger landfills and enabled closedown of a number of small sites. Currently about 70% of municipal waste is landfilled, 24% recycled or recovered, 3 - 4% incinerated with energy recovery and 2 – 3% are incinerated without energy recovery.

The waste sector accounts for 9% of the GHG emissions in Iceland. Emissions increased by 64% from 1990 to 2003. CH_4 emissions from solid waste disposal sites is by far the largest source within the waste sector (98% of the sector's total). Emissions from Wastewater Handling are not estimated but are thought to be minor.

As indicated in table 1.1, the key source analysis performed for 2003 has revealed that in terms of total level and/or trend uncertainty the key sources in the agriculture sector are the following:

- Emissions from Solid Waste Disposal Sites – CH_4 (6A)
- Emissions from Waste Incineration – CO_2 (6C)

A discussion of the above key sources is presented below.

8.2 Emissions from Solid Waste Disposal Sites – CH_4 (6A)

8.2.1 Description

Methane emissions from solid waste disposal on land account for around 7% of national total greenhouse gas emissions. This source category is key source in level and trend.

8.2.2 Methodological issues

The methodology for calculating methane from solid waste disposal on land is in accordance with the Tier 1 method. The amount of waste going to managed waste disposal sites on the one hand and unmanaged waste disposal sites (shallow, less than 5 meters of waste) on the other hand, and the methane generation potential of each kind of disposal site are used to calculate the emissions. The following equation is used:

$$CH_4 \text{ emissions (Gg/yr)} = [(MSW_L \bullet L_0) - R] \bullet (1 - OX)$$

MSW_L: MSW disposed at SWDS
L_0: Methane generation potential
R: Recovered methane (Gg/yr)
OX: Oxidation factor (fraction)

The oxidation factor for a managed waste disposal sites is set at 0,1[1] and for an unmanaged waste disposal sites at 0. The methane generation potential is calculated from the composition of landfilled waste, with the following equation:

$$L_0 \text{ (Gg } CH_4\text{/Gg waste)} = MCF \bullet DOC \bullet DOC_F \bullet F \bullet 16/12$$

MCF: Methane correction factor (fraction)
DOC: Degradable organic carbon (fraction [Gg C/ Gg MSW])
DOC_F: Fraction DOC dissimilated
F: Fraction by volume of CH_4 in landfill gas

The methane correction factor accounts for the fact that unmanaged SWDS produce less methane from a given amount of waste than managed SWDS.

Activity data

Activity data on waste in Iceland are very incomplete in every respect. There is little information on the actual amount of generated waste as well as on its composition and characteristics. All incoming wastes have been weighted, since 1990, at the largest operating disposal site and some surveys carried out on waste composition. This information has been used by the EFA to make estimates of waste amount and composition for the whole country. Until 2004, the amounts of waste generated in Iceland were roughly estimated, being based mainly on data from SORPA, the biggest waste treatment facility in Iceland, servicing the capital area of Reykjavik and covering ca. 62% of the Icelandic population. In relation to the National waste management plan for 2004 – 2016 the amounts of waste generated in 2002 were assessed in a more detailed way, e.g. by using more concise definitions of waste streams and inclusion of more waste-types, such as agricultural waste, industrial waste and construction & demolition waste. It became clear that waste amounts were significantly higher than previously estimated and therefore needed to be revised accordingly. Statistics for 2002 have been used to estimate historical data, assuming the generated waste to have increased by 1,5% per capita per year. The composition of landfilled waste is held constant over the time series. Landfilled waste is divided between managed waste disposal sites and unmanaged shallow (less than 5 meters of waste) waste disposal sites. Estimates on how waste is divided between the different types of waste disposal sites depend on whether the waste disposal sites are operated with or without a permit from the EFA. Waste landfilled at sites without a permit is classified as waste in unmanaged shallow (less than 5 meters of wastes) waste disposal sites. The data is considered to be very unreliable. Data on methane recovery are collected by the EFA directly from the single landfill site with methane recovery. This data is considered to be reliable.

Data and values used to calculate the methane generation potential

Data and values to calculate the methane generation potential are mainly taken from the IPCC Guidelines. The methane correction factor for managed waste disposal sites is 1 and 0,4 for unmanaged – shallow sites. The fraction by volume of CH_4 in landfill gas is set at 0,5. DOC is estimated using default carbon content values and the fraction of each waste stream by weight, based on estimates from the EFA (EFA 2004):

[1] According to IPCC Good Practice Guidance, most industrialised countries with well-managed SWDS use 0,1 for OX

$$DOC = (0,4 \bullet A) + (0,17 \bullet B) + (0,15 \bullet C) + (0,3 \bullet D)$$

Values for calculating DOC are presented in table 8.1.

Table 8.1 Values for calculating the DOC in solid waste disposed on land

Waste Stream	DOC (% by weight)	Fraction of MSW (% by weight)
A. Paper and textiles	40	20
B. Garden and park wastes	17	4
C. Food waste	15	33
D. Wood and straw waste	30	0,2

The fraction of degradable organic carbon dissimilated is set at 0,55 in accordance with the IPCC Good Practice Guidance.

8.2.3 Uncertainties

The quantitative uncertainty has not been evaluated. The activity data is considered very unreliable and the uncertainty of the emissions factors is likely to be high. Although all waste that is landfilled with a permit from EFA is considered as in managed solid waste disposal sites it is quite unlikely that the amount of generated methane is as high as is assumed by the Tier 1 method for managed waste disposal sites. This is due to the fact that many of these landfill sites are shallow and the weather condition are unfavorable for methane generation. Still, until more precise data is available it has been decided to perform the calculations in this way. This may lead to overestimation of methane emissions from landfilled wastes. This source category presumably represents the greatest uncertainty of the inventory.

8.2.4 QA/QC and verification

No formal QA/QC has been performed. Calculations and units have been checked by the EFA as well as data consistency between years.

8.2.5 Recalculations

Since last submissions figures for landfilled wastes have been revised. Data used for last submission were preliminary data obtained in the process of making the National waste treatment plan 2004 – 2016. This has lead to a decrease from about 266 Gg CO_2-eq in 2002 in last submission to 211 Gg in 2002 in this submission.

8.2.6 Planned improvements

Since waste statistics in Iceland are very poor and the uncertainty in methane emission from landfilled waste is very high it is a matter of priority to carry out surveys to obtain better data on the waste sector in Iceland. A survey should to be carried out as soon as possible since it is foreseen that the amount of carbon deposited at SWDS will go down in the future. Enough data to use the First Order Decay method needs to be compiled.

8.3 Emissions from Waste Incineration – CO_2 (6C)

8.3.1 Description

Emissions from waste incineration in district heating plants are reported in sector 1A1a (public electricity and heat production). Emissions from waste incineration

have decreased by 73% from 1990 to 2003. This is because the total amount of waste being incinerated in Iceland has decreased and at the same time a higher percentage has been incinerated with energy recovery and is thus reported under 1A1a. This source category is key source in trend.

8.3.2 Methodological issues

The methodology for calculating emissions from waste incineration is in accordance with the IPCC Guidelines. The activity data are the waste inputs into the incinerator, and the emission factor is based on the carbon content of the waste that is of fossil origin only. The burn out efficiency of the combustion is also included in the calculation. Although the most accurate way to estimate CO_2 emissions is by disaggregating the activity data into different waste types (e.g. municipal solid waste, clinical waste, hazardous waste) this could not be done for this submission. The following equation is used for calculating CO_2 emissions from waste incineration:

$$CO_2 \text{ emissions (Gg/yr)} = IMSW \bullet CCW \bullet FCF \bullet BEF \bullet 44/12$$

IMSW: Amount of incinerated waste (Gg/yr)
CCW: Fraction of carbon content in waste
FCF: Fraction of fossil carbon in waste
BEF: Burn out efficiency of incinerator
44/12: Conversion from C to CO_2

Activity data

Activity data on incinerated wastes from major incineration plants have been collected by the EFA since 2000. Historic data as well as data on open pit burning not reported to EFA, was estimated with the assumptions that 500 kg of wastes have been incinerated per inhabitant in the communes where wastes were known to be incinerated (both in primitive incineration plants as well as open pit burning) in 1990, 1995 and 2000 and interpolated in the years between. These communes were mapped by EFA in the respective years. The data after the year 2000 is considered rather reliable, but the data before that very unreliable.

Emission factors

Data for estimation of CO_2 from waste incineration are default values for municipal solid waste (MSW) taken from the IPCC Good Practice Guidance. They are presented in table 8.2.

Table 8.2 Emission factors for CH_4 from solid waste disposal on land

Waste Stream	MSW
C content of waste	40%
Fossil Carbon as % of Total Carbon	40%
Efficiency of Combustion	95%

8.3.3 Uncertainties

The quantitative uncertainty has not been evaluated. The activity data are considered rather reliable.

8.3.4 QA/QC and verification

No formal QA/QC has been performed. Calculations and units have been checked by the EFA as well as data consistency between years.

8.3.5 Recalculations

Activity data on incinerated wastes have been revised. This has lead to minor changes in the sector.

8.3.6 Planned improvements

Disaggregating the activity data into different waste types (e.g. municipal solid waste, clinical waste, hazardous waste).

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ANNEX I: KEY SOURCES

According to the IPCC definition, key sources are those that add up to 90% of the total uncertainty in level and/or in trend. In the Icelandic Emission Inventory key source categories are identified by means of Tier 1 method.

A key source analysis was prepared for this round of reporting. Table 1.1 in Chapter 1 lists identified key sources. Table A1 shows the level assessment of the key source analysis and table A2 the trend assessment of the key source analysis.

Table A1. Key source analysis – level assessment

		1990	2003	Level assessment	Cumulative total
Mobile Combustion: Fishing	CO_2	655,5	662,1	0,22	0,22
Mobile combustion: Road vehicles	CO_2	509,0	627,9	0,21	0,43
CH4 emissions from enteric fermentation in domestic livestock	CH_4	269,9	232,7	0,08	0,50
CO2 emissions from stationary combustion, oil	CO_2	237,0	228,1	0,08	0,58
CH4 emissions from solid waste disposal sites	CH_4	114,5	214,2	0,07	0,65
CO2 emissions from Ferroalloys	CO_2	203,5	203,5	0,07	0,72
Mobile combustion: Construction industry	CO_2	120,7	197,4	0,07	0,78
CO2 emissions from aluminium production	CO_2	136,5	136,5	0,05	0,83
Direct N2O emissions from agricultural soils	N_2O	144,0	124,0	0,04	0,87
Indirect N2O emissions from Nitrogen used in agriculture	N_2O	101,2	86,6	0,03	0,90
Emissions from Substitutes for Ozone Depleting Substances	HFC	0,0	35,2	0,02	0,92
PFC emissions from aluminium production	PFC	419,6	59,8	0,02	0,94
CO2 emissions from Cement Production	CO_2	51,6	32,1	0,01	0,95

Table A1. Key source analysis – trend assessment

		1990	2003	Level assessment	Trend assessment	Contribution to trend	Cumulative total
PFC emissions from aluminium production	PFC	419,6	59,8	0,02	0,118	0,372	0,37
Mobile combustion: Road vehicles	CO_2	509,0	627,9	0,21	0,047	0,148	0,52
CH4 emissions from solid waste disposal sites	CH_4	114,5	214,2	0,07	0,036	0,112	0,63
Mobile combustion: Construction industry	CO_2	120,7	197,4	0,07	0,028	0,087	0,72
Emissions from Substitutes for Ozone Depleting Substances	HFC	0,0	69,3	0,02	0,024	0,075	0,79
Mobile Combustion: Fishing	CO_2	655,5	662,1	0,22	0,010	0,032	0,83
CH4 emissions from enteric fermentation	CH_4	269,9	232,7	0,08	0,009	0,030	0,86
Mobile combustion: Road vehicles	N_2O	4,4	29,4	0,01	0,009	0,027	0,88
CO2 emissions from Cement Production	CO_2	51,6	32,1	0,01	0,006	0,019	0,90
CO2 emissions from stationary combustion, coal	CO_2	48,3	30,8	0,01	0,005	0,017	0,92
Direct N2O emissions from agricultural soils	N_2O	144,0	124,0	0,04	0,005	0,017	0,94
Emissions from waste incineration	CO_2	18,8	5,2	0,00	0,004	0,014	0,95

ANNEX II: CRF TABLES FOR YEAR 2003

TABLE 1 SECTORAL REPORT FOR ENERGY
(Sheet 1 of 2)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2	CH_4	N_2O	NO_X	CO	NMVOC	SO_2
	(Gg)						
Total Energy	**1.796,72**	**0,17**	**0,20**	**25,01**	**22,90**	**4,98**	**2,34**
A. Fuel Combustion Activities (Sectoral Approach)	**1.796,72**	**0,17**	**0,20**	**25,01**	**22,90**	**4,98**	**2,34**
1. Energy Industries	**14,07**	**0,00**	**0,00**	**0,18**	**0,05**	**0,00**	**0,03**
a. Public Electricity and Heat Production	14,07	0,00	0,00	0,18	0,05	0,00	0,03
b. Petroleum Refining	0,00	0,00	0,00	NO	NO	NO	NO
c. Manufacture of Solid Fuels and Other Energy Industries	0,00	0,00	0,00	NO	NO	NO	NO
2. Manufacturing Industries and Construction	**424,87**	**0,02**	**0,08**	**3,71**	**1,06**	**0,46**	**1,90**
a. Iron and Steel	1,68	0,00	0,00	0,00	0,00	0,00	0,00
b. Non-Ferrous Metals	27,48	0,00	0,00	0,07	0,00	0,00	0,26
c. Chemicals	6,07	0,00	0,00	0,04	0,01	0,00	0,07
d. Pulp, Paper and Print	0,00	0,00	0,00	NO	NO	NO	NO
e. Food Processing, Beverages and Tobacco	128,48	0,00	0,00	0,28	0,03	0,01	1,50
f. Other *(please specify)* ---	261,16	0,01	0,08	3,31	1,03	0,45	0,06
Mineral Industry	31,91	0,00	0,00	0,18	0,03	0,01	0,00
Construction	197,42	0,01	0,08	3,04	0,99	0,44	0,02
Other industry, not specified	31,83	0,00	0,00	0,08	0,00	0,00	0,04
3. Transport	**666,71**	**0,09**	**0,10**	**4,82**	**20,16**	**4,04**	**0,11**
a. Civil Aviation	21,42	0,00	0,00	0,09	0,03	0,02	0,02
b. Road Transportation	627,90	0,08	0,09	4,30	20,09	4,02	0,06
c. Railways	0,00	0,00	0,00	NO	NO	NO	NO
d. Navigation	17,40	0,00	0,00	0,43	0,04	0,01	0,02
e. Other Transportation *(please specify)* ---	0,00	0,00	0,00	0,00	0,00	0,00	0,00

TABLE 1 SECTORAL REPORT FOR ENERGY
(Sheet 2 of 2)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2	CH_4	N_2O	NO_X	CO	NMVOC	SO_2
	(Gg)						
4. Other Sectors	**675,62**	**0,06**	**0,02**	**16,26**	**1,63**	**0,47**	**0,15**
a. Commercial/Institutional	1,37	0,00	0,00	0,00	0,00	0,00	0,00
b. Residential	12,16	0,00	0,00	0,01	0,00	0,00	0,01
c. Agriculture/Forestry/Fisheries	662,09	0,06	0,02	16,25	1,62	0,47	0,14
5. Other *(please specify)* [1]	**15,45**	**0,00**	**0,00**	**0,04**	**0,00**	**0,00**	**0,15**
a. Stationary	15,45	0,00	0,00	0,04	0,00	0,00	0,15
Other stationary combustion	15,45	0,00	0,00	0,04	0,00	0,00	0,15
b. Mobile	0,00	0,00	0,00	0,00	0,00	0,00	0,00
B. Fugitive Emissions from Fuels	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
1. Solid Fuels	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
a. Coal Mining	0,00	0,00	NO	NO	NO	NO	
b. Solid Fuel Transformation	NO	NO	NO	NO	NO	NO	NO
c. Other *(please specify)*	0,00	0,00	0,00	0,00	0,00	0,00	0,00
2. Oil and Natural Gas	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
a. Oil	0,00	0,00		NE	NE	NE	NE
b. Natural Gas	0,00	0,00				NO	NO
c. Venting and Flaring	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Venting	0,00	0,00				NO	NO
Flaring	0,00	0,00	0,00	NO	NO	NO	NO
d. Other *(please specify)*	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Memo Items: [2]							
International Bunkers	**509,59**	**0,02**	**0,01**	**5,79**	**0,91**	**0,36**	**0,76**
Aviation	330,02	0,00	0,01	1,40	0,47	0,23	0,42
Marine	179,57	0,02	0,00	4,40	0,44	0,13	0,34
Multilateral Operations	NO	NO	NO	NO	NO	NO	NO
CO_2 Emissions from Biomass	**11,99**						

TABLE 1.A(a) SECTORAL BACKGROUND DATA FOR ENERGY Iceland
Fuel Combustion Activities - Sectoral Approach 2003
(Sheet 1 of 4) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	AGGREGATE ACTIVITY DATA		IMPLIED EMISSION FACTORS [2]			EMISSIONS		
	Consumption		CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
	(TJ)	[1]	(t/TJ)	(kg/TJ)	(kg/TJ)	(Gg)	(Gg)	(Gg)
1.A. Fuel Combustion	**24.949,85**	NCV				**1.796,72**	**0,17**	**0,20**
Liquid Fuels	24.384,90	NCV	72,26	6,81	8,05	1.762,12	0,17	0,20
Solid Fuels	331,74	NCV	92,71	1,00	1,40	30,76	0,00	0,00
Gaseous Fuels	0,00	NCV	0,00	0,00	0,00	0,00	0,00	0,00
Biomass	159,38	NCV	75,22	0,00	0,00 [3]	11,99	0,00	0,00
Other Fuels	73,83	NCV	52,09	0,00	9,35	3,85	0,00	0,00
1.A.1. Energy Industries	**212,95**	NCV				**14,07**	**0,00**	**0,00**
Liquid Fuels	139,12	NCV	73,51	3,83	0,58	10,23	0,00	0,00
Solid Fuels	0,00	NCV	0,00	0,00	0,00	0,00	0,00	0,00
Gaseous Fuels	0,00	NCV	0,00	0,00	0,00	0,00	0,00	0,00
Biomass	0,00	NCV	0,00	0,00	0,00 [3]	0,00	0,00	0,00
Other Fuels	73,83	NCV	52,09	0,00	9,35	3,85	0,00	0,00
a. Public Electricity and Heat Production	212,95	NCV				14,07	0,00	0,00
Liquid Fuels	139,12	NCV	73,51	3,83	0,58	10,23	0,00	0,00
Solid Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
Gaseous Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
Biomass	NO	NCV	NO	NO	NO [3]	NO	NO	NO
Other Fuels	73,83	NCV	52,09	NE	9,35	3,85	NE	0,00
b. Petroleum Refining	0,00	NCV				0,00	0,00	0,00
Liquid Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
Solid Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
Gaseous Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
Biomass	NO	NCV	NO	NO	NO [3]	NO	NO	NO
Other Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
c. Manufacture of Solid Fuels and Other Energy Industries	0,00	NCV				0,00	0,00	0,00
Liquid Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
Solid Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
Gaseous Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
Biomass	NO	NCV	NO	NO	NO [3]	NO	NO	NO
Other Fuels	NO	NCV	NO	NO	NO	NO	NO	NO

[1] Activity data should be calculated using net calorific values (NCV) as specified by the IPCC Guidelines. If gross calorific values (GCV) were used, please indicate this by replacing "NCV" with "GCV" in this column.

[2] Accurate estimation of CH_4 and N_2O emissions depends on combustion conditions, technology, and emission control policy, as well as fuel characteristics. Therefore, caution should be used when comparing the implied emission factors.

[3] Carbon dioxide emissions from biomass are reported under Memo Items. The content of the cells is not included in the totals.

Note: For the coverage of fuel categories, please refer to the IPCC Guidelines (Volume 1. Reporting Instructions - Common Reporting Framework, section 1.2, p. 1.19). If some derived gases (e.g. gas work gas, coke oven gas, blast gas, oxygen steel furnace gas, etc.) are considered, Parties should provide information on the allocation of these derived gases under the above fuel categories (liquid, soild, gaseous, biomass, other fuels) in the

TABLE 1.A(a) SECTORAL BACKGROUND DATA FOR ENERGY Iceland
Fuel Combustion Activities - Sectoral Approach 2003
(Sheet 2 of 4) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	AGGREGATE ACTIVITY DATA		IMPLIED EMISSION FACTORS [2]			EMISSIONS		
	Consumption		CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
	(TJ)	[1]	(t/TJ)	(kg/TJ)	(kg/TJ)	(Gg)	(Gg)	(Gg)
1.A.2 Manufacturing Industries and Construction	**5.779,80**	NCV				**424,87**	**0,02**	**0,08**
Liquid Fuels	5.288,68	NCV	74,52	2,97	15,51	394,11	0,02	0,08
Solid Fuels	331,74	NCV	92,71	1,00	1,40	30,76	0,00	0,00
Gaseous Fuels	0,00	NCV	0,00	0,00	0,00	0,00	0,00	0,00
Biomass	159,38	NCV	75,22	0,00	0,00 [3]	11,99	0,00	0,00
Other Fuels	0,00	NCV	0,00	0,00	0,00	0,00	0,00	0,00
a. Iron and Steel	182,34	NCV				1,68	0,00	0,00
Liquid Fuels	22,96	NCV	73,33	2,00	0,60	1,68	0,00	0,00
Solid Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
Gaseous Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
Biomass	159,38	NCV	75,22	0,00	0,00 [3]	11,99	0,00	0,00
Other Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
b. Non-Ferrous Metals	366,09	NCV				27,48	0,00	0,00
Liquid Fuels	366,09	NCV	75,07	1,85	0,55	27,48	0,00	0,00
Solid Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
Gaseous Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
Biomass	NO	NCV	NO	NO	NO [3]	NO	NO	NO
Other Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
c. Chemicals	79,21	NCV				6,07	0,00	0,00
Liquid Fuels	79,21	NCV	76,59	1,00	0,60	6,07	0,00	0,00
Solid Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
Gaseous Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
Biomass	NO	NCV	NO	NO	NO [3]	NO	NO	NO
Other Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
d. Pulp, Paper and Print	0,00	NCV				0,00	0,00	0,00
Liquid Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
Solid Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
Gaseous Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
Biomass	NO	NCV	NO	NO	NO [3]	NO	NO	NO
Other Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
e. Food Processing, Beverages and Tobacco	1.677,41	NCV				128,48	0,00	0,00
Liquid Fuels	1.677,41	NCV	76,59	2,10	0,44	128,48	0,00	0,00
Solid Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
Gaseous Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
Biomass	NE	NCV	NE	NE	NE [3]	NE	NE	NE
Other Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
f. Other *(please specify)*	3.474,75	NCV				261,16	0,01	0,08
Liquid Fuels	3.143,01	NCV	73,31	3,63	25,78	230,40	0,01	0,08
Solid Fuels	331,74	NCV	92,71	1,00	1,40	30,76	0,00	0,00
Gaseous Fuels	NO	NCV	NO	NO	NO	NO	NO	NO
Biomass	NO	NCV	NO	NO	NO [3]	NO	NO	NO
Other Fuels	NO	NCV	NO	NO	NO	NO	NO	NO

TABLE 1.A(a) SECTORAL BACKGROUND DATA FOR ENERGY Iceland
Fuel Combustion Activities - Sectoral Approach 2003
(Sheet 3 of 4) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	AGGREGATE ACTIVITY DATA		IMPLIED EMISSION FACTORS [2]				EMISSIONS		
	Consumption		CO_2	CH_4	N_2O		CO_2	CH_4	N_2O
	(TJ)	[1]	(t/TJ)	(kg/TJ)	(kg/TJ)		(Gg)	(Gg)	(Gg)
1.A.3 Transport	**9.534,60**	NCV					**666,71**	**0,09**	**0,10**
Gasoline	6.993,95	NCV	68,69	10,75	12,75		480,42	0,08	0,09
Diesel	2.540,65	NCV	73,33	4,33	2,67		186,30	0,01	0,01
Natural Gas	0,00	NCV	0,00	0,00	0,00		0,00	0,00	0,00
Solid Fuels	0,00	NCV	0,00	0,00	0,00		0,00	0,00	0,00
Biomass	0,00	NCV	0,00	0,00	0,00 [3]		0,00	0,00	0,00
Other Fuels	0,00	NCV	0,00	0,00	0,00		0,00	0,00	0,00
a. Civil Aviation	303,69	NCV					21,42	0,00	0,00
Aviation Gasoline	36,02	NCV	68,61	0,50	2,00		2,47	0,00	0,00
Jet Kerosene	267,67	NCV	70,79	0,50	2,00		18,95	0,00	0,00
b. Road Transportation	8.993,68	NCV					627,90	0,08	0,09
Gasoline	6.690,25	NCV	68,61	11,21	13,24		459,00	0,08	0,09
Diesel Oil	2.303,42	NCV	73,33	4,06	2,74		168,90	0,01	0,01
Natural Gas	NO	NCV	NO	NO	NO		NO	NO	NO
Biomass	NO	NCV	NO	NO	NO [3]		NO	NO	NO
Other Fuels *(please specify)* ---	0,00	NCV					0,00	0,00	0,00
		NCV	0,00	0,00	0,00				
c. Railways	0,00	NCV					0,00	0,00	0,00
Solid Fuels	NO	NCV	NO	NO	NO		NO	NO	NO
Liquid Fuels	NO	NCV	NO	NO	NO		NO	NO	NO
Other Fuels *(please specify)* ---	0,00	NCV					0,00	0,00	0,00
		NCV	0,00	0,00	0,00				
d. Navigation	237,23	NCV					17,40	0,00	0,00
Coal	NO	NCV	NO	NO	NO		NO	NO	NO
Residual Oil	0,00	NCV	0,00	0,00	0,00		0,00	0,00	0,00
Gas/Diesel Oil	237,23	NCV	73,33	7,00	2,00		17,40	0,00	0,00
Other Fuels *(please specify)* ---	0,00	NCV					0,00	0,00	0,00
		NCV	0,00	0,00	0,00				
e. Other Transportation	0,00	NCV					0,00	0,00	0,00
Liquid Fuels	NO	NCV	NO	NO	NO		NO	NO	NO
Solid Fuels	NO	NCV	NO	NO	NO		NO	NO	NO
Gaseous Fuels	NO	NCV	NO	NO	NO		NO	NO	NO

TABLE 1.A(a) SECTORAL BACKGROUND DATA FOR ENERGY Iceland
Fuel Combustion Activities - Sectoral Approach 2003
(Sheet 4 of 4) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	AGGREGATE ACTIVITY DATA		IMPLIED EMISSION FACTORS [2]				EMISSIONS		
	Consumption		CO_2	CH_4	N_2O		CO_2	CH_4	N_2O
	(TJ)	[1]	(t/TJ)	(kg/TJ)	(kg/TJ)		(Gg)	(Gg)	(Gg)
1.A.4 Other Sectors	**9.219,25**	NCV					**675,62**	**0,06**	**0,02**
Liquid Fuels	9.219,25	NCV	73,28	6,87	1,97		675,62	0,06	0,02
Solid Fuels	0,00	NCV	0,00	0,00	0,00		0,00	0,00	0,00
Gaseous Fuels	0,00	NCV	0,00	0,00	0,00		0,00	0,00	0,00
Biomass	0,00	NCV	0,00	0,00	0,00	[3]	0,00	0,00	0,00
Other Fuels	0,00	NCV	0,00	0,00	0,00		0,00	0,00	0,00
a. Commercial/Institutional	22,00	NCV					1,37	0,00	0,00
Liquid Fuels	22,00	NCV	62,44	1,10	NA		1,37	0,00	NA
Solid Fuels	NO	NCV	NO	NO	NO		NO	NO	NO
Gaseous Fuels	NO	NCV	NO	NO	NO		NO	NO	NO
Biomass	NO	NCV	NO	NO	NO	[3]	NO	NO	NO
Other Fuels	NO	NCV	NO	NO	NO		NO	NO	NO
b. Residential	171,74	NCV					12,16	0,00	0,00
Liquid Fuels	171,74	NCV	70,80	0,79	0,47		12,16	0,00	0,00
Solid Fuels	NO	NCV	NO	NO	NO		NO	NO	NO
Gaseous Fuels	NO	NCV	NO	NO	NO		NO	NO	NO
Biomass	NO	NCV	NO	NO	NO	[3]	NO	NO	NO
Other Fuels	NO	NCV	NO	NO	NO		NO	NO	NO
c. Agriculture/Forestry/Fisheries	9.025,51	NCV					662,09	0,06	0,02
Liquid Fuels	9.025,51	NCV	73,36	7,00	2,00		662,09	0,06	0,02
Solid Fuels	NO	NCV	NO	NO	NO		NO	NO	NO
Gaseous Fuels	NO	NCV	NO	NO	NO		NO	NO	NO
Biomass	NO	NCV	NO	NO	NO	[3]	NO	NO	NO
Other Fuels	NO	NCV	NO	NO	NO		NO	NO	NO
1.A.5 Other (Not elsewhere specified)[4]	**203,25**	NCV					**15,45**	**0,00**	**0,00**
Liquid Fuels	203,25	NCV	76,00	2,00	0,60		15,45	0,00	0,00
Solid Fuels	NO	NCV	NO	NO	NO		NO	NO	NO
Gaseous Fuels	NO	NCV	NO	NO	NO		NO	NO	NO
Biomass	NO	NCV	NO	NO	NO	[3]	NO	NO	NO
Other Fuels	NO	NCV	NO	NO	NO		NO	NO	NO

[4] Include military fuel use under this category.

Documentation Box:
1A2f Other manufacturing industries & construction includes: mineral industry, construction and other industries not included above

TABLE 1.A(b) SECTORAL BACKGROUND DATA FOR ENERGY Iceland

CO_2 from Fuel Combustion Activities - Reference Approach (IPCC Worksheet 1-1) 2003

(Sheet 1 of 1) 2005

FUEL TYPES			Unit	Production	Imports	Exports	International bunkers	Stock change	Apparent consumption	Conversion factor [1] (TJ/Unit)	[1]	Apparent consumption (TJ)	Carbon emission factor (t C/TJ)	Carbon content (Gg C)	Carbon stored (Gg C)	Net carbon emissions (Gg C)	Fraction of carbon oxidized	Actual CO_2 emissions (Gg CO_2)
Liquid Fossil	Primary Fuels	Crude Oil							0,00		NCV	0,00		0,00		0,00		0,00
		Orimulsion							0,00		NCV	0,00		0,00		0,00		0,00
		Natural Gas Liquids							0,00		NCV	0,00		0,00		0,00		0,00
	Secondary Fuels	Gasoline	Gg		140,17	0,00	0,02	-9,99	150,14	44,80	NCV	6.726,27	18,90	127,13		127,13	0,99	461,47
		Jet Kerosene	Gg		109,66	0,00	104,54	-1,08	6,20	44,59	NCV	276,46	19,50	5,39		5,39	0,99	19,57
		Other Kerosene	Gg		0,01	0,00		-0,16	0,17	44,75	NCV	7,56	19,60	0,15		0,15	0,99	0,54
		Shale Oil							0,00		NCV	0,00		0,00		0,00		0,00
		Gas / Diesel Oil	Gg		383,96	0,00	52,96	-14,20	345,19	43,33	NCV	14.957,13	20,20	302,13	0,00	302,13	0,99	1.096,75
		Residual Fuel Oil	Gg		58,03	0,00	3,67	-3,00	57,36	40,19	NCV	2.305,30	21,10	48,64		48,64	0,99	176,57
		LPG	Gg		2,39	0,00		0,01	2,38	47,31	NCV	112,36	17,20	1,93	0,00	1,93	0,99	7,02
		Ethane							0,00		NCV	0,00		0,00	0,00	0,00		0,00
		Naphtha							0,00		NCV	0,00		0,00	0,00	0,00		0,00
		Bitumen	Gg		26,61	0,00			26,61	40,19	NCV	1.069,47	22,00	23,53	23,53	0,00	0,99	0,00
		Lubricants	Gg		5,52	0,00			5,52	40,19	NCV	221,78	20,00	4,44	2,22	2,22	0,99	8,05
		Petroleum Coke	Gg		137,56	18,40			119,16	31,00	NCV	3.693,94	27,50	101,58	101,58	0,00	0,99	0,00
		Refinery Feedstocks							0,00		NCV	0,00		0,00		0,00		0,00
		Other Oil							0,00		NCV	0,00		0,00		0,00		0,00
Liquid Fossil Totals												29.370,26		614,92	127,33	487,59		1.769,96
Solid Fossil	Primary Fuels	Anthracite [2]							0,00		NCV	0,00		0,00		0,00		0,00
		Coking Coal	Gg		10,80	0,00		-1,05	11,85	28,00	NCV	331,74	25,80	8,56	0,00	8,56	0,98	30,76
		Other Bit. Coal	Gg		74,23	0,00		-16,89	91,12	28,00	NCV	2.551,44	25,80	65,83	65,83	0,00	0,98	0,00
		Sub-bit. Coal							0,00		NCV	0,00		0,00		0,00		0,00
		Lignite							0,00		NCV	0,00		0,00		0,00		0,00
		Oil Shale							0,00		NCV	0,00		0,00		0,00		0,00
		Peat							0,00		NCV	0,00		0,00		0,00		0,00
	Secondary Fuels	BKB & Patent Fuel							0,00		NCV	0,00		0,00		0,00		0,00
		Coke Oven/Gas Coke	Gg		52,83	0,00		7,58	45,25	28,00	NCV	1.267,03	29,50	37,38	37,38	0,00	0,98	0,00
Solid Fuel Totals												4.150,22		111,76	103,20	8,56		30,76
Gaseous Fossil		Natural Gas (Dry)							0,00		NCV	0,00		0,00	0,00	0,00		0,00
Total												**33.520,48**		**726,68**	**230,53**	**496,15**		**1.800,71**
Biomass total												158,84		3,32	0,00	3,32		11,95
		Solid Biomass	Gg	9,50	0,00	0,00			9,50	16,72	NCV	158,84	20,93	3,32		3,32	0,98	11,95
		Liquid Biomass							0,00		NCV	0,00		0,00		0,00		0,00
		Gas Biomass							0,00		NCV	0,00		0,00		0,00		0,00

[1] To convert quantities expressed in natural units to energy units, use net calorific values (NCV). If gross calorific values (GCV) are used in this table, please indicate this by replacing "NCV" with "GCV" in this column.

[2] If Anthracite is not separately available, include with Other Bituminous Coal.

TABLE 1.A(c) COMPARISON OF CO_2 EMISSIONS FROM FUEL COMBUSTION
(Sheet 1 of 1)

Iceland
2003
2005

FUEL TYPES	Reference approach		National approach [1]		Difference [2]	
	Energy consumption (PJ)	CO_2 emissions (Gg)	Energy consumption (PJ)	CO_2 emissions (Gg)	Energy consumption (%)	CO_2 emissions (%)
Liquid Fuels (excluding international bunkers)	29,37	1.769,96	24,38	1.762,12	20,44	0,44
Solid Fuels (excluding international bunkers)	4,15	30,76	0,33	30,76	1.151,03	0,00
Gaseous Fuels	0,00	0,00	0,00	0,00	0,00	0,00
Other [3]	0,07	3,85	0,07	3,85	0,00	0,00
Total [3]	**33,59**	**1.804,56**	**24,79**	**1.796,72**	**35,51**	**0,44**

[1] "National approach" is used to indicate the approach (if different from the Reference approach) followed by the Party to estimate its CO_2 emissions from fuel combustion reported in the national GHG inventory.
[2] Difference of the Reference approach over the National approach (i.e. difference = 100% x ((RA-NA)/NA), where NA = National approach and RA = Reference approach).
[3] Emissions from biomass are not included.

Note: In addition to estimating CO_2 emissions from fuel combustion by sector, Parties should also estimate these emissions using the IPCC Reference approach, as found in the IPCC Guidelines, Worksheet 1-1(Volume 2. Workbook). The Reference approach is to assist in verifying the sectoral data. Parties should also complete the above tables to compare the alternative estimates, and if the emission estimates lie more than 2 percent apart, should explain the source of this difference in the documentation box provided.

Documentation Box:

TABLE 1.A(d) SECTORAL BACKGROUND DATA FOR ENERGY Iceland
Feedstocks and Non-Energy Use of Fuels 2003
(Sheet 1 of 1) 2005

FUEL TYPE [1]	ACTIVITY DATA AND RELATED INFORMATION		IMPLIED EMISSION FACTOR	ESTIMATE	Additional information [a]	
	Fuel quantity (TJ)	Fraction of carbon stored	Carbon emission factor (t C/TJ)	of carbon stored in non-energy use of fuels (Gg C)	CO_2 not emitted ($Gg\ CO_2$)	Subtracted from energy sector *(specify source category)*
Naphtha [2]			0,00		0,00	
Lubricants	221,78	0,50	20,00	2,22	8,13	NE
Bitumen	1.069,47	1,00	22,00	23,53	86,27	NE
Coal Oils and Tars (from Coking Coal)			0,00		0,00	
Natural Gas [2]			0,00		0,00	
Gas/Diesel Oil [2]			0,00		0,00	
LPG [2]			0,00		0,00	
Butane [2]			0,00		0,00	
Ethane [2]			0,00		0,00	
Other *(please specify)* ---						
coke oven/gas coke	1.267,03	1,00	29,50	37,38	137,05	
other bit. coal	2.551,44	1,00	25,80	65,83	241,37	
petroleum coke	3.693,94	1,00	27,50	101,58	372,47	
			0,00		0,00	

[1] Where fuels are used in different industries, please enter in different rows.
[2] Enter these fuels when they are used as feedstocks.

[a] The fuel lines continue from the table to the left.

Note: The table is consistent with the IPCC Guidelines. Parties that take into account the emissions associated with the use and disposal of these feedstocks could continue to use their methodology, and provide explanation notes in the documentation box below.

Documentation box: A fraction of energy carriers is stored in such products as plastics or asphalt. The non-stored fraction of the carbon in the energy carrier or product is oxidized, resulting in carbon dioxide emissions, either during the use of the energy carriers in the industrial production (e.g. fertilizer production), or during the use of the products (e.g. solvents, lubricants), or in both (e.g. monomers). To report associated emissions use the above table, filling an extra "Additional information" table, as shown below.

Associated CO_2 emissions (Gg)	Allocated under --- *(Specify source category)* [a]

[a] e.g. Industrial Processes, Waste Incineration, etc.

TABLE 1.B.1 SECTORAL BACKGROUND DATA FOR ENERGY Iceland
Fugitive Emissions from Solid Fuels 2003
(Sheet 1 of 1) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA	IMPLIED EMISSION FACTOR		EMISSIONS	
	Amount of fuel produced [1] (Mt)	CH_4 (kg/t)	CO_2 (kg/t)	CH_4 (Gg)	CO_2 (Gg)
1. B. 1. a. Coal Mining and Handling	0,00			0,00	0,00
i. Underground Mines[2]	NO	NO	NO	0,00	0,00
Mining Activities		NO	NO	NO	NO
Post-Mining Activities		NO	NO	NO	NO
ii. Surface Mines[2]	NO	NO	NO	0,00	0,00
Mining Activities		NO	NO	NO	NO
Post-Mining Activities		NO	NO	NO	NO
1. B. 1. b. Solid Fuel Transformation	NO	NO	NO	NO	NO
1. B. 1. c. Other *(please specify)* [3] ---				0,00	0,00
	NO	NO	NO	NO	NO

Additional information [a]

Description	Value
Amount of CH_4 drained (recovered) and utilized or flared (Gg)	
Number of active underground mines	
Number of mines with drainage (recovery) systems	

[a] For underground mines.

[1] Use the documentation box to specify whether the fuel amount is based on the run-of-mine (ROM) production or on the saleable production.
[2] Emissions both for Mining Activities and Post-Mining Activities are calculated with the activity data in lines Underground Mines and Surface Mines respectively.
[3] Please click on the button to enter any other solid fuel related activities resulting in fugitive emissions, such as emissions from abandoned mines and waste piles.

Note: There are no clear references to the coverage of 1.B.1.b. and 1.B.1.c. in the IPCC Guidelines. Make sure that the emissions entered here are not reported elsewhere. If they are reported under another source category, indicate this (IE) and make a reference in Table 9 (completeness) and/or in the documentation box.

Documentation box:

TABLE 1.B.2 SECTORAL BACKGROUND DATA FOR ENERGY
Fugitive Emissions from Oil, Natural Gas and Other Sources
(Sheet 1 of 1)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA			IMPLIED EMISSION FACTORS			EMISSIONS		
	Description [1]	Unit	Value	CO_2 (kg/unit) (2)	CH_4 (kg/unit) (2)	N_2O (kg/unit) (2)	CO_2 (Gg)	CH_4 (Gg)	N_2O (Gg)
1. B. 2. a. Oil [3]							**0,00**	**0,00**	
i. Exploration	*(e.g. number of wells drilled)*		NO	NO	NO		NO	NO	
ii. Production [4]	*(e.g. PJ of oil produced)*		NO	NO	NO		NO	NO	
iii. Transport	*(e.g. PJ oil loaded in tankers)*		NO	NO	NO		NO	NO	
iv. Refining / Storage	*(e.g. PJ oil refined)*		NO	NO	NO		NO	NO	
v. Distribution of oil products	*(e.g. PJ oil refined)*		NE	NE	NE		NE	NE	
vi. Other			NO	NO	NO		NO	NO	
1. B. 2. b. Natural Gas							**0,00**	**0,00**	
Exploration			NO	NO	NO		NO	NO	
i. Production [4] / Processing	*(e.g. PJ gas produced)*		NO	NO	NO		NO	NO	
ii. Transmission	*(e.g. PJ gas consumed)*		NO	NO	NO		NO	NO	
Distribution	*(e.g. PJ gas consumed)*		NO	NO	NO		NO	NO	
iii. Other Leakage	*(e.g. PJ gas consumed)*		NO	NO	NO		**0,00**	**0,00**	
at industrial plants and power stations			NO	NO	NO		NO	NO	
in residential and commercial sectors			NO	NO	NO		NO	NO	
1. B. 2. c. Venting [5]							**0,00**	**0,00**	
i. Oil	*(e.g. PJ oil produced)*		NO	NO	NO		NO	NO	
ii. Gas	*(e.g. PJ gas produced)*		NO	NO	NO		NO	NO	
iii. Combined			NO	NO	NO		NO	NO	
Flaring							**0,00**	**0,00**	**0,00**
i. Oil	*(e.g. PJ gas consumption)*		NO	NO	NO	NO	NO	NO	NO
ii. Gas	*(e.g. PJ gas consumption)*		NO	NO	NO	NO	NO	NO	NO
iii. Combined			NO	NO	NO	NO	NO	NO	NO
1.B.2.d. Other *(please specify)* [6] ---							**0,00**	**0,00**	**0,00**
			NO	NO	NO	NO	NO	NO	NO

Additional information

Description	Value	Unit
Pipelines length (km)		
Number of oil wells		
Number of gas wells		
Gas throughput [a]		
Oil throughput [a]		
Other relevant information *(specify)* ---		

[a] In the context of oil and gas production, throughput is a measure of the total production, such as barrels per day of oil, or cubic meters of gas per year. Specify the units of the reported value in the unit column. Take into account that these values should be consistent with the activity data reported under the production rows of the main table.

[1] Specify the activity data used and fill in the activity data description column, as given in the examples in brackets. Specify the unit of the activity data in the unit column. Use the document box to specify whether the fuel amount is based on the raw material production or on the saleable production. Note cases where more than one variable is used as activity data.
[2] The unit of the implied emission factor will depend on the units of the activity data used, and is therefore not specified in this column. The unit of the implied emission factor for each activity will be kg/unit of activity data.
[3] Use the category also to cover emissions from combined oil and gas production fields. Natural gas processing and distribution from these fields should be included under 1.B.2.b.ii and 1.B.2.b.iii, respectively.
[4] If using default emission factors these categories will include emissions from production other than venting and flaring.
[5] If using default emission factors, emissions from Venting and Flaring from all oil and gas production should be accounted for here. Parties using the IPCC software could report those emissions together, indicating so in the documentation box.
[6] For example, fugitive CO_2 emissions from production of geothermal power could be reported here.

Documentation box:

TABLE 1.C SECTORAL BACKGROUND DATA FOR ENERGY Iceland
International Bunkers and Multilateral Operations 2003
(Sheet 1 of 1) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA	IMPLIED EMISSION FACTORS			EMISSIONS		
	Consumption (TJ)	CO_2 (t/TJ)	CH_4 (kg/TJ)	N_2O (kg/TJ)	CO_2 (Gg)	CH_4 (Gg)	N_2O (Gg)
Marine Bunkers	**2.442,38**				**179,57**	**0,02**	**0,00**
Gasoline	NO	NO	NO	NO	NO	NO	NO
Gas/Diesel Oil	**2.294,89**	73,33	7,00	2,00	**168,27**	**0,02**	**0,00**
Residual Fuel Oil	**147,50**	76,59	7,00	2,00	**11,30**	**0,00**	**0,00**
Lubricants	NE	NE	NE	NE	NE	NE	NE
Coal	NO	NO	NO	NO	NO	NO	NO
Other *(please specify)* ---	0,00	0,00	0,00	0,00	0,00	0,00	0,00
	NO	NO	NO	NO	NO	NO	NO
Aviation Bunkers	**4.662,25**				**330,02**	**0,00**	**0,01**
Jet Kerosene	**4.661,35**	70,79	0,50	2,00	**329,95**	**0,00**	**0,01**
Gasoline	**0,90**	68,61	0,50	2,00	**0,06**	**0,00**	**0,00**
Multilateral Operations [1]	**NO**				**NO**	**NO**	**NO**

Additional information

Fuel consumption	Allocation [a] (percent)	
	Domestic	International
Marine	8,85	91,15
Aviation	6,12	93,88

[a] For calculating the allocation of fuel consumption, use the sums of fuel consumption by domestic navigation and aviation (Table 1.A(a)) and by international bunkers (Table 1.C).

[1] Parties may choose to report or not report the activity data and emission factors for multilateral operation consistent with the principle of confidentiality stated in the UNFCCC reporting guidelines on inventories. In any case, Parties should report the emissions from multilateral operations, where available, under the Memo Items section of the Summary tables and in the Sectoral report table for energy.

Note: In accordance with the IPCC Guidelines, international aviation and marine bunker fuel emissions from fuel sold to ships or aircraft engaged in international transport should be excluded from national totals and reported separately for informational purposes only.

Documentation box: Please explain how the consumption of international marine and aviation bunkers fuels was estimated and separated from the domestic consumption.

Emissions are calculated on the basis of sold fuels. The oil companies report sold fuels catagorized in a way that separates consumption of international bunkers from domestic consumption
The oil companies did not report their sales statistics for 2003 to the National Energy Forecast Committee so the figures for that year are based on expert judgement.

TABLE 2(I) SECTORAL REPORT FOR INDUSTRIAL PROCESSES Iceland
(Sheet 1 of 2) 2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2	CH_4	N_2O	HFCs[1]		PFCs[1]		SF_6		NO_x	CO	NMVOC	SO_2
				P	A	P	A	P	A				
	(Gg)			CO_2 equivalent (Gg)				(Gg)					
Total Industrial Processes	**373,52**	**0,04**	**0,00**	**69,35**	**0,00**	**0,00**	**59,78**	**5,38**	**0,00**	**1,68**	**0,24**	**0,09**	**5,69**
A. Mineral Products	**33,08**	**0,00**	**0,00**							**0,02**	**0,05**	**0,01**	**0,03**
1. Cement Production	32,11												IE
2. Lime Production	NO												
3. Limestone and Dolomite Use	NO												
4. Soda Ash Production and Use	0,00												
5. Asphalt Roofing	NO										NO	NO	
6. Road Paving with Asphalt	NE									**0,02**	**0,03**	**0,01**	**0,03**
7. Other *(please specify)* ---	0,97	0,00	0,00							0,00	0,02	0,00	0,00
Mineral wool production	**0,97**	NE	NE							NE	**0,02**	NE	**0,00**
B. Chemical Industry	**0,48**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,46**	**0,00**	**0,00**	**0,00**
1. Ammonia Production	NO	NO								NO	NO	NO	NO
2. Nitric Acid Production			NO							NO			
3. Adipic Acid Production			NO							NO	NO	NO	
4. Carbide Production	0,00	0,00									NO	NO	NO
5. Other *(please specify)* ---	0,48	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,46	0,00	0,00	0,00
Diatomee production	**0,48**	NE	NE	NA	NA	NA	NA	NA	NA	**0,46**	NE	NE	NE
Fertilizer production	NO	NO	NO	NA	NA	NA	NA	NA	NA	NO	NO	NO	NO
C. Metal Production	**339,96**	**0,04**	**0,00**	**0,00**	**0,00**	**0,00**	**59,78**	**0,00**	**0,00**	**1,21**	**0,19**	**0,09**	**5,66**
1. Iron and Steel Production	0,00	0,00								NO	NO	NO	NO
2. Ferroalloys Production	203,47	0,04								1,21	0,19	0,09	2,32
3. Aluminium Production	136,49	NE					59,78			NE	NE	NE	3,34
4. SF_6 Used in Aluminium and Magnesium Foundries									0,00				
5. Other *(please specify)* ---	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

P = Potential emissions based on Tier 1 approach of the IPCC Guidelines. A = Actual emissions based on Tier 2 approach of the IPCC Guidelines. This only applies in sectors where methods exist for both tiers.

[1] The emissions of HFCs and PFCs are to be expressed as CO_2 equivalent emissions. Data on disaggregated emissions of HFCs and PFCs are to be provided in Table 2(II) of this common reporting format.

TABLE 2(I) SECTORAL REPORT FOR INDUSTRIAL PROCESSES Iceland
(Sheet 2 of 2) 2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2	CH_4	N_2O	HFCs[1]		PFCs[1]		SF_6		NO_x	CO	NMVOC	SO_2
				P	A	P	A	P	A				
	(Gg)			CO_2 equivalent (Gg)						(Gg)			
D. Other Production	NE									**0,00**	**0,00**	**0,00**	**0,00**
1. Pulp and Paper										NO	NO	NO	NO
2. Food and Drink[2]	NE											NE	
E. Production of Halocarbons and SF_6					**0,00**		**0,00**		**0,00**				
1. By-product Emissions					0,00		0,00		0,00				
Production of HCFC-22					0,00								
Other					0,00		0,00		0,00				
2. Fugitive Emissions					0,00		0,00		0,00				
3. Other *(please specify)* ---					0,00		0,00		0,00				
F. Consumption of Halocarbons and SF_6				**69,35**	**0,00**	**0,00**	**0,00**	**5,38**	**0,00**				
1. Refrigeration and Air Conditioning Equipment				**69,35**	0,00	NO	0,00	NO	0,00				
2. Foam Blowing				NO	0,00	NO	0,00	NO	0,00				
3. Fire Extinguishers				NO	0,00	NO	0,00	NO	0,00				
4. Aerosols/ Metered Dose Inhalers				NE	0,00	NO	0,00	NO	0,00				
5. Solvents				NO	0,00	NO	0,00	NO	0,00				
6. Semiconductor Manufacture				NO	0,00	NO	0,00	NO	0,00				
7. Electrical Equipment				NO		NO		**5,38**	0,00				
8. Other *(please specify)* ---				0,00	0,00	0,00	0,00	0,00	0,00				
G. Other *(please specify)* ---	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
NO													

[2] CO_2 from Food and Drink Production (e.g. gasification of water) can be of biogenic or non-biogenic origin. Only information on CO_2 emissions of non-biogenic origin should be reported.

TABLE 2(I).A-G SECTORAL BACKGROUND DATA FOR INDUSTRIAL PROCESSES Iceland

Emissions of CO_2, CH_4 and N_2O 2003

(Sheet 1 of 2) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA		IMPLIED EMISSION FACTORS			EMISSIONS[2]					
	Production/Consumption quantity		CO_2	CH_4	N_2O	CO_2		CH_4		N_2O	
	Description[1]	(kt)	(t/t)	(t/t)	(t/t)	(Gg)	[2]	(Gg)	[2]	(Gg)	[2]
A. Mineral Products						**33,08**		**0,00**		**0,00**	
1. Cement Production	*clinker production*	60,40	0,53			32,11					
2. Lime Production	NO	NO	NO			NO					
3. Limestone and Dolomite Use	NO	NO	NO			NO					
4. Soda Ash						0,00					
Soda Ash Production	NO	NO	NO			NO					
Soda Ash Use	NO	NO	NO			NO					
5. Asphalt Roofing	NO	NO	NO			NO					
6. Road Paving with Asphalt	asphalt production	224,66	NE			NE					
7. Other *(please specify)* ...						0,97		0,00		0,00	
Glass Production	NO	NO	NO			NO					
Mineral wool production	mineral wool production	7,15	0,14	NE	NE	0,97		NE		NE	
			0,00	0,00	0,00						
B. Chemical Industry						**0,48**		**0,00**		**0,00**	
1. Ammonia Production[3]	NO	NO	NO	NO	NO	NO		NO		NO	
2. Nitric Acid Production	NO	NO			NO					NO	
3. Adipic Acid Production	NO	NO			NO					NO	
4. Carbide Production	NO	NO	NO	NO		0,00		0,00			
Silicon Carbide	NO	NO	NO	NO		NO		NO			
Calcium Carbide	NO	NO	NO	NO		NO		NO			
5. Other *(please specify)* ...						0,48		0,00		0,00	
Carbon Black	NO	NO		NO				NO			
Ethylene	NO	NO	NO	NO	NO	NO		NO		NO	
Dichloroethylene	NO	NO		NO				NO			
Styrene	NO	NO		NO				NO			
Methanol	NO	NO		NO				NO			
diatomee production	diatomee production	27,69	0,02	NE	NE	0,48		NE		NE	
Fertilizer production	NO	NO	NO	NO	NO	NO		NO		NO	
			0,00	0,00	0,00						

[1] Where the IPCC Guidelines provide options for activity data, e.g. cement or clinker for estimating the emissions from Cement Production, specify the activity data used (as shown in the example in brackets) in order to make the choice of emission factor more transparent and to facilitate comparisons of implied emission factors.

[2] Enter cases in which the final emissions are reduced with the quantities of emission recovery, oxidation, destruction, transformation. Adjusted emissions are reported and the quantitative information on recovery, oxidation, destruction, and transformation should be given in the additional columns provided.

[3] To avoid double counting make offsetting deductions from fuel consumption (e.g. natural gas) in Ammonia Production, first for feedstock use of the fuel, and then to a sequestering use of the feedstock.

TABLE 2(I).A-G SECTORAL BACKGROUND DATA FOR INDUSTRIAL PROCESSES Iceland
Emissions of CO_2, CH_4 and N_2O 2003
(Sheet 2 of 2) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA		IMPLIED EMISSION FACTORS			EMISSIONS[2]					
	Production/Consumption Quantity		CO_2	CH_4	N_2O	CO_2		CH_4		N_2O	
	Description [1]	(kt)	(t/t)	(t/t)	(t/t)	(Gg)	[2]	(Gg)	[2]	(Gg)	[2]
C. Metal Production [4]						**339,96**		**0,04**		**0,00**	
1. Iron and Steel Production	NO	NO	NO			0,00		0,00			
Steel	NO	NO	NO			NO					
Pig Iron	NO	NO	NO	NO		NO		NO			
Sinter	NO	NO	NO	NO		NO		NO			
Coke	NO	NO	NO	NO		NO		NO			
Other *(please specify)* ---						0,00		0,00			
			0,00	0,00	0,00						
2. Ferroalloys Production	Ferrosilicon - 75% Si	119,07	1,71	0,00		203,47		0,04			
3. Aluminium Production	Aluminium production	266,61	0,51	NE		136,49		NE			
4. SF_6 Used in Aluminium and Magnesium Foundries											
5. Other *(please specify)* ---						0,00		0,00		0,00	
			0,00	0,00	0,00						
D. Other Production						**0,00**					
1. Pulp and Paper											
2. Food and Drink		NE	NE			NE					
G. Other *(please specify)* ---						**0,00**		**0,00**		**0,00**	
			0,00	0,00	0,00						

[4] More specific information (e.g. data on virgin and recycled steel production) could be provided in the documentation box.

Note: In case of confidentiality of the activity data information, the entries should provide aggregate figures but there should be a note in the documentation box indicating this.

Documentation box:	
C2: Expansion of the Ferroalloy Industry at a single site adds in year 2002 more than 5% to the 1990 CO2 emissions. This addition is thus reported separately (decision 14/CP7), a total of	185,72 Gg CO2
C3: Expansion of the Aluminium Industry at a single site adds in year 2002 more than 5% to the 1990 CO2 emissions. This addition is thus reported separately (decision 14/CP7), a total of	265,10 Gg CO2
Two aluminium plants are meeting the requirements of decision 14/CP7	

TABLE 2(II) SECTORAL REPORT FOR INDUSTRIAL PROCESSES - EMISSIONS OF HFCs, PFCs AND SF_6
(Sheet 1 of 2)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	HFC-23	HFC-32	HFC-41	HFC-43-10mee	HFC-125	HFC-134	HFC-134a	HFC-152a	HFC-143	HFC-143a	HFC-227ea	HFC-236fa	HFC-245ca	Total HFCs[1]	CF_4	C_2F_6	C_3F_8	C_4F_{10}	$c\text{-}C_4F_8$	C_5F_{12}	C_6F_{14}	Total PFCs[1]	SF_6
	(t)[2]																						
Total Actual Emissions of Halocarbons (by chemical) and SF_6	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**		**7,78**	**1,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**		**0,00**
C. Metal Production															**7,78**	**1,00**	NE	NE	NE	NE	NE		**0,00**
Aluminium Production															7,78	1,00	NE	NE	NE	NE	NE		
SF_6 Used in Aluminium Foundries																							NO
SF_6 Used in Magnesium Foundries																							NO
E. Production of Halocarbons and SF_6	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**		**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**		**0,00**
1. By-product Emissions	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00		0,00	0,00	0,00	0,00	0,00	0,00	0,00		0,00
Production of HCFC-22	NO																						
Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO		NO
2. Fugitive Emissions	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO		NO
3. Other *(please specify)* ---	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00		0,00	0,00	0,00	0,00	0,00	0,00	0,00		0,00
F(a). Consumption of Halocarbons and SF_6 (actual emissions - Tier 2)	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**		**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**		**0,00**
1. Refrigeration and Air Conditioning Equipment	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		NE	NE	NE	NE	NE	NE	NE		NE
2. Foam Blowing	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO		NO
3. Fire Extinguishers	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO		NO
4. Aerosols/Metered Dose Inhalers	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		NE	NE	NE	NE	NE	NE	NE		NE
5. Solvents	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO		NO
6. Semiconductor Manufacture	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO		NO
7. Electrical Equipment																							NE
8. Other *(please specify)* ---	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00		0,00	0,00	0,00	0,00	0,00	0,00	0,00		0,00
G. Other *(please specify)* ---	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**		**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**		**0,00**

[1] Although shaded, the columns with HFCs and PFCs totals in sheet 1 are kept for consistency with sheet 2 of the table. In accordance with the UNFCCC reporting guidelines for HFCs and PFCs "emissions should be reported for each relevant chemical". However, if it is not possible to report values for each chemical (i.e. mixtures, confidential data, lack of disaggregation), this column could be used for reporting aggregated values and appropriate notation keys should be entered in the cells for the individual chemicals.

[2] Note that the units used in this table differ from those used in the rest of the Sectoral report tables, i.e. [t] instead of [Gg].

TABLE 2(II) SECTORAL REPORT FOR INDUSTRIAL PROCESSES - EMISSIONS OF HFCs, PFCs AND SF_6
(Sheet 2 of 2)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	HFC-23	HFC-32	HFC-41	HFC-43-10mee	HFC-125	HFC-134	HFC-134a	HFC-152a	HFC-143	HFC-143a	HFC-227ea	HFC-236fa	HFC-245ca	Total HFCs	CF_4	C_2F_6	C_3F_8	C_4F_{10}	c-C_4F_8	C_5F_{12}	C_6F_{14}	Total PFCs	SF_6
	(t)[2]																						
F(p). Total Potential Emissions of Halocarbons (by chemical) and SF_6 [3]	**0,00**	**0,00**	**0,00**	**0,00**	**0,01**	**0,00**	**0,01**	**0,00**	**0,00**	**0,01**	**0,00**	**0,00**	**0,00**		**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**		**0,00**
Production[4]	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO		NO
Import:	0,00	0,00	0,00	0,00	0,01	0,00	0,01	0,00	0,00	0,01	0,00	0,00	0,00		0,00	0,00	0,00	0,00	0,00	0,00	0,00		0,00
In bulk	NO	0,00	NO	NO	0,01	NO	0,01	0,00	NO	0,01	NO	NO	NO		NO	NE	NE	NO	NO	NO	NO		NO
In products [5]	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		NE	NE	NE	NE	NE	NE	NE		NE
Export:	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00		0,00	0,00	0,00	0,00	0,00	0,00	0,00		0,00
In bulk	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		NE	NE	NE	NE	NE	NE	NE		NE
In products [5]	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		NE	NE	NE	NE	NE	NE	NE		NE
Destroyed amount	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO		NO

GWP values used	**11700**	**650**	**150**	**1300**	**2800**	**1000**	**1300**	**140**	**300**	**3800**	**2900**	**6300**	**560**		**6500**	**9200**	**7000**	**7000**	**8700**	**7500**	**7400**		**23900**
Total Actual Emissions [6] (Gg CO_2 eq.)	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**50,58**	**9,20**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**59,78**	**0,00**
C. Metal Production															50,58	9,20	NE	NE	NE	NE	NE	59,78	0,00
E. Production of Halocarbons and SF_6	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
F(a). Consumption of Halocarbons and SF_6	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
G. Other	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Ratio of Potential/Actual Emissions from Consumption of Halocarbons and SF_6																							
Actual emissions - F(a) (Gg CO_2 eq.)	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Potential emissions - F(p) (7) (Gg CO_2 eq.)	0,00	0,00	0,00	0,00	0,03	0,00	0,01	0,00	0,00	0,03	0,00	0,00	0,00	0,07	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Potential/Actual emissions ratio	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

[3] Potential emissions of each chemical of halocarbons and SF6 estimated using Tier 1a or Tier 1b of the IPCC Guidelines (Volume 3. Reference Manual, pp. 2.47-2.50). When potential emissions estimates are available in a disaggregated manner corresponding to the subsectors for actual emissions defined on sheet 1 of this table, these should be reported in an annex to sheet 2, using the format of sheet 1, sector F(a). Use Summary 3 of this common reporting format to indicate whether Tier 1a or Tier 1b was used.

[4] Production refers to production of new chemicals. Recycled substances could be included here, but it should be ensured that double counting of emissions is avoided. Relevant explanations should be provided as a comment to the corresponding cell.

[5] Relevant just for Tier 1b.

[6] Sums of the actual emissions of each chemical of halocarbons and SF6 from the source categories given in sheet 1 of the table multiplied by the corresponding GWP values.

[7] Potential emissions of each chemical of halocarbons and SF6 taken from row F(p) multiplied by the corresponding GWP values.

Note: As stated in the revised UNFCCC guidelines, Parties should report actual emissions of HFCs, PFCs and SF_6, where data are available, providing disaggregated data by chemical and source category in units of mass and in CO_2 equivalents. Parties reporting actual emissions should also report potential emissions for the sources where the concept of potential emissions applies, for reasons of transparency and comparability.

TABLE 2(II). C, E SECTORAL BACKGROUND DATA FOR INDUSTRIAL PROCESSES Iceland
Metal Production; Production of Halocarbons and SF_6 2003
(Sheet 1 of 1) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA		IMPLIED EMISSION FACTORS[2]	EMISSIONS[2]	
	Description [1]	(t)	(kg/t)	(t)	[3]
C. PFCs and SF_6 from Metal Production					
PFCs from Aluminium Production					
CF_4	aluminium production	266.611,00	0,00	7,78	
C_2F_6	aluminium production	266.611,00	0,00	1,00	
SF_6				0,00	
Aluminium Foundries	*(SF6 consumption)*	NO	NO	NO	
Magnesium Foundries		NO	NO	NO	
E. Production of Halocarbons and SF_6					
1. By-product Emissions					
Production of HCFC-22		NO			
HFC-23			NO	NO	
Other *(specify chemical)* ...					
		NO	NO	NO	
2. Fugitive Emissions					
HFCs *(specify chemical)* ...					
		NO	NO	NO	
PFCs *(specify chemical)* ...					
		NO	NO	NO	
SF_6		NO	NO	NO	
3. Other *(please specify)* ...					
		NO	NO	NO	

[1] Specify the activity data used as shown in the examples within brackets. Where applying Tier 1b (for C), Tier 2 (for E) and country specific methods, specify any other relevant activity data used in the documentation box below.

[2] Emissions and implied emission factors are after recovery.

[3] Enter cases in which the final emissions are reported after subtracting the quantities of emission recovery, oxidation, destruction, transformation. Enter these quantities in the specified column and use the documentation box for further explanations.

Note: Where the activity data are confidential, the entries should provide aggregate figures, but there should be a note in the documentation box indicating this.

Documentation box:

TABLE 2(II).F SECTORAL BACKGROUND DATA FOR INDUSTRIAL PROCESSES Iceland
Consumption of Halocarbons and SF_6 2003
(Sheet 1 of 2) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA *Amount of fluid*			IMPLIED EMISSION FACTORS			EMISSIONS		
	Filled in new manufactured products	In operating systems (average annual stocks)	Remained in products at decommissioning [1]	Product manufacturing factor	Product life factor	Disposal loss factor	From manufacturing	From stocks	From disposal
	(t)			(% per annum)			(t)		
1 Refrigeration									
Air Conditioning Equipment									
Domestic Refrigeration *(Specify chemical)* [2] ---									
Commercial Refrigeration ---									
Transport Refrigeration ---									
Industrial Refrigeration ---									
Stationary Air-Conditioning ---									
Mobile Air-Conditioning ---									
2 Foam Blowing									
Hard Foam ---									
Soft Foam ---									

[1] Parties should use the documentation box to provide information on the amount of the chemical recovered (recovery efficiency) and other relavant information used in the emission estimation.
[2] Please click on the button to specify the chemical consumed, as given in the example. If needed, new rows could be added for reporting the disagregated chemicals from a source by clicking on the corresponding button.

Note: Table 2.(II).F provides for reporting of the activity data and emission factors used to calculate actual emissions from consumption of halocarbons and SF6 using the "bottom-up approach" (based on the total stock of equipment and estimated emission rates from this equipment). Some Parties may prefer to estimate their actual emissions following the alternative "top-down approach" (based on annual sales of equipment and/or gas). These Parties should provide the activity data used in the current format and any other relevant information in the documentation box at the end of Table2(II)Fs2. Data these Parties should provide includes (1) the amount of fluid used to fill new products, (2) the amount of fluid used to service existing products, (3) the amount of fluid originally used to fill retiring products (the total nameplate capacity of retiring products), (4) the product lifetime, and (5) the growth rate of product sales, if this has been used to calculate the amount of fluid originally used to fill retiring products. Alternatively, Parties may provide alternative formats with equivalent information. These formats may be considered for future versions of the common reporting format after the trial period.

TABLE 2(II).F SECTORAL BACKGROUND DATA FOR INDUSTRIAL PROCESSES Iceland

Consumption of Halocarbons and SF_6 2003

(Sheet 2 of 2) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA *Amount of fluid*			IMPLIED EMISSION FACTORS			EMISSIONS		
	Filled in new manufactured products	In operating systems (average annual stocks)	Remained in products at decommissioning [1]	Product manufacturing factor	Product life factor	Disposal loss factor	From manufacturing	From stocks	From disposal
	(t)			(% per annum)			(t)		
3 Fire Extinguishers ---									
4 Aerosols									
Metered Dose Inhalers ---									
Other ---									
5 Solvents ---									
6 Semiconductors ---									
7 Electric Equipment ---									
8 Other *(please specify)* ---									

Note: Where the activity data are confidential, the entries should provide aggregate figures, but there should be a note indicating this and explanations in the documentation box.

Documentation box:

TABLE 3 SECTORAL REPORT FOR SOLVENT AND OTHER PRODUCT USE
(Sheet 1 of 1)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2	N_2O	NMVOC
	(Gg)		
Total Solvent and Other Product Use	**0,00**	**0,01**	**2,03**
A. Paint Application	NE	NA	1,01
B. Degreasing and Dry Cleaning	NE	NA	0,21
C. Chemical Products, Manufacture and Processing			IE
D. Other *(please specify)* ---	0,00	0,01	0,81
(Use of N2O for Anaesthesia)	NA	0,01	NA
(N2O from Fire Extinguishers)	NA	NE	NA
(N2O from Aerosol Cans)	NA	NE	NA
other use of N2O and solvents	NE	0,00	0,81

Please account for the quantity of carbon released in the form of NMVOC in both the NMVOC and the CO2 columns.

Note: The IPCC Guidelines do not provide methodologies for the calculation of emissions of N2O from Solvent and Other Product Use. If reporting such data, Parties should provide additional information (activity data and emission factors) used to make these estimates in the documentation box to Table 3.A-D.

TABLE 3.A-D SECTORAL BACKGROUND DATA FOR SOLVENT AND OTHER PRODUCT USE
(Sheet 1 of 1)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA		IMPLIED EMISSION FACTORS [2]	
	Description	(kt)	CO_2 (t/t)	N_2O (t/t)
A. Paint Application		2,03	**NE**	**NA**
B. Degreasing and Dry Cleaning		0,21	**NE**	**NA**
C. Chemical Products, Manufacture and Processing				
D. Other *(please specify)* [1] ---				
(Use of N2O for Anaesthesia)	Use of N2O	0,01	NA	1,00
(N2O from Fire Extinguishers)		NE	NA	NE
(N2O from Aerosol Cans)		NE	NA	NE
Other use of N2O and solvents	Use of N2O	0,00	NE	1,00

[1] Some probable sources are provided in brackets. Complement the list with other relevant sources. Make sure that the order is the same as in Table 3.
[2] The implied emission factors will not be calculated until the corresponding emission estimates are entered directly into Table 3.
Note: The table follows the format of the IPCC Sectoral Report for Solvent and Other Product Use, although some of the source categories are not relevant to the direct GHG emissions.

Documentation box:

TABLE 4 SECTORAL REPORT FOR AGRICULTURE
(Sheet 1 of 2)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CH_4	N_2O	NO_X	CO	NMVOC
	(Gg)				
Total Agriculture	**12,05**	**0,76**	**0,00**	**0,00**	**0,00**
A. Enteric Fermentation	**11,08**				
1. Cattle	4,51				
Dairy Cattle	2,49				
Non-Dairy Cattle	2,02				
2. Buffalo	NO				
3. Sheep	5,18				
4. Goats	0,00				
5. Camels and Llamas	NO				
6. Horses	1,34				
7. Mules and Asses	NO				
8. Swine	0,05				
9. Poultry	NE				
10. Other *(please specify)* ---	0,00				
B. Manure Management	**0,97**	**0,08**			**0,00**
1. Cattle	0,60				
Dairy Cattle	0,35				
Non-Dairy Cattle	0,25				
2. Buffalo	NO				
3. Sheep	0,12				
4. Goats	0,00				
5. Camels and Llamas	NO				
6. Horses	0,10				
7. Mules and Asses	NO				
8. Swine	0,10				
9. Poultry	0,05				

TABLE 4 SECTORAL REPORT FOR AGRICULTURE Iceland
(Sheet 2 of 2) 2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CH4	N2O	NOx	CO	NMVOC
	(Gg)				
B. Manure Management (continued)					
10. Anaerobic Lagoons		NO			NO
11. Liquid Systems		0,00			NE
12. Solid Storage and Dry Lot		0,08			NE
13. Other *(please specify)* ---	0,00	0,00			0,00
	NO	NO			NO
C. Rice Cultivation	0,00				**0,00**
1. Irrigated	0,00				NO
2. Rainfed	0,00				NO
3. Deep Water	0,00				NO
4. Other *(please specify)* ---	0,00				0,00
D. Agricultural Soils (1)	**0,00**	**0,68**			**0,00**
1. Direct Soil Emissions	NE	0,26			NE
2. Animal Production (2)	NE	0,14			NE
3. Indirect Emissions	NE	0,28			NE
4. Other *(please specify)* ---	0,00	0,00			0,00
	NO	NO			NO
E. Prescribed Burning of Savannas	**0,00**	**0,00**	**NO**	**NO**	**NO**
F. Field Burning of Agricultural Residues	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
1 . Cereals	0,00	0,00	NO	NO	NO
2. Pulse	0,00	0,00	NO	NO	NO
3 . Tuber and Root	0,00	0,00	NO	NO	NO
4 . Sugar Cane	NO	NO	NO	NO	NO
5 . Other *(please specify)* ---	0,00	0,00	0,00	0,00	0,00
G. Other *(please specify)* ---	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**

(1) See footnote 4 to Summary 1.A of this common reporting format. Parties which choose to report CO_2 emissions and removals from agricultural soils under 4.D. Agricultural Soils category of the sector Agriculture should indicate the amount [Gg] of these emissions or removals in the documentation box to Table 4.D. Additional information (activity data, implied emissions factors) should also be provided using the relevant documentation box to Table 4.D. This table is not modified for reporting the CO2 emissions and removals for the sake of consistency with the IPCC tables (i.e. IPCC Sectoral Report for Agriculture).

(2) Only emissions of Pasture, Range and Paddock are to be reported under "Agricultural Soils". The rest of the emissions from animal production are reported under "Manure Management".

Note: The IPCC Guidelines do not provide methodologies for the calculation of CH4 emissions, CH4 and N2O removals from agricultural soils, or CO2 emissions from savanna burning or agricultural residues burning. If you have reported such data, you should provide additional information (activity data and emission factors) used to make these estimates using the relevant documentation boxes of the Sectoral background data tables.

TABLE 4.A SECTORAL BACKGROUND DATA FOR AGRICULTURE Iceland
Enteric Fermentation 2003
(Sheet 1 of 1) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA[1] AND OTHER RELATED INFORMATION			IMPLIED EMISSION FACTORS [4]
	Population size [2] (1000 head)	Average daily feed intake (MJ/day)	CH_4 conversion (%)	CH_4 (kg CH_4/head/yr)
1. Cattle	67			67,33
Dairy Cattle[3]	24,90			100,00
Non-Dairy Cattle	42,11			48,00
2. Buffalo	NO			NO
3. Sheep	647,36			8,00
4. Goats	0,59			5,00
5. Camels and Llamas	NO			NO
6. Horses	74,32			18,00
7. Mules and Asses	NO			NO
8. Swine	32,18			1,50
9. Poultry	593,08			NE
10. Other *(please specify)* ---				
				0,00

Additional information (for Tier 2) [a]

Disaggregated list of animals [b]		Dairy Cattle	Non-Dairy Cattle	Other *(specify)* ---	
Indicators:					
Weight	(kg)				
Feeding situation [c]					
Milk yield	(kg/day)				
Work	(hrs/day)				
Pregnant	(%)				
Digestibility of feed	(%)				

[a] Compare to Tables A-1 and A-2 of the IPCC Guidelines (Volume 3. Reference Manual, pp. 4.31-4.34). These data are relevant if Parties do not have data on average feed intake.

[b] Disaggregate to the split actually used. Add columns to the table if necessary.

[c] Specify feeding situation as pasture, stall fed, confined, open range, etc.

[1] In the documentation boxes to all Sectoral background data tables for Agriculture, Parties should provide information on whether the activity data is one year or a 3-year average.

[2] Parties are encouraged to provide detailed livestock population data by animal type and region in a separate table below the documentation box. This consistent set of animal population statistics should be used to estimate CH_4 emissions from enteric fermentation, CH_4 and N_2O from manure management, N_2O direct emissions from soil and N_2O emissions associated with manure production, as well as emissions from the use of manure as fuel, and sewage-related emissions reported in the waste sector.

[3] Including data on dairy heifers, if available.

[4] The implied emission factors will not be calculated until the corresponding emission estimates are entered directly into Table 4.

Documentation box:

TABLE 4.B(a) SECTORAL BACKGROUND DATA FOR AGRICULTURE Iceland
CH_4 Emissions from Manure Management 2003
(Sheet 1 of 1) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA AND OTHER RELATED INFORMATION							IMPLIED EMISSION FACTORS
	Population size [1]	Allocation by climate region [2]			Typical animal mass	VS[3] daily excretion	CH_4 producing potential (Bo)[3]	CH_4 [5]
		Cool	Temperate	Warm				
	(1000 head)	(%)			(kg)	(kg dm/head/yr)	(CH_4 m^3/kg VS)	(kg CH_4/head/yr)
1. Cattle	67	1,0						8,97
Dairy Cattle[4]	25	1,0						14,00
Non-Dairy Cattle	42	1,0						6,00
2. Buffalo	NO							NO
3. Sheep	647	1,0						0,19
4. Goats	1							0,12
5. Camels and Llamas	NO							NO
6. Horses	74	1,0						1,40
7. Mules and Asses	NO							NO
8. Swine	32	1,0						3,00
9. Poultry	593	1,0						0,08

[1] See footnote 1 to Table 4.A of this common reporting format.

[2] Climate regions are defined in terms of annual average temperature as follows: Cool=less than 15°C; Temperate=15°C to 25°C inclusive; and Warm=greater than 25°C (see Table 4.2 of the IPCC Guidelines (Volume 3, Reference Manual, p. 4.8)).

[3] Provide average values, where original calculations were made at a more disagregated level of these livestock categories

[4] Including data on dairy heifers, if available.

[5] The implied emission factors will not be calculated until the corresponding emission estimates are entered directly into Table 4.

Documentation Box:

Additional information

Animal category[a]	Indicator	Climate region	Animal waste management system					
			Anaerobic lagoon	Liquid system	Daily spread	Solid storage and dry lot	Pasture range paddock	Other
Dairy Cattle	Allocation(%)	Cool		0,53	NO	0,13	0,34	NO
		Temperate						
		Warm						
	MCF[b]	Cool						
		Temperate						
		Warm						
Non-Dairy Cattle	Allocation(%)	Cool		0,53	NO	0,13	0,34	NO
		Temperate						
		Warm						
	MCF[b]	Cool						
		Temperate						
		Warm						
Swine	Allocation(%)	Cool		1,00	NO	0,00	0,00	NO
		Temperate						
		Warm						
	MCF[b]	Cool						
		Temperate						
		Warm						

[a] Copy the above table as many times as necessary.

[b] MCF = Methane Conversion Factor (IPCC Guidelines, (Volume 3. Reference Manual, p. 4.9)). In the case of use of other climate region categorization, please replace the entries in the cells with the climate regions for which the MCFs are specified.

TABLE 4.B(b) SECTORAL BACKGROUND DATA FOR AGRICULTURE Iceland

N_2O Emissions from Manure Management 2003

(Sheet 1 of 1) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA AND OTHER RELATED INFORMATION								IMPLIED EMISSION FACTORS [3]	
	Population size [1] (1000s)	Nitrogen excretion (kg N/head/yr)	Nitrogen excretion per animal waste management system (kg N/yr)						Emission factor per animal waste management system ($kg\ N_2O$-N/kg N)	
			Anaerobic lagoon	Liquid system	Daily spread	Solid storage and dry lot	Pasture range and paddock	Other		
Non-Dairy Cattle	42	33,60	NO	749.805,84	NO	183.914,64	481.007,52	NO	Anaerobic lagoon	NO
Dairy Cattle	25	60,00	NO	791.947,20	NO	194.251,20	508.041,60	NO	Liquid system	0,001
Sheep	647	5,76	NO	633.892,95	NO	1.528.800,65	1.566.088,47	NO	Solid storage and dry lot	0,020
Swine	32	13,30	NO	428.035,09	NO	0,00	0,00	NO	Other	0,000
Poultry	593	0,42	NO	0,00	NO	249.095,28	0,00	NO		
Other *(please specify)* ---										
goats	1	5,76	NO	580,18	NO	1.399,25	1.433,38	NO		
Horses	74	28,80	NO	0,00	NO	363.860,93	1.776.497,47	NO		
Total per AWMS[2]			**0,0**	**2.604.261,3**	**0,0**	**2.521.321,9**	**4.333.068,4**	**0,0**		

(1) See footnote 1 to Table 4.A of this common reporting format.

(2) AWMS - Animal Waste Management System

3) The implied emission factor will not be calculated until the emissions are entered directly into Table 4.

Documentation box:

TABLE 4.C SECTORAL BACKGROUND DATA FOR AGRICULTURE Iceland
Rice Cultivation 2003
(Sheet 1 of 1) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		ACTIVITY DATA AND OTHER RELATED INFORMATION			IMPLIED EMISSION FACTOR [1]	EMISSIONS
		Harvested area [2] (10^9 m^2/yr)	Organic amendments added[3]: type	(t/ha)	CH_4 (g/m^2)	CH_4 (Gg)
1. Irrigated						**0,00**
Continuously Flooded		NO			NO	NO
Intermittently Flooded	Single Aeration	NO			NO	NO
	Multiple Aeration	NO			NO	NO
2. Rainfed						**0,00**
Flood Prone		NO			NO	NO
Drought Prone		NO			NO	NO
3. Deep Water						**0,00**
Water Depth 50-100 cm		NO			NO	NO
Water Depth > 100 cm		NO			NO	NO
4. Other *(please specify)* ---						**0,00**
		NO			NO	NO
Upland Rice[4]						
Total [4]		0,00				

[1] The implied emission factor takes account of all relevant corrections for continuously flooded fields without organic amendment plus the correction for the organic amendments, if used, as well as of the effect of different soil characteristics, if taken into account, on methane emissions.

[2] Harvested area is the cultivated area multiplied by the number of cropping seasons per year.

[3] Specify dry weight or wet weight for organic amendments.

[4] These rows are included to allow comparison with the international statistics. Upland rice emissions are assumed to be zero and are ignored in the emission calculations.

Documentation box:
When dissagregating by more than one region within a country, provide additional information in the documentation box.
Where available, provide activity data and scaling factors by soil type and rice cultivar.

TABLE 4.D SECTORAL BACKGROUND DATA FOR AGRICULTURE Iceland

Agricultural Soils[1] 2003

(Sheet 1 of 1) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA AND OTHER RELATED INFORMATION Description	Value	IMPLIED EMISSION FACTORS Unit [2]		EMISSIONS ($Gg N_2O$)
Direct Soil Emissions	**N input to soils (kg N/yr)**				**0,26**
Synthetic Fertilizers	Use of synthetic fertilizers (kg N/yr)	9.309.600,00	(kg N2O-N/kg N)	0,0125	0,1828671
Animal Wastes Applied to Soils	Nitrogen input from manure applied to soils (kg N/yr)	4.100.466,57	(kg N2O-N/kg N)	0,0125	0,08
N-fixing Crops	Dry pulses and soybeans produced (kg dry biomass/yr)	NO	(kg N2O-N/kg dry biomass)	NO	NO
Crop Residue	Dry production of other crops (kg dry biomass/yr)	12.605,04	(kg N2O-N/kg dry biomass)	0,0125	0,00
Cultivation of Histosols	Area of cultivated organic soils (ha)	NE	(kg N2O-N/ha)	NE	NE
Animal Production	**N excretion on pasture range and paddock (kg N/yr)**	**4.333.068,44**	**(kg N2O-N/kg N)**	**0,020**	0,14
Indirect Emissions					**0,28**
Atmospheric Deposition	Volatized N (NH_3 and NOx) from fertilizers and animal wastes (kg N/yr)	2.926.130,33	(kg N2O-N/kg N)	0,010	0,05
Nitrogen Leaching and Run-off	N from fertilizers and animal wastes that is lost through leaching and run off (kg N/yr)	5.940.795,49	(kg N2O-N/kg N)	0,025	0,23
Other *(please specify)* ...					**0,00**
				0,000	

Additional information

Fraction [a]	Description	Value
$Frac_{BURN}$	Fraction of crop residue burned	NO
$Frac_{FUEL}$	Fraction of livestock N excretion in excrements burned for fuel	NO
$Frac_{GASF}$	Fraction of synthetic fertilizer N applied to soils that volatilizes as NH_3 and NOx	0,10
$Frac_{GASM}$	Fraction of livestock N excretion that volatilizes as NH_3 and NOx	0,20
$Frac_{GRAZ}$	Fraction of livestock N excreted and deposited onto soil during grazing	0,46
$Frac_{LEACH}$	Fraction of N input to soils that is lost through leaching and runoff	0,30
$Frac_{NCRBF}$	Fraction of N in non-N-fixing crop	0,01
$Frac_{NCRO}$	Fraction of N in N-fixing crop	NO
$Frac_R$	Fraction or crop residue removed from the field as crop	0,40

[a] Use the fractions as specified in the IPCC Guidelines (Volume 3. Reference Manual, pp. 4.92 - 4.113).

[1] See footnote 4 to Summary 1.A. of this common reporting format. Parties which choose to report CO_2 emissions and removals from agricultural soils under 4.D. Agricultural Soils category should indicate the amount [Gg] of these emissions or removals and relevant additional information (activity data, implied emissions factors) in the documentation box.

[2] To convert from N_2O-N to N_2O emissions, multiply by 44/28.

Documentation box:

TABLE 4.E SECTORAL BACKGROUND DATA FOR AGRICULTURE Iceland

Prescribed Burning of Savannas 2003

(Sheet 1 of 1) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA AND OTHER RELATED INFORMATION					IMPLIED EMISSION FACTORS		EMISSIONS	
	Area of savanna burned (k ha/yr)	Average aboveground biomass density (t dm/ha)	Fraction of savanna burned	Biomass burned (Gg dm)	Nitrogen fraction in biomass	(kg/t dm)		(Gg)	
						CH_4	N_2O	CH_4	N_2O
(specify ecological zone) ---								0,00	0,00
	NO	NO	NO	NO	NO	NO	NO		

Additional information

	Living	Dead
Fraction of aboveground biomass		
Fraction oxidized		
Carbon fraction		

Documentation box:

TABLE 4.F SECTORAL BACKGROUND DATA FOR AGRICULTURE Iceland
Field Burning of Agricultural Residues 2003
(Sheet 1 of 1) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA AND OTHER RELATED INFORMATION						IMPLIED EMISSION FACTORS		EMISSIONS	
	Crop production (t)	Residue/ Crop ratio	Dry matter fraction of residue	Fraction burned in fields	Biomass burned (Gg dm)	Nitrogen fraction in biomass of residues	CH_4 (kg/t dm)	N_2O (kg/t dm)	CH_4 (Gg)	N_2O (Gg)
1. Cereals									**0,00**	**0,00**
Wheat							NO	NO	NO	NO
Barley							NO	NO	NO	NO
Maize							NO	NO	NO	NO
Oats							NO	NO	NO	NO
Rye							NO	NO	NO	NO
Rice							NO	NO	NO	NO
Other *(please specify)* ...									0,00	0,00
							NO	NO	NO	NO
2. Pulse									**0,00**	**0,00**
Dry bean							NO	NO	NO	NO
Peas							NO	NO	NO	NO
Soybeans							NO	NO	NO	NO
Other *(please specify)* ...									0,00	0,00
							NO	NO	NO	NO
3 Tuber and Root									**0,00**	**0,00**
Potatoes							NO	NO	NO	NO
Other *(please specify)* ...									0,00	0,00
							NO	NO	NO	NO
4 Sugar Cane							**NO**	**NO**	**NO**	**NO**
5 Other *(please specify)* ...									**0,00**	**0,00**
							NO	NO	NO	NO

Documentation Box:

TABLE 5 SECTORAL REPORT FOR LAND-USE CHANGE AND FORESTRY
(Sheet 1 of 1)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 emissions	CO_2 removals	Net CO_2 emissions/ removals	CH_4	N_2O	NO_x	CO
	(Gg)						
Total Land-Use Change and Forestry	**0,00**	**-207,64**	**-207,64**	**0,00**	**0,00**	**0,00**	**0,00**
A. Changes in Forest and Other Woody Biomass Stocks	**0,00**	**-84,04**	**-84,04**				
1. Tropical Forests	NO	NO	0,00				
2. Temperate Forests	NO	NO	0,00				
3. Boreal Forests	NA	-84,04	-84,04				
4. Grasslands/Tundra	NE	NE	0,00				
5. Other *(please specify)* ---	0,00	0,00	0,00				
Harvested Wood [1]	NE	NE	0,00				
			0,00				
B. Forest and Grassland Conversion [2]	**0,00**			**0,00**	**0,00**	**0,00**	**0,00**
1. Tropical Forests	NO			NO	NO	NO	NO
2. Temperate Forests	NO			NO	NO	NO	NO
3. Boreal Forests	NE			NE	NE	NE	NE
4. Grasslands/Tundra	NE			NE	NE	NE	NE
5. Other *(please specify)* ---	0,00			0,00	0,00	0,00	0,00
C. Abandonment of Managed Lands	**0,00**	**0,00**	**0,00**				
1. Tropical Forests	NO	NO	0,00				
2. Temperate Forests	NO	NO	0,00				
3. Boreal Forests	NE	NE	0,00				
4. Grasslands/Tundra	NE	NE	0,00				
5. Other *(please specify)* ---	0,00	0,00	0,00				
			0,00				
D. CO_2 Emissions and Removals from Soil	**0,00**	**0,00**	**0,00**				
Cultivation of Mineral Soils	NE	NE	0,00				
Cultivation of Organic Soils	NE	NE	0,00				
Liming of Agricultural Soils	NE	NE	0,00				
Forest Soils	NE	NE	0,00				
Other *(please specify)* [3] ---	0,00	0,00	0,00				
			0,00				
E. Other *(please specify)* ---	**0,00**	**-123,60**	**-123,60**	**0,00**	**0,00**	**0,00**	**0,00**
Revegetation		-123,60	-123,60	NE	NE	NA	NA
			0,00				

[1] Following the IPCC Guidelines, the harvested wood should be reported under Changes in Forest and Other Woody Biomass Stocks (Volume 3. Reference Manual, p.5.17).
[2] Include only the emissions of CO_2 from Forest and Grassland Conversion. Associated removals should be reported under section D.
[3] Include emissions from soils not reported under sections A, B and C.

Note: See footnote 4 to Summary 1.A of this common reporting format.

TABLE 5.A SECTORAL BACKGROUND DATA FOR LAND-USE CHANGE AND FORESTRY Iceland 2003
Changes in Forest and Other Woody Biomass Stocks 2005
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES			ACTIVITY DATA		IMPLIED EMISSION FACTORS	ESTIMATES
			Area of forest/biomass stocks (kha)	Average annual growth rate (t dm/ha)	Implied carbon uptake factor (t C/ha)	Carbon uptake increment (Gg C)
Tropical	Plantations	*Acacia spp.*			0,00	
		Eucalyptus spp.			0,00	
		Tectona grandis			0,00	
		Pinus spp			0,00	
		Pinus caribaea			0,00	
		Mixed Hardwoods			0,00	
		Mixed Fast-Growing Hardwoods			0,00	
		Mixed Softwoods			0,00	
	Other Forests	Moist			0,00	
		Seasonal			0,00	
		Dry			0,00	
	Other *(specify)* ---				0,00	
					0,00	
Temperate	Plantations				0,00	
					0,00	
	Commercial	Evergreen			0,00	
		Deciduous			0,00	
	Other *(specify)* ---				0,00	
					0,00	
Boreal			19,10	2,40	1,20	22,92
			Number of trees (1000s of trees)	Annual growth rate (kt dm/1000 trees)	Carbon uptake factor (t C/tree)	Carbon uptake increment (Gg C)
Non-Forest Trees *(specify type)* ---						0,00
					0,00	
					Total annual growth increment (Gg C)	22,92
					Gg CO_2	84,04

	Amount of biomass removed (kt dm)	Carbon emission factor (t C/t dm)	Carbon release (Gg C)
Total biomass removed in Commercial Harvest		0,00	
Traditional Fuelwood Consumed		0,00	
Total Other Wood Use		0,00	
		Total Biomass Consumption from Stocks [1] (Gg C)	0,00
		Other Changes in Carbon Stocks [2] (Gg C)	
		Gg CO_2	0,00

Net annual carbon uptake (+) or release (-) (Gg C)	22,92
Net CO_2 emissions (-) or removals (+) (Gg CO_2)	84,04

[1] Make sure that the quantity of biomass burned off-site is subtracted from this total.
[2] The net annual carbon uptake/release is determined by comparing the annual biomass growth versus annual harvest, including the decay of forest products and slash left during harvest. The IPCC Guidelines recommend default assumption that all carbon removed in wood and other biomass from forests is oxidized in the year of removal. The emissions from decay could be included under Other Changes in Carbon Stocks.

Note: Sectoral background data tables on Land-Use Change and Forestry should be filled in only by Parties using the IPCC default methodology. Parties that use country specific methods and models should report information on them in a transparent manner, also providing suggestions for a possible sectoral background data table suitable for their calculation method.

Documentation box:
Based on data from Iceland Forest Research
Estimate of forest areas based on planted trees assuming 4000 trees per ha and 75% of planted area becomes forest
Average annual growth rate by Iceland Forest Research

TABLE 5.B SECTORAL BACKGROUND DATA FOR LAND-USE CHANGE AND FORESTRY Iceland
Forest and Grassland Conversion 2003
(Sheet 1 of 1) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		ACTIVITY DATA AND OTHER RELATED INFORMATION							IMPLIED EMISSION FACTORS					EMISSIONS				
		On and off site burning				Decay of above-ground biomass[1]			Burning				Decay	Burning				Decay
									On site			Off site		On site			Off site	
		Area converted annually	Annual net loss of biomass	Quantity of biomass burned		Average area converted	Average annual net loss of biomass	Average quantity of biomass left to decay	CO_2	CH_4	N_2O	CO_2	CO_2	CO_2	CH_4	N_2O	CO_2	CO_2
				On site	Off site													
Vegetation types		(kha)	(kt dm)	(kt dm)	(kt dm)	(kha)	(t dm/ha)	(kt dm)	(t/ha)					(Gg)				
Tropical	Wet/Very Moist								0,00	0,00	0,00	0,00	0,00					
	Moist, short dry season								0,00	0,00	0,00	0,00	0,00					
	Moist, long dry season								0,00	0,00	0,00	0,00	0,00					
	Dry								0,00	0,00	0,00	0,00	0,00					
	Montane Moist								0,00	0,00	0,00	0,00	0,00					
	Montane Dry								0,00	0,00	0,00	0,00	0,00					
Tropical Savanna/Grasslands									0,00	0,00	0,00	0,00	0,00					
Temperate	Coniferous								0,00	0,00	0,00	0,00	0,00					
	Broadleaf								0,00	0,00	0,00	0,00	0,00					
	Mixed Broadleaf/ Coniferous								0,00	0,00	0,00	0,00	0,00					
Grasslands									0,00	0,00	0,00	0,00	0,00					
Boreal	Mixed Broadleaf/ Coniferous								0,00	0,00	0,00	0,00	0,00					
	Coniferous								0,00	0,00	0,00	0,00	0,00					
	Forest-tundra								0,00	0,00	0,00	0,00	0,00					
Grasslands/Tundra									0,00	0,00	0,00	0,00	0,00					
Other *(please specify)* ---									0,00	0,00	0,00	0,00	0,00					
									0,00	0,00	0,00	0,00	0,00					
Total														**0,00**	**0,00**	**0,00**	**0,00**	**0,00**

[1] Activity data are for default 10-year average. Specify the average decay time which is appropriate for the local conditions, if other than 10 years.

Emissions/Removals	On site	Off site
Immediate carbon release from burning	0,00	0,00
Total On site and Off site (Gg C)	0,00	
Delayed emissions from decay (Gg C)	0,00	
Total annual carbon release (Gg C)	0,00	
Total annual CO_2 emissions (Gg CO_2)	0,00	

Additional information

Fractions	On site	Off site
Fraction of biomass burned (average)		
Fraction which oxidizes during burning (average)		
Carbon fraction of aboveground biomass (average)		
Fraction left to decay (average)		
Nitrogen-carbon ratio		

Note: Sectoral background data tables on Land-Use Change and Forestry should be filled in only by Parties using the IPCC default methodology. Parties that use country specific methods and models should report information on them in a transparent manner, also providing suggestions for a possible sectoral background data table suitable for their calculation method.

Documentation box:

TABLE 5.C SECTORAL BACKGROUND DATA FOR LAND-USE CHANGE AND FORESTRY Iceland
Abandonment of Managed Lands 2003
(Sheet 1 of 1) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		ACTIVITY DATA AND OTHER RELATED INFORMATION						IMPLIED EMISSION FACTORS		ESTIMATES	
		Total area abandoned and regrowing [1]		Annual rate of aboveground biomass growth		Carbon fraction of aboveground biomass		Rate of aboveground biomass carbon uptake		Annual carbon uptake in aboveground biomass	
Original natural ecosystems		first 20 years (kha)	>20 years (kha)	first 20 years (t dm/ha)	>20 years (t dm/ha)	first 20 years	>20 years	first 20 years (t C/ha/yr)	>20 years (t C/ha/yr)	first 20 years (Gg C/yr)	>20 years (Gg C/yr)
Tropical	Wet/Very Moist							0,00	0,00		
	Moist, short dry season							0,00	0,00		
	Moist, long dry season							0,00	0,00		
	Dry							0,00	0,00		
	Montane Moist							0,00	0,00		
	Montane Dry							0,00	0,00		
Tropical Savanna/Grasslands								0,00	0,00		
Temperate	Mixed Broadleaf/Coniferous							0,00	0,00		
	Coniferous							0,00	0,00		
	Broadleaf							0,00	0,00		
Grasslands								0,00	0,00		
Boreal	Mixed Broadleaf/Coniferous							0,00	0,00		
	Coniferous							0,00	0,00		
	Forest-tundra							0,00	0,00		
Grasslands/Tundra								0,00	0,00		
Other *(please specify)* ---								0,00	0,00		
								0,00	0,00		

Total annual carbon uptake (Gg C)	0,00
Total annual CO_2 removal (Gg CO_2)	0,00

[1] If lands are regenerating to grassland, then the default assumption is that no significant changes in above-ground biomass occur.

Note: Sectoral background data tables on Land-use Change and Forestry should be filled in only by Parties using the IPCC default methodology. Parties that use country specific methods and models should report information on them in a transparent manner, also providing suggestions for a possible sectoral background data table suitable for their calculation method.

Documentation box:

TABLE 5.D SECTORAL BACKGROUND DATA FOR LAND-USE CHANGE AND FORESTRY Iceland

CO_2 Emissions and Removals from Soil 2003

(Sheet 1 of 1) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA	IMPLIED EMISSION FACTORS	ESTIMATES
	Land area (Mha)	Average annual rate of soil carbon uptake/removal (Mg C/ha/yr)	Net change in soil carbon in mineral soils (Tg C over 20 yr)
Cultivation of Mineral Soils [1]			**0,00**
High Activity Soils		0,00	
Low Activity Soils		0,00	
Sandy		0,00	
Volcanic		0,00	
Wetland (Aquic)		0,00	
Other *(please specify)* ---			0,00
		0,00	
	Land area (ha)	**Annual loss rate (Mg C/ha/yr)**	**Carbon emissions from organic soils (Mg C/yr)**
Cultivation of Organic Soils			**0,00**
Cool Temperate			**0,00**
Upland Crops		0,00	
Pasture/Forest		0,00	
Warm Temperate			**0,00**
Upland Crops		0,00	
Pasture/Forest		0,00	
Tropical			**0,00**
Upland Crops		0,00	
Pasture/Forest		0,00	
	Total annual amount of lime (Mg)	**Carbon conversion factor**	**Carbon emissions from liming (Mg C)**
Liming of Agricultural Soils			**0,00**
Limestone $Ca(CO_3)$		0,00	
Dolomite $CaMg(CO_3)_2$		0,00	

Total annual net carbon emissions from agriculturally impacted soils (Gg C)	0,00
Total annual net CO_2 emissions from agriculturally impacted soils (Gg CO_2)	0,00

Additional information

	Year	Climate [a]	land-use/ management system [a]	Soil type: High activity soils	Low activity soils	Sandy	Volcanic	Wetland (Aquic)	Organic soil
				percent distribution (%)					
20 years prior		*(e.g. tropical, dry)*	*(e.g. savanna)*						
			(e.g. irrigated cropping)						
inventory year									

[a] These should represent the major types of land management systems per climate regions presented in the country as well as ecosystem types which were either converted to agriculture (e.g., forest, savanna, grassland) or have been derived from previous agricultural land-use (e.g., abandoned lands, reforested lands). Systems should also reflect differences in soil carbon stocks that can be related to differences in management (IPCC Guidelines (Volume 2. Workbook, Table 5-9, p. 5.26, and Appendix (pp. 5-31 - 5.38)).

[1] The information to be reported under Culitvation of Mineral Soils aggregates data per soil type over all land-use/management systems. This refers to land area data and to the emission estimates and implied emissions factors accordingly.

Note: Sectoral background data tables on Land-Use Change and Forestry should be filled in only by Parties using the IPCC default methodology. Parties that use country specific methods and models should report information on them in a transparent manner, also providing suggestions for a possible sectoral background data table suitable for their calculation method.

Documentation Box:

TABLE 6 SECTORAL REPORT FOR WASTE
(Sheet 1 of 1)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [1]	CH_4	N_2O	NO_X	CO	NMVOC	SO_2
	(Gg)						
Total Waste	**5,20**	**10,20**	**0,00**	**0,02**	**0,01**	**0,00**	**0,02**
A. Solid Waste Disposal on Land	**0,00**	**10,20**		**0,00**	**0,00**	**0,00**	
1. Managed Waste Disposal on Land	NE	10,16		NE	NE	NE	
2. Unmanaged Waste Disposal Sites	0,00	0,04		NE	NE	NE	
3. Other *(please specify)* ---	0,00	0,00		0,00	0,00	0,00	
B. Wastewater Handling		**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	
1. Industrial Wastewater		0,00	NE	NE	NE	NE	
2. Domestic and Commercial Wastewater		0,00	0,00	NE	NE	NE	
3. Other *(please specify)* ---		0,00	0,00	0,00	0,00	0,00	
C. Waste Incineration	**5,20**	**0,00**	**0,00**	0,02	0,01	0,00	0,02
D. Other *(please specify)* ---	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
	NO	NO	NO	NO	NO	NO	NO

[1] Note that CO_2 from Waste Disposal and Incineration source categories should only be included if it stems from non-biological or inorganic waste sources.

TABLE 6.A SECTORAL BACKGROUND DATA FOR WASTE

Solid Waste Disposal

(Sheet 1 of 1)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA AND OTHER RELATED INFORMATION				IMPLIED EMISSION FACTOR		EMISSIONS[1]	
	Annual MSW at the SWDS (Gg)	MCF	DOC degraded (Gg)	CH_4 recovery [2] (Gg)	CH_4 (t /t MSW)	CO_2 (t /t MSW)	CH_4 (Gg)	CO_2[3] (Gg)
1 Managed Waste Disposal on Land	248,00	1,00		1,14	0,04	NE	10,16	NE
2 Unmanaged Waste Disposal Sites					0,00	0,00	0,04	0,00
- deep (>5 m)	NO	NO	NO	NO	NO	NO	NO	NO
- shallow (<5 m)	1,00	0,40		NO	0,04	NE	0,04	NE
3 Other *(please specify)* ---							0,00	0,00
					0,00	0,00		

Additional information

Description	Value
Total population (1000s)[a]	
Urban population (1000s)[a]	
Waste generation rate (kg/capita/day)	
Fraction of MSW disposed to SWDS	
Fraction of DOC in MSW	
Fraction of wastes incinerated	
Fraction of wastes recycled	
CH4 oxidation factor (b)	0,10
CH_4 fraction in landfill gas	0,50
Number of SWDS recovering CH_4	1,00
CH_4 generation rate constant (k) [c]	
Time lag considered (yr) [c]	
Composition of landfilled waste (%)	
Paper and paperboard	
Food and garden waste	
Plastics	
Glass	
Textiles	
Other *(specify)* ---	
other - inert	
other - organic	

TABLE 6.C SECTORAL BACKGROUND DATA FOR WASTE

Waste Incineration

(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA Amount of incinerated wastes	IMPLIED EMISSION FACTOR			EMISSIONS		
	(Gg)	CO_2 (kg/t waste)	CH_4 (kg/t waste)	N_2O (kg/t waste)	CO_2 [3] (Gg)	CH_4 (Gg)	N_2O (Gg)
Waste Incineration *(please specify)* ---	9,33				5,20	0,00	0,00
(biogenic)(3)	7,84	995,24	NE	0,10	7,80	NE	0,00
(plastics and other non-biogenic waste) (3)	1,49	3.483,33	NE	0,10	5,20	NE	0,00
		0,00	0,00	0,00			

MSW - Municipal Solid Waste, SWDS - Solid Waste Disposal Site, MCF - Methane Correction Factor, DOC - Degradable Organic Carbon (IPCC Guidelines (Volume 3. Reference Manual, section 6.2.4)). MSW includes household waste, yard/garden waste, commercial/market waste and organic industrial solid waste. MSW should not include inorganic industrial waste such as construction or demolition materials.

[1] Actual emissions (after recovery).

[2] CH_4 recovered and flared or utilized.

[3] Under Waste Disposal, CO_2 emissions should be reported only when the disposed wastes are combusted at the disposal site which might constitute a management practice. CO_2 emissions from non-biogenic wastes are included in the totals, while the CO_2 emissions from biogenic wastes are not included in the totals.

[a] Specify whether total or urban population is used and the rationale for doing so.

[b] See IPCC Guidelines (Volume 3. Reference Manual, p. 6.9).

[c] For Parties using Tier 2 methods.

Documentation box:

All relevant information used in calculation should be provided in the additional information box and in the documentation box.
Parties that use country specific models should note this with a brief rationale in the documentation box and fill the relevant cells only.

TABLE 6.B SECTORAL BACKGROUND DATA FOR WASTE
Wastewater Handling
(Sheet 1 of 1)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA AND RELATED INFORMATION[1]				IMPLIED EMISSION FACTOR			EMISSIONS[2]		
	Total organic product		CH_4 recovered and/or flared		CH_4		N_2O[3]	CH_4		N_2O[3]
	Wastewater	Sludge	Wastewater	Sludge	Wastewater	Sludge		Wastewater	Sludge	
	(Gg DC[1]/yr)		(Gg)		(kg/kg DC)		(kg/kg DC)	(Gg)		(Gg)
Industrial Wastewater	NE	NE	NE	NE	NE	NE		NE	NE	NE
Domestic and Commercial Wastewater	NE	NE	NE	NE	NE	NE		NE	NE	NE
Other *(please specify)* ---								0,00	0,00	0,00
					0,00	0,00				

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA AND OTHER RELATED INFORMATION			IMPLIED EMISSION FACTOR	EMISSIONS
	Population[4] (1000s)	Protein consumption (protein in kg/person/yr)	N fraction (kg N/kg protein)	N_2O (kg N_2O-N/kg sewage N produced)	N_2O (Gg)
N_2O from human sewage[3]	NE	NE	NE	NE	NE

[1] DC - degradable organic component. DC indicators are COD (Chemical Oxygen Demand) for industrial wastewater and BOD (Biochemical Oxygen Demand) for Domestic/Commercial wastewater/sludge (IPCC Guidelines (Volume 3. Reference Manual, pp. 6.14, 6.18)).

[2] Actual emissions (after recovery).

[3] Parties using other methods for estimation of N_2O emissions from human sewage or wastewater treatment should provide corresponding information on methods, activity data and emission factors used in the documentation box. Use the table to provide aggregate data.

[4] Specify whether total or urban population is used in the calculations and the rationale for doing so. Provide explanation in the documentation box.

Documentation box:

Additional information

	Domestic	Industrial
Total wastewater (m^3):		
Treated wastewater (%):		

Wastewater streams:	Wastewater output (m^3)	DC ($kgCOD/m^3$)
Industrial wastewater		
Non-ferrous		
Fertilizers		
Food and beverage		
Paper and pulp		
Organic chemicals		
Other *(specify)* ---		
		DC (kg BOD/1000 person/yr)
Domestic and Commercial		
Other ---		

Handling systems:	Industrial wastewater treated (%)	Ind. sludge treated (%)	Domestic wastewater treated (%)	Domestic sludge treated (%)
Aerobic				
Anaerobic				
Other *(specify)* ---				

SUMMARY 1.A SUMMARY REPORT FOR NATIONAL GREENHOUSE GAS INVENTORIES (IPCC TABLE 7A)
(Sheet 1 of 3)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1]		PFCs[1]		SF_6		NO_x	CO	NMVOC	SO_2
					P	A	P	A	P	A				
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Total National Emissions and Removals	**2.175,44**	**-207,64**	**22,46**	**0,97**	**69,35**	**0,00**	**0,00**	**59,78**	**5,38**	**0,00**	**26,71**	**23,15**	**7,10**	**8,04**
1. Energy	**1.796,72**		**0,17**	**0,20**							**25,01**	**22,90**	**4,98**	**2,34**
A. Fuel Combustion — Reference Approach [2]	1.800,71													
Sectoral Approach [2]	1.796,72		0,17	0,20							25,01	22,90	4,98	2,34
1. Energy Industries	14,07		0,00	0,00							0,18	0,05	0,00	0,03
2. Manufacturing Industries and Construction	424,87		0,02	0,08							3,71	1,06	0,46	1,90
3. Transport	666,71		0,09	0,10							4,82	20,16	4,04	0,11
4. Other Sectors	675,62		0,06	0,02							16,26	1,63	0,47	0,15
5. Other	15,45		0,00	0,00							0,04	0,00	0,00	0,15
B. Fugitive Emissions from Fuels	0,00		0,00	0,00							0,00	0,00	0,00	0,00
1. Solid Fuels	0,00		0,00	0,00							0,00	0,00	0,00	0,00
2. Oil and Natural Gas	0,00		0,00	0,00							0,00	0,00	0,00	0,00
2. Industrial Processes	**373,52**		**0,04**	**0,00**	**69,35**	**0,00**	**0,00**	**59,78**	**5,38**	**0,00**	**1,68**	**0,24**	**0,09**	**5,69**
A. Mineral Products	33,08		0,00	0,00							0,02	0,05	0,01	0,03
B. Chemical Industry	0,48		0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,46	0,00	0,00	0,00
C. Metal Production	339,96		0,04	0,00				59,78		0,00	1,21	0,19	0,09	5,66
D. Other Production [3]	NE										0,00	0,00	0,00	0,00
E. Production of Halocarbons and SF_6						0,00		0,00		0,00				
F. Consumption of Halocarbons and SF_6					69,35	0,00	0,00	0,00	5,38	0,00				
G. Other	0,00		0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

P = Potential emissions based on Tier 1 approach of the IPCC Guidelines.

A = Actual emissions based on Tier 2 approach of the IPCC Guidelines.

[1] The emissions of HFCs and PFCs are to be expressed as CO_2 equivalent emissions. Data on disaggregated emissions of HFCs and PFCs are to be provided in Table 2(II) of this common reporting format.

(2) For verification purposes, countries are asked to report the results of their calculations using the Reference approach and to explain any differences with the Sectoral approach. Where possible, the calculations using the Sectoral approach should be used for estimating national totals. Do not include the results of both the Reference approach and the Sectoral approach in national totals.

(3) Other Production includes Pulp and Paper and Food and Drink Production.

Note: The numbering of footnotes to all tables containing more than one sheet continue to the next sheet. Common footnotes are given only once at the first point of reference.

SUMMARY 1.A SUMMARY REPORT FOR NATIONAL GREENHOUSE GAS INVENTORIES (IPCC TABLE 7A)
(Sheet 2 of 3)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs (1)		PFCs(1)		SF_6		NO_x	CO	NMVOC
					P	A	P	A	P	A			
	(Gg)				CO_2 equivalent (Gg)						(Gg)		
3. Solvent and Other Product Use	**0,00**			**0,01**							**NE**	**NE**	**2,03**
4. Agriculture	**0,00**	**0,00**	**12,05**	**0,76**							0,00	0,00	0,00
A. Enteric Fermentation			11,08										
B. Manure Management			0,97	0,08									0,00
C. Rice Cultivation			0,00										0,00
D. Agricultural Soils	(4)	(4)	0,00	0,68									0,00
E. Prescribed Burning of Savannas			0,00	0,00							NO	NO	NO
F. Field Burning of Agricultural Residues			0,00	0,00							0,00	0,00	0,00
G. Other			0,00	0,00							0,00	0,00	0,00
5. Land-Use Change and Forestry	(5) **0,00**	(5) **-207,64**	**0,00**	**0,00**							**0,00**	**0,00**	**0,00**
A. Changes in Forest and Other Woody Biomass Stocks	(5) 0,00	(5) -84,04											
B. Forest and Grassland Conversion	0,00		0,00	0,00							0,00	0,00	NE
C. Abandonment of Managed Lands	(5) 0,00	(5) 0,00											
D. CO_2 Emissions and Removals from Soil	(5) 0,00	(5) 0,00											
E. Other	(5) 0,00	(5) -123,60	0,00	0,00							0,00	0,00	NE
6. Waste	**5,20**		**10,20**	**0,00**							**0,02**	**0,01**	**0,00**
A. Solid Waste Disposal on Land	(6) 0,00		10,20									0,00	0,00
B. Wastewater Handling			0,00	0,00							0,00	0,00	0,00
C. Waste Incineration	(6) 5,20		0,00	0,00							0,02	0,01	0,00
D. Other	0,00		0,00	0,00							0,00	0,00	0,00
7. Other *(please specify)* ...	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**

(4) According to the IPCC Guidelines (Volume 3. Reference Manual, pp. 4.2, 4.87), CO2 emissions from agricultural soils are to be included under Land-Use Change and Forestry (LUCF). At the same time, the

Summary Report 7A (Volume 1. Reporting Instructions, Tables.27) allows for reporting CO2 emissions or removals from agricultural soils, either in the Agriculture sector, under D. Agricultural Soils or in the Land-Use Change and Forestry sector under D. Emissions and Removals from Soil. Parties may choose either way to report emissions or removals from this source in the common reporting format, but the way they have chosen to report should be clearly indicated, by inserting explanatory comments to the corresponding cells of Summary 1.A and Summary 1.B. Double-counting of these emissions or removals should be avoided. Parties should include these emissions or removals consistently in Table8(a) (Recalculation - Recalculated data) and Table10 (Emission trends).

(5) Please do not provide an estimate of both CO2 emissions and CO2 removals. "Net" emissions (emissions - removals) of CO2 should be estimated and a single number placed in either the CO2 emissions or CO2

removals column, as appropriate. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+).

(6) Note that CO2 from Waste Disposal and Incineration source categories should only be included if it stems from non-biogenic or inorganic waste streams.

SUMMARY 1.A SUMMARY REPORT FOR NATIONAL GREENHOUSE GAS INVENTORIES (IPCC TABLE 7A) Iceland
(Sheet 3 of 3) 2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs		PFCs		SF_6		NO_x	CO	NMVOC	SO_2
					P	A	P	A	P	A				
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Memo Items: (7)														
International Bunkers	**509,59**		**0,02**	**0,01**							**5,79**	**0,91**	**0,36**	**0,76**
Aviation	330,02		0,00	0,01							1,40	0,47	0,23	0,42
Marine	179,57		0,02	0,00							4,40	0,44	0,13	0,34
Multilateral Operations	**NO**		**NO**	**NO**							**NO**	**NO**	**NO**	**NO**
CO_2 Emissions from Biomass	**11,99**													

(7) Memo Items are not included in the national totals.

SUMMARY 1.B SHORT SUMMARY REPORT FOR NATIONAL GREENHOUSE GAS INVENTORIES (IPCC TABLE 7B) Iceland
(Sheet 1 of 1) 2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1]		PFCs[1]		SF_6		NO_x	CO	NMVOC	SO_2
						P	A	P	A	P	A				
		(Gg)				CO_2 equivalent (Gg)						(Gg)			
Total National Emissions and Removals		**2.175,44**	**-207,64**	**22,46**	**0,97**	**69,35**	**0,00**	**0,00**	**59,78**	**5,38**	**0,00**	**26,71**	**23,15**	**7,10**	**8,04**
1. Energy		**1.796,72**		**0,17**	**0,20**							**25,01**	**22,90**	**4,98**	**2,34**
A. Fuel Combustion	Reference Approach[2]	1.800,71													
	Sectoral Approach[2]	1.796,72		0,17	0,20							25,01	22,90	4,98	2,34
B. Fugitive Emissions from Fuels		0,00		0,00	0,00							0,00	0,00	0,00	0,00
2. Industrial Processes		**373,52**		**0,04**	**0,00**	**69,35**	**0,00**	**0,00**	**59,78**	**5,38**	**0,00**	**1,68**	**0,24**	**0,09**	**5,69**
3. Solvent and Other Product Use		**0,00**			**0,01**							**NE**	**NE**	**2,03**	**NE**
4. Agriculture [3]		**0,00**	**0,00**	**12,05**	**0,76**							**0,00**	**0,00**	**0,00**	**0,00**
5. Land-Use Change and Forestry		[4] **0,00**	[4] **-207,64**	**0,00**	**0,00**							**0,00**	**0,00**	**0,00**	**0,00**
6. Waste		**5,20**		**10,20**	**0,00**							**0,02**	**0,01**	**0,00**	**0,02**
7. Other		**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
Memo Items:															
International Bunkers		**509,59**		**0,02**	**0,01**							**5,79**	**0,91**	**0,36**	**0,76**
Aviation		330,02		0,00	0,01							1,40	0,47	0,23	0,42
Marine		179,57		0,02	0,00							4,40	0,44	0,13	0,34
Multilateral Operations		**NO**		**NO**	**NO**							**NO**	**NO**	**NO**	**NO**
CO_2 Emissions from Biomass		**11,99**													

P = Potential emissions based on Tier 1 approach of the IPCC Guidelines.

A = Actual emissions based on Tier 2 approach of the IPCC Guidelines.

[1] The emissions of HFCs and PFCs are to be expressed as CO_2 equivalent emissions. Data on disaggregated emissions of HFCs and PFCs are to be provided in Table 2(II) of this common reporting format.

[2] For verification purposes, countries are asked to report the results of their calculations using the Reference approach and to explain any differences with the Sectoral approach in document box of Table1.A(c). Where possible, the calculations using the Sectoral approach should be used for estimating national totals. Do not include the results of both the Reference approach and the Sectoral approach in national totals.

[3] See footnote 4 to Summary 1.A.

[4] Please do not provide an estimate of both CO_2 emissions and CO_2 removals. "Net" emissions (emissions - removals) of CO_2 should be estimated and a single number placed in either the CO_2 emissions or CO2 removals column, as appropriate. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+).

SUMMARY 2 SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS Iceland

(Sheet 1 of 1) 2003

2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [1]	CH_4	N_2O	HFCs	PFCs	SF_6	Total
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**1.967,80**	**471,65**	**301,62**	**0,00**	**59,78**	**0,00**	**2.800,85**
1. Energy	**1.796,72**	**3,50**	**61,23**				**1.861,44**
A. Fuel Combustion (Sectoral Approach)	1.796,72	3,50	61,23				1.861,44
1. Energy Industries	14,07	0,01	0,24				14,32
2. Manufacturing Industries and Construction	424,87	0,34	25,57				450,78
3. Transport	666,71	1,81	29,76				698,28
4. Other Sectors	675,62	1,33	5,62				682,57
5. Other	15,45	0,01	0,04				15,49
B. Fugitive Emissions from Fuels	0,00	0,00	0,00				0,00
1. Solid Fuels	0,00	0,00	0,00				0,00
2. Oil and Natural Gas	0,00	0,00	0,00				0,00
2. Industrial Processes	**373,52**	**0,93**	**0,00**	**0,00**	**59,78**	**0,00**	**434,23**
A. Mineral Products	33,08	0,00	0,00				33,08
B. Chemical Industry	0,48	0,00	0,00	0,00	0,00	0,00	0,48
C. Metal Production	339,96	0,93	0,00		59,78	0,00	400,68
D. Other Production	NE						0,00
E. Production of Halocarbons and SF_6				0,00	0,00	0,00	0,00
F. Consumption of Halocarbons and SF_6				0,00	0,00	0,00	0,00
G. Other	0,00	0,00	0,00	0,00	0,00	0,00	0,00
3. Solvent and Other Product Use	**0,00**		**3,72**				**3,72**
4. Agriculture	**0,00**	**253,06**	**236,39**				**489,45**
A. Enteric Fermentation		232,66					232,66
B. Manure Management		20,40	25,83				46,23
C. Rice Cultivation		0,00					0,00
D. Agricultural Soils[2]	NE	0,00	210,56				210,56
E. Prescribed Burning of Savannas		0,00	0,00				0,00
F. Field Burning of Agricultural Residues		0,00	0,00				0,00
G. Other		0,00	0,00				0,00
5. Land-Use Change and Forestry[1]	**-207,64**	**0,00**	**0,00**				**-207,64**
6. Waste	**5,20**	**214,15**	**0,29**				219,64
A. Solid Waste Disposal on Land	0,00	214,15					214,15
B. Wastewater Handling		0,00	0,00				0,00
C. Waste Incineration	5,20	0,00	0,29				5,49
D. Other	0,00	0,00	0,00				0,00
7. Other *(please specify)* ---	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
							0,00
Memo Items:							
International Bunkers	**509,59**	**0,41**	**4,40**				**514,40**
Aviation	330,02	0,05	2,89				332,95
Marine	179,57	0,36	1,51				181,45
Multilateral Operations	**NO**	**0,00**	**0,00**				**0,00**
CO_2 Emissions from Biomass	**11,99**						**11,99**

[1] For CO_2 emissions from Land-Use Change and Forestry the net emissions are to be reported. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+).

[2] See footnote 4 to Summary 1.A of this common reporting format.

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 emissions	CO_2 removals	Net CO_2 emissions / removals	CH_4	N_2O	Total emissions
Land-Use Change and Forestry	CO_2 equivalent (Gg)					
A. Changes in Forest and Other Woody Biomass Stocks	0,00	-84,04	-84,04			-84,04
B. Forest and Grassland Conversion	0,00		0,00	0,00	0,00	0,00
C. Abandonment of Managed Lands	0,00	0,00	0,00			0,00
D. CO_2 Emissions and Removals from Soil	0,00	0,00	0,00			0,00
E. Other	0,00	-123,60	-123,60	0,00	0,00	-123,60
Total CO_2 Equivalent Emissions from Land-Use Change and Forestry	0,00	-207,64	-207,64	0,00	0,00	-207,64

Total CO_2 Equivalent Emissions without Land-Use Change and Forestry [a]	3.008,49
Total CO_2 Equivalent Emissions with Land-Use Change and Forestry [a]	2.800,85

(a) The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report emissions and removals from

Land-Use Change and Forestry. Note that these totals will differ from the totals reported in Table 10s5 if Parties report non-CO2 emissions from LUCF.

SUMMARY 3 SUMMARY REPORT FOR METHODS AND EMISSION FACTORS USED
(Sheet 1 of 2)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2		CH_4		N_2O		HFCs		PFCs		SF_6	
	Method applied [1]	Emission factor [2]	Method applied [1]	Emission factor [2]	Method applied [1]	Emission factor [2]	Method applied [1]	Emission factor [2]	Method applied [1]	Emission factor [2]	Method applied [1]	Emission factor [2]
1. Energy												
A. Fuel Combustion	T1	D	T2	D	T2	D						
1. Energy Industries	T1	D	T2	D	T2	D						
2. Manufacturing Industries and Construction	T1	D	T2, T1	D	T2, T1	D						
3. Transport	T1	D	T2	D	T2	D						
4. Other Sectors	T1	D	T2, T1	D	T2, T1	D						
5. Other	T1	D	T1	D	T1	D						
B. Fugitive Emissions from Fuels	NE	NE	NE	NE	NE	NE						
1. Solid Fuels	NO	NO	NO	NO	NO	NO						
2. Oil and Natural Gas	NE	NE	NE	NE	NE	NE						
2. Industrial Processes												
A. Mineral Products	T2, T1	D, PS	NE	NE	NE	NE						
B. Chemical Industry	CS	PS	NE	NE	NE	NE	NO	NO	NO	NO	NO	NO
C. Metal Production	T1	D	T1	D	NE	NE			T2	D	NO	NO
D. Other Production												
E. Production of Halocarbons and SF_6												
F. Consumption of Halocarbons and SF_6							T1	D	NE	NE		
G. Other												

[1] Use the following notation keys to specify the method applied: D (IPCC default), RA (Reference Approach), T1 (IPCC Tier 1), T1a, T1b, T1c (IPCC Tier 1a, Tier 1b and Tier 1c, respectively), T2 (IPCC Tier 2), T3 (IPCC Tier 3), C (CORINAIR), CS (Country Specific), M (Model). If using more than one method, enumerate the relevant methods. Explanations of any modifications to the default IPCC methods, as well as information on the proper use of methods per source category where more than one method is indicated, and explanations on the country specific methods, should be provided in the documentation box of the relevant Sectoral background data table.

(2) Use the following notation keys to specify the emission factor used: D (IPCC default), C (CORINAIR), CS (Country Specific), PS (Plant Specific), M (Model). Where a mix of emission factors has been used,

use different notations in one and the same cells with further explanation in the documentation box of the relevant Sectoral background data table.

SUMMARY 3 SUMMARY REPORT FOR METHODS AND EMISSION FACTORS USED
(Sheet 2 of 2)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2		CH_4		N_2O		HFCs		PFCs		SF_6	
	Method applied (1)	Emission factor (2)	Method applied (1)	Emission factor (2)	Method applied (1)	Emission factor (2)	Method applied (1)	Emission factor (2)	Method applied (1)	Emission factor (2)	Method applied (1)	Emission factor (2)
3. Solvent and Other Product Use	**NE**	**NE**			**CS**	**CS**						
4. Agriculture												
A. Enteric Fermentation			T1	D								
B. Manure Management			T1	D	T1	D						
C. Rice Cultivation			NO	NO								
D. Agricultural Soils	NE	NE	NE	NE	T1b	D						
E. Prescribed Burning of Savannas			NO	NO	NO	NO						
F. Field Burning of Agricultural Residues			NO	NO	NO	NO						
G. Other			NO	NO	NO	NO						
5. Land-Use Change and Forestry												
A. Changes in Forest and Other Woody Biomass Stocks	CS	CS										
B. Forest and Grassland Conversion												
C. Abandonment of Managed Lands												
D. CO_2 Emissions and Removals from Soil												
E. Other	CS	CS										
6. Waste												
A. Solid Waste Disposal on Land	NE	NE	T1	D								
B. Wastewater Handling			NE	NE	NE	NE						
C. Waste Incineration	T1	D	NE	NE	C	C						
D. Other	NE	NE	NE	NE	NE	NE						
7. Other *(please specify)* ---												

(1) Use the following notation keys to specify the method applied: D (IPCC default), RA (Reference Approach), T1 (IPCC Tier 1), T1a, T1b, T1c (IPCC Tier 1a, Tier 1b and Tier 1c, respectively), T2 (IPCC Tier 2), T3 (IPCC Tier 3), C (CORINAIR), CS (Country Specific). If using more than one method, enumerate the relevant methods. Explanations of any modifications to the default IPCC methods, as well as information on the proper use of methods per source category where more than one method is indicated, and explanations on the country specific methods, should be provided in the documentation box of the relevant Sectoral background data table.
(2) Use the following notation keys to specify the emission factor used: D (IPCC default), C (CORINAIR), CS (Country Specific), PS (Plant Specific). Where a mix of emission factors has been used, use different notations in one and the same cells with further explanation in the documentation box of the relevant Sectoral background data table.

TABLE 7 OVERVIEW TABLE[(1)] FOR NATIONAL GREENHOUSE GAS INVENTORIES - COMPLETENESS AND QUALITY OF ESTIMATES Iceland
(Sheet 1 of 3) 2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2		CH_4		N_2O		HFCs		PFCs		SF_6		NO_x		CO		NMVOC		SO_2	
	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality
Total National Emissions and Removals																				
1 Energy	PART	H	PART	M	PART	L							PART	L	PART	M	PART	L	PART	H
A. Fuel Combustion Activities																				
Reference Approach	ALL	H																		
Sectoral Approach	ALL	H	ALL	M, L	ALL	L							ALL	L	PART	M	PART	L	ALL	H
1. Energy Industries	ALL	H	ALL	M	ALL	L							ALL	M	ALL	M	ALL	L	ALL	H
2. Manufacturing Industries and Construction	ALL	H	ALL	M	ALL	L							ALL	M	ALL	M. L	PART	L	ALL	H
3. Transport	ALL	H	ALL	L	ALL	L							ALL	L	ALL	L	ALL	L	ALL	H
4. Other Sectors	ALL	H	ALL	L	ALL	L							ALL	L	ALL	L	ALL	L	ALL	H
5. Other	ALL	H	ALL	L	ALL	L							ALL	L	ALL	L	ALL	L	ALL	H
B. Fugitive Emissions from Fuels	NE		NE		NE								NE		NE		NE		NE	
1. Solid Fuels	NO		NO		NO															
2. Oil and Natural Gas	NE		NE		NE								NE		NE		NE		NE	
2 Industrial Processes	ALL	H, M	NE		PART	L	ALL	L	PART	M	NO		PART	L	NE		NE		NE	
A. Mineral Products	ALL	H	NE		NE								NE		NE		NE		NE	
B. Chemical Industry	ALL	M	NE		PART	L	NA		NA				ALL	L	NE		NE		NE	
C. Metal Production	ALL	H	PART	M	NE				ALL	M	NA		PART	L	PART	L	PART	L	ALL	H
D. Other Production	NE												NA		NA		NE		NA	
E. Production of Halocarbons and SF_6							NO		NO		NO									

[(1)] This table is intended to be used by Parties to summarize their own assessment of completeness (e.g. partial, full estimate, not estimated) and quality (high, medium, low) of major source/sink inventory estimates. The latter could be understood as a quality assessment of the uncertainty of the estimates. This table might change once the IPCC completes its work on managing uncertainties of GHG inventories. The title of the table was kept for consistency with the current table in the IPCC Guidelines.

Note: To fill in the table use the notation key as given in the IPCC Guidelines (Volume 1. Reporting Instructions, Tables. 37).

TABLE 7 OVERVIEW TABLE FOR NATIONAL GREENHOUSE GAS INVENTORIES - COMPLETENESS AND QUALITY OF ESTIMATES Iceland
(Sheet 2 of 3) 2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2		CH_4		N_2O		HFCs		PFCs		SF_6		NO_x		CO		NMVOC		SO_2	
	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality
2 Industrial Processes (continued)																				
F. Consumption of Halocarbons and SF_6																				
Potential [2]							ALL	M	NE											
Actual [3]							NE		NE		NE									
G. Other	NO		NO		NO		NO		NO		NO		NO		NO		NO		NO	
3 Solvent and Other Product Use	**NE**				**ALL**	**M**							**NE**		**NE**		**PART**	**L**	**NE**	
4 Agriculture																				
A. Enteric Fermentation			ALL	M																
B. Manure Management			ALL	M	ALL	L											NE			
C. Rice Cultivation			NO														NO			
D. Agricultural Soils	NE		NE		ALL	L											NE			
E. Prescribed Burning of Savannas			NO		NO								NO		NO		NO		NO	
F. Field Burning of Agricultural Residues			NO		NO								NO		NO		NO		NO	
G. Other			NO		NO								NO		NO		NO		NO	
5 Land-Use Change and Forestry																				
A. Changes in Forest and Other Woody Biomass Stocks	PART	M																		
B. Forest and Grassland Conversion	NE		NE		NE								NE		NE		NE			

(2) Potential emissions based on Tier 1 approach of the IPCC Guidelines.

(3) Actual emissions based on Tier 2 approach of the IPCC Guidelines.

TABLE 7 OVERVIEW TABLE FOR NATIONAL GREENHOUSE GAS INVENTORIES - COMPLETENESS AND QUALITY OF ESTIMATES Iceland
(Sheet 3 of 3) 2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2		CH_4		N_2O		HFCs		PFCs		SF_6		NO_x		CO		NMVOC		SO_2	
	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality
5 Land-Use Change and Forestry (continued)																				
C. Abandonment of Managed Lands	NE																			
D. CO_2 Emissions and Removals from Soil	NE																			
E. Other	PART	M																		
6 Waste																				
A. Solid Waste Disposal on Land	NE		ALL	L											NE		NE			
B. Wastewater Handling			NE		NE								NE		NE		NE			
C. Waste Incineration	ALL	L	NE		ALL	L							ALL	L	ALL	L	ALL	L	ALL	L
D. Other	NE		NE		NE								NE		NE		NE		NE	
7 Other *(please specify)* ---																				
Memo Items:																				
International Bunkers	**ALL**	**H**	**ALL**	**L**	**ALL**	**L**							**ALL**	**L**	**ALL**	**L**	**ALL**	**L**	**ALL**	**H**
Aviation	ALL	H	ALL	L	ALL	L							ALL	L	ALL	L	ALL	L	ALL	H
Marine	ALL	H	ALL	L	ALL	L							ALL	L	ALL	L	ALL	L	ALL	H
Multilateral Operations	**NO**		**NO**		**NO**								**NO**		**NO**		**NO**		**NO**	
CO_2 Emissions from Biomass	**ALL**	**M**																		

TABLE 8(a) RECALCULATION - RECALCULATED DATA

Recalculated year: 2003

(Sheet 1 of 2)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CO_2			CH_4			N_2O		
		Previous submission	Latest submission	Difference[1]	Previous submission	Latest submission	Difference[1]	Previous submission	Latest submission	Difference[1]
		CO_2 equivalent (Gg)		(%)	CO_2 equivalent (Gg)		(%)	CO_2 equivalent (Gg)		(%)
Total National Emissions and Removals				**0,00**			**0,00**			**0,00**
1. Energy				**0,00**			**0,00**			**0,00**
1.A.	Fuel Combustion Activities			0,00			0,00			0,00
1.A.1.	Energy Industries			0,00			0,00			0,00
1.A.2.	Manufacturing Industries and Construction			0,00			0,00			0,00
1.A.3.	Transport			0,00			0,00			0,00
1.A.4.	Other Sectors			0,00			0,00			0,00
1.A.5.	Other			0,00			0,00			0,00
1.B.	Fugitive Emissions from Fuels			0,00			0,00			0,00
1.B.1.	Solid fuel			0,00			0,00			0,00
1.B.2.	Oil and Natural Gas			0,00			0,00			0,00
2. Industrial Processes				**0,00**			**0,00**			**0,00**
2.A.	Mineral Products			0,00			0,00			0,00
2.B.	Chemical Industry			0,00			0,00			0,00
2.C.	Metal Production			0,00			0,00			0,00
2.D.	Other Production			0,00						
2.G.	Other			0,00			0,00			0,00
3. Solvent and Other Product Use				**0,00**						**0,00**
4. Agriculture				**0,00**			**0,00**			**0,00**
4.A.	Enteric Fermentation						0,00			
4.B.	Manure Management						0,00			0,00
4.C.	Rice Cultivation						0,00			
4.D.	Agricultural Soils [2]			0,00			0,00			0,00
4.E.	Prescribed Burning of Savannas						0,00			0,00
4.F.	Field Burning of Agricultural Residues						0,00			0,00
4.G.	Other						0,00			0,00
5. Land-Use Change and Forestry (net) [3]				**0,00**			**0,00**			**0,00**
5.A.	Changes in Forest and Other Woody Biomass Stocks			0,00						
5.B.	Forest and Grassland Conversion			0,00			0,00			0,00
5.C.	Abandonment of Managed Lands			0,00						
5.D.	CO_2 Emissions and Removals from Soil			0,00						
5.E.	Other			0,00			0,00			0,00

[1] Estimate the percentage change due to recalculation with respect to the previous submission (Percentage change = 100% x [(LS-PS)/PS], where LS = Latest submission and PS = Previous submission.
All cases of recalculation of the estimate of the source/sink category, should be addressed and explained in Table 8(b) of this common reporting format.

[2] See footnote 4 to Summary 1.A of this common reporting format.

[3] Net CO2 emissions/removals to be reported

TABLE 8(a) RECALCULATION - RECALCULATED DATA

Recalculated year: 2003

(Sheet 2 of 2)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CO_2			CH_4			N_2O	
		Previous submission	Latest submission	Difference[1]	Previous submission	Latest submission	Difference[1]	Previous submission	Latest submission
		CO_2 equivalent (Gg)		(%)	CO_2 equivalent (Gg)		(%)	CO_2 equivalent (Gg)	
6. Waste				**0,00**			**0,00**		
6.A.	Solid Waste Disposal on Land			0,00			0,00		
6.B.	Wastewater Handling						0,00		
6.C.	Waste Incineration			0,00			0,00		
6.D.	Other			0,00			0,00		
7. Other *(please specify)* ---				**0,00**			**0,00**		
				0,00			0,00		
Memo Items:									
International Bunkers				**0,00**			**0,00**		
Multilateral Operations				**0,00**			**0,00**		
CO_2 Emissions from Biomass				**0,00**					

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		HFCs			PFCs			SF_6	
		Previous submission	Latest submission	Difference[1]	Previous submission	Latest submission	Difference[1]	Previous submission	Latest submission
		CO_2 equivalent (Gg)		(%)	CO_2 equivalent (Gg)		(%)	CO_2 equivalent (Gg)	
Total Actual Emissions				**0,00**			**0,00**		
2.C.3.	Aluminium Production						0,00		
2.E.	Production of Halocarbons and SF_6			0,00			0,00		
2.F.	Consumption of Halocarbons and SF_6			0,00			0,00		
	Other			0,00			0,00		
Potential Emissions from Consumption of HFCs/PFCs and SF_6				0,00			0,00		

	Previous submission	Latest submission	Difference[1]
	CO_2 equivalent (Gg)		(%)
Total CO_2 Equivalent Emissions with Land-Use Change and Forestry [3]			0,00
Total CO_2 Equivalent Emissions without Land-Use Change and Forestry [3]			0,00

[3] The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report emissions and removals from Land-Use Change and Forestry.

TABLE 8(b) RECALCULATION - EXPLANATORY INFORMATION
(Sheet 1 of 1)

Iceland
2003
2005

Specify the sector and source/sink category[1] where changes in estimates have occurred:		GHG	RECALCULATION DUE TO			
			CHANGES IN:			Addition/removal/ replacement of source/sink categories
			Methods [2]	Emission factors [2]	Activity data [2]	
---						

[1] Enter the identification code of the source/sink category (e.g. 1.B.1) in the first column and the name of the category (e.g. Fugitive Emissions from Solid Fuels) in the second column of the table (see Table 8(a)) .

[2] Explain changes in methods, emission factors and activity data that have resulted in recalculation of the estimate of the source/sink as indicated in Table 8(a). Include relevant changes in the assumptions and coefficients under the "Methods" column.

Documentation box: Use the documentation box to report the justifications of the changes as to improvements in the accuracy, completeness and consistency of the inventory.

TABLE 9 COMPLETENESS - (INFORMATION ON NOTATION KEYS) Iceland
(Sheet 1 of 2) 2003
2005

Sources and sinks not reported (NE)[1]			
GHG	**Sector[2]**	**Source/sink category [2]**	**Explanation**
CO_2 ---	1. Energy	1B2a v	lack of data
	2. Industrial Processes	2A6	lack of emission factor
	2. Industrial Processes	2D	lack of activity data
	3. Solvent and Other Product Use		lack of emission factors
	5. Land-Use Change and Forestry	5A, 5B, 5C, 5D	lack of data; some parts like Cultivation of organic soils likely to be significant
	6. Waste	6A	lack of method
CH_4 ---	1. Energy	1A1a	lack of emission factor for other fuel (waste)
	1. Energy	1A2e	lack of activity data (fish oil believed to be burned occasionally in the fish meal industry)
	1. Energy	1B2a v	lack of data
	2. Industrial Processes	2A7	lack of method for mineral wool production
	2. Industrial Processes	2B5	lack of method for diatomee production
	2. Industrial Processes	2C3	lack of method
	4. Agriculture	4A9	lack of emission factor for poultry
	4. Agriculture	4D1, 4D2	lack of emission factors
	5. Land-Use Change and Forestry	5B, 5E	lack of data
	6. Waste	6B	lack of activity data
	6. Waste	6C	lack of emission factor
N_2O ---			
	1. Energy	1A1e	lack of activity data (fish oil believed to be burned occasionally in the fish meal industry)
	2. Industrial Processes	2A7	lack of method for mineral wool production
	2. Industrial Processes	2B5	lack of method for diatomee production
	3. Solvent and Other Product Use	3D	lack of activity data for fire extinguishers and aerosol cans
	5. Land-Use Change and Forestry	5B, 5E	lack of data
	6. Waste	6B	lack of activity data
HFCs ---			
	2. Industrial Processes	2F	only potential emissions are estimated but not actual
	2. Industrial Processes	2F4	lack of activity data
PFCs ---			
SF_6 ---			
	2. Industrial Processes		SF6 emissions are not estimated but held constant over the whole time series

Sources and sinks reported elsewhere (IE)[3]				
GHG	**Source/sink category**	**Allocation as per IPCC Guidelines**	**Allocation used by the Party**	**Explanation**
CO_2 ---				
CH_4 ---				
N_2O ---				
	5. LUCF 5B(4)			Mineral and organic fertilizers are included in the Agricultural sector, 4D. Other emissions like from mineralisation of organic soil are not estimated due to lack of data
HFCs ---				
PFCs ---				
SF_6 ---				

[1] Please, clearly indicate sources and sinks which are considered in the IPCC Guidelines but are not considered in the submitted inventory. Explain the reason for excluding these sources and sinks, in order to avoid arbitrary interpretations. An entry should be made for each source/sink category for which the indicator "NE" is entered in the sectoral tables.

[2] Indicate omitted source/sink following the IPCC source/sink category structure (e.g. sector: Waste, source category: Wastewater Handling).

[3] Please clearly indicate sources and sinks in the submitted inventory that are allocated to a sector other than that indicated by the IPCC Guidelines. Show the sector indicated in the IPCC Guidelines and the sector to which the source or sink is allocated in the submitted inventory. Explain the reason for reporting these sources and sinks in a different sector. An entry should be made for each source/sink for which the indicator "IE" is used in the sectoral tables.

TABLE 9 COMPLETENESS
(Sheet 2 of 2)

Iceland
2003
2005

Additional GHG emissions reported[4]						
GHG ...	Source category	Emissions (Gg)	Estimated GWP value (100-year horizon)	Emissions CO_2 equivalent (Gg)	Reference to the data source of GWP value	Explanation

[4] Parties are encouraged to provide information on emissions of greenhouse gases whose GWP values have not yet been agreed upon by the COP. Please include such gases in this table if they are considered in the submitted inventory. Provide additional information on the estimation methods used.

TABLE 10 EMISSIONS TRENDS (CO_2)
(Sheet 1 of 5)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year[1]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	(Gg)														
1. Energy	**0,00**	**1.672,56**	**1.626,52**	**1.751,21**	**1.811,54**	**1.775,22**	**1.776,42**	**1.869,62**	**1.915,47**	**1.877,33**	**1.906,72**	**1.808,95**	**1.781,97**	**1.854,15**	**1.796,72**
A. Fuel Combustion (Sectoral Approach)	0,00	1.672,56	1.626,52	1.751,21	1.811,54	1.775,22	1.776,42	1.869,62	1.915,47	1.877,33	1.906,72	1.808,95	1.781,97	1.854,15	1.796,72
1. Energy Industries		20,70	22,28	21,29	22,35	22,22	24,61	20,00	15,27	37,64	20,64	14,41	14,54	15,13	14,07
2. Manufacturing Industries and Construction		361,05	284,81	337,47	364,58	344,58	356,76	400,10	467,81	441,43	466,69	419,46	451,59	452,83	424,87
3. Transport		600,13	611,43	621,54	622,17	624,79	600,44	590,81	602,47	605,24	626,84	629,42	640,06	643,65	666,71
4. Other Sectors		690,56	707,87	770,13	801,03	783,53	793,00	858,33	829,89	788,06	788,18	741,05	656,26	720,24	675,62
5. Other		0,12	0,14	0,78	1,42	0,10	1,62	0,38	0,03	4,95	4,36	4,61	19,53	22,30	15,45
B. Fugitive Emissions from Fuels	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
1. Solid Fuels		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
2. Oil and Natural Gas		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
2. Industrial Processes	**0,00**	**392,66**	**359,37**	**362,43**	**409,86**	**410,71**	**427,14**	**426,21**	**484,91**	**404,98**	**544,02**	**492,73**	**399,23**	**380,97**	**373,52**
A. Mineral Products		52,34	48,71	45,74	39,73	37,45	37,96	41,87	46,64	54,49	61,52	65,57	58,77	40,56	33,08
B. Chemical Industry		0,36	0,31	0,25	0,24	0,35	0,46	0,40	0,44	0,40	0,43	0,41	0,49	0,45	0,48
C. Metal Production		339,96	310,34	316,43	369,89	372,91	388,72	383,94	437,83	350,09	482,06	426,76	339,96	339,96	339,96
D. Other Production		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
E. Production of Halocarbons and SF_6															
F. Consumption of Halocarbons and SF_6															
G. Other															
3. Solvent and Other Product Use		**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
4. Agriculture	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
A. Enteric Fermentation		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B. Manure Management		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C. Rice Cultivation		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
D. Agricultural Soils [2]		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
E. Prescribed Burning of Savannas		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Field Burning of Agricultural Residues		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Other		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
5. Land-Use Change and Forestry [3]	**0,00**	**-5,94**	**-14,68**	**-24,69**	**-37,16**	**-47,12**	**-56,34**	**-65,73**	**-80,84**	**-94,00**	**-112,31**	**-131,27**	**-144,98**	**-162,53**	**-207,64**
A. Changes in Forest and Other Woody Biomass Stocks		-2,82	-6,60	-10,56	-14,52	-18,48	-22,00	-25,08	-28,16	-31,68	-35,64	-39,60	-42,68	-47,08	-84,04
B. Forest and Grassland Conversion															
C. Abandonment of Managed Lands															
D. CO_2 Emissions and Removals from Soil															
E. Other		-3,12	-8,08	-14,13	-22,64	-28,64	-34,34	-40,65	-52,68	-62,32	-76,67	-91,67	-102,30	-115,45	-123,60
6. Waste	**0,00**	**18,84**	**18,69**	**18,19**	**15,49**	**14,27**	**12,59**	**11,28**	**10,87**	**9,21**	**7,53**	**7,08**	**6,57**	**6,10**	**5,20**
A. Solid Waste Disposal on Land		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
B. Waste-water Handling		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C. Waste Incineration		18,84	18,69	18,19	15,49	14,27	12,59	11,28	10,87	9,21	7,53	7,08	6,57	6,10	5,20
D. Other		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
7. Other *(please specify)* ---	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
Total Emissions/Removals with LUCF [4]	**0,00**	**2.078,13**	**1.989,90**	**2.107,13**	**2.199,73**	**2.153,08**	**2.159,81**	**2.241,38**	**2.330,41**	**2.197,52**	**2.345,96**	**2.177,50**	**2.042,78**	**2.078,69**	**1.967,80**
Total Emissions without LUCF[4]	**0,00**	**2.084,07**	**2.004,58**	**2.131,82**	**2.236,89**	**2.200,20**	**2.216,15**	**2.307,11**	**2.411,25**	**2.291,52**	**2.458,27**	**2.308,77**	**2.187,76**	**2.241,22**	**2.175,44**
Memo Items:															
International Bunkers	**0,00**	**318,65**	**259,64**	**263,56**	**293,02**	**307,10**	**380,15**	**395,45**	**440,80**	**514,67**	**527,25**	**626,29**	**498,17**	**517,17**	**509,59**
Aviation		219,65	221,99	203,62	195,64	213,62	236,15	271,51	292,12	338,13	363,37	407,74	349,13	309,85	330,02
Marine		99,00	37,65	59,95	97,38	93,49	144,00	123,95	148,68	176,54	163,88	218,55	149,04	207,32	179,57
Multilateral Operations		**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
CO_2 Emissions from Biomass		28,26	28,04	27,28	23,23	21,41	18,88	16,92	16,31	13,67	11,17	12,38	9,85	9,15	7,76

[1] Fill in the base year adopted by the Party under the Convention, if different from 1990.
[2] See footnote 4 to Summary 1.A of this common reporting format.
[3] Take the net emissions as reported in Summary 1.A of this common reporting format. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+).
[4] The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report CO_2 emissions and removals from Land-Use Change and Forestry.

TABLE 10 EMISSIONS TRENDS (CH_4)
(Sheet 2 of 5)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year[1]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	(Gg)														
Total Emissions	**0,00**	**19,67**	**19,76**	**19,86**	**20,23**	**20,97**	**22,20**	**22,77**	**22,97**	**23,23**	**23,55**	**23,22**	**23,31**	**22,52**	**22,46**
1. Energy	**0,00**	**0,22**	**0,23**	**0,24**	**0,24**	**0,24**	**0,22**	**0,23**	**0,20**	**0,20**	**0,17**	**0,17**	**0,16**	**0,17**	**0,17**
A. Fuel Combustion (Sectoral Approach)	0,00	0,22	0,23	0,24	0,24	0,24	0,22	0,23	0,20	0,20	0,17	0,17	0,16	0,17	0,17
1. Energy Industries		0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
2. Manufacturing Industries and Construction		0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,02	0,02	0,02	0,02	0,02	0,02	0,02
3. Transport		0,15	0,15	0,16	0,16	0,16	0,13	0,13	0,11	0,11	0,08	0,08	0,08	0,08	0,09
4. Other Sectors		0,06	0,06	0,07	0,07	0,07	0,07	0,08	0,08	0,07	0,07	0,07	0,06	0,07	0,06
5. Other		0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
B. Fugitive Emissions from Fuels	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
1. Solid Fuels		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
2. Oil and Natural Gas		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
2. Industrial Processes	**0,00**	**0,03**	**0,02**	**0,02**	**0,03**	**0,03**	**0,03**	**0,03**	**0,03**	**0,02**	**0,03**	**0,04**	**0,04**	**0,05**	**0,04**
A. Mineral Products		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
B. Chemical Industry		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
C. Metal Production		0,03	0,02	0,02	0,03	0,03	0,03	0,03	0,03	0,02	0,03	0,04	0,04	0,05	0,04
D. Other Production		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
E. Production of Halocarbons and SF_6															
F. Consumption of Halocarbons and SF_6															
G. Other															
3. Solvent and Other Product Use		**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
4. Agriculture	**0,00**	**13,97**	**13,67**	**13,26**	**13,18**	**13,25**	**12,85**	**12,96**	**13,12**	**13,28**	**13,16**	**12,60**	**12,56**	**12,26**	**12,05**
A. Enteric Fermentation		12,85	12,57	12,18	12,11	12,19	11,79	11,90	12,06	12,20	12,09	11,56	11,53	11,27	11,08
B. Manure Management		1,11	1,10	1,08	1,07	1,07	1,06	1,06	1,07	1,08	1,07	1,04	1,03	0,99	0,97
C. Rice Cultivation		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
D. Agricultural Soils		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
E. Prescribed Burning of Savannas		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Field Burning of Agricultural Residues		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Other		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
5. Land-Use Change and Forestry	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
A. Changes in Forest and Other Woody Biomass Stocks															
B. Forest and Grassland Conversion															
C. Abandonment of Managed Lands															
D. CO_2 Emissions and Removals from Soil															
E. Other															
6. Waste	**0,00**	**5,45**	**5,83**	**6,33**	**6,78**	**7,44**	**9,10**	**9,56**	**9,62**	**9,73**	**10,19**	**10,41**	**10,54**	**10,05**	**10,20**
A. Solid Waste Disposal on Land		5,45	5,83	6,33	6,78	7,44	9,10	9,56	9,62	9,73	10,19	10,41	10,54	10,05	10,20
B. Waste-water Handling		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
C. Waste Incineration		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
D. Other		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
7. Other *(please specify)* ---	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
Memo Items:															
International Bunkers	**0,00**	**0,01**	**0,01**	**0,01**	**0,01**	**0,01**	**0,02**	**0,01**	**0,02**	**0,02**	**0,02**	**0,02**	**0,02**	**0,02**	**0,02**
Aviation		0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Marine		0,01	0,00	0,01	0,01	0,01	0,01	0,01	0,01	0,02	0,02	0,02	0,01	0,02	0,02
Multilateral Operations		**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
CO_2 Emissions from Biomass															

TABLE 10 EMISSIONS TRENDS (N_2O)
(Sheet 3 of 5)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year[1]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	(Gg)														
Total Emissions	**0,00**	**1,16**	**1,13**	**1,06**	**1,09**	**1,10**	**1,09**	**1,15**	**1,15**	**1,14**	**1,20**	**1,12**	**1,10**	**0,99**	**0,97**
1. Energy	**0,00**	**0,09**	**0,08**	**0,08**	**0,09**	**0,09**	**0,12**	**0,12**	**0,16**	**0,16**	**0,19**	**0,19**	**0,19**	**0,19**	**0,20**
A. Fuel Combustion (Sectoral Approach)	0,00	0,09	0,08	0,08	0,09	0,09	0,12	0,12	0,16	0,16	0,19	0,19	0,19	0,19	0,20
1. Energy Industries		0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
2. Manufacturing Industries and Construction		0,05	0,05	0,05	0,05	0,05	0,06	0,06	0,07	0,07	0,08	0,08	0,08	0,08	0,08
3. Transport		0,02	0,02	0,02	0,02	0,02	0,04	0,04	0,06	0,06	0,09	0,09	0,09	0,09	0,10
4. Other Sectors		0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02
5. Other		0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
B. Fugitive Emissions from Fuels	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
1. Solid Fuels		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
2. Oil and Natural Gas		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
2. Industrial Processes	**0,00**	**0,16**	**0,15**	**0,14**	**0,14**	**0,14**	**0,14**	**0,16**	**0,13**	**0,12**	**0,12**	**0,06**	**0,05**	**0,00**	**0,00**
A. Mineral Products		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
B. Chemical Industry		0,16	0,15	0,14	0,14	0,14	0,14	0,16	0,13	0,12	0,12	0,06	0,05	0,00	0,00
C. Metal Production		0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
D. Other Production		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
E. Production of Halocarbons and SF_6															
F. Consumption of Halocarbons and SF_6															
G. Other															
3. Solvent and Other Product Use		**0,02**	**0,02**	**0,02**	**0,02**	**0,01**	**0,02**	**0,02**	**0,02**	**0,02**	**0,02**	**0,01**	**0,01**	**0,01**	**0,01**
4. Agriculture	**0,00**	**0,90**	**0,87**	**0,82**	**0,84**	**0,85**	**0,82**	**0,85**	**0,84**	**0,85**	**0,87**	**0,85**	**0,84**	**0,79**	**0,76**
A. Enteric Fermentation		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B. Manure Management		0,11	0,10	0,10	0,10	0,10	0,09	0,09	0,09	0,09	0,09	0,09	0,09	0,08	0,08
C. Rice Cultivation		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
D. Agricultural Soils		0,79	0,77	0,73	0,74	0,76	0,73	0,76	0,75	0,75	0,78	0,77	0,76	0,71	0,68
E. Prescribed Burning of Savannas		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Field Burning of Agricultural Residues		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Other		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
5. Land-Use Change and Forestry	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
A. Changes in Forest and Other Woody Biomass Stocks															
B. Forest and Grassland Conversion															
C. Abandonment of Managed Lands															
D. CO_2 Emissions and Removals from Soil															
E. Other															
6. Waste	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
A. Solid Waste Disposal on Land		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
B. Waste-water Handling		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
C. Waste Incineration		0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
D. Other		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
7. Other *(please specify)* ---	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
Memo Items:															
International Bunkers	**0,00**	**0,01**	**0,01**	**0,01**	**0,01**	**0,01**	**0,01**	**0,01**	**0,01**	**0,01**	**0,01**	**0,02**	**0,01**	**0,01**	**0,01**
Aviation		0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
Marine		0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,01	0,00	0,01	0,00
Multilateral Operations		**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
CO_2 Emissions from Biomass															

TABLE 10 EMISSION TRENDS (HFCs, PFCs and SF_6)
(Sheet 4 of 5)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year[1]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	(Gg)														
Emissions of HFCs[5] - CO_2 equivalent (Gg)	**0,00**	**0,00**	**0,00**	**0,47**	**1,56**	**3,12**	**25,01**	**28,56**	**37,46**	**63,90**	**59,40**	**32,28**	**53,78**	**35,16**	**69,35**
HFC-23															
HFC-32										0,00	0,00	0,00	0,00	0,00	0,00
HFC-41															
HFC-43-10mee															
HFC-125							0,00	0,00	0,00	0,01	0,01	0,01	0,01	0,01	0,01
HFC-134															
HFC-134a				0,00	0,00	0,00	0,00	0,00	0,01	0,01	0,01	0,00	0,01	0,00	0,01
HFC-152a							0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
HFC-143															
HFC-143a							0,00	0,00	0,01	0,01	0,01	0,00	0,01	0,00	0,01
HFC-227ea															
HFC-236fa															
HFC-245ca															
Emissions of PFCs[5] - CO_2 equivalent (Gg)	**0,00**	**419,63**	**348,34**	**155,28**	**74,86**	**44,57**	**58,84**	**25,15**	**82,36**	**180,13**	**173,21**	**127,16**	**91,66**	**72,54**	**59,78**
CF_4		0,05	0,05	0,02	0,01	0,01	0,01	0,00	0,01	0,02	0,02	0,02	0,01	0,01	0,01
C_2F_6		0,01	0,01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
C_3F_8															
C_4F_{10}															
c-C_4F_8															
C_5F_{12}															
C_6F_{14}															
Emissions of SF_6[5] - CO_2 equivalent (Gg)	**0,00**	**5,38**	**5,38**	**5,38**	**5,38**	**5,38**	**5,38**	**5,38**	**5,38**	**5,38**	**5,38**	**5,38**	**5,38**	**5,38**	**5,38**
SF_6		0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Chemical	GWP
HFCs	
HFC-23	11700
HFC-32	650
HFC-41	150
HFC-43-10mee	1300
HFC-125	2800
HFC-134	1000
HFC-134a	1300
HFC-152a	140
HFC-143	300
HFC-143a	3800
HFC-227ea	2900
HFC-236fa	6300
HFC-245ca	560
PFCs	
CF_4	6500
C_2F_6	9200
C_3F_8	7000
C_4F_{10}	7000
c-C_4F_8	8700
C_5F_{12}	7500
C_6F_{14}	7400
SF_6	23900

[5] Enter information on the actual emissions. Where estimates are only available for the potential emissions, specify this in a comment to the corresponding cell. Only in this row the emissions are expressed as CO_2 equivalent emissions in order to facilitate data flow among spreadsheets.

TABLE 10 EMISSION TRENDS (SUMMARY)
(Sheet 5 of 5)

Iceland
2003
2005

GREENHOUSE GAS EMISSIONS	Base year[1]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	CO_2 equivalent (Gg)														
Net CO_2 emissions/removals	0,00	2.078,13	1.989,90	2.107,13	2.199,73	2.153,08	2.159,81	2.241,38	2.330,41	2.197,52	2.345,96	2.177,50	2.042,78	2.078,69	1.967,80
CO_2 emissions (without LUCF) [6]	0,00	2.084,07	2.004,58	2.131,82	2.236,89	2.200,20	2.216,15	2.307,11	2.411,25	2.291,52	2.458,27	2.308,77	2.187,76	2.241,22	2.175,44
CH_4	0,00	413,11	414,99	417,09	424,83	440,28	466,16	478,19	482,44	487,88	494,61	487,61	489,50	472,96	471,65
N_2O	0,00	359,97	350,03	328,51	336,57	341,16	338,66	356,19	355,08	353,45	372,88	348,12	341,73	308,27	301,62
HFCs	0,00	0,00	0,00	0,47	1,56	3,12	25,01	28,56	37,46	63,90	59,40	32,28	53,78	35,16	69,35
PFCs	0,00	419,63	348,34	155,28	74,86	44,57	58,84	25,15	82,36	180,13	173,21	127,16	91,66	72,54	59,78
SF_6	0,00	5,38	5,38	5,38	5,38	5,38	5,38	5,38	5,38	5,38	5,38	5,38	5,38	5,38	5,38
Total (with net CO_2 emissions/removals)	**0,00**	**3.276,22**	**3.108,64**	**3.013,85**	**3.042,93**	**2.987,58**	**3.053,86**	**3.134,85**	**3.293,12**	**3.288,26**	**3.451,43**	**3.178,05**	**3.024,83**	**2.973,01**	**2.875,57**
Total (without CO_2 from LUCF) [6] [8]	**0,00**	**3.282,16**	**3.123,32**	**3.038,54**	**3.080,09**	**3.034,70**	**3.110,20**	**3.200,58**	**3.373,96**	**3.382,26**	**3.563,74**	**3.309,32**	**3.169,81**	**3.135,54**	**3.083,21**

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year[1]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	CO_2 equivalent (Gg)														
1. Energy	0,00	1.703,95	1.657,47	1.782,09	1.844,01	1.807,82	1.818,86	1.912,20	1.968,26	1.930,53	1.970,72	1.872,62	1.844,66	1.916,25	1.861,44
2. Industrial Processes	0,00	866,64	760,40	565,92	536,28	508,68	559,12	535,15	651,81	690,67	818,86	663,11	529,36	495,02	508,96
3. Solvent and Other Product Use	0,00	6,00	4,87	4,77	4,71	3,88	4,71	4,71	4,71	4,96	4,68	4,53	4,03	4,03	3,72
4. Agriculture	0,00	571,16	558,34	533,55	536,35	542,97	523,06	535,92	535,70	542,14	547,50	528,96	525,67	502,78	489,45
5. Land-Use Change and Forestry [7]	0,00	-5,94	-14,68	-24,69	-37,16	-47,12	-56,34	-65,73	-80,84	-94,00	-112,31	-131,27	-144,98	-162,53	-207,64
6. Waste	0,00	134,42	142,24	152,21	158,73	171,36	204,45	212,59	213,48	213,96	221,98	226,10	228,36	217,46	219,64
7. Other	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

[6] The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report CO_2 emissions and removals from Land-Use Change and Forestry.

[7] Net emissions.

(8) The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report emissions and removals from Land-Use Change and Forestry. Note that these totals will differ from the totals reported in Table Summary2 if Parties report non-CO2 emissions from LUCF.

Iceland
2003
2005

TABLE 11 CHECK LIST OF REPORTED INVENTORY INFORMATION(1)

Party: Iceland **Year:** 2003

Contact info:			
Focal point for national GHG inventories:	Hugi Olafsson		
Address:	Minestry of the Environment, Vonarstraeti 4, 150 Reykjavik		
Telephone:	+354 545 8600	Fax: +354 562 4566	E-mail: hugi.olafsson@umh.stjr.is
Main institution preparing the inventory:	Environment and Food Agency, Iceland		

General info:			
Date of submission:	23.maí.05		
Base years:	1990	PFCs, HFCs, SF_6:	1990
Year covered in the submission:	2003		
Gases covered:	CO2, CH4, N2O, PFC's, HFC's, SF6, NOx, CO, NMVOC, SO2		
Omissions in geographic coverage:			

Tables:	Energy	Ind. Processes	Solvent Use	LUCF	Agriculture	Waste
Sectoral report tables:	☑	☑	☑	☑	☑	☑
Sectoral background data tables:	☑	☑	☑	☑	☑	☑
Summary 1 (IPCC Summary tables):	IPCC Table 7A:		☑	IPCC Table 7B:		☑
Summary 2 (CO_2 equivalent emissions):			☑			
Summary 3 (Methods/Emission factors):			☑			
Overview Table 7: (Uncertainty)	IPCC Table 8A:		☑	National information:		☐
Recalculation tables:			☐			
Completeness table:			☑			
Trend table:			☑			

CO_2	Comparison of CO_2 from fuel combustion:	Worksheet 1-1	Percentage of difference	Explanation of differences
		☑	0,44	☐

Recalculation:	Energy	Ind.Processes	Solvent Use	LUCF	Agriculture	Waste
CO_2	☐	☐	☐	☐	☐	☐
CH_4	☐	☐	☐	☐	☐	☐
N_2O	☐	☐	☐	☐	☐	☐
HFCs, PFCs, SF_6		☐				
Explanations:	☐	☐	☐	☐	☐	☐
Recalculation tables for all recalculated years:			☐			
Full CRF for the recalculated base year:			☐			

HFCs, PFCs, SF_6:	HFCs		PFCs		SF_6	
Disaggregation by species:	☑		☑			
Production of Halocarbons/SF_6:	☑		☑		☑	
Consumption of Halocarbons/SF_6:	Actual	Potential	Actual	Potential	Actual	Potential
	☐	☑	☑	☐	☐	☐
Potential/Actual emission ratio:	0,00		0,00		0,00	

Reference to National Inventory Report and/or national inventory web site:	

CRF - Common Reporting Format.
LUCF - Land-Use Change and Forestry.

(1) For each omission, give an explanation for the reasons by inserting a comment to the corresponding cell.

ANNEX III: CRF TABLES FOR YEAR 2003 INCLUDING EMISSIONS FALLING UNDER DECISION 14/CP.7

Only those CRF tables that change are included. Those are:

TABLE 2(I) SECTORAL REPORT FOR INDUSTRIAL PROCESSES
(Sheet 1 of 2)

Iceland
2003

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2	CH_4	N_2O	HFCs[1]		PFCs[1]		SF_6		NO_x	CO	NMVOC	SO_2
				P	A	P	A	P	A				
	(Gg)			CO_2 equivalent (Gg)						(Gg)			
Total Industrial Processes	**824,33**	**0,04**	**0,00**	69,35	**0,00**	**0,00**	59,78	5,38	**0,00**	**1,68**	**0,24**	**0,09**	5,69
A. Mineral Products	**33,08**	**0,00**	**0,00**							**0,02**	**0,05**	**0,01**	**0,03**
1. Cement Production	32,11												IE
2. Lime Production	NO												
3. Limestone and Dolomite Use	NO												
4. Soda Ash Production and Use	0,00												
5. Asphalt Roofing	NO										NO	NO	
6. Road Paving with Asphalt	NE									**0,02**	**0,03**	**0,01**	**0,03**
7. Other *(please specify)* ---	0,97	0,00	0,00							0,00	0,02	0,00	0,00
Mineral wool production	**0,97**	NE	NE							NE	**0,02**	NE	**0,00**
B. Chemical Industry	**0,48**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,46**	**0,00**	**0,00**	**0,00**
1. Ammonia Production	NO	NO								NO	NO	NO	NO
2. Nitric Acid Production			NO							NO			
3. Adipic Acid Production			NO							NO	NO	NO	
4. Carbide Production	0,00	0,00									NO	NO	NO
5. Other *(please specify)* ---	0,48	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,46	0,00	0,00	0,00
Diatomee production	**0,48**	NE	NE	NA	NA	NA	NA	NA	NA	**0,46**	NE	NE	NE
Fertilizer production	NO	NO	NO	NA	NA	NA	NA	NA	NA	NO	NO	NO	NO
C. Metal Production	**790,78**	**0,04**	**0,00**	**0,00**	**0,00**	**0,00**	**59,78**	**0,00**	**0,00**	**1,21**	**0,19**	**0,09**	**5,66**
1. Iron and Steel Production	0,00	0,00								NO	NO	NO	NO
2. Ferroalloys Production	389,19	0,04								1,21	**0,19**	**0,09**	**2,32**
3. Aluminium Production	401,58	NE					59,78			NE	NE	NE	**3,34**
4. SF_6 Used in Aluminium and Magnesium Foundries									0,00				
5. Other *(please specify)* ---	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

P = Potential emissions based on Tier 1 approach of the IPCC Guidelines. A = Actual emissions based on Tier 2 approach of the IPCC Guidelines. This only applies in sectors where methods exist for both tiers.

[1] The emissions of HFCs and PFCs are to be expressed as CO_2 equivalent emissions. Data on disaggregated emissions of HFCs and PFCs are to be provided in Table 2(II) of this common reporting format.

TABLE 2(I).A-G SECTORAL BACKGROUND DATA FOR INDUSTRIAL PROCESSES Iceland
Emissions of CO_2, CH_4 and N_2O 2003
(Sheet 2 of 2) 2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA		IMPLIED EMISSION FACTORS			EMISSIONS[2]					
	Production/Consumption Quantity		CO_2	CH_4	N_2O	CO_2		CH_4		N_2O	
	Description [1]	(kt)	(t/t)	(t/t)	(t/t)	(Gg)	[2]	(Gg)	[2]	(Gg)	[2]
C. Metal Production [4]						**790,78**		**0,04**		**0,00**	
1. Iron and Steel Production	NO	NO	#NAME?			0,00		0,00			
Steel	NO	NO	NO			NO					
Pig Iron	NO	NO	NO	NO		NO		NO			
Sinter	NO	NO	NO	NO		NO		NO			
Coke	NO	NO	NO	NO		NO		NO			
Other *(please specify)* ---						0,00		0,00			
			0,00	0,00	0,00						
2. Ferroalloys Production	Ferrosilicon - 75% Si	119,07	3,27	0,00		389,19		0,04			
3. Aluminium Production	Aluminium production	266,61	1,51	NE		401,58		NE			
4. SF_6 Used in Aluminium and Magnesium Foundries											
5. Other *(please specify)* ---						0,00		0,00		0,00	
			0,00	0,00	0,00						
D. Other Production						**0,00**					
1. Pulp and Paper											
2. Food and Drink		NE	NE			NE					
G. Other *(please specify)* ---						**0,00**		**0,00**		**0,00**	
			0,00	0,00	0,00						

[4] More specific information (e.g. data on virgin and recycled steel production) could be provided in the documentation box.

Note: In case of confidentiality of the activity data information, the entries should provide aggregate figures but there should be a note in the documentation box indicating this.

Documentation box:

SUMMARY 1.A SUMMARY REPORT FOR NATIONAL GREENHOUSE GAS INVENTORIES (IPCC TABLE 7A)
(Sheet 1 of 3)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1]		PFCs[1]		SF_6		NO_x	CO	NMVOC	SO_2
						P	A	P	A	P	A				
		(Gg)				CO_2 equivalent (Gg)						(Gg)			
Total National Emissions and Removals		**2.626,26**	**-207,64**	**22,46**	**0,97**	**69,35**	**0,00**	**0,00**	**59,78**	**5,38**	**0,00**	**26,71**	**23,15**	**7,10**	**8,04**
1. Energy		**1.796,72**		**0,17**	**0,20**							**25,01**	**22,90**	**4,98**	**2,34**
A. Fuel Combustion	Reference Approach [2]	1.800,71													
	Sectoral Approach [2]	1.796,72		0,17	0,20							25,01	22,90	4,98	2,34
1. Energy Industries		14,07		0,00	0,00							0,18	0,05	0,00	0,03
2. Manufacturing Industries and Construction		424,87		0,02	0,08							3,71	1,06	0,46	1,90
3. Transport		666,71		0,09	0,10							4,82	20,16	4,04	0,11
4. Other Sectors		675,62		0,06	0,02							16,26	1,63	0,47	0,15
5. Other		15,45		0,00	0,00							0,04	0,00	0,00	0,15
B. Fugitive Emissions from Fuels		0,00		0,00	0,00							0,00	0,00	0,00	0,00
1. Solid Fuels		0,00		0,00	0,00							0,00	0,00	0,00	0,00
2. Oil and Natural Gas		0,00		0,00	0,00							0,00	0,00	0,00	0,00
2. Industrial Processes		**824,33**		**0,04**	**0,00**	**69,35**	**0,00**	**0,00**	**59,78**	**5,38**	**0,00**	**1,68**	**0,24**	**0,09**	**5,69**
A. Mineral Products		33,08		0,00	0,00							0,02	0,05	0,01	0,03
B. Chemical Industry		0,48		0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,46	0,00	0,00	0,00
C. Metal Production		790,78		0,04	0,00				59,78		0,00	1,21	0,19	0,09	5,66
D. Other Production [3]		NE										0,00	0,00	0,00	0,00
E. Production of Halocarbons and SF_6							0,00		0,00		0,00				
F. Consumption of Halocarbons and SF_6						69,35	0,00	0,00	0,00	5,38	0,00				
G. Other		0,00		0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

P = Potential emissions based on Tier 1 approach of the IPCC Guidelines.

A = Actual emissions based on Tier 2 approach of the IPCC Guidelines.

[1] The emissions of HFCs and PFCs are to be expressed as CO_2 equivalent emissions. Data on disaggregated emissions of HFCs and PFCs are to be provided in Table 2(II) of this common reporting format.

[2] For verification purposes, countries are asked to report the results of their calculations using the Reference approach and to explain any differences with the Sectoral approach. Where possible, the calculations using the Sectoral approach should be used for estimating national totals. Do not include the results of both the Reference approach and the Sectoral approach in national totals.

[3] Other Production includes Pulp and Paper and Food and Drink Production.

Note: The numbering of footnotes to all tables containing more than one sheet continue to the next sheet. Common footnotes are given only once at the first point of reference.

SUMMARY 1.B SHORT SUMMARY REPORT FOR NATIONAL GREENHOUSE GAS INVENTORIES (IPCC TABLE 7B) Iceland
(Sheet 1 of 1) 2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1]		PFCs[1]		SF_6		NO_x	CO	NMVOC	SO_2
						P	A	P	A	P	A				
		(Gg)				CO_2 equivalent (Gg)						(Gg)			
Total National Emissions and Removals		**2.626,26**	**-207,64**	**22,46**	**0,97**	**69,35**	**0,00**	**0,00**	**59,78**	**5,38**	**0,00**	**26,71**	**23,15**	**7,10**	**8,04**
1. Energy		**1.796,72**		**0,17**	**0,20**							**25,01**	**22,90**	**4,98**	**2,34**
A. Fuel Combustion	Reference Approach[2]	1.800,71													
	Sectoral Approach[2]	1.796,72		0,17	0,20							25,01	22,90	4,98	2,34
B. Fugitive Emissions from Fuels		0,00		0,00	0,00							0,00	0,00	0,00	0,00
2. Industrial Processes		**824,33**		**0,04**	**0,00**	**69,35**	**0,00**	**0,00**	**59,78**	**5,38**	**0,00**	**1,68**	**0,24**	**0,09**	**5,69**
3. Solvent and Other Product Use		**0,00**			**0,01**							**NE**	**NE**	**2,03**	**NE**
4. Agriculture [3]		**0,00**	**0,00**	**12,05**	**0,76**							**0,00**	**0,00**	**0,00**	**0,00**
5. Land-Use Change and Forestry		[4] **0,00**	[4] **-207,64**	**0,00**	**0,00**							**0,00**	**0,00**	**0,00**	**0,00**
6. Waste		**5,20**		**10,20**	**0,00**							**0,02**	**0,01**	**0,00**	**0,02**
7. Other		**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
Memo Items:															
International Bunkers		**509,59**		**0,02**	**0,01**							**5,79**	**0,91**	**0,36**	**0,76**
Aviation		330,02		0,00	0,01							1,40	0,47	0,23	0,42
Marine		179,57		0,02	0,00							4,40	0,44	0,13	0,34
Multilateral Operations		**NO**		**NO**	**NO**							**NO**	**NO**	**NO**	**NO**
CO_2 Emissions from Biomass		**11,99**													

P = Potential emissions based on Tier 1 approach of the IPCC Guidelines.

A = Actual emissions based on Tier 2 approach of the IPCC Guidelines.

[1] The emissions of HFCs and PFCs are to be expressed as CO_2 equivalent emissions. Data on disaggregated emissions of HFCs and PFCs are to be provided in Table 2(II) of this common reporting format.

[2] For verification purposes, countries are asked to report the results of their calculations using the Reference approach and to explain any differences with the Sectoral approach in document box of Table1.A(c). Where possible, the calculations using the Sectoral approach should be used for estimating national totals. Do not include the results of both the Reference approach and the Sectoral approach in national totals.

[3] See footnote 4 to Summary 1.A.

[4] Please do not provide an estimate of both CO_2 emissions and CO_2 removals. "Net" emissions (emissions - removals) of CO_2 should be estimated and a single number placed in either the CO_2 emissions or CO_2 removals column, as appropriate. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+).

SUMMARY 2 SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS Iceland
(Sheet 1 of 1) 2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [(1)]	CH_4	N_2O	HFCs	PFCs	SF_6	Total
	CO_2 equivalent (Gg)						
Total (Net Emissions) [(1)]	**2.418,62**	**471,65**	**301,62**	**0,00**	**59,78**	**0,00**	**3.251,67**
1. Energy	**1.796,72**	**3,50**	**61,23**				**1.861,44**
A. Fuel Combustion (Sectoral Approach)	1.796,72	3,50	61,23				1.861,44
1. Energy Industries	14,07	0,01	0,24				14,32
2. Manufacturing Industries and Construction	424,87	0,34	25,57				450,78
3. Transport	666,71	1,81	29,76				698,28
4. Other Sectors	675,62	1,33	5,62				682,57
5. Other	15,45	0,01	0,04				15,49
B. Fugitive Emissions from Fuels	0,00	0,00	0,00				0,00
1. Solid Fuels	0,00	0,00	0,00				0,00
2. Oil and Natural Gas	0,00	0,00	0,00				0,00
2. Industrial Processes	**824,33**	**0,93**	**0,00**	**0,00**	**59,78**	**0,00**	**885,05**
A. Mineral Products	33,08	0,00	0,00				33,08
B. Chemical Industry	0,48	0,00	0,00	0,00	0,00	0,00	0,48
C. Metal Production	790,78	0,93	0,00		59,78	0,00	851,49
D. Other Production	NE						0,00
E. Production of Halocarbons and SF_6				0,00	0,00	0,00	0,00
F. Consumption of Halocarbons and SF_6				0,00	0,00	0,00	0,00
G. Other	0,00	0,00	0,00	0,00	0,00	0,00	0,00
3. Solvent and Other Product Use	**0,00**		**3,72**				**3,72**
4. Agriculture	**0,00**	**253,06**	**236,39**				**489,45**
A. Enteric Fermentation		232,66					232,66
B. Manure Management		20,40	25,83				46,23
C. Rice Cultivation		0,00					0,00
D. Agricultural Soils[(2)]	NE	0,00	210,56				210,56
E. Prescribed Burning of Savannas		0,00	0,00				0,00
F. Field Burning of Agricultural Residues		0,00	0,00				0,00
G. Other		0,00	0,00				0,00
5. Land-Use Change and Forestry[(1)]	**-207,64**	**0,00**	**0,00**				**-207,64**
6. Waste	**5,20**	**214,15**	**0,29**				219,64
A. Solid Waste Disposal on Land	0,00	214,15					214,15
B. Wastewater Handling		0,00	0,00				0,00
C. Waste Incineration	5,20	0,00	0,29				5,49
D. Other	0,00	0,00	0,00				0,00
7. Other *(please specify)* ---	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
							0,00
Memo Items:							
International Bunkers	**509,59**	**0,41**	**4,40**				**514,40**
Aviation	330,02	0,05	2,89				332,95
Marine	179,57	0,36	1,51				181,45
Multilateral Operations	**NO**	**0,00**	**0,00**				**0,00**
CO_2 Emissions from Biomass	**11,99**						**11,99**

[(1)] For CO_2 emissions from Land-Use Change and Forestry the net emissions are to be reported. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+).
[(2)] See footnote 4 to Summary 1.A of this common reporting format.

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 emissions	CO_2 removals	Net CO_2 emissions / removals	CH_4	N_2O	Total emissions
Land-Use Change and Forestry	CO_2 equivalent (Gg)					
A. Changes in Forest and Other Woody Biomass Stocks	0,00	-84,04	-84,04			-84,04
B. Forest and Grassland Conversion	0,00		0,00	0,00	0,00	0,00
C. Abandonment of Managed Lands	0,00	0,00	0,00			0,00
D. CO_2 Emissions and Removals from Soil	0,00	0,00	0,00			0,00
E. Other	0,00	-123,60	-123,60	0,00	0,00	-123,60
Total CO_2 Equivalent Emissions from Land-Use Change and Forestry	0,00	-207,64	-207,64	0,00	0,00	-207,64

Total CO_2 Equivalent Emissions without Land-Use Change and Forestry [(a)]	3.459,31
Total CO_2 Equivalent Emissions with Land-Use Change and Forestry [(a)]	3.251,67

[(a)] The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report emissions and removals from Land-Use Change and Forestry. Note that these totals will differ from the totals reported in Table 10s5 if Parties report non-CO2 emissions from LUCF.

TABLE 10 EMISSIONS TRENDS (CO_2)
(Sheet 1 of 5)

Iceland
2003
2005

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year[1]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	(Gg)														
1. Energy	**0,00**	**1.672,56**	**1.626,52**	**1.751,21**	**1.811,54**	**1.775,22**	**1.776,42**	**1.869,62**	**1.915,47**	**1.877,33**	**1.906,72**	**1.808,95**	**1.781,97**	**1.854,15**	**1.796,72**
A. Fuel Combustion (Sectoral Approach)	0,00	1.672,56	1.626,52	1.751,21	1.811,54	1.775,22	1.776,42	1.869,62	1.915,47	1.877,33	1.906,72	1.808,95	1.781,97	1.854,15	1.796,72
1. Energy Industries		20,70	22,28	21,29	22,35	22,22	24,61	20,00	15,27	37,64	20,64	14,41	14,54	15,13	14,07
2. Manufacturing Industries and Construction		361,05	284,81	337,47	364,58	344,58	356,76	400,10	467,81	441,43	466,69	419,46	451,59	452,83	424,87
3. Transport		600,13	611,43	621,54	622,17	624,79	600,44	590,81	602,47	605,24	626,84	629,42	640,06	643,65	666,71
4. Other Sectors		690,56	707,87	770,13	801,03	783,53	793,00	858,33	829,89	788,06	788,18	741,05	656,26	720,24	675,62
5. Other		0,12	0,14	0,78	1,42	0,10	1,62	0,38	0,03	4,95	4,36	4,61	19,53	22,30	15,45
B. Fugitive Emissions from Fuels	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
1. Solid Fuels		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
2. Oil and Natural Gas		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
2. Industrial Processes	**0,00**	**392,66**	**359,37**	**362,43**	**409,86**	**410,71**	**427,14**	**426,21**	**484,91**	**512,73**	**659,07**	**765,57**	**803,55**	**822,27**	**824,33**
A. Mineral Products		52,34	48,71	45,74	39,73	37,45	37,96	41,87	46,64	54,49	61,52	65,57	58,77	40,56	33,08
B. Chemical Industry		0,36	0,31	0,25	0,24	0,35	0,46	0,40	0,44	0,40	0,43	0,41	0,49	0,45	0,48
C. Metal Production		339,96	310,34	316,43	369,89	372,91	388,72	383,94	437,83	457,84	597,12	699,60	744,28	781,25	790,78
D. Other Production		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
E. Production of Halocarbons and SF_6															
F. Consumption of Halocarbons and SF_6															
G. Other															
3. Solvent and Other Product Use		**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
4. Agriculture	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
A. Enteric Fermentation		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B. Manure Management		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C. Rice Cultivation		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
D. Agricultural Soils [2]		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
E. Prescribed Burning of Savannas		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Field Burning of Agricultural Residues		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Other		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
5. Land-Use Change and Forestry [3]	**0,00**	**-7,96**	**-19,08**	**-31,73**	**-46,84**	**-59,00**	**-70,42**	**-82,01**	**-98,88**	**-114,24**	**-135,19**	**-156,35**	**-172,70**	**-192,89**	**-207,64**
A. Changes in Forest and Other Woody Biomass Stocks		-4,84	-11,00	-17,60	-24,20	-30,36	-36,08	-41,36	-46,20	-51,92	-58,52	-64,68	-70,40	-77,44	-84,04
B. Forest and Grassland Conversion															
C. Abandonment of Managed Lands															
D. CO_2 Emissions and Removals from Soil															
E. Other		-3,12	-8,08	-14,13	-22,64	-28,64	-34,34	-40,65	-52,68	-62,32	-76,67	-91,67	-102,30	-115,45	-123,60
6. Waste	**0,00**	**18,84**	**18,69**	**18,19**	**15,49**	**14,27**	**12,59**	**11,28**	**10,87**	**9,21**	**7,53**	**7,08**	**6,57**	**6,10**	**5,20**
A. Solid Waste Disposal on Land		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
B. Waste-water Handling		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C. Waste Incineration		18,84	18,69	18,19	15,49	14,27	12,59	11,28	10,87	9,21	7,53	7,08	6,57	6,10	5,20
D. Other		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
7. Other *(please specify)* ---	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
Total Emissions/Removals with LUCF [4]	**0,00**	**2.076,11**	**1.985,50**	**2.100,09**	**2.190,05**	**2.141,20**	**2.145,73**	**2.225,10**	**2.312,37**	**2.285,03**	**2.438,13**	**2.425,26**	**2.419,38**	**2.489,62**	**2.418,62**
Total Emissions without LUCF[4]	**0,00**	**2.084,07**	**2.004,58**	**2.131,82**	**2.236,89**	**2.200,20**	**2.216,15**	**2.307,11**	**2.411,25**	**2.399,27**	**2.573,32**	**2.581,61**	**2.592,08**	**2.682,51**	**2.626,26**
Memo Items:															
International Bunkers	**0,00**	**318,65**	**259,64**	**263,56**	**293,02**	**307,10**	**380,15**	**395,45**	**440,80**	**514,67**	**527,25**	**626,29**	**498,17**	**517,17**	**509,59**
Aviation		219,65	221,99	203,62	195,64	213,62	236,15	271,51	292,12	338,13	363,37	407,74	349,13	309,85	330,02
Marine		99,00	37,65	59,95	97,38	93,49	144,00	123,95	148,68	176,54	163,88	218,55	149,04	207,32	179,57
Multilateral Operations		**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
CO_2 Emissions from Biomass		28,26	28,04	27,28	23,23	21,41	18,88	16,92	16,31	13,67	11,17	12,38	9,85	9,15	7,76

[1] Fill in the base year adopted by the Party under the Convention, if different from 1990.
[2] See footnote 4 to Summary 1.A of this common reporting format.
[3] Take the net emissions as reported in Summary 1.A of this common reporting format. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+).
[4] The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report CO_2 emissions and removals from Land-Use Change and Forestry.

TABLE 10 EMISSION TRENDS (SUMMARY)
(Sheet 5 of 5)

Iceland
2003
2005

GREENHOUSE GAS EMISSIONS	Base year[1]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	CO_2 equivalent (Gg)														
Net CO_2 emissions/removals	0,00	2.076,11	1.985,50	2.100,09	2.190,05	2.141,20	2.145,73	2.225,10	2.312,37	2.285,03	2.438,13	2.425,26	2.419,38	2.489,62	2.418,62
CO_2 emissions (without LUCF) [6]	0,00	2.084,07	2.004,58	2.131,82	2.236,89	2.200,20	2.216,15	2.307,11	2.411,25	2.399,27	2.573,32	2.581,61	2.592,08	2.682,51	2.626,26
CH_4	0,00	413,11	414,99	417,09	424,83	440,28	466,16	478,19	482,44	487,88	494,61	487,61	489,50	472,96	471,65
N_2O	0,00	359,97	350,03	328,51	336,57	341,16	338,66	356,19	355,08	353,45	372,88	348,12	341,73	308,27	301,62
HFCs	0,00	0,00	0,00	0,47	1,56	3,12	25,01	28,56	37,46	63,90	59,40	32,28	53,78	35,16	69,35
PFCs	0,00	419,63	348,34	155,28	74,86	44,57	58,84	25,15	82,36	180,13	173,21	127,16	91,66	72,54	59,78
SF_6	0,00	5,38	5,38	5,38	5,38	5,38	5,38	5,38	5,38	5,38	5,38	5,38	5,38	5,38	5,38
Total (with net CO_2 emissions/removals)	**0,00**	**3.274,20**	**3.104,24**	**3.006,81**	**3.033,25**	**2.975,70**	**3.039,78**	**3.118,57**	**3.275,08**	**3.375,77**	**3.543,61**	**3.425,81**	**3.401,43**	**3.383,94**	**3.326,39**
Total (without CO_2 from LUCF) [6] [8]	**0,00**	**3.282,16**	**3.123,32**	**3.038,54**	**3.080,09**	**3.034,70**	**3.110,20**	**3.200,58**	**3.373,96**	**3.490,01**	**3.678,80**	**3.582,16**	**3.574,13**	**3.576,83**	**3.534,03**

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year[1]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	CO_2 equivalent (Gg)														
1. Energy	0,00	1.703,95	1.657,47	1.782,09	1.844,01	1.807,82	1.818,86	1.912,20	1.968,26	1.930,53	1.970,72	1.872,62	1.844,66	1.916,25	1.861,44
2. Industrial Processes	0,00	866,64	760,40	565,92	536,28	508,68	559,12	535,15	651,81	798,42	933,91	935,95	933,68	936,31	959,77
3. Solvent and Other Product Use	0,00	6,00	4,87	4,77	4,71	3,88	4,71	4,71	4,71	4,96	4,68	4,53	4,03	4,03	3,72
4. Agriculture	0,00	571,16	558,34	533,55	536,35	542,97	523,06	535,92	535,70	542,14	547,50	528,96	525,67	502,78	489,45
5. Land-Use Change and Forestry [7]	0,00	-7,96	-19,08	-31,73	-46,84	-59,00	-70,42	-82,01	-98,88	-114,24	-135,19	-156,35	-172,70	-192,89	-207,64
6. Waste	0,00	134,42	142,24	152,21	158,73	171,36	204,45	212,59	213,48	213,96	221,98	226,10	228,36	217,46	219,64
7. Other	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

[6] The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report CO_2 emissions and removals from Land-Use Change and Forestry.

[7] Net emissions.

[8] The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report emissions and removals from Land-Use Change and Forestry. Note that these totals will differ from the totals reported in Table Summary2 if Parties report non-CO2 emissions from LUCF.