



COMPLIANCE COMMITTEE

CC/ERT/ARR/2009/11
18 February 2009

**Report of the individual review of the greenhouse gas inventories of Iceland
submitted in 2007 and 2008**

Note by the secretariat

The report of the individual review of the greenhouse gas inventories of Iceland submitted in 2007 and 2008 was published on 17 February 2009. For purposes of rule 10, paragraph 2, of the rules of procedure of the Compliance Committee (annex to decision 4/CMP.2, as amended by decision 4/CMP.4), the report is considered received by the secretariat on the same date. This report, FCCC/ARR/2008/ISL, contained in the annex to this note, is being forwarded to the Compliance Committee in accordance with section VI, paragraph 3, of the annex to decision 27/CMP.1.



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* In the symbol for this document, 2008 refers to the year in which the inventory was submitted, and not to the year of publication.

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I. Overview

A. Introduction

1. This report covers the centralized review of the 2007 and 2008 greenhouse gas (GHG) inventory submissions of Iceland, coordinated by the UNFCCC secretariat, in accordance with decision 22/CMP.1. In accordance with the conclusions of the twenty-seventh session of the Subsidiary Body for Implementation at its twenty-seventh session,¹ the focus of the review is on the most recent (2008) submission. The review took place from 22 to 27 September 2008 in Bonn, Germany, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: generalists – Mr. Michael McGettigan (Ireland), Mr. Paul Filliger (Switzerland); energy – Mr. Hongwei Yang (China), Mr. Tinus Pulles (Netherlands); industrial processes – Mr. Koen Smekens (Belgium), Mr. Dušan Vacha (Czech Republic); agriculture – Mr. Steen Gyldenkaerne (Denmark), Mr. Mahmoud Medany (Egypt); land use, land-use change and forestry (LULUCF) – Mr. Sandro Federici (Italy), Mr. Peter Stephens (New Zealand); and waste – Mr. José Villarin (Philippines), Mr. Hiroyuki Ueda (Japan). Mr. McGettigan and Mr. Villarin were the lead reviewers. The review was coordinated by Mr. Vitor Gois Ferreira and Ms. Astrid Olsson (UNFCCC secretariat).

2. In accordance with the “Guidelines for review under Article 8 of the Kyoto Protocol” (decision 22/CMP.1), a draft version of this report was communicated to the Government of Iceland, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

B. Inventory submission and other sources of information

3. The 2008 inventory was submitted on 28 April 2008 (common reporting format (CRF) tables) and 27 May 2008 (national inventory report (NIR)); it contains a complete set of CRF tables for the period 1990–2006 and an NIR. This is in line with decision 15/CMP.1. The Party indicated that the 2008 submission is also its voluntary submission under the Kyoto Protocol.² In its 2007 submission, Iceland included a complete set of CRF tables for the period 1990–2005 and an NIR. Where necessary the expert review team (ERT) also used previous years’ submissions, additional information provided during the review and other information. The full list of materials used during the review is provided in the annex to this report.

C. Emission profiles and trends

4. In 2006 (as reported in the 2008 inventory submission), the main GHG in Iceland was carbon dioxide (CO₂), accounting for 71.7 per cent of national GHG emissions³ expressed in CO₂ eq; methane (CH₄) accounted for 10.9 per cent, and nitrous oxide (N₂O) for 7.9 per cent, of total GHG emissions. Hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆) accounted for 1.5, 7.9 and 0.1 per cent of total GHG emissions, respectively. The energy sector accounted for 51.1 per cent of total GHG emissions, industrial processes for 31.7 per cent, agriculture for 12.1 per cent, waste for 4.9 per cent, and solvent and other product use for 0.2 per cent. Total GHG emissions amounted to 4,234.22 Gg CO₂ eq and increased by 24.2 per cent between the base year⁴ and 2006. In 2005 (as

¹ FCCC/SBI/2007/34, paragraph 104.

² Parties may start reporting information under Article 7, paragraph 1, of the Kyoto Protocol from the year following the submission of the initial report, on a voluntary basis (decision 15/CMP.1).

³ In this report the term “total GHG emissions” refers to the aggregated national GHG emissions expressed in terms of CO₂ eq excluding LULUCF, unless otherwise specified.

⁴ Base year refers to the base year under the Kyoto Protocol, which is 1990 for all gases. The base year emissions do not include any possible emissions from deforestation; however, if applicable, these are taken into account when the assigned amount is calculated.

reported in the 2007 inventory submission), total GHG emissions amounted to 3,705.47 Gg CO₂ eq. There are differences between the shares of gases and sectors shown in the 2007 and the 2008 annual inventory submissions. The main difference relates to PFC emissions, which accounted for 0.7 per cent in the 2007 submission, but 7.9 per cent in 2008 submission. The share of CO₂ decreased from 77.5 per cent in 2007 to 71.7 per cent in 2008. The share of emissions from the industrial processes sector in total GHG emissions increased from 25.5 per cent in 2007 to 31.7 per cent in 2008.

5. Tables 1 and 2 show GHG emissions by gas and by sector, respectively.

D. Key categories

6. Iceland has reported a key category tier 1 analysis, both level and trend assessment, as part of its 2008 submission. The key category analyses performed by the Party and by the secretariat⁵ produced slightly different results owing to different disaggregation of emission sectors. The key category analysis was performed in accordance with the Intergovernmental Panel on Climate Change (IPCC) *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* (hereinafter referred to as the IPCC good practice guidance). Iceland performed a separate key category analysis for the LULUCF sector alone, but did not include it in the general key category analysis, which is not in line with the IPCC *Good Practice Guidance for Land Use, Land-Use Change and Forestry* (hereinafter referred to as the IPCC good practice guidance for LULUCF). Iceland is using the key category analysis to prioritize the development and improvement of the inventory.

7. The ERT reiterates the recommendations from previous reviews that Iceland include the LULUCF sector in its key category analysis according to the IPCC good practice guidance for LULUCF for its next submission.

E. Main findings

8. Iceland's inventory is not fully complete and not completely in line with all inventory principles in the UNFCCC "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories (hereinafter referred to as the UNFCCC reporting guidelines), the IPCC good practice guidance and the IPCC good practice guidance for LULUCF. Transparency of reporting in all sectors should be increased, especially in the energy sector where several recommendations in previous reviews are not yet implemented. Iceland plans to improve the quality assurance/quality control (QA/QC) activities for the LULUCF sector, revise LULUCF emission/removal factors for key categories, and continue with the forest inventory and research to improve estimates of forest land area and carbon stock changes. The ERT encourages Iceland to implement these improvements without delay so that reporting is fully in accordance with the IPCC good practice guidance for LULUCF.

9. In response to a previous ERT recommendation, Iceland included in its 2008 submission a well-structured QA/QC plan in the NIR. Additional work is necessary to secure full implementation of this plan. Recalculations should be better documented in the NIR, both in the sectoral chapters and in a separate chapter on overall effects of recalculations and improvements. A tier 1 key category analysis and an uncertainty analysis are provided, but the LULUCF sector is still not included in these analyses.

⁵ The secretariat identified, for each Party, the categories that are key categories in terms of their absolute level of emissions, applying the tier 1 level assessment as described in the Intergovernmental Panel on Climate Change *Good Practice Guidance for Land Use, Land-Use Change and Forestry*. Key categories according to the tier 1 trend assessment were also identified for Parties that provided a full set of CRF tables for the base year. If the Party performed a key category analysis, the key categories presented in this report follow the Party's analysis. However, they are presented at the level of aggregation corresponding to a tier 1 key category assessment conducted by the secretariat.

Table 1. Greenhouse gas emissions by gas, 1990–2006

Greenhouse gas emissions	Gg CO ₂ eq								Change base year– 2006 (%)
	Base year ^a	1990	1995	2000	2003	2004	2005	2006	
CO ₂	2 159.95	2 159.95	2 310.96	2 758.38	2 835.46	2 905.43	2 854.48	3 035.07	40.5
CH ₄	456.20	456.20	452.92	454.32	444.59	437.19	438.22	461.49	1.2
N ₂ O	367.61	367.61	346.38	355.68	301.82	300.46	307.88	335.00	–8.9
HFCs	0.00	0.00	25.01	32.28	69.35	58.40	76.74	64.06	NA
PFCs	419.63	419.63	58.84	127.16	59.78	38.58	26.09	333.22	–20.6
SF ₆	5.38	5.38	5.38	5.38	5.38	5.38	5.38	5.38	0.0

Abbreviation: NA = not applicable.

^a Base year refers to the base year under the Kyoto Protocol, which is 1990 for all gases. The base year emissions do not include any possible emissions from deforestation; however, if applicable, these are taken into account for the purpose of calculating the assigned amount.

Table 2. Greenhouse gas emissions by sector, 1990–2006

Sectors	Gg CO ₂ eq								Change base year– 2006 (%)
	Base year ^a	1990	1995	2000	2003	2004	2005	2006	
Energy	1 771.54	1 771.54	1 904.05	2 038.89	2 060.64	2 116.68	2 080.19	2 164.47	22.2
Industrial processes	866.64	866.64	559.12	949.96	959.77	949.33	944.28	1 341.37	54.8
Solvent and other product use	13.94	13.94	14.09	14.89	10.05	10.32	16.18	9.36	–32.8
Agriculture	572.87	572.87	524.38	529.76	486.13	475.82	478.80	511.72	–10.7
LULUCF	NA	1 475.69	1 395.86	1 279.95	1 218.40	1 183.66	1 154.21	1 127.21	NA
Waste	183.78	183.78	197.85	199.70	199.79	193.28	189.35	207.29	12.8
Other	NO	NO	NO	NO	NO	NO	NO	NO	NA
Total (with LULUCF)	3 408.77	4 884.46	4 595.34	5 013.14	4 934.78	4 929.10	4 863.01	5 361.43	57.3
Total (without LULUCF)	3 408.77	3 408.77	3 199.48	3 733.20	3 716.38	3 745.43	3 708.79	4 234.22	24.2

Abbreviations: LULUCF = land use, land-use change and forestry; NA = not applicable; NO = not occurring.

^a Base year refers to the base year under the Kyoto Protocol, which is 1990 for all gases. The base year emissions do not include any possible emissions from deforestation; however, if applicable, these are taken into account for the purpose of calculating the assigned amount.

In its 2008 submission Iceland provided information on the industrial process facilities for which emissions are to be reported separately according to the provisions of decision 14/CP.7, and during the review it provided substantial additional information in response to requests by the ERT. However, the information provided is not sufficient to assess whether the industrial process facilities meet all the requirements of the decision (see industrial sector section for details).

F. Cross-cutting issues

1. Completeness

10. The inventory is complete in terms of years, sectors and geographic coverage, but it is not fully complete in terms of categories and gases. Iceland has not estimated actual emissions from consumption of halocarbons and SF₆. It has not provided CRF tables 7 (key categories), 8(b) (explanations of recalculations) and 9(a) (explanations on categories not estimated and categories included elsewhere).

11. The ERT encourages Iceland to estimate actual emissions of HFCs and SF₆, to report complete CRF tables 7, 8(b) and 9(a) in the next inventory submission, and to provide estimates for all categories not estimated for which methodologies are provided in the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* (hereinafter referred to as the Revised 1996 IPCC Guidelines), the IPCC good practice guidance or the IPCC good practice guidance for LULUCF. The emissions of N₂O from drainage reported under LULUCF should be reported as N₂O from the cultivation of organic soils under agriculture.

2. Transparency

12. The NIR and CRF are sufficiently transparent to allow the ERT to assess in general the data and methodologies applied. The ERT also commends Iceland for the improvements in documentation achieved in past years. However, the ERT notes a number of areas where transparency could still be improved in the NIR. These include the provision of methodological descriptions for the energy sector, better documentation on recalculations by including information about any recalculations in each sector, a separate chapter in the NIR on general recalculations and improvements, as recommended in the UNFCCC reporting guidelines, and a description of sector-specific QA/QC procedures.

3. Recalculations and time-series consistency

13. The ERT noted that recalculations reported by Iceland for the period 1990–2005 have been undertaken to take into account, in particular, the use of new activity data collected by the National Energy Authority (NEA), including historical consumption data from the oil companies, revision of the allocation of total forest land by subcategories according to new data, first time (submission 2007) estimation of emissions for the solvent and other product use sector, and revision of emission estimates for some categories in the agriculture and waste sectors which are not documented. Major sectoral changes include an increase of GHG emissions in the energy sector by 4.8 per cent in 2005, and by 4.0 per cent in 1990; a decrease of net CO₂ emissions from LULUCF by 36.2 per cent in 2005 and by 29.1 per cent in 1990; and an increase of CH₄ emissions in the waste sector by 14.6 per cent in 2005 and by 36.5 per cent in 1990. The effect on total GHG emissions is very similar in all years, averaging a 1.7 per cent annual increase.

14. The rationale for the recalculations is not provided in the NIR in a fully transparent manner, and it was not possible for the ERT to conclude whether these recalculations have resulted in a real improvement of the inventory. The ERT strongly recommends that Iceland include information on the rationale for, and effects of, any recalculations in each sector chapter, and also include a separate chapter in the NIR giving an overview of the recalculations and the reasons for them. The ERT also considers that completing CRF table 8(b) could also help increase transparency on recalculations.

4. Uncertainties

15. Iceland provides an IPCC tier 1 uncertainty analysis, and reports detailed information for all key categories, whereas data for non-key categories are reported at an aggregated level only. The LULUCF sector is not included in the uncertainty analysis. The level of uncertainty of total emissions is 7.4 per cent in the 2008 submission. No information on uncertainty in trend was reported in the 2008 NIR. During the review, Iceland provided a complete uncertainty table including both level and trend uncertainties. The uncertainty in the trend is 5.2 per cent. In the 2007 submission the level uncertainty has been reported as 7.5 per cent and the trend uncertainty as 5.6 per cent. Uncertainty is dominated by N₂O emissions from agricultural soils and CH₄ emissions from enteric fermentation. The ERT recommends that Iceland include the LULUCF sector in its uncertainty analysis and provide information on both level and trend in future submissions.

5. Verification and quality assurance/quality control approaches

16. The QA/QC plan is provided in annex VII to the NIR. Although the QA/QC plan gives a good overview of the QA/QC procedures, no information is available on the implementation of the plan. During the review Iceland explained that the QA/QC plan was prepared in January 2008 and therefore has not been fully implemented for the 2008 submission, but will be fully implemented for the 2009 submission. The QA/QC procedures undertaken for the 2008 submission included only checking of calculations, units and data consistency between years. The QA by independent experts has not been undertaken yet, but is planned in the newly developed QA/QC plan.

17. The ERT recommends that Iceland give priority to the implementation of the QA/QC plan, and describe sector-specific QA/QC procedures in all sectoral chapters of the NIR. The ERT supports Iceland in its intention to arrange reviews by independent national experts.

6. Follow-up to previous reviews

18. The ERT acknowledges the improvements made by Iceland, in particular the finalization of the QA/QC plan, the information provided about institutional arrangements, and the strengthening of the national system by the development of formal agreements with the NEA and the Agricultural University that define responsibilities in the inventory preparation process. The revised estimates in the energy and agricultural sectors, the first-time reported GHG emissions in the solvent and other product use sector, and the provision of voluntary information on Article 3, paragraphs 3 and 4, of the Kyoto Protocol, are also noted. Important elements recommended in previous reviews that have not been realized including the implementation of the QA/QC plan, provision of information on preparation of the energy balance, descriptions of QA/QC procedures and activities in each sectoral chapter of the NIR, development and implementation of tier 2 QC procedures, inclusion of the LULUCF sector in the key category analysis, use of higher tier methods for the estimation of key categories in line with the IPCC good practice guidance, and improvement of transparency through the provision of description of activity data (AD), emission factors (EFs), methods and recalculations. Further recommendations are included in the sectoral sections.

G. Areas for further improvement

1. Identified by the Party

19. The 2008 NIR identifies several areas for improvement, including the preparation of an energy balance, the estimation of actual emissions of HFCs, and SF₆, and the creation of a land-use database and a new forest inventory. Also under consideration are improvements to emission estimates from road transportation and the development of country-specific EFs for CH₄ from enteric fermentation.

2. Identified by the expert review team

20. The ERT identifies the following cross-cutting issues for improvement:
- (a) Improve completeness of the inventory, in particular by estimating actual emissions from consumption of halocarbons and SF₆ and by addressing the shortcomings in LULUCF reporting identified in this review;
 - (b) Include the LULUCF sector in the key category and in the uncertainty analyses;
 - (c) Improve transparency on recalculations by including more information on rationale and effects for all recalculated categories in the sectoral chapters of the NIR, and by including a chapter in the NIR that gives a complete overview of recalculations, as recommended in the UNFCCC reporting guidelines;
 - (d) Focus on finalizing all aspects of the QA/QC plan with a view to its full implementation for the 2009 submission;
 - (e) In plans for future improvements and submissions, address the categories reported as not estimated (“NE”), providing estimates of emissions and removals if methods are available, with a view to avoiding problems and possible underestimation during the commitment period;
 - (f) Continue to provide the information on the facilities under decision 14/CP.7 so that the ERT may make a full assessment under all criteria listed in the decision.
21. Recommended improvements relating to specific source/sink categories are presented in the relevant sector sections of this report.

II. Energy

A. Sector overview

22. In 2006 emissions from the energy sector amounted to 2,164.47 Gg CO₂ eq, or 51.1 per cent of total GHG emissions. The vast majority of GHG emissions (92.8 per cent) resulted from fuel combustion activities, and the remaining 7.2 per cent were CO₂ emissions from the production of geothermal energy, reported as fugitive emissions from fuels. Transport and other sectors (in particular the subcategory agriculture/forestry/fisheries) were the most important categories in the energy sector, accounting for 45.2 per cent and 25.9 per cent, respectively, of total sectoral GHG emissions; manufacturing industries and construction accounted to 18.8 per cent of sectoral emissions, energy industries for 1.8 per cent and other for 1.2 per cent. Emissions from the energy sector increased by 22.2 per cent between 1990 and 2006. The key drivers for the rise in emissions were transport (61.0 per cent) and fugitive emissions from geothermal energy (134.9 per cent), whereas emissions from the other sectors decreased by 19.7 per cent.

23. The reporting of the energy sector is generally complete, with a few categories – CO₂ and CH₄ from distribution of oil products reported as “NE”. The ERT noted that Iceland has estimated CO₂ emissions from geothermal energy although there are no methodologies available either in the Revised 1996 IPCC Guidelines or in the IPCC good practice guidance.

24. The ERT reiterates that there is a need for Iceland to improve the transparency of the reporting in the energy sector, noting that recommendations relating to transparency from previous ERTs (for example, document FCCC/ARR/2005/ISL, para. 20, and document FCCC/ARR/2006/ISL, paras. 31 and 32, contained recommendations to provide relevant information on the national energy balance and a detailed discussion of the methodology and data for estimating CO₂ from fossil fuel combustion) have not yet been adopted by Iceland.

25. Iceland uses the IPCC tier 1 approach and IPCC default EFs to estimate CO₂ emissions for all categories in the energy sector, including key categories. The ERT reiterates the recommendations from the previous reviews that Iceland collect country-specific data and apply higher tiers for key categories, in accordance with the IPCC good practice guidance.

26. Following the recommendation in the initial review report that Iceland strengthen its national system, the Environment Agency of Iceland made formal agreements with the NEA and planned future improvements in estimate of emissions from road transportation.

B. Reference and sectoral approaches

1. Comparison of the reference approach with the sectoral approach and international statistics

27. CO₂ emissions from fuel combustion were estimated using the reference and the sectoral approaches. The difference between the two approaches increased substantially from –0.4 per cent in 2005 to 17.6 per cent in 2006. The ERT recommends that Iceland investigate the reason for the fluctuation and use the reference approach analysis as a cross-checking tool to improve the quality of the inventory.

2. International bunker fuels

28. The data on consumption of fuels in international aviation, as reported in CRF table 1.C, are comparable to the International Energy Agency (IEA) data for most years in the period 1990–2006, except for the stock changes for liquid fuels, which are reported in the CRF but not to the IEA. During the review the following differences were identified between data reported by the Party to the IEA and the corresponding values reported in the CRF: +100 per cent for aviation gasoline, +35.1 per cent for jet kerosene, –66.4 per cent for residual fuel oil and –9.0 per cent for gas/diesel oil. Iceland mentioned that the NEA and the Environment Agency are planning to cross-check and harmonize the energy balance. The ERT recommends that Iceland provide information in the next NIR on the results of these activities.

3. Feedstocks and non-energy use of fuels

29. Iceland reported feedstocks and non-energy use of fuels in CRF table 1.A.(d), providing fuel quantity, implied emission factors (IEFs) and carbon stored for lubricants, bitumen, coke oven/gas coke, other bituminous coal and petroleum coke. However, the ERT notes that the reporting on methodologies used to determine the quantity of fuel in feedstock and non-energy use that is emitted as CO₂ or stored in products is not transparent. The ERT recommends that Iceland provide explanations on the procedures it is using to make a distinction between emissions and stored carbon.

4. Country-specific issues

30. The ERT acknowledges Iceland's efforts to provide estimates of CO₂ emissions from geothermal energy production since the 2006 submission. Geothermal energy is Iceland's unique feature in terms of both primary energy supply and GHG emissions. However, the ERT notes that Iceland did not provide information on the methodologies, AD and EFs for the estimates. The ERT encourages Iceland to provide such information to improve transparency for this category in the next submission.

C. Key categories

1. Stationary combustion: liquid, solid – CO₂

31. The CO₂ IEF for liquid fuels for public electricity and heat production declined by 1.8 per cent between 1990 and 2006, although Iceland reports using IPCC default values in the NIR. The ERT analysed the IEA statistics and concluded that the decline in IEF could be explained by the increase in the share of use of light fuels in more recent years. The ERT recommends that Iceland provide an explanation for this decrease in its next NIR.

32. Iceland provided disaggregated data for three subcategories (mineral industry, construction, other non-specified) under manufacturing industries and construction. There are large inter-annual variations in CO₂ IEFs for both liquid and solid fuels, and all IEFs are lower than the IPCC default values. The IEFs for mineral industry and construction are relatively constant for all years, whereas the IEFs for other non-specified decreased between 40 and 70 per cent in the period 2003–2005. The ERT recommends that Iceland provide appropriate explanations in its next NIR.

33. CO₂ emissions from subcategory fisheries dominate the emissions from agriculture/forestry/fisheries (99.0 per cent in 2006). The ERT noted that Iceland shows a good example of how transparency can be achieved, providing information about the mix of categories and explanations on fluctuations (page 37 of the NIR). The ERT encourages Iceland to extend this transparent reporting practice to all other categories of the energy sector.

2. Road transportation: liquid – CO₂, N₂O

34. As identified in previous reviews, the CO₂ IEF for gasoline is 68.61 t/TJ for all years from 1990 to 2006, although Iceland stated in the NIR that it uses the IPCC default value (73.00 t/TJ). The ERT recommends that Iceland clarify how it is deriving this EF and provide necessary explanations in the next NIR.

35. The N₂O IEF for gasoline increased by 793.3 per cent between 1990 and 2006, and there are some large inter-annual changes: 204.0 per cent in 1994/1995, 67.3 per cent in 1996/1997 and 50.1 per cent in 1998/1999. There is no explanation for these changes in the NIR or in the CRF. The ERT recommends that Iceland verify these inter-annual variations and the overall trend, and provide necessary explanations in its next NIR.

D. Non-key categories

Stationary combustion: biomass – CO₂, CH₄, N₂O

36. IEA statistics indicate that liquid biomass (12 TJ) and municipal solid waste (renewables) (49 TJ) were used as fuels in electricity and heat plants in 2006. However, in the CRF biomass was reported as “NO”, total CO₂ emissions from biomass under memo items were reported as “NA,NO”, and CO₂, CH₄ and N₂O emissions from biomass were reported as “NO” for all categories in the energy sector. The ERT recommends that Iceland clarify whether biomass is used for electricity and heat production in its next submission, and provide relevant data in both the NIR and the CRF. In addition, the ERT recommends that Iceland provide explanations for differences with IEA statistics.

III. Industrial processes and solvent and other product use

A. Sector overview

37. In 2006 emissions from the industrial processes sector amounted to 1,341.37 Gg CO₂ eq, or 31.7 per cent of total GHG emissions, and emissions from the solvent and other product use sector amounted to 9.36 Gg CO₂ eq, or 0.2 per cent of total GHG emissions.

38. Between 1990 and 2006 emissions from the industrial processes sector increased by 54.8 per cent and emissions from the solvent and other product use sector decreased by 32.8 per cent. The key contributors to the rise in emissions are CO₂ and PFC emissions from aluminium production and CO₂ emissions from ferroalloy production.

39. Iceland reports emissions from the industrial processes and solvent and other product use sectors according to the Revised 1996 IPCC Guidelines and the IPCC good practice guidelines. However, transparency, consistency and completeness of reporting in the NIR and CRF tables could be improved, particularly for key categories. The major shortcoming of the 2008 submission is the lack of estimates of

actual emissions for consumption of halocarbons and SF₆. Potential emissions are reported, based on import and export data for the substances.

40. It is also not clear which QA/QC procedures have been applied. Considering that in Iceland, in particular, industrial process categories often relate to only a single industrial facility, but being aware of the large contribution of these categories to sectoral and national emissions, the ERT recommends that Iceland report more clearly on the applied QA/QC.

41. The major difference between the 2007 and 2008 submission for this sector, and leading to recalculations, was the inclusion of CO₂ emissions from solvent and other product use, in response to the recommendation made during the in-country review in 2007, together with N₂O emission data on new categories for this sector. GHG emissions for all years increased by 200–300 per cent in the solvent and other product use sector between the two submissions. However, the impact on total GHG emissions was limited to an increase of 0.2–0.3 per cent for all years.

42. The following categories were reported as “NE”: CO₂ from road paving with asphalt, CO₂ from food and drink, CH₄ and N₂O from mineral wool production, CH₄ from fertilizer production, CH₄ and N₂O from silicon production, CH₄ from aluminium production, N₂O from fire extinguishers and N₂O from aerosol cans. Iceland reports that there are no emissions from production of halocarbons and SF₆.

B. Key categories

1. Aluminium production – CO₂

43. CO₂ emissions from aluminium production made up 37.8 per cent of sector GHG emissions, or 12.0 per cent of total GHG emissions. Owing to increases in aluminium production, CO₂ emissions in this category increased by 271.4 per cent between 1990 and 2006. Iceland is encouraged to continue to report on the use of electrodes and their carbon content.

2. Aluminium production – PFC

44. Following recommendations from the previous review, Iceland has provided in the NIR more detailed information on AD and anode effect duration. During the review, Iceland explained that technical difficulties during the expansion of one aluminium plant in 2006 caused the increase of CF₄ and C₂F₆ emissions, together, from 26.1 to 333.2 Gg CO₂ eq between 2005 and 2006. The ERT recommends that Iceland provide further explanations in the next submission and compare the emission estimates with measurements made in 1997 and 2001; such a comparison would confirm that the estimates are comparable to the actual emissions.

3. Consumption of halocarbons and SF₆ – HFCs

45. Iceland is reporting only potential emissions for this key category, although in 2006 emissions from this category made up 5.1 per cent of total GHG emissions. The ERT reiterates the recommendation made in previous review reports, that Iceland also calculate and include actual emissions in the next submission.

4. Cement production – CO₂

46. CO₂ emissions from cement production, contributing 4.6 per cent to the sectoral GHG emissions, or 1.4 per cent to the total GHG emissions, increased by 18.4 per cent from the base year to 2006 and were estimated in accordance with the IPCC good practice guidance. Iceland is reporting different values for AD in the NIR and the CRF tables for all years in the period 1990–2004. The ERT recommends that Iceland report consistent AD for the whole time series in both the NIR and the CRF. The ERT also suggests that Iceland improve completeness of the reporting by providing the calcium oxide content in clinker for the whole time series, and improve the transparency by explaining the increased cement kiln dust correction factor since 2005.

C. Non-key categories

Solvent and other product use – CO₂

47. The ERT encourages Iceland to provide more transparent information on the categories and AD of the reported emissions under category other (3.D.5) and to explain the large inter-annual variations in CO₂ emissions, for example, an increase of 209.5 per cent in 2004/2005 and a decrease of 83.7 per cent in 2005/2006.

D. Information provided under decision 14/CP.7

48. In its 2008 submission Iceland has provided information on a voluntary basis in order to fulfil the requirements of decision 14/CP.7 concerning the “Impact of single projects on emissions in the commitment period” (annex VI of the NIR). Iceland identified three single projects, under ferroalloy and aluminium production, and provided some of the information required under decision 14/CP.7. Although Iceland is commended for providing more information on AD and emissions from these three single projects during the review, the ERT could not assess the fulfilment of all the requirements set out in paragraph 2 (particularly subparagraphs (b) and (c)) of decision 14/CP.7. The ERT encourages Iceland to provide, on a voluntary basis, in its next NIR, more detailed information about single projects as defined by decision 14/CP.7, such as EFs, extent of GHG emission reductions resulting from the use of renewable energy, and how best available technologies and best environmental practices are applied. Iceland is also encouraged to clarify, for single projects defined as expansions, what part is considered an expansion and what part existed in and remains of the original facility.

IV. Agriculture

A. Sector overview

49. In 2006 emissions from the agriculture sector amounted to for 511.72 Gg CO₂ eq, or 12.1 per cent of total GHG emissions. Emissions from the sector decreased by 10.7 per cent between 1990 and 2006. The key drivers for the fall are the reductions in the populations of dairy cattle and the related offspring, resulting in lower emissions of CH₄ from enteric fermentation, N₂O from manure management and N₂O from nitrogen input from manure applied to soils. Within the sector 46.2 per cent of emissions were from enteric fermentation, 44.1 per cent were from agricultural soils and 9.6 per cent were from manure management. Most of the emissions from the agricultural sector came from cattle, which accounted for 21.7 per cent of the sector emissions; sheep accounted for 21.4 per cent, and direct and indirect emissions accounted for about 18 per cent each.

50. The AD for the number of animals for the major animal types are data from The Farmers Association of Iceland, in which livestock numbers are often higher than those given by Statistics Iceland. Analysing production statistics for Iceland, the ERT concludes that the animal numbers used as AD in emission estimates are consistent with the requirements under the IPCC good practice guidance. The ERT recommends that Iceland, in the next submission, explain and discuss the use of these data instead of officially reported data, and also describe how the data were used in the emission estimates.

51. Since the 2004 submission Iceland has been planning to develop country-specific values for feed consumption and nitrogen excretion rates. This has not been done yet. The ERT is of the opinion that the currently used factors are not appropriate for Icelandic conditions (see the comments for CH₄ emissions from enteric fermentation and N₂O emissions from manure management). To improve transparency, the ERT recommends that Iceland improve the characterization of livestock and crops in its next submission, and advance to higher tiers for the most important animal types.

B. Key categories

1. Enteric fermentation – CH₄

52. Iceland used a tier 1 methodology to estimate CH₄ from enteric fermentation for dairy cattle, and states in the NIR that CH₄ emissions are overestimated by the use of the IPCC default value (100 kg CH₄/head/year). According to statistical data from Iceland, milk production from dairy cows in 2006 was about 5,500 litres/head/year, which is 1,300 litres more than the value from which the default IPCC value was derived. Because Icelandic farmers use feeding recommendation from the Nordic corporation, Norfor (<www.Norfor.info>), the ERT recommends that Iceland implement a tier 2 method for dairy cattle and other cattle, using country-specific data and the Norfor feeding recommendations.

53. For sheep (which account for 41.5 per cent of total emissions from enteric fermentation), Iceland is using a tier 1 method. Considering the relevance of emissions from sheep, Iceland is encouraged to investigate the possibilities of using a tier 2 method.

2. Manure management – N₂O

54. Iceland is using country-specific N-excretion rates for all animals, based on data from 1991. These are low compared to the default values in the Revised 1996 IPCC Guidelines for Western Europe and similar countries, such as Norway. Iceland is reporting an N-excretion rate of 60 kg N/head/year for dairy cattle based on productivity data from 1991, although milk production has increased by more than 40 per cent since 1990. Based on latest data on productivity levels for Iceland, the ERT estimates that a suitable N-excretion rate for dairy cows should now be close to 90–100 kg N/head/year, indicating that there is a potential underestimation of emissions in more recent years. Iceland is recommended to update all N-excretion ratios, consistent with feeding and productivity data, and to revise emission estimates accordingly for all years.

3. Direct emissions from agricultural soils – N₂O

55. N₂O emissions from agricultural use of organic soils are reported as “NE”. In the NIR (page 69) Iceland stated that “this source is not estimated separately but included under emission from organic grassland soils”. During the review, Iceland explained that emissions are included in the LULUCF sector under grassland as wetlands converted to grassland and that the correct notation key should be the included elsewhere (“IE”) key. Most of the organic soils under agriculture cultivation were drained in the period from 1950 to 1980. Nevertheless, the NIR (page 99) states that these soils are still in a transition phase as “the areas have generally not reached the same level of carbon as grassland mineral soils”. The total emissions from these soils have been estimated to be 0.319 Gg CO₂ eq., or 7.5 per cent of total GHG emissions. In the LULUCF chapter of the NIR (page 94) it is stated that “Cropland in Iceland consists mainly of cultivated hayfields, many of which are on drained organic soils” and “The majority of land classified as cropland in Iceland is hayfields with perennial grasses only ploughed or harrowed at decade intervals”. The ERT recommends that Iceland reconsider its reporting of these emissions under non-CO₂ emissions from drainage of soils and wetlands (grassland organic soils) and allocate them in the category cultivation of histosols.

C. Non-key categories

Manure management – CH₄

56. Iceland estimates emissions of CH₄ from manure management using the IPCC tier 1 method and EF_s from the Revised 1996 IPCC Guidelines for Western Europe, cool climate region. Iceland reports in its NIR that these factors may be too high for native Icelandic livestock, in particular, sheep and horses. The ERT recommends that Iceland further assess the appropriateness of these factors in future submissions by undertaking national research in this area, subject to the availability of resources, for the next inventory submission.

V. Land use, land-use change and forestry

A. Sector overview

57. Iceland provided a LULUCF inventory in accordance with the UNFCCC reporting guidelines and the IPCC good practice guidance for LULUCF. In 2006, emissions from the LULUCF sector amounted to 1,127.21 Gg CO₂ eq. Emissions decreased by 23.6 per cent between 1990 and 2006. The key driver for the fall in emissions was the increased removals in the categories other (revegetation) and forest land. Net removals in other (revegetation) have increased by 86.4 per cent since 1990 and removals from forest land increased by 312.0 per cent over the same period. Within the LULUCF sector, 80.8 per cent of the net GHG emissions were from grasslands, 12.4 per cent were from other (revegetation) and 7.1 per cent were from forest land; the remaining 1.3 per cent of net emissions were from croplands and wetlands. Most of the net emissions were CO₂, which accounted for 70.2 per cent of the sectoral emissions/removals; N₂O accounted for 28.8 per cent and CH₄ for 1.0 per cent.

58. The following are reported as “NE”: carbon stock decreases in living biomass, net carbon stock change in dead organic matter and net carbon stock change in mineral soils for forest land remaining forest land and land converted to forest land; most carbon pools in cropland; carbon stock change in living biomass and mineral soils for grassland remaining grassland and cropland converted to grassland; all carbon pools except the soil pool for wetlands; all settlement and all other land carbon pools; non-CO₂ emissions from drainage of mineral soils; all N₂O emissions from disturbance associated with land-use conversion to cropland; and wherever the area of biomass burning was unknown. The ERT encourages the Party to improve the completeness of its inventory by providing estimates and relevant information for these categories.

59. The NIR is not fully transparent in some aspects. Iceland has stated that the land-use mapping programme is under way and that a geographical database is being developed for reporting of the LULUCF sector. The land categories have yet to be formally decided. Information is lacking on the approach used for land-use change detection and on methodologies, assumptions and data used for carbon stock change estimates for each of the reported land uses. Iceland has used the “NA” notation key for carbon stock change in living biomass pools for cropland remaining cropland and for carbon stock change in living biomass for wetlands converted to grasslands, whereas the use of the “NO” and/or the “NE” notation key would be more consistent with the UNFCCC reporting guidelines. The ERT recommends that Iceland revise the use of notation keys.

60. The key category analysis reported for the LULUCF sector is undertaken separately and not as part of the overall key category analysis as required by the IPCC good practice guidance. Iceland has plans to improve the QA/QC activities for the LULUCF sector, revise LULUCF emission/removal factors for key categories, and continue with forest inventory and research to improve estimates of forest land area and carbon stock changes. The ERT encourages Iceland to implement these planned improvements in accordance with the IPCC good practice guidance for LULUCF.

61. In the 2008 submission Iceland has improved the structure of information that had been reported in the 2007 submission. The main changes are:

- (a) In previous submissions all land except new afforestation for the inventory year has been reported as land remaining in the relevant land use category. In the 2008 submission some of this land is allocated to land converted to the relevant category;
- (b) Time series for land conversion are provided for some categories in the latest submission although this is still incomplete. Four types of land conversion are reported: grassland converted to forest land, wetlands converted to grassland, grassland converted to wetlands and other land converted to wetlands;

- (c) The extent of drainage of peat land has been revised based on a new estimate of the length of ditches;
- (d) Time series for land flooded by the building of reservoirs has been established and information on type of land flooded obtained;
- (e) Land-use data are also structured differently compared to previous submissions. For three land-use categories part of land previously reported as land remaining in the category is now reported as land being converted. This applies to forest plantations up to 20 years old, drained wetlands and flooded land.

B. Key categories

Other (revegetation) – CO₂

62. Revegetation, covering about 3 per cent of the country, is reported in category other (5.G), and table 5.G was prepared and included in the NIR (page 107). Revegetated land remaining revegetated land was further divided into “after 1990” and “before 1990” subcategories, and the ERT considers that the former subcategory would be better reported under “land converted to revegetated land”. Considering that revegetation in Iceland often involves converting previously unvegetated areas (‘other land’) into grassland (page 99 of the 2008 NIR) the ERT recommends that Iceland report revegetation in the category grassland to accord with the UNFCCC reporting guidelines. In reporting in this manner, Iceland should apply the relevant methodologies provided in the IPCC good practice guidance for LULUCF in order to transparently estimate carbon stock changes and reconstruct a complete time series.

C. Non-key categories

1. Forest land – CO₂

63. The Party reports four forest land subcategories: “native birch” and “plantations older than 20 years” in forest land remaining forest land, and “plantations 1–20 years old” and “plantations for inventory year” in grassland converted to forest land. Further, the Party is reporting only carbon stock gains in living biomass and not any carbon stock losses in living biomass. Iceland is estimating the area converted to forest annually according to the number of seedlings provided by tree nurseries. The ERT encourages Iceland to improve estimates of those areas and provide estimates of all carbon stock changes in accordance with the IPCC good practice guidance for LULUCF.

2. Biomass burning – N₂O

64. The Party used an IEF of 0.0003 Mg N₂O/ha without referencing it. Considering that the value is low in comparison with the default value in the IPCC good practice guidance for LULUCF, the ERT recommends that the Party provide explanations and documentation for the applied EF.

3. Direct N₂O emissions from N fertilization – N₂O

65. The Party reported direct N₂O emissions from N fertilization in forest land for 2005 and 2006. However, for the previous years in the time series Iceland reported these emissions as “IE”. The ERT urges the Party to provide a complete time series using a methodology consistent with the IPCC good practice guidance.

4. N₂O emissions from disturbance associated with land use conversion to cropland – N₂O

66. The Party has reported these emissions as “NE” with text in the documentation box indicating that this activity is occurring. The ERT recommends that the Party make efforts to provide estimates in accordance with IPCC good practice guidance for LULUCF.

5. Non-CO₂ emissions from drainage of soils and wetlands

67. The Party has used a range of IEFs between 0.55 and 0.61 kg N₂O-N/ha for organic soils for forest land, and between 1.76 and 1.8 kg N₂O-N/ha for grassland organic soils. The ERT suggests that Iceland provide documentation for the IEFs used and justification for not using the IPCC default of 0.60. Further, considering that grassland organic soils are part of the Icelandic agriculture area, the ERT believes that Iceland should report these emissions in the agriculture sector instead of in the LULUCF sector.

VI. Information on activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol

68. Iceland provided information under Article 3, paragraphs 3 and 4, of the Kyoto Protocol in accordance with decision 15/CMP.1. This was voluntarily provided and did not meet all of the reporting requirements from paragraphs 5–9 of the annex to decision 15/CMP.1. Iceland stated in its NIR that it plans several improvements for determining areas of land-use categories and methods to determine carbon sequestration associated with revegetation – Iceland's elected Article 3.4 activity. It is expected that deficiencies in the Kyoto reporting will be addressed by these planned improvements. In making these improvements the ERT suggests that Iceland pay particular attention to ensuring that reporting under reporting method 1 is unbiased and transparent. Further, if Icelandic Soil Conservation is providing the carbon sequestration information associated with revegetation activities, the approach used needs to be transparently documented, and subject to independent audit.

VII. Waste

A. Sector overview

69. In 2006, emissions from the waste sector amounted to 207.29 Gg CO₂ eq, or 4.9 per cent of total GHG emissions. Emissions from the sector increased by 12.8 per cent between 1990 and 2006. The key driver for the rise in emissions was solid waste disposal on land. Within the sector, 87.4 per cent of emissions were from solid waste disposal on land, 12.1 per cent were from wastewater handling, and 0.5 per cent were from waste incineration.

70. The main differences between the 2007 and 2008 submissions were on the calculation of municipal solid waste AD for the years prior to 1995, the use of recognized international scientific literature in the computation of emissions from wastewater handling, and the inclusion of CH₄ emissions from industrial wastewater, specifically from industrial food activity.

B. Key categories

Solid waste disposal on land – CH₄

71. For determination of the AD for municipal solid waste for 1950 to 1994, Iceland used a method based on gross domestic product (GDP). In its 2007 submission, Iceland used 2004 as reference year for this extrapolation, and in its 2008 submission it used 1995, with a brief explanation in the NIR for this change (page 113). As stated in the NIR, this resulted in AD estimates prior to 1995 that are larger than in the 2007 submission. In this new extrapolation, however, the incremental changes in AD for municipal solid waste (MSW) from 1992 to 1993 (i.e. 345 to 346 Gg) and from 1994 to 1995 (357 to 358 Gg) are small, thus raising concerns about time-series consistency. To avoid time-series inconsistency, the ERT also recommends that Iceland compare its GDP method with the use of other drivers, such as population or a combination of economic factors and population. Iceland is advised to use multiple reference points instead of just one, because multiple reference points give greater confidence in the extrapolated estimates. To increase transparency, Iceland should provide a more detailed description in the NIR of this GDP method, the use of the reference year, and how the extrapolation is applied.

72. Iceland did not include emission estimates from the sludge that is landfilled, explaining that these are accounted in wastewater handling. The ERT notes that emissions from sludge treatment in the wastewater handling process are different from emissions associated with sludge that is later disposed of on landfills, and therefore emissions associated with landfilled sludge should be reported under solid waste disposal on land, whereas emissions from sludge treatment during the wastewater handling process should be reported under the wastewater handling category. The ERT thus recommends that Iceland provide emission estimates from solid waste disposal on land, and include the sludge component in its solid waste composition if indeed sludge is later landfilled.

73. The decrease in CH₄ recovery in 2006 compared with 2005 is clearly explained in the NIR. Inter-annual fluctuations are present over the entire time series but there was a substantial increase in CH₄ recovery from 2001 to 2002, when the value rose from 0.41 to 1.11 Gg. The ERT recommends that Iceland provide further explanations for this substantial increase.

74. For greater transparency, the ERT urges Iceland to provide the correct information required in the sectoral background tables of this category (CRF table 6.A), such as fraction of MSW disposed to solid waste disposal sites, fraction of degradable organic carbon in MSW, the CH₄ oxidation factor, and the CH₄ generation constant.

C. Non-key categories

1. Wastewater handling – CH₄

75. In its 2008 submission, Iceland used methodologies from recognized international scientific literature to estimate emissions for this category, resulting in lower CH₄ estimates in domestic and commercial wastewater (e.g. in 2005, from 0.27 Gg to 0.11 Gg CH₄), and slightly higher N₂O levels (e.g. in 2005, from 0.02 to 0.03 Gg N₂O), compared to the 2007 submission. Also, this methodology does not separate sludge and wastewater emissions, as is required in CRF table 6.B. The ERT thus recommends that in table 6.B for wastewater handling, Iceland change the notation key “NE” to “IE” in the entry for sludge emissions for both industrial and domestic/commercial wastewater, and provide in the CRF documentation box and the NIR more information on this combined calculation. Iceland should clearly justify in the NIR the use of recognized international scientific literature.

76. For transparency, Iceland is urged to provide the information needed in the CRF sectoral background tables 6.B, that are mostly empty.

2. Waste incineration – CO₂, CH₄, N₂O

77. In CRF table 6.C, both biogenic and non-biogenic emissions are reported as “IE”, but there is no indication of where the information can be found in either the CRF or the NIR. The ERT recommends that Iceland make use of the documentation boxes, and provide references and greater clarification of the parameters in table 8.10 of the NIR, such as fossil carbon fractions and oxidation factors.

VIII. Other issues

1. Changes to the national system

78. Iceland reported in annex V of the NIR that the national system is unchanged compared to the description given in the initial report under the Kyoto Protocol. The ERT notes the formal agreements with the National Energy Authority and the Agricultural University defining responsibilities in the inventory preparation as a further step in implementation of the national system. Agreements of this nature, that are additional to or changes to those developed for the specification of the national system, should be reported as changes to the national system.

2. Changes to the national registry

79. Iceland reported on changes in its national registry in the 2008 annual submission. The changes include contact details of the registry administrator, and more detailed information on registry server specifications, disaster prevention and recovery, and testing the registry. The ERT considers these changes to be in accordance with the requirements of national registries defined in decision 13/CMP.1.

3. Commitment period reserve

80. Iceland has not reported its commitment period reserve in the 2008 submission. In response to questions raised by the ERT during the review Iceland reported that its commitment period reserve has not changed since the initial report review (16,671,462 t CO₂ eq). The ERT agrees with this figure. The ERT recommends that Iceland include information on its commitment period reserve in its next annual submission.

IX. Conclusions and recommendations

81. Iceland has submitted a complete set of CRF tables for the period 1990–2006 and an NIR. The inventory is complete in terms of years, sectors and geographic coverage, but it is not fully complete in terms of categories and gases.

82. Iceland's 2008 GHG inventory is still not fully in conformity with the UNFCCC reporting guidelines, the IPCC good practice guidance and the IPCC good practice guidance for LULUCF. Paragraph 8 above and the sectoral sections describe the areas where closer conformity with the reporting guidelines is needed.

83. Iceland has provided, for the first time and on a voluntary basis, information on the industrial process facilities for which emissions are to be reported separately according to the provisions of decision 14/CP.7. However, the ERT considers that this information is not sufficient to assess the fulfilment of all the requirements of this decision.

84. Iceland provided a QA/QC plan as recommended by the ERT in the previous review but gives no information on the status of implementation of this plan. Improvements in the inventory include revised estimates in the energy and agricultural sectors and inclusion, for the first time, of emissions for the solvent and other product use sector.

85. Key recommendations for further improvements are:

- (a) To focus on finalizing all aspects of the QA/QC plan with a view to full implementation of the QA/QC plan for the 2009 submission;
- (b) To improve transparency on recalculations;
- (c) To increase transparency in the areas detailed in the sectoral sections;
- (d) To improve completeness of the inventory, in particular by estimating actual emissions from consumption of halocarbons and SF₆;
- (e) To make further efforts to use higher tier approaches for calculating the emissions from key categories (e.g. CH₄ emissions from enteric fermentation for cattle);
- (f) To provide sufficient information on the facilities under decision 14/CP.7 so that the ERT may make a full assessment under all criteria listed in the decision.

X. Questions of implementation

86. No questions of implementation were identified by the ERT during the review.

Annex**Documents and information used during the review****A. Reference documents**

Intergovernmental Panel on Climate Change. *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*. Available at <<http://www.ipcc-nggip.iges.or.jp/public/gl/invs1.htm>>.

Intergovernmental Panel on Climate Change. *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*. Available at <<http://www.ipccnggip.iges.or.jp/public/gp/english/>>.

Intergovernmental Panel on Climate Change. *Good Practice Guidance for Land Use, Land-Use Change and Forestry*. Available at <<http://www.ipcc-nggip.iges.or.jp/public/gp/landuse/gp/landuse.htm>>.

“Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories”. FCCC/SBSTA/2006/9. Available at <<http://unfccc.int/resource/docs/2006/sbsta/eng/09.pdf>>.

“Guidelines for the technical review of greenhouse gas inventories from Parties included in Annex I to the Convention”. FCCC/CP/2002/8. Available at <<http://unfccc.int/resource/docs/cop8/08.pdf>>.

“Guidelines for national systems under Article 5, paragraph 1, of the Kyoto Protocol”. Decision 19/CMP.1. Available at <<http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf#page=14>>.

“Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol”. Decision 15/CMP.1. Available at <<http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf#page=54>>.

“Guidelines for review under Article 8 of the Kyoto Protocol”. Decision 22/CMP.1. Available at <<http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf#page=51>>.

Status report for Iceland 2007. Available at <<http://unfccc.int/resource/docs/2007/asr/isl.pdf>>.

Status report for Iceland 2008. Available at <<http://unfccc.int/resource/docs/2008/asr/isl.pdf>>.

Synthesis and assessment report on the greenhouse gas inventories submitted in 2007. Available at <<http://unfccc.int/resource/webdocs/sai/2007.pdf>>.

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FCCC/ARR/2006/ISL. Report of the individual review of the greenhouse gas inventory of Iceland submitted in 2006. Available at <<http://unfccc.int/resource/docs/2007/arr/isl.pdf>>.

FCCC/IRR/2007/ISL: Report of the review of the initial report of Iceland. Available at <<http://unfccc.int/resource/docs/2007/irr/isl.pdf>>.

B. Additional information provided by the Party

Responses to questions during the review were received from Ms. Birna Hallsdóttir (Environment Agency of Iceland), including additional material on the methodology and assumptions used.