

**The European Community's initial report under the Kyoto Protocol**  
Report to facilitate the calculation of the assigned amount of the European Community  
pursuant to Article 3, paragraphs 7 and 8 of the Kyoto Protocol  
Submission to the UNFCCC Secretariat

ISSN 1725-2237





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Cover design: EEA  
Layout: EEA

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Luxembourg: Office for Official Publications of the European Communities, 2006

ISBN 92-9167-914-3  
ISSN 1725-2237

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# Acknowledgements

This report was prepared by the European Environment Agency and its European Topic Centre for Air and Climate Change (ETC/ACC). The coordinating author was Anke Herold (ETC). Other authors were Erasmia Kitou (DG Environment), István-Laszlo Bart (DG Environment), Francois Dejean (EEA), Odette Deuber (ETC), Sandro Federici (JRC), Ricardo Fernandez (EEA), Michael Gager (ETC), Jakob Graichen (ETC), Giacomo Grassi (JRC), Bernd Gugele (ETC/ACC), Ralph Harthan (ETC), Elisabeth Kampel (ETC), Traute Koether (ETC),

Adrian Leip (JRC), Barbara Muik (ETC), Elisabeth Rigler (ETC), Manfred Ritter (ETC), Nikolaos Roubanis (Eurostat), Barbara Schodl (ETC), and Zoltan Somogyi (JRC). The EEA project manager was Andreas Barkman. The EEA acknowledges the input received for the final version of this report and the comments received on the draft report from the European Community Member States, which have been included in the final version of the report as far as practically feasible.

Title of the report	<b>The European Community's initial report under the Kyoto Protocol</b> Report to facilitate the calculation of the assigned amount of the European Community pursuant to Article 3, paragraphs 7 and 8 of the Kyoto Protocol Submission to the UNFCCC Secretariat
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# Summary

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This report is an update of the submission of the European Community sent at 18 December 2006 to the secretariat of the United Nations Framework Convention on Climate Change (UNFCCC) to facilitate the calculation of the assigned amount pursuant to Article 3, paragraphs 7 and 8 under the Kyoto Protocol, and demonstrate its capacity to account for its emissions and assigned amount for the first commitment period under the Kyoto Protocol.

The European Community is the only regional economic integration organisation that is a Party to the UNFCCC and the Kyoto Protocol. The Kyoto Protocol, under Article 4, provides the option for Parties to fulfil their commitments under Article 3 jointly. The agreement of the European Community and its Member States to fulfil their respective commitments under Article 3, paragraph 1 of the Kyoto Protocol jointly (i.e. European Community joint fulfilment agreement) established quantified emission limitation and reduction commitments for the Community and its Member States for the first commitment period from 2008 to 2012 (Council Decision 2002/358/EC)<sup>(1)</sup>. These commitments define the Member States' assigned amounts under the Kyoto Protocol.

At the time of its ratification of the Kyoto Protocol, the European Community included 15 Member States. In accordance with Article 4, paragraph 4 of the Kyoto Protocol, the accession of 10 additional Member States after ratification does not affect the Community's commitments under the Protocol. Therefore, the Community's calculation of its assigned amount refers to the 15 Member States being members prior to May 2004. This report also presents information for the 8 new EU Member States which have quantified emission limitation or reduction obligations under the Kyoto Protocol (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovenia and Slovakia).

The European Community's assigned amount pursuant to Article 3 paragraphs 7 and 8 is equal to the percentage inscribed for the Community in Annex B of the Kyoto Protocol (92 %) of its base-year emissions multiplied by five. The Community's assigned amount resulting from this calculation is 19 682 548 287 tonnes of CO<sub>2</sub>-equivalent.

The commitment-period reserve for the European Community is calculated as 90 per cent of its assigned amount pursuant to Article 3, paragraphs 7 and 8, of the Kyoto Protocol, which results in 17 714 293 458 tonnes.

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<sup>(1)</sup> OJ L 130, 15.05.2002, p. 1.

# 1 Introduction

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This report is an update of the submission of the European Community (EC) sent at 18 December 2006 to the secretariat of the United Nations Framework Convention on Climate Change (UNFCCC) to facilitate the calculation of the assigned amount pursuant to Article 3, paragraphs 7 and 8, and demonstrate its capacity to account for its emissions and assigned amount for the first commitment period under the Kyoto Protocol <sup>(2)</sup>. This report is required under Article 7 of Decision 280/2004/EC <sup>(3)</sup>, which implements paragraphs 5 to 8 in the Annex to decision 13/CMP.1 (Modalities for the accounting of assigned amounts under Article 7, paragraph 4, of the Kyoto Protocol) under the Kyoto Protocol. These modalities state: *Each Party included in Annex I shall facilitate the calculation of its assigned amount pursuant to Article 3, paragraphs 7 and 8, for the commitment period and demonstrate its capacity to account for its emissions and assigned amount. To this end, each Party shall submit a report, in two parts, containing the information specified in paragraphs 7 and 8 below.* This report presents the items of information specified in paragraphs 7 and 8 of the Annex to decision 13/CMP.1 and follows the order of requirements in these paragraphs. The complete inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases (GHG) not controlled by the Montreal Protocol for the EC are included in Annex I (Inventory Report of the EC) and Annex II (Common reporting format tables for EU-15 and EU-25).

The Kyoto Protocol, under Article 4, provides the option for Parties to fulfil their commitments under Article 3, paragraph 1 jointly, acting in the framework of and together with a regional economic integration organisation. The Kyoto Protocol was ratified by the EC and its Member States on 31 May 2002. At this ratification, the Community declared that it and its Member States would fulfil their respective commitments under Article 3(1) of the Protocol jointly in accordance with Article 4 thereof. At the time of ratification, the following 15 countries were members of the EC: the Kingdom of Belgium, the Kingdom of Denmark, the Federal Republic of Germany, the Hellenic Republic, the

Kingdom of Spain, the French Republic, Ireland, the Italian Republic, the Grand Duchy of Luxembourg, the Kingdom of the Netherlands, the Republic of Austria, the Portuguese Republic, the Republic of Finland, the Kingdom of Sweden, the United Kingdom of Great Britain and Northern Ireland <sup>(4)</sup>. These were also the 15 States that were members of the EC when the Kyoto Protocol was adopted in December 1997.

By 1 May 2004, 10 additional Member States (Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, the Slovak Republic and Slovenia) acceded to the European Union. Eight of the acceding Member States have quantified emission limitation or reduction commitments under Article 3, paragraph 1 of the Protocol. Cyprus and Malta are not Annex I Parties under UNFCCC and have not committed themselves to a quantified emission limitation or reduction commitment under Article 3, paragraph 1 of the Protocol.

In accordance with Article 4, paragraph 4, this alteration in the composition of the EC after adoption of the Kyoto Protocol does not affect the Community's commitments under the Kyoto Protocol. Therefore the calculation of EC's assigned amount refers to the EU-15 Member States.

However, all 25 Member States including Cyprus and Malta, are required to report individual greenhouse gas inventories prepared in accordance with the UNFCCC reporting guidelines to the Commission by 15 January every year under Decision 280/2004/EC <sup>(3)</sup>. For this reason, this report includes information for all 25 Member States of the Community. The information for EU-25 is clearly separated from that for the EU-15 and from the information for the new Member States (EU-8) that have commitments under Article 3 of the Kyoto Protocol. In accordance with Community law, the greenhouse gas inventory information presented in Annex I and Annex II also includes information for Cyprus and Malta because the inventory information requested in decision 13/CMP.1 under

<sup>(2)</sup> This document further refers to this report as *Report to facilitate the calculation of the assigned amount*.

<sup>(3)</sup> OJ L 49, 19.02.2004, p. 1.

<sup>(4)</sup> This document further refers to this group of Member States as EU-15.



the Kyoto Protocol (*Modalities for the accounting of assigned amounts under Article 7, paragraph 4, of the Kyoto Protocol*) refers to the greenhouse gas inventory information under the Convention.

According to decision 13/CMP.1 (*Modalities for the accounting of assigned amounts under Article 7, paragraph 4, of the Kyoto Protocol*), the assigned amount report is to consist of two parts. Part one of the assigned amount report shall contain the following information, or references to such information where it has been previously submitted to the secretariat:

- (a) Complete inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol for all years from 1990, or another approved base year or period under Article 3, paragraph 5, to the most recent year available, prepared in accordance with Article 5, paragraph 2, and relevant decisions of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (COP/MOP), taking into account any relevant decisions of the Conference of the Parties (COP);
- (b) Identification of its selected base year for hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride in accordance with Article 3, paragraph 8;
- (c) The agreement under Article 4, where the Party has reached such an agreement to fulfil its commitments under Article 3 jointly with other Parties;
- (d) Calculation of its assigned amount pursuant to Article 3, paragraphs 7 and 8, on the basis of its inventory of anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol.

Part two of the report shall contain the following information, or references to such information where it has been previously submitted to the secretariat:

- (a) Calculation of its Commitment-period reserve in accordance with decision 11/CMP.1 (Modalities, rules and guidelines for emissions trading under Article 17 of the Kyoto Protocol);
- (b) Identification of its selection of single minimum values for tree-crown cover, land area and tree height for use in accounting for its activities under Article 3, paragraphs 3 and 4, together with a justification of the consistency of those values with the information that has been historically reported to the UN Food and Agriculture Organization or other international bodies, and in the case of difference, an explanation of why and how such values were chosen, in accordance with decision 16/CMP.1 (Land use, land-use change and forestry);
- (c) Identification of its election of activities under Article 3, paragraph 4, for inclusion in its accounting for the first commitment period, together with information on how its national system under Article 5, paragraph 1, will identify land areas associated with the activities, in accordance with decision 15/CMP.1 (Land use, land-use change and forestry);
- (d) Identification of whether, for each activity under Article 3, paragraphs 3 and 4, it intends to account annually or for the entire commitment period;
- (e) A description of its national system in accordance with Article 5, paragraph 1, reported in accordance with the guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol;
- (f) A description of its national registry, reported in accordance with the guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol.

Chapters 2 and 3 of this report, presenting the items of information specified above, constitute Part 1 and Part 2, respectively of the EC report to facilitate the calculation of its assigned amount.

## 2 Part 1

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### 2.1 Inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol

The annual greenhouse gas inventory of the EC serves two purposes:

Firstly, the EC, the only regional economic integration organisation that is a Party to the UNFCCC and the Kyoto Protocol, is subject to the requirement under Article 12 of the Convention to report annual greenhouse gas inventories for the area covered by its Member States.

Secondly, under Decision 280/2004/EC <sup>(5)</sup>, the European Commission has to assess annually whether the actual and projected progress of Member States is sufficient to ensure fulfilment of the EC's commitments under the UNFCCC and the Kyoto Protocol. For this purpose, the Commission is required to prepare a progress evaluation report for the European Parliament and the Council. The annual EC inventory is the basis for the progress evaluation.

The annual EC greenhouse gas inventories are compiled under Decision 280/2004/EC <sup>(5)</sup>. The anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol reported in the EC greenhouse gas inventory are the sum of the emissions and removals of either 15 (under the Kyoto Protocol) or 25 Member States (under the UNFCCC) submitted in their respective national inventories.

The complete inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol for all years from 1990 to 2004 are included in Annex I (EC inventory report) and Annex II

(Common reporting format tables for EU-15 and EU-25) of this report <sup>(6)</sup>.

#### 2.1.1 Geographical coverage of the European Community inventory

Table 1 shows the geographical coverage of the Member States' national inventories under the Kyoto Protocol. France is the only Member State where the geographical coverage under the Kyoto Protocol is different from the coverage under the UNFCCC. As the inventory figures of the EC are the sum of Member States' inventories, the EC inventory covers the same geographical area as the inventories of the Member States.

#### 2.1.2 Gap filling

The most recent submissions from Member States received under Decision 280/2004/EC were complete at summary and sectoral level. Gap-filling methods agreed in Decision 2005/166/EC <sup>(7)</sup> were in some cases applied to provide a complete set of background CRF tables for the European Community. Details are provided in section 1.8.2 of the European Community inventory report in Annex I of this report. The gap filling applied for the EC's inventory does not affect the calculation of the total greenhouse gas emissions in the base year of the EC, as only gaps in background data tables were filled to provide complete background CRF tables for the EC.

#### 2.1.3 Greenhouse gas inventory for 1990–2004

Total GHG emissions, without emissions and removals by Land Use, Land Use Change and Forestry (LULUCF), in the EU-25 decreased by 4.9 % between 1990 and 2004 (Figure 1). Greenhouse gas emissions increased by 0.4 % (+ 17 million tonnes) between 2003 and 2004 (Table 2).

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<sup>(5)</sup> OJ L 49, 19.02.2004, p. 1.

<sup>(6)</sup> Annex II includes revised common reporting format tables for France, Luxembourg and Poland compared to the initial report of the European Community sent on 18 December 2006.

<sup>(7)</sup> OJ L 55, 01.03.2005, p. 57.

In 2004 total GHG emissions in the EU-15, without LULUCF, were 0.8 % (36 million tonnes CO<sub>2</sub>-equivalents) below 1990 emissions. Compared to the base year <sup>(8)</sup>, emissions in 2004 were 1.2 % or

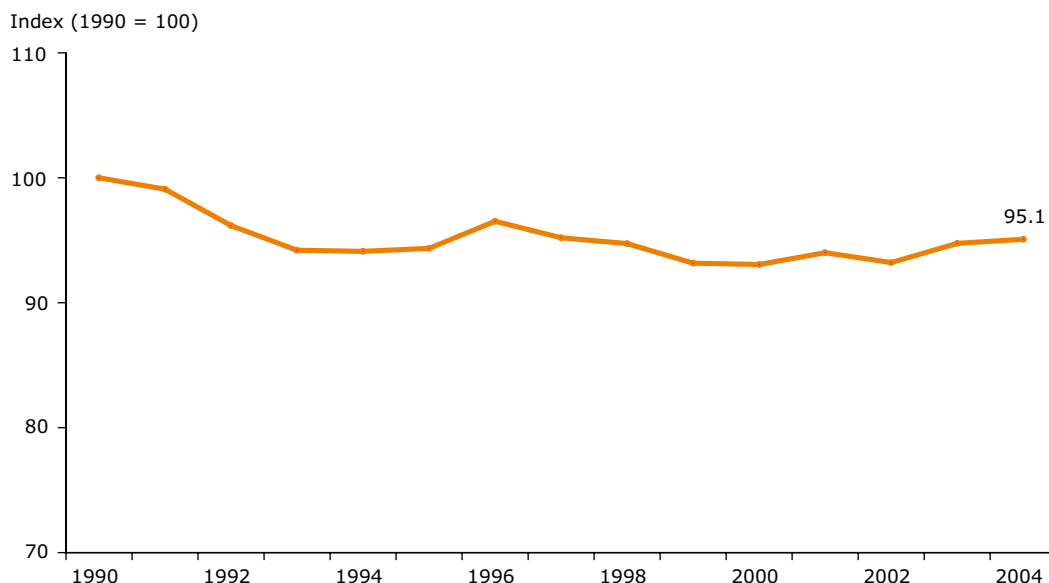
51 million tonnes CO<sub>2</sub>-equivalents lower (Figure 2). Under the Kyoto Protocol, the EC has agreed to reduce GHG emissions by 8 % by 2008–2012, from base-year levels.

**Table 1 Geographical coverage of the European Community inventory under the Kyoto Protocol**

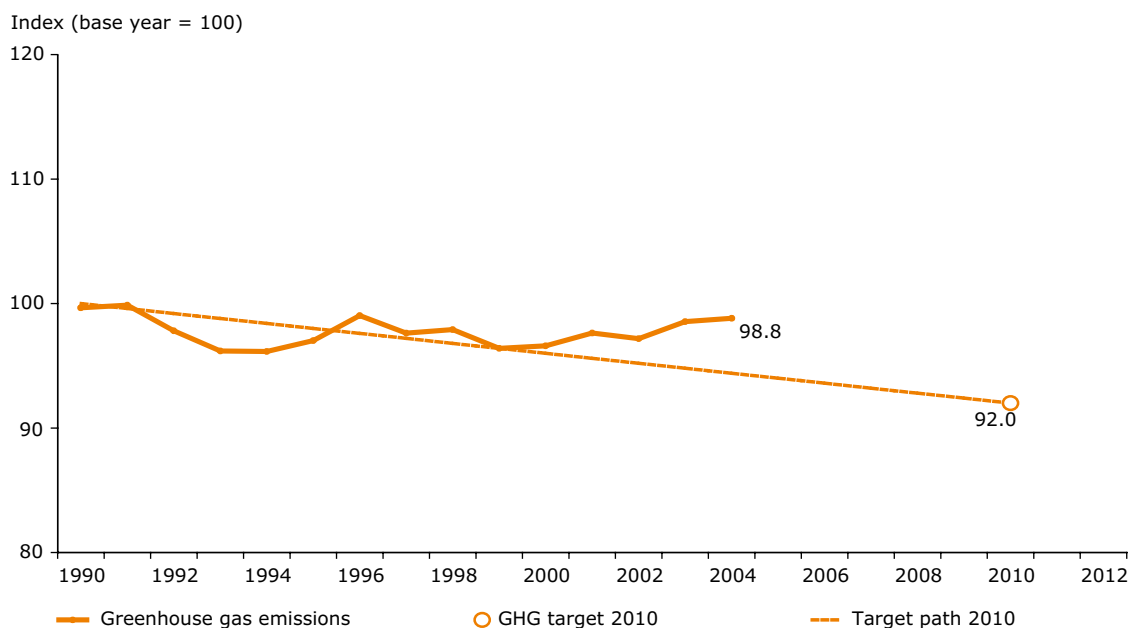
Member State	Geographical coverage
<b>EU-15</b>	
Austria	Austria
Belgium	Belgium consisting of the Flemish Region, the Walloon Region and the Brussels Region
Denmark	Denmark: Greenland and the Faroe Islands are excluded
Finland	Finland including Åland Islands
France	France and the overseas departments (Guadeloupe, Martinique, Guyana and Reunion). Under the UNFCCC the French territory currently also includes the overseas territories (New Caledonia, Wallis and Futuna, French Polynesia, Mayotte, Saint-Pierre and Miquelon)
Germany	Germany
Greece	Greece
Ireland	Ireland
Italy	Italy
Luxembourg	Luxembourg
Netherlands	The legal territory of the Netherlands used in the inventory includes a 12-mile zone from the coastline and also inland water bodies. It excludes Aruba and the Netherlands Antilles, which are self-governing dependencies of the Royal Kingdom of the Netherlands
Portugal	Mainland Portugal and the two autonomous regions of Madeira and Azores Islands
Spain	Spanish part of Iberian mainland, Canary Islands, Balearic Islands, Ceuta and Melilla
Sweden	Sweden
United Kingdom	The geographical coverage of the UK inventory has been extended from January 2006 onwards to include emissions from the UK Crown Dependencies (Jersey, Guernsey and the Isle of Man) and a number of the UK Overseas Territories (OTs). These OTs are the Cayman Islands, Falkland Islands, Bermuda, Montserrat and Gibraltar

<sup>(8)</sup> For EU-15 the base year for CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O is 1990; for the fluorinated gases 12 Member States have indicated to select 1995 as the base year, whereas Austria, France and Italy have chosen 1990. As the EC inventory is the sum of Member States' inventories, the EC base-year estimates for fluorinated gas emissions are the sum of 1995 emissions for 12 Member States and 1990 emissions for Austria, France and Italy.

**Figure 1 EU-25 GHG emissions 1990–2004 (excl. LULUCF)**



**Figure 2 EU-15 GHG emissions 1990–2004 compared with target for 2008–2012 (excl. LULUCF)**



**Note:** The linear target path is not intended as an approximation of past and future emission trends. It provides a simple measure of how close the EU-15 emissions in any year are to the linear path from emissions in 1990 to the EU Kyoto target, represented by 92 percent of base-year emissions in 2010. The presentation does not take into account the use of flexible mechanisms or activities under Article 3, paragraph 3 and paragraph 4 of the Kyoto Protocol and is therefore no measure of (possible) compliance of the EU-15 with its GHG target in 2008–2012. The unit is index points with base-year emissions being 100.

GHG emission data for the EU-15 as a whole do not include emissions and removals from LULUCF. In addition, no adjustments for temperature variations or electricity trade are considered.

For the fluorinated gases the EU-15 base year is the sum of Member States base years. 12 Member States have indicated to select 1995 as the base year under the Kyoto Protocol, Austria, France and Italy have indicated to use 1990. Therefore, the EU-15 base-year estimates for fluorinated gas emissions are the sum of 1995 emissions for 12 Member States and 1990 emissions for Austria, France and Italy.

The index on the y axis refers to the base year (1995 for fluorinated gases for all Member States except Austria, France, 1990 for fluorinated gases for Austria, France and Italy and for all other gases). This means that the value for 1990 needs not to be exactly 100.

**Table 2 Overview of Member States' contribution to total EC GHG emissions (excluding LULUCF) from 1990–2004 in CO<sub>2</sub>-equivalents (Tg)**

Member State	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Austria	79	83	76	76	77	80	84	83	83	81	81	85	87	93	91
Belgium	146	149	147	146	151	152	156	148	153	147	147	147	145	148	148
Cyprus	6	6	7	7	7	7	8	8	8	8	9	8	9	9	9
Czech Republic	196	183	166	160	154	154	156	160	150	142	149	149	144	148	147
Denmark	69	80	73	76	79	76	90	80	76	73	68	70	69	74	68
Estonia	43	40	30	23	24	22	23	23	21	19	19	19	19	21	21
Finland	71	69	68	69	75	71	77	76	72	72	70	75	78	86	81
France	564	586	579	554	549	558	574	567	581	564	557	557	552	556	558
Germany	1 229	1 182	1 131	1 118	1 100	1 095	1 116	1 080	1 054	1 023	1 023	1 035	1 019	1 024	1 015
Greece	109	108	109	109	112	113	117	122	127	127	132	133	133	137	138
Hungary	104	96	86	86	86	84	87	85	84	84	82	85	82	84	84
Ireland	56	56	56	56	58	59	61	64	66	67	69	71	69	68	68
Italy	519	521	519	513	505	533	526	532	542	549	554	560	561	576	581
Latvia	26	23	19	16	14	12	12	12	11	11	10	11	11	11	11
Lithuania	48	50	30	24	23	22	23	22	23	20	19	20	20	20	21
Luxembourg	13	13	13	13	12	10	10	9	8	9	10	10	11	11	13
Malta	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
Netherlands	213	218	217	222	222	225	233	226	228	215	214	216	215	216	218
Poland	460	438	440	430	440	417	437	427	404	402	386	383	370	383	388
Portugal	60	62	66	65	67	71	69	72	77	85	82	84	88	83	84
Slovakia	73	64	59	55	52	53	54	54	52	51	49	52	51	51	51
Slovenia	18	17	17	18	18	18	19	19	19	18	19	20	20	20	20
Spain	287	293	301	290	306	318	311	331	342	370	384	385	402	408	428
Sweden	72	73	72	72	75	74	77	73	73	70	68	69	70	71	70
United Kingdom	776	780	756	736	725	714	737	713	706	672	672	680	659	664	665
<b>EU-25</b>	<b>5 240</b>	<b>5 192</b>	<b>5 039</b>	<b>4 936</b>	<b>4 931</b>	<b>4 944</b>	<b>5 057</b>	<b>4 988</b>	<b>4 964</b>	<b>4 882</b>	<b>4 876</b>	<b>4 926</b>	<b>4 884</b>	<b>4 965</b>	<b>4 982</b>
<b>EU-15</b>	<b>4 263</b>	<b>4 272</b>	<b>4 184</b>	<b>4 114</b>	<b>4 112</b>	<b>4 150</b>	<b>4 236</b>	<b>4 176</b>	<b>4 188</b>	<b>4 123</b>	<b>4 132</b>	<b>4 176</b>	<b>4 157</b>	<b>4 215</b>	<b>4 227</b>

## 2.2 Base year for hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride in accordance with Article 3, paragraph 8 of the Kyoto Protocol

The base-year emissions for hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF<sub>6</sub>) in accordance with Article 3, paragraph 9 of the Kyoto Protocol of the EC are the sum of the respective base-year emissions of the 15 Member States that agreed to jointly fulfil their respective commitments under Article 3, paragraph 1 of the Kyoto Protocol in accordance with Article 4 thereof. The base-year choices of the EU-15 Member States are summarised in Table 3 and Table 4 presents the elections of EU-8.

## 2.3 Agreement under Article 4 of the Kyoto Protocol

The Kyoto Protocol, under Article 4, provides the option for parties to fulfil their commitments under Article 3 jointly, acting in the framework of and together with a regional economic integration organisation. The agreement of the EC and its Member States to fulfil their respective commitments under Article 3, paragraph 1 of the Kyoto Protocol jointly (the joint fulfilment agreement) established quantified emission limitation and reduction commitments for the Community and its Member States for the first commitment period 2008 to 2012. These commitments define the Member States' assigned amount under the Kyoto Protocol. The full text of this agreement is contained in the Council

**Table 3 EU-15 base years for HFCs, PFCs and SF<sub>6</sub>**

Member State	Base year for HFCs, PFCs and SF <sub>6</sub>
<b>EU-15</b>	
Austria	1990
Belgium	1995
Denmark	1995
Finland	1995
France	1990
Germany	1995
Greece	1995
Ireland	1995
Italy	1990
Luxembourg	1995
Netherlands	1995
Portugal	1995
Spain	1995
Sweden	1995
United Kingdom	1995

**Table 4 Base years for HFCs, PFCs and SF<sub>6</sub> of new Member States with commitments under the Kyoto Protocol**

Member State	Base year for HFCs, PFCs and SF <sub>6</sub>
<b>EU-8</b>	
Czech Republic	1995
Estonia	1995
Hungary	1995
Latvia	1995
Lithuania	1995
Poland	1995
Slovakia	1990
Slovenia	1995

Decision approving the Kyoto Protocol <sup>(9)</sup> and was notified to the secretariat of the UNFCCC upon ratification by the Community and its Member States.

When the Protocol was signed in New York on 29 April 1998, the Community declared that it and its Member States would fulfil their respective commitments under Article 3, paragraph 1 of the Protocol jointly in accordance with Article 4 thereof. In deciding to fulfil their respective commitments jointly in accordance with Article 4 of the Kyoto Protocol, the Community and the Member States are jointly responsible, under paragraph 6 of that Article and in accordance with Article 24, paragraph 2 of the Protocol, for the fulfilment by the Community of its quantified emission reduction commitment under Article 3, paragraph 1 of the Protocol. Consequently, and in accordance with Article 10 of the Treaty establishing the EC, Member States individually and collectively have the obligation to take all appropriate measures, whether general or particular, to ensure fulfilment of the obligations resulting from action taken by the institutions of the Community, including the Community's quantified emission reduction commitment under the Protocol, to facilitate the achievement of this commitment and to abstain from any measure that could jeopardise the attainment of this commitment.

Council Decision 2002/358/EC <sup>(9)</sup> approved the Kyoto Protocol on behalf of the EC and transposed the joint agreement under Article 4 of the Kyoto

Protocol into European law. The quantified emission limitation and reduction commitments agreed by the EC and its Member States for the first commitment period, from 2008 to 2012, under the Kyoto Protocol are set out in Annex II to Council Decision 2002/358/EC. This Annex is shown in Table 5 below.

When the EC approved the Kyoto Protocol, the following States were members of the EC: the Kingdom of Belgium, the Kingdom of Denmark, the Federal Republic of Germany, the Hellenic Republic, the Kingdom of Spain, the French Republic, Ireland, the Italian Republic, the Grand Duchy of Luxembourg, the Kingdom of the Netherlands, the Republic of Austria, the Portuguese Republic, the Republic of Finland, the Kingdom of Sweden, the United Kingdom of Great Britain and Northern Ireland. The EC agreement for joint fulfilment of the commitments under Article 3 of the Protocol in accordance with Article 4 of the Kyoto Protocol includes those 15 countries which were Member States by the time of approval of the Protocol.

By 1 May 2004, 10 additional Member States (Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia) acceded the EC. Eight of those Member States have quantified emission reduction commitments under Article 3 of the Protocol. Cyprus and Malta are not Annex I Parties under the UNFCCC and have not committed themselves to a quantified emission reduction commitment under Article 3, paragraph 1 of the Protocol.

**Table 5 Quantified emission limitation or reduction commitments for the purpose of determining the respective emission levels allocated to the EC and its Member States in accordance with Article 4 of the Kyoto Protocol**

Member State/EU institution	Quantified emission reduction commitment under joint fulfilment agreement (percentage of base year)
<b>EC</b>	<b>92 %</b>
Austria	87 %
Belgium	92.5 %
Denmark	79 %
Finland	100 %
France	100 %
Germany	79 %
Greece	125 %
Ireland	113 %
Italy	93.5 %
Luxembourg	72 %
Netherlands	94 %
Portugal	127 %
Spain	115 %
Sweden	104 %
United Kingdom	87.5 %

<sup>(9)</sup> OJ L 130, 15.05.2002, p. 1.

In accordance with Article 4, paragraph 4, this alteration in the composition of the EC after approval of the Kyoto Protocol does not affect the commitments under the Kyoto Protocol.

Table 6 presents the quantified emission reduction commitments pursuant to Annex B of the Kyoto Protocol for the Member States that are not part of the agreement to fulfil their respective commitments jointly under Article 3, paragraph 1 of the Protocol.

Council Decision 2002/358/EC <sup>(10)</sup> was notified on behalf of the EC, to the secretariat of the UNFCCC in accordance with Article 4, paragraph 2 of the Protocol.

The EC's assigned amount pursuant to Article 3, paragraphs 7 and 8 is calculated on the basis of the inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol of the 15 Member States that form part of the agreement on the joint fulfilment of their respective commitments under Article 3, paragraph 1 of the Kyoto Protocol, in accordance with Article 4 thereof.

In accordance with the provisions of the Treaty establishing the EC, the EC inventory which is part of this report also provides inventory information for those 10 Member States that are not included in the agreement for the joint fulfilment of their respective commitments under Article 3, paragraph 1 of the Kyoto Protocol. However, these inventories are not included in the calculation of the assigned amount pursuant to Article 3, paragraphs 7 and 8 of the EC.

Each Member State will also individually report its calculations of the assigned amount pursuant to Article 3, paragraphs 7 and 8, to the UNFCCC,

except for Cyprus and Malta which do not have commitments under the Kyoto Protocol.

## 2.4 Calculation of the assigned amount pursuant to Article 3, paragraphs 7 and 8 for the EC

The assigned amount is calculated pursuant to Article 3, paragraphs 7 and 8 of the Kyoto Protocol. The base-year emissions of the EC are equal to the sum of the respective base-year emissions of the 15 Member States that agreed to jointly fulfil the commitments under Article 3 of the Kyoto Protocol. Base-year emissions for the EC are aggregated in the same way as the annual greenhouse gas inventory of the EC, while taking account of the appropriate base-year for HFCs, PFCs and SF<sub>6</sub> for each Member State, as given by Table 3.

The base-year emissions of Member States were taken from the Member States' greenhouse gas emission inventories submitted under Decision 280/2004/EC <sup>(11)</sup>, the Member States' reports to facilitate the calculation of assigned amounts pursuant to Article 3 paragraphs 7 and 8 submitted to the Commission, and in some cases on the updated inventory data received directly from Member States after the submission of the final reports mentioned before. For those Member States for whom land use, land-use change and forestry constituted a net source of emissions in 1990, emissions from deforestation were included in the base-year emissions pursuant to Article 3 paragraph 7 of the Kyoto Protocol. The Community's base-year emissions are 4 278 814 845 tonnes of CO<sub>2</sub>-equivalent.

The EC's assigned amount pursuant to Article 3 paragraphs 7 and 8 is equal to the percentage

**Table 6 Quantified emission reduction commitments pursuant to Annex B of the Kyoto Protocol for EU-8**

Quantified emission reduction commitment as laid down in Annex B of the Kyoto Protocol (percentage of base year or period)	
Czech Republic	92 %
Estonia	92 %
Hungary	94 %
Latvia	92 %
Lithuania	92 %
Poland	94 %
Slovakia	92 %
Slovenia	92 %

<sup>(10)</sup> OJ L 130, 15.05.2002, p. 1.

<sup>(11)</sup> OJ L 49, 19.02.2004, p. 1.



inscribed for the Community in Annex B of the Kyoto Protocol (92 %) of its base-year emissions, multiplied by five. The equation for the calculation of the Community's assigned amount is:

$EC\ assigned\ amount = Base\ year\ emissions\ of\ EU-15 \times 5 \times percentage\ inscribed\ in\ Annex\ B\ of\ the\ Kyoto\ Protocol\ (92\ \%)$ .

Based on the information received from Member States, the Commission has determined the respective base-year emission levels allocated to the EC and to each Member State in Commission Decision 2006/944/EC of 16 December 2006 determining the respective emission levels allocated to the Community and each of its Member States

under the Kyoto Protocol pursuant to Council Decision 2002/358/EC <sup>(12)</sup> in terms of tonnes of carbon dioxide equivalent for the first quantified emission limitation and reduction commitment period under the Kyoto Protocol.

The Community's assigned amount resulting from this calculation is **19 682 548 287 tonnes CO<sub>2</sub>-equivalent**. The calculations of the Community's assigned amount and assigned amounts of Member States are illustrated in Table 7.

The assigned amount for the EC, calculated pursuant to Article 3 paragraphs 7 and 8 as described above, exceeds the sum of Member

**Table 7 Base-year emissions and assigned amounts of EU-15 and the EC**

Member State/EC	Base-year emissions *)	Emissions in 1990 due to deforestation (Article 3(7) Kyoto Protocol)	Emission reduction commitment as laid down in Annex B of the Kyoto Protocol	Calculated assigned amount
	Tonnes CO <sub>2</sub> -equivalent	Tonnes CO <sub>2</sub> -equivalent	%	Tonnes CO <sub>2</sub> -equivalent
EC	4 278 814 845	1 619 634	92 %	19 682 548 287
			<b>Commitment as in the joint fulfilment agreement</b>	
Austria	78 959 404	Not applicable	87 %	343 473 407
Belgium	146 890 526	Not applicable	92.5 %	679 368 682
Denmark	69 323 336	No emissions from deforestation	79 %	273 827 177
Finland	71 096 195	Not applicable	100 %	355 480 975
France	563 925 328	Not applicable	100 %	2 819 626 640
Germany	1 232 536 951	Not applicable	79 %	4 868 520 955
Greece	111 054 072	Not applicable	125 %	694 087 947
Ireland	55 780 237	No emissions from deforestation	113 %	315 158 338
Italy	519 464 323	Not applicable	93.5 %	2 428 495 710
Luxembourg **)	12 686 610	Not applicable	72 %	45 671 796
Netherlands	214 588 451	280 212	94 %	1 008 565 720
Portugal	60 938 032	973 829	127 %	386 956 503
Spain	289 385 637	Not applicable	115 %	1 663 967 412
Sweden	72 281 599	Not applicable	104 %	375 864 317
United Kingdom	779 904 144	365 593	87.5 %	3 412 080 630

**Note:** \*) Base-year emissions exclude emissions and removals from the LULUCF sector but include emissions due to deforestation in the case of Member States for which LULUCF constituted a net source of emissions in 1990.

\*\*) Luxembourg revised its base year emissions at the end of December 2006 compared to data included in the EC's initial report sent to the UNFCCC by 18 December 2006. This change results in revised base year emissions and a slightly revised assigned amount for the EC.

<sup>(12)</sup> OJ L 358, 16.12.2006, p. 87–89 and corrigendum in OJ L367, 22.12.2006, p. 80.

States' assigned amounts by 11 402 078 tonnes CO<sub>2</sub>-equivalent. This arithmetical difference is due to the fact that the joint agreement under Article 4 of the Kyoto Protocol was formulated in percentage contributions based on base-year data available in 1998. As the Member States have revised their base-year emissions, the adopted percentage contributions under the burden-sharing agreement no longer exactly match EC's 92 % commitment.

As each assigned amount unit (AAU) can only be issued into a national registry once, the assigned amount of each Member State should be issued into its respective national registry after being recorded in the compilation and accounting database. The

remaining assigned amount for the EC, amounting to 11 402 078 tonnes CO<sub>2</sub>-equivalent (which is the arithmetical difference between the Community's assigned amount and the sum of the Member States' assigned amounts), will be issued in the registry of the EC in accordance with Commission Decision 2006/944/EC of 16 December 2006 determining the respective emission levels allocated to the Community and each of its Member States under the Kyoto Protocol pursuant to Council Decision 2002/358/EC<sup>(13)</sup>.

Table 8 presents the base-year emissions and assigned amounts of the new Member States with commitments under Article 3 of the Kyoto Protocol.

**Table 8 Base-year emissions and assigned amounts of new Member States with commitments under Article 3 of the Kyoto Protocol**

Member State	Base-year emissions	Emissions in 1990 due to deforestation (Art 3(7) Kyoto Protocol)	Emission reduction commitment as laid down in Annex B of the Kyoto Protocol	Calculated assigned amount
	Tonnes CO <sub>2</sub> -equivalent		%	Tonnes CO <sub>2</sub> -equivalent
Czech Republic	196 280 576	Not applicable	92 %	902 890 649
Estonia	43 022 295	Not applicable	92 %	197 902 558
Hungary	123 034 090	Not applicable	94 %	578 260 222
Latvia	25 894 218	Not applicable	92 %	119 113 402
Lithuania	48 103 464	Not applicable	92 %	221 275 934
Poland	586 902 634	Not applicable	94 %	2 758 442 380
Slovakia	73 360 100	Not applicable	92 %	337 456 459
Slovenia	20 203 252	Not applicable	92 %	92 934 961

<sup>(13)</sup> OJ L 130, 15.05.2002, p. 1.

## 3 Part 2

### 3.1 Calculation of the Commitment-period reserve for the EC in accordance with decision 11/CMP.1 under the Kyoto Protocol

The Commitment-period reserve is the lowest of either 90 per cent of a Party's assigned amount calculated pursuant to Article 3, paragraphs 7 and 8, of the Kyoto Protocol, or 100 per cent of five times its most recently reviewed inventory. The

commitment-period reserve for the EC (EU-15) is calculated as 90 per cent of its assigned amount pursuant to Article 3, paragraphs 7 and 8, of the Kyoto Protocol, which results in 17 714 293 458 tonnes CO<sub>2</sub>-equivalent. Table 9 presents the commitment-period reserves for the EC and the EU-15 Member States.

The EC's commitment-period reserve will be held in the registries of the EU-15 Member States and the EC.

**Table 9** Commitment-period reserve of the EC and the EU-15 Member States

Member State/ EU institution	Total assigned amount	Method: 90 % of assigned amount	Method: 5 times most recently reviewed inventory (reported for year 2004 *)	Method to calculate the commitment-period reserve	Commitment- period reserve
	Tonnes CO <sub>2</sub> -equivalent	Tonnes CO <sub>2</sub> -equivalent	Tonnes CO <sub>2</sub> -equivalent		Tonnes CO <sub>2</sub> -equivalent
<b>EC</b>	<b>19 682 548 287</b>	<b>17 714 293 458</b>	<b>21 140 031 162</b>	<b>90 % of assigned amount</b>	<b>17 714 293 458</b>
Austria	343 473 407	309 126 067	456 495 414	90 % of assigned amount	309 126 067
Belgium	679 368 682	611 431 814	739 366 619	90 % of assigned amount	611 431 814
Denmark	273 827 177	246 444 459	348 101 591	90 % of assigned amount	246 444 459
Finland	355 480 975	319 932 878	407 173 735	90 % of assigned amount	319 932 878
France	2 819 626 640	2 537 663 976	2 787 994 917	90 % of assigned amount	2 537 663 976
Germany	4 868 520 955	4 381 668 860	5 076 363 443	90 % of assigned amount	4 381 668 860
Greece	694 087 947	624 679 152	688 165 077	90 % of assigned amount	624 679 152
Ireland	315 158 338	283 642 504	342 302 299	90 % of assigned amount	283 642 504
Italy	2 428 495 710	2 185 646 139	2 903 965 143	90 % of assigned amount	2 185 646 139
Luxembourg	45 671 796	41 109 574	63 609 250	90 % of assigned amount	41 104 616
Netherlands	1 008 565 720	907 709 148	1 090 428 296	90 % of assigned amount	907 709 148
Portugal	386 956 503	348 260 853	421 776 183	90 % of assigned amount	348 260 853
Spain	1 663 967 412	1 497 570 671	2 139 522 911	90 % of assigned amount	1 497 570 671
Sweden	375 864 317	338 277 885	349 245 177	90 % of assigned amount	338 277 885
United Kingdom	3 412 080 630	3 070 872 567	3 326 650 962	90 % of assigned amount	3 070 872 567

**Note:** \*) For the purpose of the calculation of this column, Member States' inventory submissions for the year 2004, submitted in 2006, were used. Some Member States may interpret the requirement to submit the 'most recently reviewed inventory' as the inventory submitted for 2003, 2004 or 2005 which will result in different values for the Commitment-period reserve calculation compared with this column. However, this potential difference has no effect on the key parameters submitted in this report.

Table 10 shows the Commitment-period reserves for new Member States with quantified emission limitation or reduction commitments under Article 3 of the Kyoto Protocol.

### 3.2 Identification of the selection of single minimum values for tree-crown cover, land area and tree height for use in accounting under Article 3, paragraphs 3 and 4

Member States have selected threshold values for the forest definition for reporting on the activities afforestation, reforestation and deforestation under Article 3, paragraph 3 of the Kyoto Protocol. As the EC aggregates Member States' information, the same values are used as those selected by Member States for the required single minimum values

for tree-crown cover, land area and tree height in accordance with the forest definition used for reporting to the FAO. Table 11 presents an overview on Member States' selections as reported in their reports to facilitate the calculation of the assigned amount.

Table 12 shows an overview on new Member States' selections as reported in their reports to facilitate the calculation of the assigned amount.

### 3.3 Election of activities under Article 3, paragraph 4, for inclusion in the accounting for the first commitment period

Article 3, paragraph 4 of the Kyoto Protocol provides the option to include the activities forest

**Table 10 Commitment-period reserves of new Member States with commitments under Article 3 of the Kyoto Protocol**

Member State	Commitment-period reserve	Method to calculate the commitment-period reserve
	Tonnes CO <sub>2</sub> -equivalent	
Czech Republic	735 719 710	5 times 2003 inventory
Estonia	106 806 120	5 times 2004 inventory
Hungary	419 762 705	5 times 2004 inventory
Latvia	53 730 643	5 times 2004 inventory
Lithuania	105 251 557	5 times 2004 inventory
Poland	1 942 364 425	5 times 2004 inventory
Slovakia	255 230 824	5 times 2004 inventory
Slovenia	83 641 463	90 % of assigned amount

**Table 11 EU-15 Member States' selection of threshold values for the forest definition for reporting under Article 3 paragraph 3**

Member State	Minimum value for tree-crown cover	Minimum tree height	Minimum area for forest land area
Austria	30 %	2 m	0.05 ha
Belgium	20 %	5 m	0.5 ha
Denmark	10 %	5 m	0.5 ha
Finland	10 %	5 m	0.5 ha
France	10 %	5 m	0.5 ha
Germany	10 %	5 m	0.1 ha
Greece	25 %	2 m	0.3 ha
Ireland	20 %	5 m	0.1 ha
Italy	10 %	5 m	0.5 ha
Luxembourg	10 %	5 m	0.5 ha
Netherlands	20 %	5 m	0.5 ha
Portugal	10 %	5 m	1 ha
Spain	20 %	3 m	1 ha
Sweden	10 %	5 m	0.5 ha
United Kingdom	20 %	2 m	0.1 ha

management, cropland management, grazing-land management and revegetation in the accounting of the commitments for the first commitment period. The EC inventory under the Kyoto Protocol will report the sum of the EU-15 Member States' greenhouse gas emissions by sources and removals by sinks from land use, land-use change and forestry activities under Article 3, paragraph 3 and, if any, elected activities under Article 3, paragraph 4 of the Kyoto Protocol. The EC inventory, therefore, will include information on those carbon pools in accordance with paragraph 6(e) of the Guidelines under Article 7, paragraph 1 of the Kyoto Protocol as reported in EU-15 Member States' inventories and

in accordance with decisions on definitions taken by them. Therefore only Member States elect activities under Article 3, paragraph 4 for inclusion in the accounting of the first commitment period. Table 13 presents an overview on EU-15 Member States' elections of activities under Article 3, paragraph 4 as reported in their reports to facilitate the calculation of the assigned amount. No Member State elected to account for revegetation.

Information on how the national system will identify land areas associated with activities under Article 3, paragraph 4 is provided in the assigned amount reports of Member States as the development of the

**Table 12 New Member States' selection of threshold values for the forest definition for reporting under Article 3, paragraph 3**

Member State	Minimum value for tree-crown cover	Minimum tree height	Minimum area for forest land area
Czech Republic	30 %	2 m	0.05 ha
Estonia	30 %	1.3 m	0.5 ha
Hungary	30 %	5 m	0.5 ha
Latvia	20 %	5 m	0.1 ha
Lithuania	10 %	5 m	0.1 ha
Poland	10 %	2 m	0.1 ha
Slovakia	20 %	5 m	0.3 ha
Slovenia	30 %	2 m	0.05 ha

**Table 13 EU-15 Member States of elections of activities under Article 3, paragraph 4**

Member State	Forest management	Cropland management	Grazing-land management
Austria	Not elected	Not elected	Not elected
Belgium	Not elected	Not elected	Not elected
Denmark	Elected	Elected	Elected
Finland	Elected	Not elected	Not elected
France	Elected	Not elected	Not elected
Germany	Elected	Not elected	Not elected
Greece *)	Not decided	Not decided	Not decided
Ireland	Not elected	Not elected	Not elected
Italy	Elected	Not elected	Not elected
Luxembourg	Not elected	Not elected	Not elected
Netherlands	Not elected	Not elected	Not elected
Portugal	Elected	Elected	Elected
Spain	Elected	Elected	Not elected
Sweden	Elected	Not elected	Not elected
United Kingdom	Elected	Not elected	Not elected

**Note:** \*) At the time of publishing this report, the election of activities under Article 3(4) was not decided.

methodological approach to identify land areas is part of their responsibilities.

Table 14 presents the decisions on elections under Article 3, paragraph 4 taken by new Member States.

### 3.4 Identification of the accounting for activities under Article 3, paragraphs 3 and 4

Member States identify the accounting frequency for the activities under Article 3, paragraph 3 and

**Table 14 New Member States' elections of activities under Article 3, paragraph 4**

Member State	Forest management	Cropland management	Grazing land management
Czech Republic	Elected	Not elected	Not elected
Estonia	Not elected	Not elected	Not elected
Hungary	Elected	Not elected	Not elected
Latvia	Not elected	Not elected	Not elected
Lithuania	Elected	Not elected	Not elected
Poland	Elected	Not elected	Not elected
Slovakia	Not elected	Not elected	Not elected
Slovenia	Elected	Not elected	Not elected

**Table 15 EU-15 Member States' choice of accounting frequency**

Member State	Annual accounting	Accounting at the end of the first commitment period
Austria		For each activity under Article 3(3)
Belgium		For each activity under Article 3(3)
Denmark	For each activity under Article 3(3) and 3(4)	
Finland		For each activity under Article 3(3) and 3(4)
France	For each activity under Article 3(3) and 3(4)	
Germany		For each activity under Article 3(3) and 3(4)
Greece		For each activity under Article 3(3)
Ireland		For each activity under Article 3(3)
Italy		For each activity under Article 3(3) and 3(4)
Luxembourg		For each activity under Article 3(3)
Netherlands		For each activity under Article 3(3)
Portugal		For each activity under Article 3(3) and 3(4)
Spain		For each activity under Article 3(3) and 3(4)
Sweden		For each activity under Article 3(3) and forest management under Article 3(4)
United Kingdom		For each activity under Article 3(3) and forest management under Article 3(4)

**Table 16 New Member States' choice of accounting frequency**

Member State	Annual accounting	Accounting at the end of the first commitment period
Czech Republic		For each activity under Article 3(3) and forest management under Article 3(4)
Estonia		For each activity under Article 3(3)
Hungary	For each activity under Article 3(3) and forest management under Article 3(4)	
Latvia		For each activity under Article 3(3)
Lithuania		For each activity under Article 3(3) and forest management under Article 3(4)
Poland		For each activity under Article 3(3) and forest management under Article 3(4)
Slovakia		For each activity under Article 3(3)
Slovenia		For each activity under Article 3(3) and forest management under Article 3(4)

paragraph 4 in their respective reports to facilitate the calculation of the assigned amount. Table 15 and Table 16 reflect their decisions.

Each Member State will account for net emissions and removals for each activity under Article 3, paragraphs 3 and 4, if elected, by issuing RMUs or cancelling Kyoto Protocol units based on the corresponding reported emissions and removals from these activities and the specific accounting rules. The EC will neither issue nor cancel units based on the reported emissions and removals from activities under Article 3, paragraph 3 and paragraph 4. The EC will report the sum of Member States' cumulative accounting quantities for these activities at the end of the commitment period, representing the Member States' cumulative additions to or subtractions from their assigned amount at the end of the commitment period.

### **3.5 Description of the EC's inventory system pursuant to Article 5, paragraph 1 under the Kyoto Protocol**

The guidelines for national systems under Article 5, paragraph 1 of the Kyoto Protocol define the general and specific functions of national inventory systems. Decision 15/CMP.1 (*Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol*), in particular paragraph 30 define the elements that should be included in the description of national inventory systems under Article 5, paragraph 1. The following description is based on these requirements.

#### **3.5.1 *The name and contact information for the national entity and its designated representative with overall responsibility for the national inventory of the party***

The entity with overall responsibility for the EC inventory system is the European Commission, Directorate General Environment (DG Environment). The designated representative is:

European Commission  
DG Environment  
Unit C.1 Climate strategy, international negotiation,  
monitoring of EU action  
Erasmia Kitou  
BU-5 2/117  
1049 Bruxelles  
Belgium

T +32(0)229 58 219  
F +32(0)22920 777

E-mail: Erasmia.Kitou@ec.europa.eu

#### **3.5.2 *The roles and responsibilities of various agencies and entities in relation to the inventory development process, as well as the institutional, legal and procedural arrangements made to prepare the inventory***

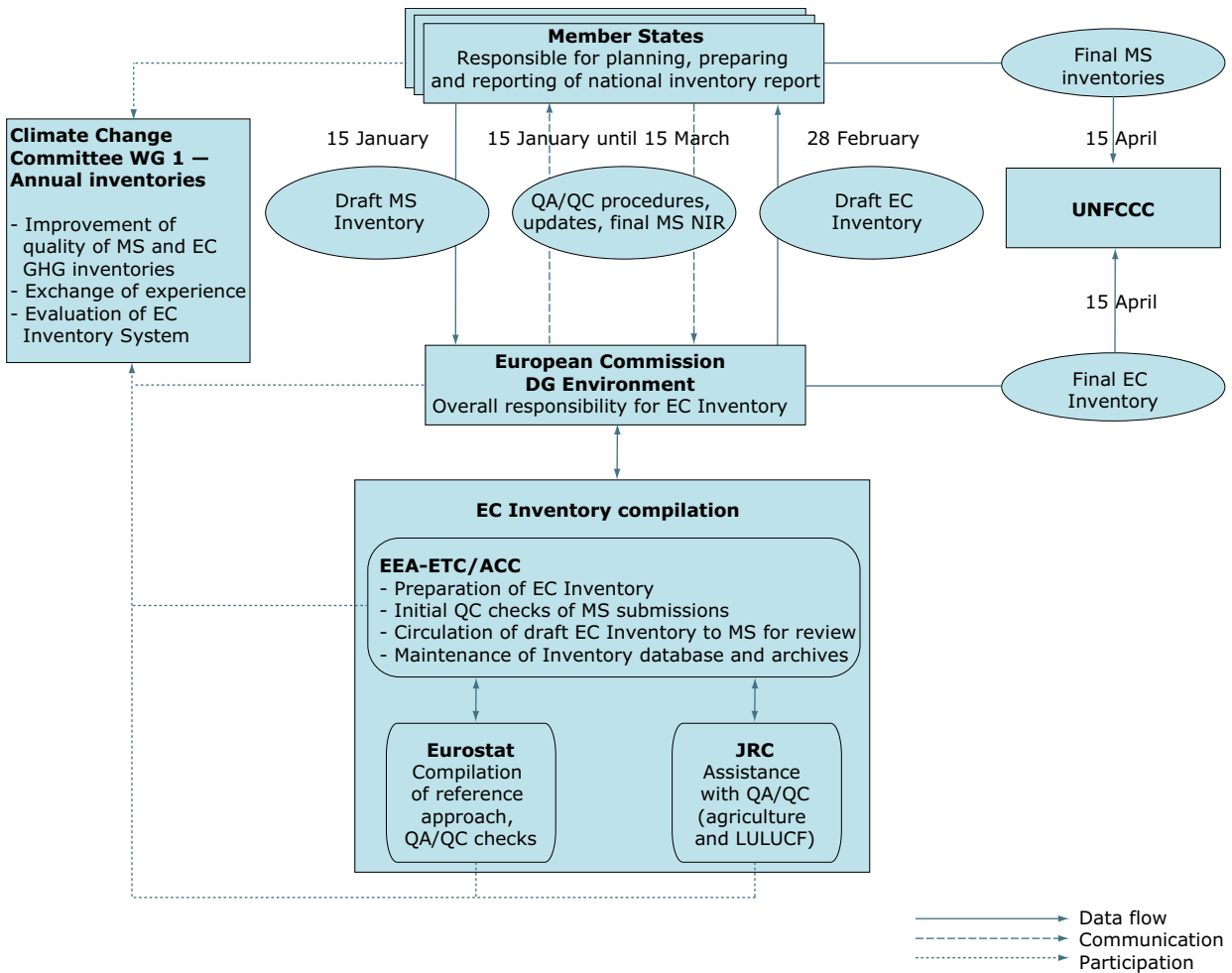
The objectives of the Community inventory system are to ensure accuracy, comparability, consistency, completeness, transparency and timeliness of the inventories of the Member States with regard to the Community greenhouse gas inventory in accordance with UNFCCC Guidelines for annual inventories.

Figure 3 shows the inventory system of the EC. The Directorate General for the Environment of the European Commission (DG Environment) is responsible for preparing the EC inventory while each Member State is responsible for the preparation of its own inventory which is the basic input for the EC inventory. DG Environment is supported in the establishment of the inventory by the following main institutions: the European Environment Agency (EEA) and its European Topic Centre on Air and Climate Change (ETC/ACC) as well as the following other DGs of the European Commission: Eurostat, and the Joint Research Centre (JRC) <sup>(14)</sup>.

Table 17 shows the main institutions and persons involved in the compilation and submission of the EC inventory at Community and Member State level.

<sup>(14)</sup> The Statistical Office of the European Communities (Eurostat) and the Joint Research Centre (JRC) are DGs of the European Commission. For simplicity reasons, these institutions are referred to as 'Eurostat' and the 'JRC' in this report.

**Figure 3 Inventory system of the European Community**



**Table 17 List of institutions and experts responsible for the compilation of Member States' inventories and for the preparation of the European Community inventory**

Member State/EU institution	Contact address
Austria	Manfred Ritter Umweltbundesamt Spittelauer Laende 5, 1090 Vienna
Belgium	Peter Wittoeck Federal Department of the Environment Pachecolaan 19 PB 5, 1010 Brussels
Cyprus	Christos Malikkides Head, Industrial Pollution Control Section, Department of Labour Inspection Ministry of Labour and Social Insurance 12, Apellis Street, 1493 Nicosia
Czech Republic	Pavel Fott Czech Hydrometeorological Institute (CHMI) Na Sabatce 17, 14306 Prague 4
Denmark	Jytte Boll Illerup Danish National Environmental Research Institute PO Box 358, 4000 Roskilde
Finland	Riitta Pipatti Statistics Finland PB 6 A, 00022 Statistics Finland



<b>Member State/EU institution</b>	<b>Contact address</b>
France	Ministère de l'Ecologie et du Développement Durable (MEDD) 20 avenue de Ségur, 75007 Paris  Jean-Pierre Fontelle Centre Interprofessionnel Technique d'Etudes de la Pollution Atmosphérique (CITEPA) 7 Cité Paradis, 75010 Paris
Estonia	Jaan-Mati Punning Institute of Ecology at TPU Kevade 2, 10137 Tallinn
Germany	Michael Strogies Federal Environmental Agency Bismarckplatz 1, 14193 Berlin
Greece	Dimitra Koutendaki Institute of Environmental Research and Sustainable Development Athens
Hungary	László Gáspár Ministry of Environment and Water, department of Climate Policy Fő u. 44-50, 1011 Budapest
Ireland	Michael McGettigan, Paul Duffy Environmental Protection Agency Richview, Clonskeagh Road, Dublin 14
Italy	M. Contaldi, R. de Lauretis, D. Romano National Environment Protection Agency (ANPA) Via Vitaliano Brancati 48, 00144 Rome
Latvia	Agita Gancone Latvian Environment, Geology and Meteorology Agency Maskavas street 165, 1019 Riga
Lithuania	Vytautas Krusinskas Lithuanian Ministry of Environment A. Jaksto 4/9, 01105 Vilnius
Luxembourg	Frank Thewes Administration de l'Environnement, Division Air-Bruit 16 rue Eugène Ruppert, 2453 Luxembourg
Malta	Sharon Micallef Malta Environment Planning Authority P.O. Box 200, Marsa GPO 01
Netherlands	Laurens Brandes Netherlands Environmental Assessment Agency PO Box 303, 3720 AH Bilthoven
Poland	Krzysztof Olendrzynski Institute of Environmental Protection, National Emission Centre Kolektorska 4, 01-692 Warszawa
Portugal	Teresa Costa Pereira Direccao-Geral do Ambiente Rua da Murgueira — Bairro do Zambujal, P-2721-865 Amadora
Slovakia	Ministry of Environment SR, Department of Air Protection, director Ing. Lubomir ZIAK namestie L. Stura 1, 812 35 Bratislava
Slovenia	Tajda Mekinda Majaron Environmental Agency of the Republic of Slovenia Vojkova 1/b, 1000 Ljubljana
Spain	Ángeles Cristóbal Ministerio de Medio Ambiente Plaza de San Juan de la Cruz s/n, 28071 Madrid
Sweden	Anna Forsgren Ministry of Sustainable Development, 103 33 Stockholm
United Kingdom	JD Watterson NETCEN AEA Technology plc, The Gemini Building, Fermi Avenue, Harwell, Didcot Oxfordshire, OX11 0QR
European Commission	Erasmia Kitou European Commission, DG Environment Rue de la Loi 200, 1049 Brussels, Belgium
European Environment Agency (EEA)	Andre Jol, Andreas Barkman European Environment Agency Kongens Nytorv 6, 1050 Copenhagen, Denmark
European Topic Centre on Air and Climate Change (ETC/ACC)	Bernd Guegele, Elisabeth Rigler, Manfred Ritter, Anke Herold European Topic Centre on Air and Climate Change Umweltbundesamt Spittelauer Laende 5, 1090 Vienna, Austria
Eurostat	Nikolaos Roubanis Statistical Office of the European Communities (Eurostat), Jean Monnet Building, 2920 Luxembourg, Luxembourg
Joint Research Centre (JRC)	Frank Raes, Giorgio Matteucci, Adrian Leip Joint Research Centre, Institute for Environment and Sustainability, Climate Change Unit Via Enrico Fermi, 21020 Ispra (VA), Italy

### *The European Commission, Directorate General for the Environment*

The European Commission's Directorate General (DG) Environment in consultation with the Member States has the overall responsibility for the EC inventory. Member States are required to submit their national inventories and inventory reports under Decision 280/2004/EC<sup>(15)</sup> to the European Commission, DG Environment; and the European Commission, DG Environment itself submits the inventory and inventory report of the EC to the UNFCCC Secretariat. In the actual compilation of the EC inventory and inventory report, the European Commission, DG Environment, is assisted by the EEA including its ETC/ACC, by Eurostat, and by the JRC.

The Climate Change Committee established under Article 9 of Decision 280/2004/EC<sup>(15)</sup> assists the European Commission. The Committee is composed of Member State representatives and chaired by a representative of the Commission. Working Group 1 'Annual inventories' has been established under the Climate Change Committee as a regular body for the exchange of information between the European Commission (DG Environment, Eurostat, JRC (Joint Research Centre)), EEA (ETC/ACC) and Member States. The objectives and tasks of Working Group 1 include:

- the promotion of the timely delivery of national annual GHG inventories as required under the monitoring mechanism;
- the improvement of the quality of the GHG inventories on all relevant aspects (transparency, consistency, comparability, completeness, accuracy and use of good practices);
- the exchange of practical experience on inventory preparation, on all quality aspects and on the use of national methodologies for GHG estimation;
- the evaluation of the current organisational aspects of the preparation process of the EC inventory and the preparation of proposals for improvements where needed;
- the promotion of the implementation of the Guidelines on national systems under Article 5, paragraph 1 of the Kyoto Protocol by each Member State and the Community, and the

exchange of practical experiences of such implementation.

### *The European Environment Agency*

The European Environment Agency (EEA), through the work of the European Topic Centre on Air and Climate Change (ETC/ACC), assists the European Commission, DG Environment. The assistance covers the following activities:

- preparation of initial checks of Member States' submissions in cooperation with Eurostat, and the JRC, up to 28 February and circulation of the results from initial checks (status reports, consistency and completeness reports);
- consultation with Member States in order to clarify data and other information provided;
- preparation and circulation of the draft EC inventory and inventory report by 28 February based on Member States' submissions;
- preparation of the final EC inventory and inventory report by 15 April (to be submitted by the Commission to the UNFCCC Secretariat);
- assisting Member States in their reporting of GHG inventories by means of supplying software tools;
- maintenance of the inventory database and of inventory archives;
- implementation of QA/QC procedures for the EC inventory as outlined in the EC QA/QC programme.

The specific activities of the EEA and ETC/ACC are outlined in the respective annual management plans. The tasks of the EEA and the ETC/ACC are facilitated by the European environmental information and observation network (Eionet), which consists of the EEA as central node (supported by European topic centres) and national institutions in the EEA member countries that supply and/or analyse national data on the environment (see URL <http://www.eionet.europa.eu/>). The Member States are encouraged to use the central data repository under the Eionet for making available their GHG submissions to the European Commission and the EEA (see URL <http://cdr.eionet.europa.eu/>).

<sup>(15)</sup> OJ L 49, 19.02.2004, p. 1.

### **The European Topic Centre on Air and Climate Change**

The European Topic Centre on Air and Climate Change (ETC/ACC) was established by a contract between the lead organisation Milieu- en Natuurplanbureau (MNP) in the Netherlands and EEA in March 2001. An updated framework contract will start on 1 January 2007 and will last four years. The ETC/ACC involves 11 organisations and institutions in eight European countries. The EEA annual management plan and an annual implementation plan specify the specific tasks of the ETC/ACC partner organisations with regard to the preparation of the EC inventory. Umweltbundesamt Austria is the task leader for the compilation of the EC annual inventory in the ETC/ACC.

### **Eurostat**

DG Eurostat assists DG Environment and cooperates with the EEA in quality assurance and quality control (QA/QC) activities of the EC inventory as described in the QA/QC programme, focusing on activity data, in particular energy data. Eurostat compiles annual estimates of the EC CO<sub>2</sub> emissions from fossil fuels using the IPCC Reference Approach, based on the Eurostat energy balance data. The specific activities of DG Eurostat are outlined in the respective yearly management plan.

### **Joint Research Centre**

The Joint Research Centre (DG JRC) assists DG Environment and cooperates with EEA in QA/QC activities of the EC inventory, focusing on the sector land use, land use change and forestry (LULUCF) and agriculture. The JRC performs these activities in close cooperation with the Member States and the research community. The specific activities of DG JRC are outlined in the respective yearly management plan.

### **Member States**

The EC's inventory is based on the inventories supplied by Member States. The total estimate of the Community's greenhouse gas emissions should accurately reflect the sum of Member States' national greenhouse gas inventories. Member States are responsible for choosing activity data, emission factors and other parameters used for their national inventories as well as the correct application of methodologies provided in the IPCC 1996 Guidelines, IPCC Good Practice Guidance

and IPCC Good Practice Guidance for LULUCF. Member States are also responsible for establishing QA/QC programmes for their inventories. The QA/QC activities of each Member State are described in the respective national inventory reports and summarised in the EC inventory report.

The Member States also take part in the Climate Change Committee established under Decision 280/2004/EC<sup>(16)</sup>. The purpose of the Climate Change Committee is to assist the European Commission in its tasks under Decision 280/2004/EC. Under Decision 280/2004/EC all Member States are required to establish national systems.

### **Legal arrangements**

The legal basis of the compilation of the EC inventory is Decision 280/2004/EC<sup>(16)</sup>. The purpose of this decision is to:

- (1) monitor all anthropogenic GHG emissions covered by the Kyoto Protocol in the Member States;
- (2) evaluate progress towards meeting GHG reduction commitments under the UNFCCC and the Kyoto Protocol;
- (3) implement the UNFCCC and the Kyoto Protocol as regards national programmes, greenhouse gas inventories, national systems and registries of the Community and its Member States, and the relevant procedures under the Kyoto Protocol;
- (4) ensure the timeliness, completeness, accuracy, consistency, comparability and transparency of reporting by the Community and its Member States to the UNFCCC Secretariat.

Under the provisions of Article 3, paragraph 1 of Council Decision No 280/2004/EC, the Member States shall determine and report to the Commission by 15 January each year (year X) *inter alia*:

- their anthropogenic emissions of greenhouse gases listed in Annex A to the Kyoto Protocol (carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF<sub>6</sub>)) during the year before last (X - 2);
- provisional data on their emissions of carbon monoxide (CO), sulphur dioxide (SO<sub>2</sub>), nitrogen

<sup>(16)</sup> OJ L 49, 19.02.2004, p. 1.

oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) during the year before last (year X – 2), together with final data for the year three-years previous (year X – 3);

- their anthropogenic greenhouse gas emissions by sources and removals of carbon dioxide by sinks resulting from land use, land-use change and forestry during the year before last (year X – 2);
- information with regard to the accounting of emissions and removals from land use, land-use change and forestry, in accordance with Article 3, paragraph 3 and, where a Member State decides to make use of it, Article 3, paragraph 4 of the Kyoto Protocol, and the relevant decisions thereunder, for the years between 1990 and the year before last (year X – 2);
- any changes to the information referred to in points (1) to (4) relating to the years between 1990 and the year three-years previous (year X – 3);
- the elements of the national inventory report necessary for the preparation of the Community greenhouse gas inventory report, such as information on the Member State's quality assurance/quality control plan, a general uncertainty evaluation, a general assessment of completeness, and information on recalculations performed.

The reporting requirements for the Member States under Decision 280/2004/EC are further elaborated in Decision 2005/166/EC<sup>(17)</sup>. According to the Council Decision and the Commission Decision the reporting requirements are exactly the same as for the UNFCCC, regarding content and format.

The EC inventory is compiled in accordance with the recommendations for inventories set out in the 'UNFCCC guidelines for the preparation of national communications by parties included in Annex 1 to the Convention, Part 1: UNFCCC reporting guidelines on annual inventories', to the extent possible. In addition, the *Revised IPCC 1996 guidelines for national greenhouse gas inventories and IPCC good practice guidance and uncertainty management in national greenhouse gas inventories* (IPCC, 2000) have been applied as well as the *IPCC Good Practice Guidance for LULUCF* (IPCC, 2003), where appropriate and feasible.

Since Member States use different national methodologies, national activity data and country-specific emission factors in accordance with the IPCC and the UNFCCC guidelines, these methodologies are reflected in the EC GHG inventory data. The EC believes that it is consistent with the UNFCCC reporting guidelines and the IPCC good practice guidelines to use different methodologies for one source category across the EC especially if this helps to reduce uncertainty and improve consistency of the emissions data, provided that each methodology is consistent with the IPCC guidance.

In general, no separate methodological information is provided at EC level except for summaries of the methodologies used by the Member States. However, for some sectors quality improvement projects have been started with the aim of further improving estimates at the Member State level.

### 3.5.3 Description of the process for collecting activity data, for selecting emission factors and methods, and for the development of emission estimates

The annual process for the compilation of the EC inventory is summarised in Table 18. The Member States submit their annual GHG inventory by 15 January each year to the European Commission's DG Environment. The ETC/ACC, Eurostat and the JRC perform initial checks of the submitted data up to 28 February.

On 28 February, the draft EC GHG inventory and inventory report are circulated to the Member States for review and comment. The Member States check their national data and information used in the EC inventory report and submit updates and comments if necessary, by 15 March. This procedure assures the timely submission of the EC GHG inventory and inventory report to the UNFCCC Secretariat and guarantees that the EC submission to the UNFCCC Secretariat is consistent with the Member State UNFCCC submissions.

### Internal consistency of the EU-15 CRF tables

The EU-15 CRF tables include some internal inconsistencies (i.e., the sum of the sub-categories is not equal to the category total) in those categories where Member States have difficulties in allocating emissions to the sub-categories. This refers mainly to the source categories 1.A.2, 1.A.5, 2.F. Member

<sup>(17)</sup> OJ L 55, 01.03.2005, p. 57.

**Table 18 Annual process of submission and review of Member States inventories and compilation of the European Community inventory**

Element	Who	When	What
1. Submission of annual greenhouse gas inventories (complete common reporting format (CRF) submission and elements of the national inventory report) by Member States under Council Decision No 280/2004/EC	Member States	15 January	<p>Elements listed in Article 3(1) of Decision 280/2004/EC as elaborated in Articles 2 to 7 in particular:</p> <ul style="list-style-type: none"> <li>• Greenhouse gas emissions by sources and removals by sinks, for the year <math>n - 2</math>;</li> <li>• And updated time series 1990- year <math>n - 3</math>, depending on recalculations;</li> <li>• Core elements of the NIR.</li> </ul> <p>Steps taken to improve estimates in areas that were previously adjusted under Article 5.2 of the Kyoto Protocol (for reporting under the Kyoto Protocol).</p>
2. 'Initial check' of Member States' submissions	Commission (incl. Eurostat, the JRC), assisted by the EEA	As soon as possible after receipt of Member State data, at the latest by 1 April	Initial checks and consistency checks (by EEA). Comparison of energy data provided by Member States on the basis of the IPCC Reference Approach with Eurostat energy data (by Eurostat and Member States) and check of Member States' agriculture and land use, land-use change and forestry (LULUCF) inventories by DG JRC (in consultation with Member States).
3. Compilation of draft EC inventory	Commission (incl. Eurostat, the JRC), assisted by the EEA	Up to 28 February	Draft EC inventory (by EEA), based on Member States' inventories and additional information where needed.
4. Circulation of draft EC inventory	Commission (DG Environment) assisted by the EEA	28 February	Circulation of the draft EC inventory on 28 February to Member States. Member States check data.
5. Submission of updated or additional inventory data and complete national inventory reports by Member States	Member States	15 March	Updated or additional inventory data submitted by Member States (to remove inconsistencies and fill gaps) and complete final national inventory reports.
6. Estimates for data missing from a national inventory	Commission (DG Environment) assisted by EEA	31 March	The Commission prepares estimates for missing data by 31 March of the reporting year, following consultation with the Member State concerned, and communicate these to the Member States.
7. Comments from Member States regarding the Commission estimates for missing data	Member States	8 April	Member States provide comments on the Commission estimates for missing data, for consideration by the Commission.
8. Final annual EC inventory (incl. Community inventory report)	Commission (DG Environment) assisted by EEA	15 April	Submission to UNFCCC of the final annual EC inventory. This inventory will also be used to evaluate progress as part of the monitoring mechanism.
9. Circulation of initial check results of the EC submission to Member States	Commission (DG Environment) assisted by EEA	As soon as possible after receipt of initial check results	Commission circulates the initial check results of the EC submission as soon as possible after their receipt to those Member States, which are affected by the initial checks.
10. Response of relevant Member States to initial check results of the EC submission	Member States	Within one week from receipt of the findings	The Member States, for which the initial check indicated problems or inconsistencies provide their responses to the initial check to the Commission.
11. Any resubmissions by Member States in response to the UNFCCC initial checks	Member States	For each Member State, same as under the UNFCCC initial checks phase Under the Kyoto Protocol: the resubmission should be provided to the Commission within five weeks of the submission due date.	Member States provide to the Commission the resubmissions which they submit to the UNFCCC Secretariat in response to the UNFCCC initial checks. The Member States should clearly specify which parts have been revised in order to facilitate the use for the EC resubmission. As the EC resubmission also has to comply with the deadlines specified in the guidelines under Article 8 of the Kyoto Protocol, the resubmission has to be sent to the Commission earlier than the period foreseen in the guidelines under Article 8 of the Kyoto Protocol, provided that the resubmission correct data or information that is used for the compilation of the EC inventory.
12. Submission of any other resubmission after the initial check phase	Member States	When additional resubmissions occur	Member States provide to the Commission any other resubmission (CRF or national inventory report) which they provide to the UNFCCC Secretariat after the initial check phase.



States use notation keys like IE or C if they cannot provide an emission estimate for a certain sub-category. At the Member State level, the use of the notation keys shows the reason for not providing emission estimates. However, at the EU-15 level, the sub-category emission value is the sum of Member States emission values and the information of the notation keys used by some Member States is lost in the EU-15 CRF submission.

#### **3.5.4 Description of the process and the results of key category identification**

A key category analysis is carried out for the EC according to the Tier 1 method (quantitative approach) described in the IPCC Good Practice Guidance. A key category is defined as an emission or removal source that has a significant influence on a country's greenhouse gas inventory in terms of the absolute level of emissions, the trend in emissions, or both. The national inventory report presents for each key category overview tables which include the Member States' contributions to the EU-15 key category in terms of level and trend.

In addition to the key category analysis at the EU-15 level, every Member State provides a national key category analysis which is independent of the assessment at EU-15 level. The EU-15 key category analysis is not intended to replace the key category analysis by Member States. The key category analysis at the EU-15 level is carried out to identify those source categories for which overviews of Member States' methodologies, emission factors, quality estimates and emission trends are provided. In addition, the EU-15 key category analysis helps identify those categories that should receive special attention with regard to QA/QC at Community level. The Member States use their key category analysis for improving the quality of emission estimates at Member State level.

#### **3.5.5 Description of the process for the recalculation of previously submitted inventory data**

Recalculations are performed at Member State level. The EC inventory report provides an overview of major recalculations performed by Member States and an analysis of their quantitative effects on the inventory.

#### **3.5.6 Quality assurance and quality control of the European Community inventory**

The European Commission (DG Environment) is responsible for coordinating QA/QC activities

for the EC inventory in order to ensure that the objectives of the QA/QC programme are implemented and that a QA/QC plan is developed. The EEA is responsible for the annual implementation of QA/QC procedures for the EC inventory.

The EC GHG inventory is based on the annual inventories of the Member States. Therefore, the quality of the EC inventory depends on the quality of the Member States' inventories, the QA/QC procedures of the Member States and the quality of the compilation process of the EC inventory. The Member States and also the EC as a whole implemented QA/QC procedures in order to comply with the IPCC good practice guidance.

The EC QA/QC programme describes the quality objectives and the inventory QA/QC plan including responsibilities and the time schedule for the performance of the QA/QC procedures. Definitions of QA/QC and related terms used are those provided in the IPCC Good Practice Guidance. The EC's QA/QC programme is reviewed annually and modified or updated as appropriate.

The overall objectives of the EC QA/QC programme are:

- to provide a EC inventory of greenhouse gas emissions and removals consistent with the sum of Member States' inventories of greenhouse gas emissions and removals;
- to establish appropriate QA/QC procedures at the EC level in order to comply with the requirements under the UNFCCC and the Kyoto Protocol;
- to contribute to the improvement of quality of Member States' inventories; and
- to provide assistance for the implementation of national QA/QC programmes.

A number of specific objectives have been elaborated in order to ensure that the Community GHG inventory complies with the UNFCCC inventory principles of transparency, completeness, consistency, comparability, accuracy and timeliness.

The QA/QC plan lists QC procedures before and during the compilation of the Community GHG inventory. In addition, QA procedures, procedures for documentation and archiving, the time schedules for QA/QC procedures and the provisions related to the inventory improvement plan are included.

QC procedures are performed at several different stages during the preparation of the EC inventory. Firstly, a range of checks are used to determine the consistency and completeness of Member States' data so that they may be compiled in a transparent manner at the Community level. Secondly, checks are carried out to ensure that the data are compiled correctly at the Community level to meet the overall reporting requirements. Thirdly, a number of checks are conducted with regard to data archiving and documentation to meet various other data quality objectives.

Based on the EC QA/QC programme, a quality management manual was developed which includes all specific details of the procedures (in particular checklists and forms). The manual is structured along three main processes (management processes, inventory compilation processes, supporting processes) of the quality management system.

The quality checks performed during inventory compilation process are the central part of the quality manual. Quality checks are made at three levels:

#### *Quality control of Member States submissions*

The QC activities related to Member States submissions include two elements; checking the completeness of the Member States CRF tables

and checking the consistency of Member States greenhouse gas data. The completeness checks of Member States' submissions are carried out by EEA-ETC/ACC by using a similar status report form as used by the UNFCCC Secretariat. The completed status reports are submitted to Member States by 28 February enabling them to check the status reports and update information as needed.

The consistency checks of Member States data primarily aim at identifying main problems in time series or sub-category sums. For the time series checks the algorithms of the UNFCCC Secretariat are used. In addition, the ETC/ACC identifies problems by comparison with the previous year's inventory submission by the Member States and checks the availability of the CRF tables needed for the compilation of the EC inventory. The results of these checks are documented in the consistency and completeness report and are also sent to the Member States by 28 February in order to obtain, if needed, revised emission estimates or additional information.

For the energy, industrial processes, agriculture, LULUCF and waste sectors, specific checks are performed by the sectoral experts and documented in sector-specific checklists. In addition, sectoral experts receive the results of the checks with the UNFCCC outlier tool before they are sent to the Member States. The main findings of the sector

**Table 19 Structure of the European Community quality management manual**

Chapter	Chapter description	
<b>Management processes</b>		
ETC 01	EC inventory system	Describes the organisation and responsibilities within the EC GHG inventory system
ETC 02	QA/QC programme	Describes the preparation and evaluation of the EC QA/QC programme by the European Commission
ETC 03	Quality management system	Describes the responsibilities and the structure of the quality management system and gives an overview of the forms and checklists used
ETC 04	Quality management evaluation	Describes the evaluation of the status and effectiveness of the quality management system
ETC 05	Correction and prevention	Describes the procedures for the correction and prevention of mistakes that occur in the EC inventory
ETC 06	Information technology systems	Describes the information technology systems used such as CIRCA, ReportNet and the systems set up at Umweltbundesamt Austria
ETC 07	External communication	Describes the communication with Member States and other persons and institutions
<b>Inventory compilation processes</b>		
ETC 08	QC MS submissions	Describes the quality control activities performed on the GHG inventories submitted by the EC Member States
ETC 09	QC EC inventory compilation	Describes the quality control activities performed during the compilation of the EC GHG inventory including checks of database integrity
ETC 10	QC EC inventory report	Describes the checks carried out during and after the compilation of the EC GHG inventory report
<b>Supporting processes</b>		
ETC 11	Documents	Describes the production, change, proofreading, release and archiving of quality management documents
ETC 12	Documentation and archiving	Describes the procedure for preparing documentation and archiving

specific checklists are also documented in the consistency and completeness reports.

The checks mentioned above are performed for the EU-15 Member States submissions. For the new Member States, limited initial checks are performed: the status reports are completed entirely, whereas in the consistency and completeness report only limited checks are performed.

For every updated inventory submission provided by the Member States, limited follow-up checks are performed: the status reports are completed entirely, whereas in the consistency and completeness report only limited checks are performed. In addition it is checked whether issues identified in the status reports and in the consistency and completeness reports (initial checks) have been clarified by the Member State. If this is not the case, the Member State is contacted for clarification.

#### *Quality control of the EC inventory compilation*

After the initial checks of the emission data, the ETC/ACC transfers the national data from the CRF tables into spreadsheets and into the ETC/ACC database on emissions of greenhouse gases and air pollutants. The versions of the data received by ETC/ACC are numbered, in order to be traced back to their source. The ETC/ACC database is a relational database (MS Access), maintained and managed by Umweltbundesamt Austria.

As the EC inventory is compiled on the basis of the inventories of the Member States, the focus of the quality control checks performed during the compilation of the EC inventory lies on checking whether the correct Member States data are used, whether the data can be summed up (same units are used) and whether the summing up is correct. Finally, the consistency and the completeness of the inventory is checked. All the checks are carried out for the original submission by 15 April each year and for any resubmission. Two checklists are used for this purpose.

#### *Quality checks of the EC inventory report*

The checks carried out during and after the compilation of the EC GHG inventory report are specified in the checklist 'EC inventory report'. They cover among other things checks of data consistency between the inventory and the inventory report, data consistency between the tables and the text, but also checks of the layout.

The circulation of the draft EC inventory and inventory report on 28 February to the EC Member States for commenting also aims to improve the quality of the EC inventory and inventory report. The Member States check their national data and information used in the EC inventory report, send updates, if necessary, and comment on it. This procedure assures the timely submission of the EC GHG inventory and inventory report to the UNFCCC Secretariat and guarantees that the EC submission to the UNFCCC Secretariat is consistent with the Member States UNFCCC submissions.

#### *Overview of QA/QC control procedures in place at Member State level*

As the EC inventory is based on the annual inventories of the EC Member States, the quality of the EC inventory depends on the quality of the Member States' inventories and their QA/QC procedures. The EC inventory report in Annex I provides an overview of QA/QC procedures in place at Member State level.

#### *Quality assurance procedures*

One of the most important activities for improving the quality of national and EC GHG inventories is the organisation of workshops and expert meetings under the EC Greenhouse Gas Monitoring Mechanism. A number of workshops and expert meetings have been organised in past years with a focus on sector-specific quality improvements. Further details can be found in the EC inventory report. All the workshop reports are available at the website of the ETC/ACC URL [http://air-climate.eionet.europa.eu/meetings/past\\_html](http://air-climate.eionet.europa.eu/meetings/past_html).

A collaborative internal review mechanism is established within the EC so that all participants (MS, EEA, Eurostat, and JRC) may contribute to the identification of shortcomings and propose amendments to existing procedures. The review activities with experts from Member States are coordinated by the ETC/ACC under Working Group I and take place during the period from April through September each year. The synthesised findings of collaborative reviews provide a basis for the planned progressive development of inventories.

In addition, EC QA procedures aim to build on the issues identified during the independent UNFCCC inventory review of Member States' inventories. Quality assurance procedures based on outcomes of the UNFCCC inventory review consist of the:



- (a) Annual compilation of issues identified during the UNFCCC inventory review related to sectors, key source categories and the major inventory principles transparency, consistency, completeness, comparability and accuracy for all Member States;
- (b) Identification of major issues from the compilation and discussion of ways to resolve them in Working Group 1 under the Climate Change Committee, including identification and documentation of follow-up actions that are considered as necessary within Working Group 1;
- (c) Reviews of the extent to which issues identified through this procedure in previous years have been addressed by Member States;
- (d) Ongoing investigations of ways to produce a more transparent inventory for the unique circumstances of the EC.

#### ***Other related activities***

A number of other activities are conducted by the EC bodies to support the general inventory quality management system at the EC level, but which are not encompassed by the IPCC definition of quality assurance. Some of these activities involve comparison exercises related to methods, data and emissions/removals estimates for particular sectors, which are intended to assist Member States in preparing their annual inventories and in the application of harmonised methods and data.

Annually by 1 April, Eurostat compiles estimates of the EC CO<sub>2</sub> emissions from fossil fuels using the IPCC Reference Approach, based on the Eurostat energy balance data. Eurostat compares these estimates with national estimates of CO<sub>2</sub> emissions from fossil fuels prepared by Member States and provides a report summarising and explaining these differences. Eurostat provides the results of these additional activities to Member States in the period May–December to assist them in the compilation of their national inventories for the subsequent year.

JRC assists in the improvement of methodologies for the LULUCF and agriculture sectors. It does so by comparing methodologies used among the Member States for estimating emissions and removals from LULUCF and agriculture and by providing EU-wide emissions and removal estimates obtained using various models/methods with a focus on LULUCF. JRC performs these activities in close interaction with the Member States and the research

community. The results of these activities by JRC are made available to Member States in the period May–December to assist them in the compilation of their national inventories for the subsequent year.

Additional comparisons of EC and Member States inventories with greenhouse gas emissions data from other alternative or independently compiled sources should be performed as far as such independent data sources are available (e.g. from scientific literature or other institutes or agencies) and as far as the differences in definitions enable such comparisons. Such verification processes should help evaluate the uncertainty in emissions estimates, taking into account the quality and context of both the original inventory data and data used for verification purposes. Alternative estimates should be used carefully in the QA analysis, in particular if alternative estimates can only provide less accurate data than those provided by the Member States. Another activity may address independent verification by inverse modelling building on ongoing research activities in the EU. The availability of additional data sources for verification purposes and the possibilities of their use for inventory QA purposes is assessed systematically and periodically. Resulting verification activities are outlined in the annual work programme of the institutions involved in the inventory system.

Following the annual submission of the EC inventory to the UNFCCC secretariat, a detailed analysis of trends in greenhouse gas emissions in the EC and in each Member State is carried out for the annual EEA report on greenhouse gas emission trends and projections in Europe. This report identifies sectoral indicators for socio-economic driving forces of greenhouse gas emissions by using data from Eurostat or from Member States' detailed inventories. In addition, it compares and analyses Member States' emission trends in key categories identified at EC level and provides the reasons for these trends. The trend analysis provides useful information to support the EC inventory report. It contributes to the understanding of the development of greenhouse gas emissions in Member States and the EC.

#### ***Procedures for documentation and archiving***

The QA/QC Coordinator annually compiles and updates an overview of the QA/QC procedures in place at the Member State level that is provided in the EC inventory report. This overview includes *inter alia*:

- an overview of the QA/QC systems of Member States in place;
- a summary of the main elements of Member States QA/QC plans;
- a summary of main actions undertaken by Member States having a direct influence on the quality of the EC inventory;
- a summary of the implementation of Tier 1 QC procedures;
- summaries for the source category specific QC procedures;
- summaries of review and verification procedures as part of QA.

On behalf of DG Environment, the EEA manages and maintains the EC greenhouse gas inventory database and the documentation of the inventory information.

A documentation catalogue is generated for each inventory year and it is possible to track changes in data and methodologies over time. The documentation includes results of QC checks, QA procedures, and evaluation procedures. When the annual inventory is finalised, the annual documentation catalogue becomes part of the archives. At that time, it contains:

- (a) an electronic and paper copy of the list of the full content of the documentation catalogue for that year;
- (b) paper and electronic copies of each of the draft and final inventory report, paper and electronic copies of the draft and final CRF tables;
- (c) electronic copies of all the final, linked source category spreadsheets for the inventory estimates (including all spreadsheets that feed the emission spreadsheets), as well as any important printouts;
- (d) for the inventory overall and for individual source categories, the documentation contains adequate explanation of the linkages among the spreadsheets and the inventory document;
- (e) all information and data received in the project file from each Member State;

- (f) all additional material received and included in the project file;
- (g) copies of all checklists, reports, and forms that were completed as part of QA/QC procedures.

Adequate backup routines are in place for all electronic data in the catalogue.

#### *Inventory improvement plan*

The QA/QC Coordinator checks and documents whether the specific quality objectives outlined were met. This evaluation is used as an input for the inventory improvement plan.

The QA/QC coordinator elaborates an inventory improvement plan based on:

- (a) the results of the evaluation of the fulfilment of specific quality objectives;
- (b) the results of the evaluation of the implementation of the previous improvement plan;
- (c) the results of the QA/QC procedures conducted;
- (d) the EC key category assessment;
- (e) the EC uncertainty assessment;
- (f) the findings from the UNFCCC inventory review of the EC inventory taking into account the findings of the UNFCCC inventory review of Member States' inventories.

The QA/QC coordinator annually evaluates the inventory improvement plan and its implementation, updates the plan accordingly and discusses the results in Working Group 1 of the Climate Change Committee. The results of this evaluation are the basis for updating the QA/QC programme.

#### *3.5.7 Description of the procedures for the official consideration and approval of the inventory*

The final EC GHG inventory and inventory report prepared by the ETC/ACC is considered by the EEA as task manager for the tasks performed by the ETC/ACC and finally approved and sent to the UNFCCC secretariat by the designated representative of DG Environment.

### 3.6 Description of the EC's national registry, in accordance with the guidelines under Article 7 of the Kyoto Protocol

The description of the EC's national registry follows the reporting guidance set down in Decision 15/CMP.1, part II (Reporting of supplementary information under Article 7, paragraph 1, E. National registries) under the Kyoto Protocol.

#### 3.6.1 Name and contact information of the registry administrator designated by the Party to maintain the national registry

Director General of the Environment Directorate  
General  
European Commission  
1049 Brussels  
Belgium

Tel: +32 2 298 8276

Email: env-citladmin@ec.europa.eu

#### 3.6.2 Names of any other party with which the party cooperates by maintaining their respective registries in a consolidated system

The EC National registry is not currently operated in a consolidated system with any other party's registry.

#### 3.6.3 A description of the database structure used in the national registry

1. The CITL are using the Oracle database.
2. At the time of writing, CITL contains:
  - a. 140 party holding accounts;
  - b. 9 525 operator holding accounts;
  - c. 815 personal holding accounts;
  - d. 49 065 transactions having been performed; and
  - e. has a total size of database of approximately 202 mega-bytes.

#### 3.6.4 A description of how the national registry conforms to the technical standards for the purpose of ensuring the accurate, transparent and efficient exchange of data between national registries, the clean development registry and the independent transaction log, including (i) to (vi) below

The software used for the operation of the EC registry has been developed for the purposes of allowance trading under both the EU Emissions Trading Scheme and the Kyoto Protocol. Both require participants' registries to be compliant with the UN Data Exchange Standards specified for the Kyoto Protocol. Currently, the development adheres to the standards specified in Draft No 7 of the UN DES document.

As part of the EU registry development, we have developed the functionality to perform issuance, conversion, external transfer, (voluntary) cancellation, retirement and Reconciliation processes using XML messages and web services as specified in draft No 7 of the UN Data Exchange Standards document.

In addition, we have implemented 24 hour clean-up, transaction status enquiry, time synchronisation, data logging requirements (including, transaction log, reconciliation log, internal audit log and message archive) and the different identifier formats as specified in the UN DES document. We can therefore perform extensive tests on these functionalities with the ITL test system once it becomes available.

With regards to performing tests with the CDM registry (external transfer for example) this can also be performed once the ITL test system becomes available. However, certain requirements still need to be developed, e.g. handling tCERs and ICERs.

We have identified the following additional Kyoto functionality that would need to be developed for our registry and tested against the ITL test system:

- a. Replacement of t-CER or l-CER;
- b. Carry-over;
- c. Expiry date change (for t-CER and l-CER); and
- d. The whole area of functionality for ITL notices (and the notification log).

We intend to schedule the development of these functionalities in our future releases in order to meet with the timetable required for connecting with the UN ITL.

**(i) A description of the formats used in the national registry for account numbers, serial numbers for ERUs, CERs, AAUs, and RMUs, including project identifiers and transaction numbers**

Formats are as specified in the UN DES No 7 Annex F — Definition of identifiers. The display format is controlled via the registries web configuration file.

**(ii) A list, and the electronic format, of the information transmitted electronically when transferring ERUs, CERs, AAUs, and/or RMUs to other registries**

Information will be transmitted to other registries in the format of the messages specified in the UN DES No 7 via the ITL.

**(iii) A list, and the electronic format, of the information transmitted electronically when acquiring ERUs, CERs, AAUs, and/or RMUs from other national registries or the CDM registry**

Acknowledgement information will be transmitted to other registries in the format of the messages specified in the UN DES No 7 via the ITL.

**(iv) A list, and the electronic format, of the information transmitted electronically from the national registry to the independent transaction log when issuing, transferring, acquiring, canceling and retiring ERUs, CERs, AAUs, and/or RMUs**

Information will be transmitted to the ITL in the format of the messages specified in the UN DES No 7.

**(v) An explanation of the procedures employed in the national registry to prevent discrepancies in the issuance, transfer, acquisition, cancellation and retirement of ERUs, CERs, AAUs, and/or RMUs**

In order to minimise discrepancies between the EC registry and the transaction log, the following approach has been adopted for the registry system development for the EU Emissions Trading Scheme. The same approach would be adopted for the development of the remaining Kyoto functionality for our registry software:

- (1) Communications between the national registry and the ITL would be via web-services using XML messages — as specified in the UN DES document. These web services, XML message format and the processing sequence would be as per that specified in the UN DES document.
  - (2) As far as possible, the registry shall validate data entries against the list of checks that are performed by the ITL — as documented in Annex E of the UN DES Annexes document — before forwarding the request to the ITL for processing. This would help to minimise sending incorrect information to the ITL for approval.
  - (3) All units that are involved in a transaction shall be earmarked internally within the registry; thereby preventing the units from being involved in another transaction until a response has been received from the ITL and the current transaction has been completed.
  - (4) The web service that sends the message to the ITL for processing will ensure that a message received acknowledgement is received from the ITL before completing the submission of the message. Where no acknowledgement message has been received following a number of retries, the web-service would terminate the submission and roll back any changes made to the unit blocks that were involved.
  - (5) Where a 24 hour clean-up message is received from the ITL, the existing web service would rolling back any pending transactions and the units that were involved, thereby preventing any discrepancies in the unit blocks between the registry and the ITL.
  - (6) Finally, if an unforeseen failure were to occur, the data discrepancies between our registry and the ITL can be corrected via a manual intervention function within our registry. Following this, reconciliation will be performed to validate that the data is in sync between the registry and the ITL.
- (vi) An overview of the security measures employed in the national registry to deter unauthorized manipulations and minimize operator error**

For the EC registry the following security measures have been taken:

- a) By default, access to the registry is via username and password.
- b) The actions that a user can perform is controlled by a permissions system, hence preventing unauthorised access to restricted actions.
- c) All actions performed are recorded by audit.
- d) Database manipulations are only carried out by protected, internal stored procedures which are not accessible directly from the user interface and can only be invoked by our internal web services.
- e) A development team is available to make any further security enhancements as and when required.

In order to prevent operator errors, our registry software incorporates the following design:

- a) applies validation on all user inputs to ensure that only valid details are submitted for processing;
- b) display confirmation of user input to help the user to spot any errors that had been made;
- c) implement an internal approval process for secondary approval for relevant operations

before submitting the details to the ITL for processing.

### ***3.6.5 A list of the information publicly accessible through the user interface to the national registry***

We intend to schedule the development of publicly accessible information in our future releases in order to meet with the timetable required for connecting with the UN ITL. These reports will be displayed publicly in addition to the reports described below.

### ***3.6.6 An explanation of how to access information through the user interface of the national registry***

Open Internet Explorer (or similar) and browse to the following URL: <http://ec.europa.eu/environment/ets/>

Select from the menu:

- Registry
- NAP info
- Allocation/compliance
- Accounts
- Operator holding accounts
- Transactions.

# Units and abbreviations

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t	1 tonne (metric) = 1 megagram (Mg) = 10 <sup>6</sup> g
Mg	1 megagram = 10 <sup>6</sup> g = 1 tonne (t)
Gg	1 gigagram = 10 <sup>9</sup> g = 1 kilotonne (kt)
Tg	1 teragram = 1 012 g = 1 megatonne (Mt)
TJ	1 terajoule
CCC	Climate Change Committee (established under Council Decision No 280/2004/EC)
CH <sub>4</sub>	methane
CO <sub>2</sub>	carbon dioxide
COP	conference of the parties
CRF	common reporting format
DG	Directorate General of the European Commission
EC	EC
EEA	European Environment Agency
EF	emission factor
Eionet	European environmental information and observation network
ETC/ACC	European Topic Centre on Air and Climate Change
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GHG	greenhouse gas
GPG	good practice guidance and uncertainty management in national greenhouse gas inventories (IPCC, 2000)
GWP	global warming potential
HFCs	hydrofluorocarbons
JRC	Joint Research Centre
F-gases	fluorinated gases (HFCs, PFCs, SF <sub>6</sub> )
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
LUCF	land-use change and forestry
LULUCF	land use, land-use change and forestry
N <sub>2</sub> O	nitrous oxide
NIR	national inventory report
PFCs	perfluorocarbons
QA	quality assurance
QA/QC	quality assurance/quality control
QC	quality control
QM	quality management
QMS	quality management system
MNP	National Institute of Public Health and the Environment (the Netherlands)
SF <sub>6</sub>	sulphur hexafluoride
SNE	Single National Entity
UNFCCC	United Nations Framework Convention on Climate Change

# Annex 1

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European Community greenhouse gas inventory report (revised compared to the report submitted to UNFCCC in June 2006). This report also includes the following annexes:

- Annex 1: Key source analysis
- Annex 2: CRF tables EU-15
- Annex 3: Status reports
- Annex 4: CRF Table Summary 1.A. for EU-15
- Annex 5: CRF Tables Energy
- Annex 6: CRF Tables Industrial processes
- Annex 7: CRF Tables Solvent use
- Annex 8: CRF Tables Agriculture
- Annex 9: CRF Tables LULUCF
- Annex 10: CRF Tables Waste
- Annex 11: EU-25 CRF Table 10
- Annex 12: EC MS CRF tables and national inventory reports



# Annex 2

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Common reporting format tables for EU-15 (revised compared to the tables submitted to UNFCCC in June 2006).



European Environment Agency

**The European Community's initial report under  
the Kyoto Protocol**

Report to facilitate the calculation of the assigned  
amount of the European Community pursuant to  
Article 3, paragraphs 7 and 8 of the Kyoto Protocol  
Submission to the UNFCCC Secretariat

2006 — 38 pp. — 21 x 29.7 cm

ISBN 92-9167-914-3

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