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COMPLIANCE COMMITTEE

CC/ERT/ARR/2009/29  
29 April 2009

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

**Note by the secretariat**

The report of the individual review of the greenhouse gas inventories of the European Community submitted in 2007 and 2008 was published on 29 April 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/EC 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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European Community submitted in 2007 and 2008\***

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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.

## CONTENTS

	<i>Paragraphs</i>	<i>Page</i>
I. OVERVIEW .....	1–25	4
A. Introduction.....	1–2	4
B. Inventory submission and other sources of information.....	3	4
C. Emission profiles and trends.....	4–5	4
D. Key categories .....	6–8	5
E. Main findings.....	9–11	7
F. Cross-cutting issues .....	12–22	7
G. Areas for further improvement .....	23–25	9
II. ENERGY .....	26–44	10
A. Sector overview .....	26–28	10
B. Reference and sectoral approaches.....	29–36	10
C. Key categories .....	37–43	11
D. Non-key categories .....	44	12
III. INDUSTRIAL PROCESSES AND SOLVENT AND OTHER PRODUCT USE .....	45–55	13
A. Sector overview .....	45–47	13
B. Key categories .....	48–54	13
C. Non-key categories .....	55	15
IV. AGRICULTURE .....	56–63	15
A. Sector overview .....	56–60	15
B. Key categories .....	61–62	15
C. Non-key categories .....	63	16
V. LAND USE, LAND-USE CHANGE AND FORESTRY .....	64–73	16
A. Sector overview .....	64–68	16
B. Key categories .....	69–73	17
VI. WASTE.....	74–85	18
A. Sector overview .....	74–76	18
B. Key categories .....	77–83	18
C. Non-key categories .....	84–85	19

VII.	OTHER SECTORS .....	86	19
VIII.	OTHER ISSUES .....	87–90	20
IX.	CONCLUSIONS AND RECOMMENDATIONS .....	91–93	20
X.	QUESTIONS OF IMPLEMENTATION .....	94	21

Annex

Documents and information used during the review.....	22
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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 the European Community, coordinated by the UNFCCC secretariat, in accordance with decision 22/CMP.1. In accordance with the conclusions of the Subsidiary Body for Implementation at its twenty-seventh session, the focus of the review is on the most recent (2008) submission.<sup>1</sup> The review took place from 15 to 20 September 2008 in Bonn, Germany, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: generalists – Mr. William Kojo Agyemang-Bonsu (Ghana) and Mr. Vlad Trusca (Romania); energy – Ms. Branca Americano (Brazil), Mr. Frank Neitzert (Canada) and Mr. Matej Gasperic (Slovenia); industrial processes – Mr. Jos Olivier (Netherlands) and Mr. Teemu Oinonen (Finland); agriculture – Ms. Penny Reyenga (Australia) and Mr. Washington Zhakata (Zimbabwe); land use, land-use change and forestry (LULUCF) – Mr. Zhang Xiaoquan (China) and Mr. Aleksi Lehtonen (Finland); and waste – Ms. Kyoko Miwa (Japan) and Mr. Eduardo Calvo (Peru). Ms. Americano and Ms. Reyenga were the lead reviewers. The review was coordinated by Mr. Tomoyuki Aizawa and Mr. Matthew Dudley (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 European Community, 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 of the European Community was submitted on 15 April 2008; it contains a complete set of common reporting format (CRF) tables for the period 1990–2006 and a national inventory report (NIR); a revised version of the 2008 inventory was submitted on 27 May 2008. This is in line with decision 15/CMP.1. The European Community indicated that the 2008 submission is also its voluntary submission under the Kyoto Protocol.<sup>2</sup> In its 2007 submission, the European Community included a complete set of CRF tables for the period 1990–2005 and an NIR. Where needed 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 annual inventory submission), the main GHG in the European Community was carbon dioxide (CO<sub>2</sub>), accounting for 83.5 per cent of total GHG emissions<sup>3</sup> expressed in CO<sub>2</sub> eq, followed by nitrous oxide (N<sub>2</sub>O) (7.4 per cent), and methane (CH<sub>4</sub>) (7.4 per cent). Hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF<sub>6</sub>) collectively accounted for 1.7 per cent of total GHG emissions in the European Community. The energy sector accounted for 80.1 per cent of the total GHG emissions, agriculture for 9.3 per cent, industrial processes for 7.9 per cent, waste for 2.6 per cent, and solvent and other product use for 0.2 per cent. Total GHG emissions of the European Community amounted to 4,151,078.92 Gg CO<sub>2</sub> eq and decreased by 2.2 per cent (92,742.30 Gg CO<sub>2</sub> eq) between 1990 and 2006. In 2005 (as reported in the 2007 inventory submission), total GHG emissions amounted to 4,192,634.17 Gg CO<sub>2</sub> eq. The shares of gases and sectors in 2006 (2008 inventory submission) were similar to those of 2005 (2007 inventory submission). The European Community reported large reductions in GHG emissions for the period 1990–2006, especially

<sup>1</sup> FCCC/SBI/2007/34, paragraph 104.

<sup>2</sup> 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).

<sup>3</sup> In this report the term “total GHG emissions” refers to the aggregated national GHG emissions expressed in terms of CO<sub>2</sub> eq excluding LULUCF, unless otherwise specified.

for PFCs (76.3 per cent), CH<sub>4</sub> (29.8 per cent) and N<sub>2</sub>O (22.3 per cent). The sectors with the largest reductions over this period were waste (38.7 per cent), solvent and other product use (20.3 per cent) and industrial processes (15.2 per cent). The only sector showing a slight increase of GHG emissions in the period 1990–2006 was the energy sector (2.2 per cent).

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

#### D. Key categories

6. The European Community has reported a tier 1 key category analysis, for both level and trend assessment, as part of its 2008 submission. Moreover, every member State of the European Community provides a national key category analysis in its submission, which is independent from the general European Community key category analysis. The key category analyses performed by the European Community and by the secretariat<sup>4</sup> produced similar results. The European Community has provided the key category analysis including the LULUCF sector (85 key categories) and excluding the LULUCF sector (81 key categories), which 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) and the IPCC *Good Practice Guidance for Land Use, Land-Use Change and Forestry* (hereinafter referred to as the IPCC good practice guidance for LULUCF). The same approach was used in the 2007 submission and similar key categories were identified. The European Community key category analysis is performed to identify the categories for which overviews of European Community member States' methods, emissions factors (EFs), quality estimates and emission trends are provided at European Community level. In addition, the key category analysis helps in identifying those categories that should receive special attention with regard to quality assurance/quality control (QA/QC) at the European Community level.

7. Tier 2 key category analysis, which was recommended by the previous ERT, has not yet been implemented. Therefore, the ERT reiterates previous recommendations that the European Community prepare a tier 2 key category analysis and identify key categories at European Community level, using the uncertainty estimates for European Community categories and a comparison of European Community uncertainty estimates with weighted estimates of uncertainties reported by member States.

8. The European Community has provided a complete set of CRF tables for the period 1990–2006, including the LULUCF reporting tables as required by decision 14/CP.11, and a complete and detailed NIR.

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<sup>4</sup> 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. Where 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 <sub>2</sub> eq								Change base year–2006 (%)
	Base year <sup>a</sup>	1990	1995	2000	2003	2004	2005	2006	
CO <sub>2</sub>	3 355 885.17	3 355 885.17	3 280 708.69	3 352 185.56	3 491 123.78	3 510 816.58	3 488 705.30	3 469 340.66	3.4
CH <sub>4</sub>	437 582.03	437 582.03	411 488.77	364 774.10	329 257.64	318 477.74	312 459.41	306 714.72	–29.9
N <sub>2</sub> O	397 437.21	397 437.21	376 745.22	341 004.58	325 540.78	326 131.71	321 752.34	308 819.08	–22.3
HFCs	40 921.40	28 003.15	41 087.43	45 535.32	49 240.44	49 977.29	53 365.41	56 389.89	37.8
PFCs	15 008.77	17 505.03	10 949.73	7 264.44	6 580.63	5 303.96	4 342.11	4 142.61	–72.4
SF <sub>6</sub>	14 329.53	10 906.67	15 456.71	10 763.63	8 854.89	8 925.58	8 804.16	9 168.96	–36.0

<sup>a</sup> Base year refers to the base year under the Kyoto Protocol, which for CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O is 1990 for all member States, and for HFCs, PFCs and SF<sub>6</sub> is 1990 for Austria, France and Italy, and 1995 for Belgium, Denmark, Finland, Germany, Greece, Ireland, Luxembourg, Netherlands, Portugal, Spain, Sweden and the United Kingdom of Great Britain and Northern Ireland. 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.

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

Sectors	Gg CO <sub>2</sub> eq								Change base year–2006 (%)
	Base year <sup>a</sup>	1990	1995	2000	2003	2004	2005	2006	
Energy	3 255 747.23	3 255 747.23	3 175 104.60	3 232 002.90	3 365 064.83	3 375 405.07	3 351 960.12	3 326 940.32	2.2
Industrial processes	386 832.23	372 987.36	370 994.22	328 960.85	324 357.82	330 412.10	332 140.65	327 995.36	–15.2
Solvent and other product use	10 177.81	10 177.81	9 044.83	8 911.02	8 266.92	8 136.46	8 066.55	8 114.92	–20.3
Agriculture	433 858.59	433 858.59	412 593.88	413 115.08	394 630.00	392 695.71	386 814.83	384 463.48	–11.4
LULUCF	NA	–263 156.43	–266 591.20	–288 905.64	–336 888.89	–321 272.04	–284 247.30	–353 370.52	NA
Waste	174 548.26	174 548.26	168 699.02	138 537.77	118 278.59	112 983.51	110 446.59	107 061.84	–38.7
Other	–3 498.03	–3 498.03	–3 777.38	–3 904.99	–3 471.06	–3 440.02	–3 425.85	–3 497.01	0.0
<b>Total (with LULUCF)</b>	NA	3 980 664.80	3 866 067.97	3 828 717.01	3 870 238.20	3 894 920.80	3 901 755.59	3 797 708.40	NA
<b>Total (without LULUCF)</b>	4 261 164.11	4 247 319.25	4 136 436.54	4 121 527.64	4 210 598.16	4 219 632.86	4 189 428.74	4 154 575.93	–2.5

*Abbreviations:* LULUCF = land use, land-use change and forestry, NA = not applicable.

<sup>a</sup> Base year refers to the base year under the Kyoto Protocol, which for CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O is 1990 for all member States, and for HFCs, PFCs and SF<sub>6</sub> is 1990 for Austria, France and Italy, and 1995 for Belgium, Denmark, Finland, Germany, Greece, Ireland, Luxembourg, Netherlands, Portugal, Spain, Sweden and the United Kingdom of Great Britain and Northern Ireland. 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.

## E. Main findings

9. The inventory is in line with the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* (hereinafter referred to as the Revised 1996 IPCC Guidelines), the IPCC good practice guidance and the IPCC good practice guidance for LULUCF. The 2008 inventory submission is of a high quality and shows improvements on most of the areas identified in the previous review. The NIR is prepared in accordance with the structure outlined in the “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), with the exception of annexes that are missing because of the special conditions of the European Community inventory as explained in NIR table 1.25. The NIR provides sufficient information and references on the national system, key categories, uncertainty analyses, recalculations, activity data (AD) and methodologies for estimating emissions.

10. In general, the 2008 submission of the European Community has been improved compared to the 2007 submission as it has taken account of recommendations from the in-country review of the initial report under the Kyoto Protocol, which was organized after the 2007 submission. The inventory is consistent as it is a compilation of GHG inventories of the 15 European Community member States that were part of the European Community on 1 January 1995 (hereinafter referred to as EC-15).

11. The European Community provided, in chapters 1, 2 and 10 and some annexes of the NIR, information for both the EC-15 and all 27 member States of the European Community (hereinafter referred to as EC-27) at aggregated and disaggregated level. However, information relating to only the EC-15 was presented in the sector chapters of the NIR and in the CRF tables. To improve transparency, the ERT recommends that the European Community provide more sectoral information and analysis of the EC-27 and that any future changes to the national system, as they relate to the Kyoto Protocol (EC-15), are clearly documented. If possible, the ERT encourages the European Community to use only information from the EC-15 in the submission due under the Kyoto Protocol and information from the EC-27 for the submission under the Convention.

## F. Cross-cutting issues

### 1. Completeness

12. The 2008 inventory submission covers all years from 1990 to 2006, and is generally complete in coverage of source/sink categories and direct and indirect GHGs, and in terms of geographic coverage, considering the special condition of the European Community’s inventory. However, some categories of some member States were not estimated, taking into consideration that the European Community inventory is a compilation of the EC-15 inventories. Explanations for the not estimated (“NE”) categories are provided in CRF table 9 (a) and a general analysis of the completeness is presented in the NIR.

### 2. Transparency

13. Taking into account the specific situation of the European Community’s inventory, the Party has provided a fully transparent inventory (CRF tables and NIR) – both the general introductory part (such as national system description, key categories analysis, uncertainties analysis, QA/QC activities and recalculations) and the sector specific chapters (e.g. member States’ particularities regarding AD collection, rationale for selection of EFs and methods, references for methods and EFs) enabling a full assessment of the inventory. The European Community has provided more information in its 2008 submission than it did in its 2006 and 2007 submissions in order to further improve the transparency of the inventory.

14. The European Community has not submitted CRF tables for the base year of the Kyoto Protocol; these would have been useful for assessing recalculations in the latest submission. Without them, the Party's emissions for the base year of the Kyoto Protocol in the latest submission cannot be reviewed, because the inventory is not a simple compilation of member States' inventories due to the complicated geographical coverage of some member States.<sup>5</sup> Therefore, the ERT encourages the European Community to submit the CRF tables for the EC-15 in the base year of the Kyoto Protocol in the next submission.

### 3. Recalculations and time-series consistency

15. The ERT noted that recalculations reported by the European Community for the time series 1990 to 2005 have been provided in order to take into account the recommendations from the previous reviews and to improve the overall quality of the inventory. The NIR includes detailed information on the main reasons for recalculating emissions in 1990 and 2005 for each of the 15 member States covered in the inventory, as well as at the overall European Community level. In addition, the three sources with the largest recalculations in absolute terms and all recalculations of more than 1,000 Gg have been presented for each of the EC-15.

16. In the 2007 submission, based on the recalculations performed, total EC-15 GHG emissions excluding LULUCF in 1990 have decreased by 0.13 per cent (5,388.15 Gg CO<sub>2</sub> eq) compared to the revised 2006 submission, while the emissions in 2004 increased by 520.50 Gg CO<sub>2</sub> eq. In the 2008 submission, the total EC-15 GHG emissions excluding LULUCF in 1990 and 2005 have decreased by 0.33 per cent (14,015.53 Gg CO<sub>2</sub> eq) and 0.1 per cent (6,631.28 Gg CO<sub>2</sub> eq) respectively compared with the 2007 submission.

### 4. Uncertainties

17. In accordance with the UNFCCC reporting guidelines, the European Community provided a specific tier 1 uncertainty analysis for the GHG inventory, according to the tier 1 uncertainty estimates of the EC-15. The uncertainty analysis is complicated because it uses correlations between uncertainties of individual member States. However, the European Community has provided sufficient information on the preparation of the uncertainty analysis based on these individual uncertainties. The uncertainties in 2008 submission have been reduced compared with the 2007 submission due to the improvement of the uncertainty analysis.

18. The uncertainty analysis does not cover the LULUCF sector, although this was recommended by the previous ERT. So, the ERT reiterates the previous recommendation that the European Community extend its overall uncertainty analysis to include the LULUCF sector, and use the overall uncertainty analysis to prioritize improvements to the inventory.

### 5. Verification and quality assurance/quality control approaches

19. The European Community has established a QA/QC programme in accordance with the UNFCCC reporting guidelines, based on the IPCC good practice guidance, including general and specific QC procedures. This QA/QC programme describes the quality objectives and the QA/QC plan for the European Community GHG inventory, including the responsibilities and time schedule for the performance of the QA/QC procedures. The European Commission Directorate General for Environment is responsible for coordinating QA/QC activities for the European Community inventory and ensuring that the objectives of the QA/QC programme are implemented and that the QA/QC plan is developed.

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<sup>5</sup> The following areas are excluded in the European Community's territorial definition for the Kyoto Protocol: for Denmark – Greenland and the Faroe Islands; for the United Kingdom of Great Britain and Northern Ireland – Overseas Territories and Crown Dependencies.

20. The European Community has provided detailed information on its QA/QC programme and procedures, especially on the QC activities, considering the specific situation of the European Community GHG inventory. The QA/QC activities have been further extended on the basis of the Party's QA/QC manual. Implied emission factors (IEFs) have been checked for all European Community key categories for the EC-27. Also, AD have been checked for specific sectors. QA activities performed at the European Community level and under the Convention are detailed in the NIR, together with the improvement plan and a thorough description of the QA/QC systems of the EC-27.

#### 6. Follow-up to previous reviews

21. The European Community has presented in the NIR all the improvements to the inventory resulting from previous reviews, and the improvements made by the EC-27. As a follow-up to the previous UNFCCC review, the European Community has made several improvements to the cross-cutting areas of the overall inventory. For example, all member States provided GHG inventories by 15 April; CRF Summary table 3 was fully completed; every cell in the CRF tables now includes a comment documenting the values/notation keys of each member State; the CRF tables are fully consistent with the data in the NIR; a complete set of CRF tables was produced for the EC-27; and several sections were added to the NIR.

22. However, the ERT noted that some recommendations from previous review have not yet been implemented, including:

- (a) Preparing a tier 2 key category analysis and identifying key categories at the European Community level, by using the uncertainty estimates for the European Community categories and a comparison of the European Community uncertainty estimates with weighted estimates of uncertainties reported by member States;
- (b) Extending the overall uncertainty analysis to include the LULUCF sector and using the overall uncertainty analysis to prioritize improvements to the inventory.

### **G. Areas for further improvement**

#### 1. Identified by the Party

23. The 2008 NIR lists several areas for improvement, both identified internally and recommended by previous reviews, with a view to improving the GHG inventory of the European Community:

- (a) Implement all the recommendations from the initial review;
- (b) Continue sector-specific QA/QC activities within the internal review process of the European Community;
- (c) Further develop the CRF Aggregator database in order to support additional QA/QC activities;
- (d) Further develop the Party's QA/QC activities based on the experience in 2007/2008;
- (e) Further refine the uncertainty analysis.

#### 2. Identified by the expert review team

24. The ERT identifies the following cross-cutting issues for improvement:

- (a) Extend the overall uncertainty analysis to include the LULUCF sector and use the overall uncertainty analysis to prioritize improvements to the inventory;

(b) Further improve the consistency between the NIR and the CRF tables;

25. Recommended improvements relating to specific source/sink categories are presented in the sector chapters of this report.

## II. Energy

### A. Sector overview

26. In 2006, emissions from the energy sector amounted to 3,326,940.32 Gg CO<sub>2</sub> eq, or 80.1 per cent of total GHG emissions. Emissions from the sector increased by 2.2 per cent between 1990 and 2006. The most important GHG in the sector was CO<sub>2</sub>, accounting for 97.4 per cent of sectoral emissions; CH<sub>4</sub> accounted for 1.3 per cent of sectoral emissions and N<sub>2</sub>O for 1.3 per cent.

27. Between 1990 and 2006, the largest increases in the energy sector were observed for transportation (25.8 per cent) and energy industries (3.7 per cent). There were large decreases in manufacturing industries and construction (12.1 per cent), other (fuel combustion) (63.7 per cent) and fugitive emissions from solid fuels (74.1 per cent). Emissions from road transportation show a gradual increase throughout the time series, whereas emissions from other sources fluctuate for a variety of reasons.

28. In the 2007 submission recalculations lead to a decrease in emissions of 145.31 Gg CO<sub>2</sub> eq in 1990 compared with 2006 revised estimates and increase of 2,980.44 Gg CO<sub>2</sub> eq in 2004. In the 2008 submission, the impact of the recalculations was a decrease in emissions of 6,985.51 Gg CO<sub>2</sub> eq in 1990 and of 5,432.32 Gg CO<sub>2</sub> eq in 2005.

### B. Reference and sectoral approaches

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

29. The IPCC reference approach for CO<sub>2</sub> from fossil fuels for the EC-15 is based on Eurostat energy data (NewCronos database, March 2008 version). The 2008 NIR submission includes the reference approach tables for 1990–2006. Energy statistics are submitted annually to Eurostat by member States, together with the five joint Eurostat/International Energy Agency (IEA)/United Nations Economic Commission for Europe (UNECE) questionnaires on solid fuels, oil, natural gas, electricity and heat, and renewable fuels and wastes. On the basis of this information, Eurostat compiles the annual energy balances used by the European Community to estimate CO<sub>2</sub> emissions from fossil fuels.

30. The comparison between the Eurostat data and the national reference approach for apparent consumption and CO<sub>2</sub> emissions from fuel combustion resulted in a difference of 0.5 per cent between the two approaches for 2006. In most member States the difference is within 2.0 per cent (Austria, Belgium, Denmark, Finland, Greece, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom of Great Britain and Northern Ireland). Only for Ireland did the results from two approaches differ by more than 5.0 per cent. The ERT encourages the European Community to assess those differences in order to improve the quality of estimates and the NIR, and to provide explanations in its next annual submission.

31. Taking into account the specific situation of the European Community's inventory and the complexity of the calculation of reference approach for the EC-15 and the comparison with Eurostat/IEA data, the ERT recommends that the European Community improve the transparency of the report by comparing the Eurostat/IEA and national reference approaches for CO<sub>2</sub> emissions from fuel combustion for the EC-15 (and for each member State) in a clearer way, for example by showing the statistical differences for a fuel category for each member State and for the EC-15 as a whole in one table).

32. For 2006, the CO<sub>2</sub> emission estimates from the reference approach was 0.18 per cent higher than the estimate from the sectoral approach, but the difference in energy consumption between the reference approach and sectoral approach in 2006 is as much as 7.4 per cent. The ERT encourages the European Community to provide more detailed information on these differences.

## 2. International bunker fuels

33. Emissions from bunkers for international aviation and maritime transport are estimated as the sum of the bunker emissions of each member State. Between 1990 and 2006 emissions from aviation bunkers increased by 102.8 per cent and emissions from marine bunkers increased by 60.7 per cent.

34. In 2007, the European Topic Centre on Air and Climate Change conducted a study to compare aviation emissions based on estimates from member States and calculations by the European Organisation for the Safety of Air Navigation (Eurocontrol). The study assessed the consistency of estimates, and the differences between national and international emissions and across different member States. The main conclusions are that higher tiers provide more consistent CO<sub>2</sub> emission estimates and that, in general, European countries tend to overestimate domestic emissions. The ERT welcomes the effort made to enhance consistency between methodologies for estimating national aviation emissions and international bunkers emissions.

## 3. Feedstocks and non-energy use of fuels

35. Following the recommendation from the previous review, the European Community provided information on feedstocks and non-energy use of fuels. The NIR includes a table showing an overview of how member States treat emissions from feedstocks and non-energy use of fuels. The ERT encourages the European Community to further improve its emission estimates and apply an EC-15 weighted average fraction of carbon stored for different fuel types; this is likely to decrease the difference in the estimates of apparent consumption estimated by the sectoral and reference approaches.

## 4. Country-specific issues

36. The ERT noted that because the European Community inventory is a compilation of data from 15 member States, which use different methodologies, it is difficult to report information in the CRF tables in a consistent manner. The ERT also noted that the quality of the EC-15 emission estimates depends on the quality of the submission of each EU-15 member State. However, some inconsistencies in reporting, and different allocations of emissions/fuels of member States, do exist. The ERT reiterates a recommendation from a previous review, and encourages the European Community to provide information on these inconsistencies in the NIR, and to facilitate the harmonization of methods and allocation of emissions between member States without compromising the accuracy of the estimates.

## C. **Key categories**

### 1. Stationary combustion: solid, liquid, gaseous, other – CO<sub>2</sub>

37. The European Community mainly followed the recommendation of the previous review and provided additional information on other fuels. However, it seems that some misallocation still exists.

38. The ERT recognized that some member States report emissions that are not disaggregated to appropriate subcategories, which has a significant impact on the EC-15 emission estimates. The following emissions are reported as included elsewhere (“IE”): non-ferrous metals by the United Kingdom and Portugal; chemicals by the United Kingdom and Germany; pulp, paper and print by the United Kingdom; and food processing, beverages and tobacco by the United Kingdom. Because large amounts of emissions are reported as “IE”, information on emissions and trends in this sector does not necessarily reflect the actual emissions. The ERT recommends that the European Community continue its efforts to provide appropriately disaggregated data. All member States have the same

obligations to report fuel consumptions to Eurostat, so the ERT believes that there should be no institutional/capacity barriers to prevent those countries from reporting appropriately disaggregated AD and corresponding GHG emissions. During the review, the European Community informed the ERT that the recently introduced EU Energy Statistics Regulation (22 October 2008) should lead to improvements in the quality of the energy data from 2009 onwards.

39. The ERT noted that NIR figure 3.74 (for residential – solid fuels) shows AD and IEFs for CO<sub>2</sub> for liquid fuels in the residential sector instead of for solid fuels. Furthermore, the units for some IEFs are TJ/t instead of t/TJ and some are kg/TJ instead of t/TJ. The ERT recommends that the European Community check and revise these units. The ERT also recommends that the European Community conduct such checking and document the results of these activities under its QA/QC procedures in order to avoid such errors in future annual submissions.

40. The ERT also noted the discrepancy between the EC-15 IEF for stationary-solid fuels reported on page 194 of the NIR (98 t CO<sub>2</sub>/TJ) and that in the CRF table (0.38 t CO<sub>2</sub>/TJ) for 2006. The ERT encourages the European Community to address this discrepancy.

41. The ERT encourages the European Community to work with relevant member States on the issues of proper allocation of “transformation losses of energy without any emissions” where it appears that there is combustion, but no emissions.

#### 2. Fugitive emissions: coal mining and handling – CH<sub>4</sub>

42. As indicated in the synthesis and assessment report in 2008, the change in the CH<sub>4</sub> IEF for underground mines between 1990 (1.75 kg/t) and 2006 (12.26 kg/t) – an increase of 600.6 per cent – has been identified as an outlier. Other inter-annual changes were also unexpectedly high. The European Community has informed the ERT that there is a mistake in the AD for 1990–1992. The Belgian AD are too high by a factor of 1,000 and therefore the IEFs for 1990–1992 are not correct in the EC-15 CRF tables. The correct values can be found in NIR figure 3.90. The European Community indicates that this mistake will be corrected in the next annual submission. The ERT looks forward to this revision.

#### 3. Road transportation: liquid – N<sub>2</sub>O

43. During the previous review, the ERT encouraged the European Community to further investigate why the N<sub>2</sub>O IEF for diesel from road transportation for Germany is considerably lower than those of the other member States. No additional information was provided in the current submission. The ERT encourages the European Community to further investigate the reasons for these differences and to continue its work with member States to improve the accuracy of the inventory.

### **D. Non-key categories**

#### Stationary combustion: solid – N<sub>2</sub>O

44. The N<sub>2</sub>O IEF for solid fuels in public electricity and heat production in Ireland (13.5 kg/TJ in 2006) was the highest among all European Community countries in 2006 because of the use of a CORINAIR90 EF based on large-point sources. Ireland will review this value in its next annual submission. In Sweden, there was a gradual but strong decline in the IEF during 1990–2006, as a result of an increased use of blast furnace gas and less use of coal. No information is provided in the NIR for N<sub>2</sub>O emissions from the manufacturing industry and construction and other sectors. The ERT encourages the European Community to include brief information on N<sub>2</sub>O emissions and trends from those sectors in its next annual submission.

### III. Industrial processes and solvent and other product use

#### A. Sector overview

45. In 2006, emissions from the industrial processes sector amounted to 327,995.36 Gg CO<sub>2</sub> eq, or 7.9 per cent of total GHG emissions, and emissions from the solvent and other product use sector amounted to 8,114.92 Gg CO<sub>2</sub> eq, or 0.2 per cent of total GHG emissions. Between 1990 and 2006, emissions from the industrial processes sector decreased by 12.1 per cent and emissions from the solvent and other product use sector emissions decreased by 20.3 per cent. The key driver of the fall in emissions was reduced CO<sub>2</sub> emissions from cement production during the first part of 1990s, and subsequent reductions in N<sub>2</sub>O emissions from adipic acid production, as well as reduced HFC emissions from HCFC production. Within the industrial processes sector, 67.4 per cent of GHG emissions were CO<sub>2</sub>, 21.3 per cent were F-gases, 11.1 per cent were N<sub>2</sub>O and 0.2 per cent was CH<sub>4</sub>.

46. In the 2007 submission, recalculations led to a decrease in emissions of 4,878.96 Gg CO<sub>2</sub> eq in 1990 and 2,095.35 Gg CO<sub>2</sub> eq in 2004 compared with the revised 2006 submission. In the 2008 submission, the Party reported negligible recalculations for 2005. The recalculations for 1990 are larger than those for 2005. Emissions of CO<sub>2</sub> for 1990 were reduced by 1,428.78 Gg CO<sub>2</sub> eq (0.66 per cent), and emissions of N<sub>2</sub>O emissions for 1990 were reduced by 1,126.54 Gg CO<sub>2</sub> eq (1.11 per cent), but the recalculation of CH<sub>4</sub> had a negligible effect on emissions. Reductions in CO<sub>2</sub> were mostly due to recalculation in France, and most of the N<sub>2</sub>O reductions were due to recalculation in the Netherlands.

47. A review of reported potential HFC emissions shows that France, Greece and Luxembourg reported these emissions as “NE” and Spain reported them as confidential (“C”) and “NE”. In the case of potential PFC emissions, the following member States do not report emissions: Belgium (not occurring (“NO”) and NE”), France (“NE”), Greece (“NE”), Luxembourg (“NO”), the Netherlands (“C, NO and NE”) and Spain (“NE”). The ERT recommends that the European Community encourage these countries to comply with the UNFCCC reporting guidelines, and prepare estimates of potential emissions.

#### B. Key categories

##### 1. Cement production – CO<sub>2</sub>

48. Inspection of the emissions data suggests that the 1990 figure may be an outlier. Also, the 1990 IEF for the EC-15 is 2 per cent greater than the 2006 IEF. The European Community NIR does not explain the observation of the difference of IEFs in sufficient detail. On the other hand, the previous review focused on the decline in emissions after 1990. The ERT recommends that the European Community include in its NIR the detailed explanations on the trends in individual member States, which were provided during the review week. The ERT also encourages the European Community to include this information in an annex to its NIR, with data on the changes in IEF supplied by the member States.

49. The ERT also notes that AD used are not completely harmonized across the member States. The ERT reiterates the recommendation of the previous review team that the Party harmonize the AD used. The ERT also recommends that the European Community encourage Denmark to collect or estimate clinker production data for 2005–2006, and recalculate emissions for these years.

##### 2. Lime production – CO<sub>2</sub>

50. Germany accounts for about 30.0 per cent of EC-15 emissions in 2006. Table 4.7 of the European Community NIR reports national statistics for AD, and default methodology and EFs for Germany. Table 4.8 contains information that seems different (plant-specific data and country-specific EFs). The European Community confirmed that the information in table 4.8 is incorrect, and that Germany uses the default approach. Moreover, the European Community indicated that this “approach can lead to overestimation of emissions, since it does not take account of any impurities in the relevant

raw materials or of any incomplete deacidification.” As Germany accounts for a large proportion of EC-15 emissions, and because this is a key category for both the European Community and Germany, the ERT recommends that the European Community encourage Germany to move to a higher tier methodology, and document the method according to the IPCC good practice guidance.

### 3. Ammonia production – CO<sub>2</sub>

51. To improve the accuracy of estimates for this category, the ERT recommends that the European Community encourage Germany to move to a higher tier (as currently planned). Moreover, as Greece includes these emissions in the energy sector, the ERT also recommends that the European Community encourage Greece to reallocate these emissions to the industrial processes sector, while maintaining consistency in the reporting by deducting the corresponding amount of CO<sub>2</sub> from the energy sector.

### 4. Nitric acid production – N<sub>2</sub>O

52. Compared with the equivalent figure for 1990, N<sub>2</sub>O emissions from this category for the EC-15 have decreased by 23.0 per cent. The NIR includes a discussion on emission shares of different countries, but does not state the reasons behind the decline of IEFs in many member States. During the review the European Community explained that the decrease is mainly due to changing production ratios in the different member States (which also have different technological standards), to some plants having been closed down in Belgium, Ireland, Italy and Sweden, and to some newer production installations being equipped with abatement technology. The ERT recommends that the European Community include the explanations provided during the review week in the NIR of its next annual submission.

### 5. Chemical industry, other – CO<sub>2</sub>

53. For this category, no description on methodologies was provided in the NIR. To improve transparency, the ERT encourages the European Community to explain the methodologies for the largest emission sources in this category. Details of AD and IEFs should also be given, if available.

### 6. Iron and steel production – CO<sub>2</sub>

54. The ERT notes that the member States are still allocating energy and process emissions from iron and steel production in different ways. This may hinder the comparability of estimates from different Parties of CO<sub>2</sub> emissions from either fuel combustion in iron and steel industries (reported under the energy sector) or from iron and steel production (reported under industrial processes sector). During the review, the European Community reported that an internal review carried out in June–July 2008 by experts from seven member States looked into the potential for harmonizing the allocation of emissions in the industrial processes sector to improve transparency and comparability. Issues for iron and steel production were also discussed during this internal review. According to the European Community, the results of this review are currently being discussed with member States. The ERT commends the European Community for this work. The European Community also informed the ERT that in many cases, member States have good reasons for using country-specific allocations because of the use of country-specific methods and the country-specific availability of AD and EFs which are used in order to obtain the most accurate emission estimates. Noting the difficulties of harmonization in this category, the ERT recommends that the Party encourage the member States to allocate and report their emissions from iron and steel production in a consistent manner, following the recommendations on harmonization from the internal review.

### **C. Non-key categories**

#### Carbide production – CO<sub>2</sub>

55. The ERT noted that the Party's NIR does not include a section on carbide production. The ERT recommends that the European Community add a description of the methodologies used for this category. The ERT also recommends that the European Community include an explanation of the decrease in emissions observed in the reported data.

## **IV. Agriculture**

### **A. Sector overview**

56. In 2006, emissions from the agriculture sector amounted to 384,463.48 Gg CO<sub>2</sub> eq, or 9.3 per cent of total GHG emissions. Emissions from the sector decreased by 11.4 per cent between 1990 and 2006. The key driver of the fall in emissions is a reduction in livestock numbers and decreasing use of fertilizers and manure by most member States.

57. Within the sector, 50.1 per cent of emissions were from agricultural soils, 31.6 per cent from enteric fermentation, 17.6 per cent from manure management and 0.6 per cent from rice cultivation. The remaining 0.1 per cent was from field burning of agricultural residues. Most of the emissions were N<sub>2</sub>O, which accounted for 56.2 per cent of sector emissions; CH<sub>4</sub> accounted for 43.8 per cent.

58. The submission for the agriculture sector is largely complete, covering all major sources, gases and member States. Emissions from prescribed burning of savanna do not occur in the European Community. There have been recalculations in all categories except rice cultivation. In the 2007 submission, the impact of the recalculation was a decrease in emissions of 785.26 Gg CO<sub>2</sub> eq in 1990 and 368.32 Gg CO<sub>2</sub> eq in 2004 compared with the revised 2006 submission. In the 2008 submission the impact of the recalculations was a decrease in emissions of 467.94 Gg CO<sub>2</sub> eq in 1990 and an increase of 562.88 Gg CO<sub>2</sub> eq in 2005.

59. The NIR contains useful summaries of the IEFs of the member States and provides an explanation of outliers and trends. The NIR contains summary information of methods used and the levels of uncertainty in each category. The uncertainty in the emission estimates of member States is estimated to range from a low of 6.0 per cent for enteric fermentation to a high of 424.0 per cent for agricultural soils.

60. Most of the minor issues relating to transparency and inconsistencies in IEFs identified by the previous review team have been resolved. However, some minor issues still require clarification or correction for future annual submissions. For example, in response to a question from the previous review, the Party has clarified in the NIR that buffalo have been present in Germany since 1996. However, Germany is still reporting emissions from buffalo farming as "NE" for the period 1990–2000. Other category-specific issues are described below.

### **B. Key categories**

#### 1. Manure management – N<sub>2</sub>O

61. The nitrogen (N) excretion rates for Sweden (non-dairy cattle, swine and poultry) are considerably different from those of other member States. The excretion rates reported in Sweden's NIR appear lower than the rates reported in the CRF tables. The European Community has indicated that the problems with the N excretion rates for Sweden were noted during the QC of the European Community's inventory. Sweden explained that N excretion rates were not correctly updated in the CRF tables. The ERT recommends that the European Community provide correct background data in the CRF tables in its next annual submission.

## 2. Direct soil emissions – N<sub>2</sub>O

62. The NIR indicates that Germany uses the default EF for crop residues as given in the Revised 1996 IPCC Guidelines. However, Germany actually uses the default factor from the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (hereinafter referred to as the 2006 IPCC Guidelines), which is lower than the default value in the Revised 1996 IPCC Guidelines. The ERT recommends that the source of the EF be correctly identified in the next annual submission. As the 2006 IPCC Guidelines have not yet been adopted, the ERT notes that use of the defaults as country-specific factors requires justification.

### C. Non-key categories

#### Field burning of agricultural residues – CH<sub>4</sub> and N<sub>2</sub>O

63. The NIR does not contain a summary of methods or trends for this category. As there has been a large reduction in the emissions from this category, it is recommended that the Party provide an explanation of the trends in the NIR of its next annual submission.

## V. Land use, land-use change and forestry

### A. Sector overview

64. In 2006 the LULUCF sector was a net sink of 353,370.52 Gg CO<sub>2</sub> eq. Between 1990 and 2006, net removals increased by 34.3 per cent (from 263,156.43 Gg CO<sub>2</sub> eq). The net sink of the European Community has increased from 6.2 per cent for 1990 to 8.5 per cent for 2006 compared to total emissions (without LULUCF). The largest LULUCF carbon sink of the European Community in 2006 was Italy, the second largest was Germany, and the third largest was France. In most of the member States the carbon sink of the LULUCF sector increased between 1990 and 2006, although in Sweden the carbon sink of 2006 was half of that in 1990.

65. The European Community has not reported voluntarily on information on activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol for the 2008 submission. However, during the review the ERT noted with concern that the majority of member States report that soil carbon stock changes for forests remaining forests are either zero or not reported in the LULUCF sector under the Convention. This could create major problems with reporting in 2010 on the elected activities under Article 3, paragraph 4, of the Kyoto Protocol because ten of the 15 member States have elected forest management. According to the Kyoto Protocol, countries can leave a category unreported only if they can prove that the category is not a source of carbon. If the Party omits a carbon pool (on the basis that it is a sink) then that omission should be adequately justified using verifiable information. During the review the ERT also raised an issue relating to whether the national systems of the member States are able to ensure that land areas subject to LULUCF activities under Article 3, paragraphs 3 and 4, are identifiable. The ERT recommends that the European Community continue its efforts toward its member States aimed at improving the completeness of reporting and the ability of the various national systems to identify activities under Article 3, paragraphs 3 and 4.

66. There have been major recalculations in the LULUCF sector. In the 2007 submission, the impact of the recalculation was an increase in net removals of 12,490.98 Gg CO<sub>2</sub> eq in 1990 and 14,846.86 Gg CO<sub>2</sub> eq in 2004 compared with the revised 2006 submission. In the 2008 submission the impact of the recalculation for 1990 was an increase in net removals of 45,744.28 Gg CO<sub>2</sub> eq whereas for 2005 net removals declined by 30,934.41 Gg CO<sub>2</sub> eq. The large recalculations in the 2008 submission were due to problems with the Swedish inventory.

67. The European Community inventory report is the sum of the inventory reports of the member States. As in previous submissions, the current NIR provides only brief descriptions of the

individual LULUCF subcategories. The Party should increase the transparency of reporting by adding time series of factors applied in the individual categories (dead organic matter, mineral soil carbon, organic soil carbon, land conversions, etc.) by different member States. This would also facilitate the QA/QC procedures of the inventory. This issue was also raised in the previous review report.<sup>6</sup>

68. The tables in the NIR highlight the missing components of the inventory. The majority relate to the land-use transitions that several member States report as “NE”. The ERT recommends that the European Community continue and increase the support for member States that are not able to fulfill the requirements of the GHG inventory.

## **B. Key categories**

### **1. Forest land remaining forest land – CO<sub>2</sub>**

69. Nine member States report that soil carbon stock change is either zero or “NO”. Five of these member States have elected forest management under Article 3, paragraph 4, of the Kyoto Protocol. The IPCC good practice guidance for LULUCF states that zero emissions can be assumed under tier 1 methods, but it also states that countries where this subcategory is significant should develop country-specific adjustment factors. In addition, according to the Kyoto Protocol countries can leave a category unreported only if they can prove that the category is not a source of carbon. As this is a key category for the European Community, and for many of its member States, the ERT considers that it is good practice to move beyond tier 1 methods for the reporting of soil carbon. The ERT recommends that the European Community continue and increase the support to its member States to facilitate the estimation of the soil carbon stock changes. The ERT also recommends that the different assumptions and omissions of member States should be discussed in the NIR of the European Community in its future submissions.

70. Only some of the member States estimate CO<sub>2</sub> emissions and removals from dead organic matter. The ERT encourages the European Community to provide guidance and expertise on these issues to its member States.

### **2. Land converted to forest land – CO<sub>2</sub>**

71. Most of the member States report emissions and removals due to conversion of land to forest land. However, some member States (such as Belgium and Finland) do not estimate (or include elsewhere) emissions and/or removals for this conversion category. On the other hand almost half of the carbon fluxes of the European Community conversions of land to forest occur in France and the United Kingdom. This implies that the reporting in these member States is not consistent. Acknowledging that there may be methodological reasons for using country-specific allocations, the ERT recommends that the European Community continue and increase the support to its member States to facilitate the estimation of this land-use change category and increase the consistency and transparency of reporting where possible.

### **3. Land converted to cropland – CO<sub>2</sub>**

72. Most member States report emissions and removals due to conversion of land to cropland. Only the Netherlands reports a sink of carbon when it converts land to cropland; other member States have a source of carbon. In order to improve the completeness and transparency of the reporting, the EFs of the member States should be presented in the NIR. The ERT also recommends that the European Community and its member States report land-use changes with more detailed subcategories. The first step would be to divide lands into organic and mineral soil classes where relevant.

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<sup>6</sup> FCCC/ARR/2006/EC.

#### 4. Land converted to settlements – CO<sub>2</sub>

73. Most of the member States report emissions due to conversion of land to settlements. Only the Netherlands reports a sink of carbon when it converts lands to settlements. According to the NIR of the Netherlands,<sup>7</sup> “In the case of conversion from other land, with no carbon stock, to settlements, there is a sink of carbon, which results from the wall-to-wall approach and the assumption that other land has no carbon stock.” This implies that this sink is just an artefact of the calculation procedure. During the review the European Community informed the ERT that this issue had been identified through its QC procedures and that the Netherlands will be revising this assumption for the 2009 submission.

## VI. Waste

### A. Sector overview

74. In 2006, emissions from the waste sector amounted to 107,061.84 Gg CO<sub>2</sub> eq, or 2.6 per cent of total GHG emissions. Emissions from the sector decreased by 38.7 per cent between 1990 and 2006. The key driver of the fall in emissions is the early implementation of the 1999 European Union landfill waste directive. Within the sector, 76.0 per cent of emissions were from solid waste disposal on land, 18.6 per cent were from wastewater handling and 3.2 per cent were from waste incineration. The remaining 2.2 per cent were from the category other.

75. Most of the emissions were CH<sub>4</sub>, which accounted for 87.0 per cent of the sectoral emissions; N<sub>2</sub>O accounted for 10.5 per cent and CO<sub>2</sub> for 2.5 per cent. Because of the large number of reports that include categories reported as “NE”, percentages cannot be properly assessed.

76. In the 2007 submission, recalculations led to an increase in emissions of 475.06 Gg CO<sub>2</sub> eq in 1990 and 99.36 Gg CO<sub>2</sub> eq in 2004 compared with the revised 2006 submission. In the 2008 submission the impact of the recalculations was a decrease in emissions of 1,092.33 Gg CO<sub>2</sub> eq in 1990 and an increase of 1,342.90 Gg CO<sub>2</sub> eq in 2005.

### B. Key categories

#### 1. Solid waste disposal on land – CH<sub>4</sub>

77. Methane emissions from solid waste disposal on land made up 75.9 per cent of sectoral emissions in 2006. These emissions decreased by 44.5 per cent between 1990 and 2006.

78. All EC-15 member States applied the tier 2 methodology or its modified version, reflecting country-specific conditions in accordance with the IPCC good practice guidance. Waste management practices and statistics in member States have evolved over the years based on country-specific circumstances such as waste composition, political decisions and statistical systems, making historical data sets, their consistency and the parameters used for emission estimations almost impossible to harmonize. Future European Union regulation on waste statistics may lead to more harmonized waste data. The ERT welcomes the planned improvements.

79. CH<sub>4</sub> emissions from unmanaged waste disposal on land made up 6.8 per cent of sectoral emissions in 2006. These emissions decreased by 43.3 per cent between 1990 and 2006. Six member States (France, Greece, Ireland, Italy, Portugal and Spain) reported CH<sub>4</sub> emissions from unmanaged solid waste disposal sites in 2006, even though only three (Greece, Ireland and Spain) still use this disposal method. All six member States applied the tier 2 methodology in line with the IPCC good practice guidance. Basic information is available in the NIR on the methodologies used and the key parameters. Greece and Ireland provided information on plans to end the use of this disposal method. The ERT welcomes European Community efforts to reduce the use of this subcategory.

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<sup>7</sup> FCCC/ARR/2008/NLD, page 180.

## 2. Wastewater handling – CH<sub>4</sub>

80. Methane emissions from wastewater handling made up 9.2 per cent of sectoral emissions in 2006. These emissions decreased by 21.8 per cent between 1990 and 2006.

81. All EC-15 member States except Sweden reported emissions of CH<sub>4</sub> from this category. Sweden reported emissions from domestic and commercial wastewater handling as included elsewhere (“IE”) and reported these emissions under solid waste disposal on land because of sludge disposal to landfills. Sweden did not report CH<sub>4</sub> emissions from the wastewater treatment process. Only six member States (Finland, Greece, Italy, Netherlands, Portugal and Spain) reported emissions from industrial wastewater handling. Because combined treatment is commonly used in the EC-15 countries, the ERT considers that it is not possible to subdivide and separate industrial wastewater from domestic and commercial wastewater in order to establish key categories according to subcategories in this case.

82. Information was provided in the NIR on the key parameters of the member States. The ERT recommends that the European Community improve the consistency of its explanations of the above-mentioned issues in its future NIRs.

## 3. Wastewater handling – N<sub>2</sub>O

83. N<sub>2</sub>O emissions from wastewater handling made up 9.4 per cent of sectoral emissions in 2006. These emissions increased by 5.5 per cent between 1990 and 2006. All EC-15 member States reported emissions of N<sub>2</sub>O from this category in accordance with the IPCC good practice guidance. Only five member States reported N<sub>2</sub>O emissions from industrial wastewater in 2006, excluding one reporting these emissions as “IE”. Eight member States reported these emissions as “NE” and one did not report any information, leading to an underestimation of N<sub>2</sub>O emissions from this subcategory. Because combined treatment is commonly used in the EC-15, the ERT considers that it is not possible to establish key categories according to subcategories in this case. Some member States adopted country-specific per capita protein consumption factors, usually lower than those of the Food and Agriculture Organization of the United Nations that are adopted by most EC-15 member States.

### C. **Non-key categories**

#### 1. Waste incineration – CO<sub>2</sub>

84. CO<sub>2</sub> emissions from this category made up 2.5 per cent of sector emissions in 2006. Emissions from this category were reported by ten member States, while three reported these emissions as “IE”, one incorrectly reported them as “NO” instead of “IE” and one reported them as “NE” and “NO”. Some member States did not cover all emission activities from this category.

#### 2. Other – CH<sub>4</sub>

85. CH<sub>4</sub> emissions from this category made up 1.4 per cent of sectoral emissions in 2006. Emissions from this category were reported by ten member States. Most member States reported on compost production (56.9 per cent of other emissions). The other important emissions were from sludge spreading, included by one member State (42.4 per cent of emissions). Other emission activities considered were biogas production and mechanical biological waste treatment with almost negligible (0.7 per cent) impact.

## VII. **Other sectors**

86. In CRF table summary 2, the European Community reports negative emissions of 3,497.01 Gg CO<sub>2</sub> eq in 2006. The negative emissions relate to the inclusion of non-European Community territory in the United Kingdom data for other sectors. The emissions from the non-European Community territories are therefore deducted from the European Community emission totals.

## **VIII. Other issues**

### **1. Changes to the national system**

87. The European Community has reported no changes to its national system in the 2008 submission. However, the NIR presents several improvements performed in relation to the QA/QC programme in the European Community system, and changes within the EC-15 and also within the EC-27. The ERT considers these changes to be in accordance with the requirements of national systems as defined in decision 19/CMP.1. The Party needs to continue to report these improvements and changes in its next annual submission.

88. The national system of the European Community (functioning on the basis of the individual European Community member States) is organized in accordance with the requirements for national systems as defined in decision 19/CMP.1 and it is functioning well. The NIR also includes a description of the national systems established by the individual member States. Following recommendations from previous reviews, the European Community has provided detailed information on its responsibilities in the inventory development process and on the extensive internal and external review process of the inventories of the European Community and individual member States participating in the process.

### **2. Changes to the national registry**

89. The European Community provides a description of the national registry in the 2008 submission, but does not report any changes. In response to questions raised by the ERT during the review, the Party confirmed that no changes to the national registry have taken place. The ERT recommends that the Party describe in its next NIR whether improvements or changes have been made.

### **3. Commitment period reserve**

90. The European Community has not reported its commitment period reserve in the 2008 submission. In response to questions raised by the ERT during the review, the European Community reported that its commitment period reserve has not changed since the initial report review (17,659,243,358 t CO<sub>2</sub> eq). The ERT agrees with this figure. The ERT recommends that the European Community include information on its commitment period reserve in its next annual submission.

## **IX. Conclusions and recommendations**

91. The ERT concluded that the 2008 inventory submission of the European Community is generally of a high quality and shows an improvement on the 2007 submission, particularly in the area of transparency. The transparency could be further improved by providing more detailed information, especially information relating to the complexity of different geographical coverage of some member States as a Party to the Kyoto Protocol and as a member State of the European Community, such as the CRF table for the base year of the Kyoto Protocol. The European Community has submitted an NIR that generally follows the structure set out in the UNFCCC reporting guidelines, except for some annexes such as the annex explaining the CO<sub>2</sub> reference approach and the annex including assessment of completeness. The submission is largely complete in terms of source/sink categories, GHGs and geographical coverage.

92. Taking into account the fact that the inventory of the European Community is a compilation of inventories of individual member States, in general terms the completeness, consistency and comparability of the 2008 submission generally conforms with the UNFCCC reporting guidelines, the Revised 1996 IPCC guidelines, the IPCC good practice guidance and the IPCC good practice guidance for LULUCF.

93. The key recommendations are that the European Community:
- (a) Extend the overall uncertainty analysis to include the LULUCF sector and use the overall uncertainty analysis to prioritize improvements to the inventory;
  - (b) Further improve consistency between the NIR and the CRF tables;
  - (c) Further develop the QA activities;
  - (d) Encourage the relevant member States to report their emissions from iron and steel production in a consistent manner across the member States and in line with the result of the internal review;
  - (e) Encourage all member States to report both actual and potential emissions of HFCs, PFCs and SF<sub>6</sub>;
  - (f) Encourage all member States to report all LULUCF categories and pools, and to report these in a consistent manner;
  - (g) Work with member States to harmonize the method used to estimate emissions in the waste sector.

## **X. Questions of implementation**

94. 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.ipcc-nggip.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\\_lulucf/gp\\_lulucf.htm](http://www.ipcc-nggip.iges.or.jp/public/gp/lulucf/gp_lulucf.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>>.

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**B. Additional information provided by the Party**

Responses to questions during the review were received from Ms. Erasmia Kitou (European Commission, DG Environment) and Mr. Bernd Guegele (Federal Environmental Agency Ltd. (Umweltbundesamt GmbH)), including additional material on the methodology and assumptions used.

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