COMPLIANCE COMMITTEE

CC/ERT/IRR/2007/22
12 December 2007

Report of the review of the initial report of Belgium

Note by the secretariat

The report of the review of the initial report of Belgium was published on 12 December 2007. For purposes of rule 10, paragraph 2, of the rules of procedure of the Compliance Committee (annex to decision 4/CMP.2), the report is considered received by the secretariat on the same date. This report, FCCC/IRR/2007/BEL, contained in the annex to this note, is being forwarded to the Compliance Committee in accordance with section VI, paragraph 3, of the annex to decision 27/CMP.1.

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Report of the review of the initial report of Belgium

According to decision 13/CMP.1, each Annex I Party with a commitment inscribed in Annex B to the Kyoto Protocol shall submit to the secretariat, prior to 1 January 2007 or one year after the entry into force of the Kyoto Protocol for that Party, whichever is later, a report (the 'initial report') to facilitate the calculation of the Party's assigned amount pursuant to Article 3, paragraphs 7 and 8, of the Kyoto Protocol, and to demonstrate its capacity to account for emissions and the assigned amount. This report reflects the results of the review of the initial report of Japan conducted by an expert review team in accordance with Article 8 of the Kyoto Protocol.

CONTENTS

I. Introduction and summary

A. Introduction

1. This report covers the in-country review of the initial report of Belgium, coordinated by the United Nations Framework Convention on Climate Change (UNFCCC) secretariat, in accordance with the guidelines for review under Article 8 of the Kyoto Protocol (decision 22/CMP.1). The review took place from 4 to 9 June 2007 in Brussels, Belgium, and was conducted by the following team of nominated experts from the roster of experts: generalist – Ms. Kristina Saarinen (Finland); energy – Mr. Simon Eggleston (United Kingdom of Great Britain and Northern Ireland); industrial processes – Ms. Marisol Bacong (Philippines); agriculture – Mr. Len Brown (New Zealand); land use, land-use change and forestry (LULUCF) – Mr. Emil Cienciala (Czech Republic); waste – Ms. Sirintornthep Towprayoon (Thailand). Mr. Brown and Ms. Towprayoon were the lead reviewers. In addition, the expert review team (ERT) reviewed the national system, the national registry, and the calculations of the Party's assigned amount and commitment period reserve (CPR), and took note of the LULUCF parameters and the elected Article 3, paragraph 4, activities. The review was coordinated by Mr. Matthew Dudley (UNFCCC secretariat).

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

B. Summary

1. Timeliness

3. Decision 13/CMP.1 requests Parties to submit the initial report prior to 1 January 2007 or one year after the entry into force of the Kyoto Protocol for that Party, whichever is later. The initial report was submitted on 22 December 2006, which is in compliance with decision 13/CMP.1. With the initial report Belgium submitted a revised greenhouse gas (GHG) inventory compared to its original 2006 GHG submission of 15 April 2006. Prior to the in-country visit Belgium submitted a revised GHG inventory on 14 March 2007 which was used as the basis for the review by the ERT. The Party submitted a corrigendum to the initial report and officially resubmitted its GHG inventory (for 1990 and 2004) on 23 July 2007 in response to questions raised by the ERT during the course of the in-country visit. This report is based on the revised emission estimates.

2. Completeness

4. Table 1 below provides information on the mandatory elements included in the initial report and Belgium's revised values of the assigned amount and the commitment period reserve provided by the Party resulting from the review process. The revised values are based on revisions of emissions of emissions originating from coniferous, deciduous and market gardening (4.G other) – nitrous oxide (N_2O) (paragraph 100); enamel production – carbon dioxide (CO_2) (paragraph 80); and non-energy use of fuels – CO_2 (2.G. other) (paragraph 84), which resulted in revisions of the total GHG emissions, including the base year emissions, from 146,890,526 tonnes CO_2 eq. to 145,728,763 tonnes CO_2 eq.

Table 1. Summary of the reporting on mandatory elements in the initial report

Item	Provided	Value/year/comment
Complete GHG inventory from the base year to the most recent year available	Yes	Base year: 1990. Recent year: 2004
Base year for HFCs, PFCs and SF_6	Yes	1995
Agreement under Article 4	Yes	92.5%
LULUCF parameters	Yes	Minimum tree crown cover: 20% Minimum land area: 0.5 ha Minimum tree height: 5 m
Election of and accounting period for Article 3, paragraphs 3 and 4, activities	Yes	Article 3, paragraph 3, activities: Accounted for the entire commitment period. No Article 3 paragraph 4 activities elected.
Calculation of the assigned amount in accordance with Article 3, paragraphs 7 and 8	Yes	679 368 682 tonnes CO_2 eq.
Calculation of the assigned amount in accordance with Article 3, paragraphs 7 and 8, revised value		673 995 528 tonnes CO_2 eq.
Calculation of the commitment period reserve	Yes	611 431 813 tonnes CO_2 eq.
Calculation of the commitment period reserve, revised value		606 595 975 tonnes CO_2 eq.
Description of national system in accordance with the guidelines for national systems under Article 5, paragraph 1	Partial	No elaboration of a quality assurance and quality control plan
Description of national registry in accordance with the requirements contained in the annex to decision 13/CMP.1, the annex to decision 5/CMP.1 and the technical standards for data exchange between registry systems adopted by the CMP	Yes	

5. The information in the initial report covers all elements as required by decision 13/CMP.1, section I of the decision 15/CMP.1 and relevant decisions of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP). However, the initial report did not include information on a quality assurance and quality control plan (QA/QC plan) for the national inventory report (NIR) in accordance with decision 19/CMP.1, although some QA/QC arrangements exist at the level of the regions.

3. Transparency

6. The initial report is generally transparent. However, for the next inventory submission under the Kyoto Protocol, Belgium is recommended to include in the NIR additional information on how areas of land subject to LULUCF activities under Article 3, paragraph 3, of the Kyoto Protocol would be identified; activities pertaining to the development and implementation of a QA/QC plan; and relevant information from the numerous European Commission regulations cited in the initial report.

4. Emission profile in the base year, trends and emission reduction target

7. In the base year (1990 for CO_2, methane (CH_4), and N_2O, and 1995 for hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6)), the most important GHG in Belgium was CO_2, contributing 81.4 per cent to the total[1] national GHG emissions expressed in CO_2 eq. (CO_2 eq.), followed by CH_4 at 7.7 per cent and N_2O at 7.4 per cent (see figure 1). HFCs, PFCs and SF_6 collectively contributed 3.4 per cent of GHG emissions in the base year. The energy sector accounted for 77.0 per cent of the total GHG emissions in the base year followed by industrial processes, 11.8per cent, agriculture, 8.7 per cent, and waste, 2.4 per cent (see figure 2). Total GHG emissions amounted to 145,728.8 Gg CO_2 eq. in the base year, and increased by 0.5 per cent from the base year to 2004.

[1] In this report, the term total emissions refers to the aggregated national GHG emissions expressed in terms of CO_2 eq. excluding LULUCF, unless otherwise specified.

Figure 1. Shares of gases in total GHG emissions, base year

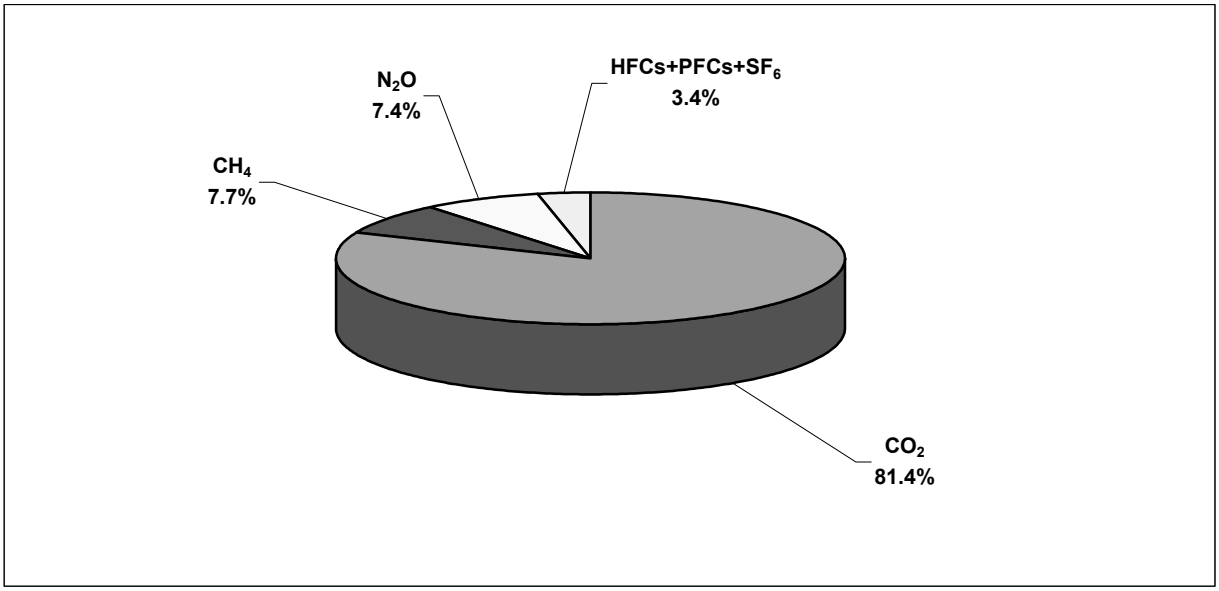
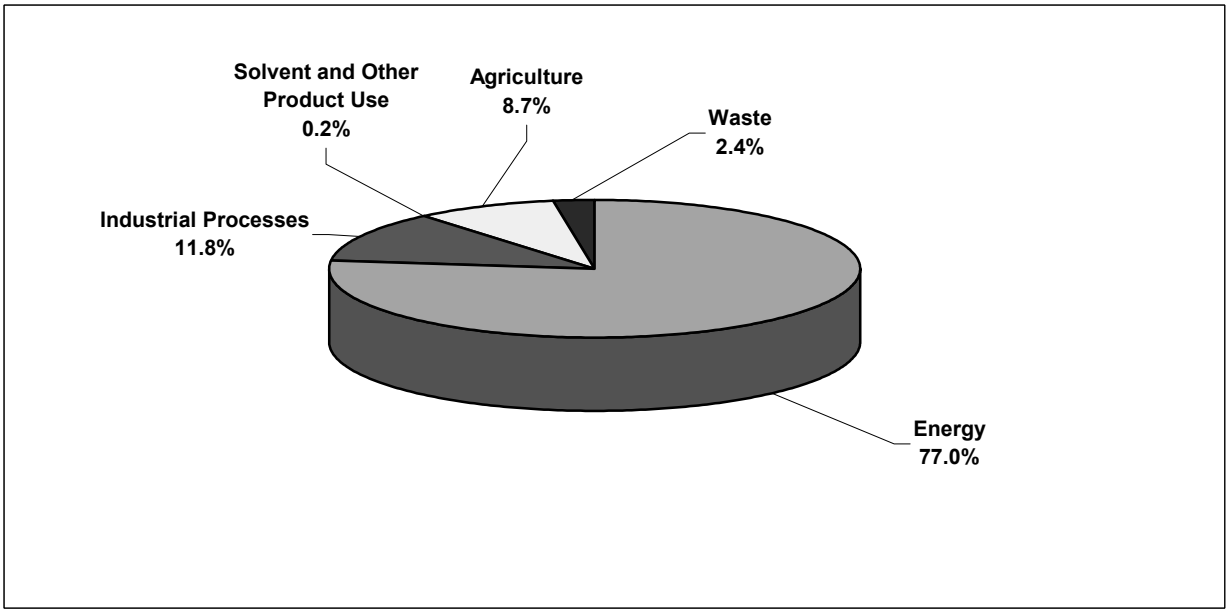


Figure 2. Shares of sectors in total GHG emissions, base year



8. Tables 2 and 3 show the GHG emissions by gas and by sector, respectively.

9. Belgium's quantified emission limitation is 92 per cent as included in Annex B to the Kyoto Protocol and 92.5 per cent under the European Union (EU) burden-sharing agreement.

Table 2. Greenhouse gas emissions by gas, 1990–2004[a]

GHG emissions (without LULUCF)	Gg CO_2 eq.								Change
	Base year Kyoto Protocol	1990	1995	2000	2001	2002	2003	2004	KP BY–2004 (%)
CO_2	118 684.5	118 684.5	123 632.1	123 986.0	124 110.3	123 310.1	127 154.4	126 591.4	6.7
CH_4	11 238.7	11 238.7	10 661.3	9 469.4	8 959.0	8 466.9	8 083.8	7 943.4	–29.3
N_2O	10 831.2	10 831.2	12 997.2	12 589.3	12 412.7	11 886.4	10 805.6	10 092.0	–6.8
HFCs	434.0	434.0	434.0	896.7	1 030.9	1 248.8	1 406.0	1 467.6	238.2
PFCs	2 335.2	1 753.3	2 335.2	360.9	222.6	82.2	208.7	306.2	–86.9
SF_6	2 205.2	1 662.6	2 205.2	108.7	104.7	93.9	75.0	66.0	–97.0

Note: BY = Base year; LULUCF = Land use, land-use change and forestry.
[a] Belgium submitted revised emission estimates for 1990 and 2004 after the initial review on 23 July 2007. These estimates differ from Belgium's GHG inventory submitted in 2006.

Table 3. Greenhouse gas emissions by sector, 1990–2004[a]

Sectors	Gg CO_2 eq.								Change
	Base year Kyoto Protocol	1990	1995	2000	2001	2002	2003	2004	KP BY–2004 (%)
Energy	112 230.6	112 230.6	116 452.6	116 631.1	117 400.1	115 822.1	119 657.3	118 755.8	5.8
Industrial processes	17 125.9	16 001.4	19 401.1	15 781.9	15 006.9	15 182.5	14 717.5	14 746.9	–13.9
Solvent and other product use	246.1	246.1	240.2	253.4	251.5	250.0	120.1	249.6	1.4
Agriculture	12 639.8	12 639.8	13 127.4	12 430.7	12 287.2	11 966.3	11 486.4	10 999.3	–13.0
LULUCF	NA	–1 431.1	–1 385.9	–1 550.3	–2 797.7	–2 337.3	–1 716.9	–1 173.4	NA
Waste	3 486.3	3 486.3	3 043.7	2 313.9	1 894.5	1 867.4	1 752.2	1 714.8	–50.8
Other	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total (with LULUCF)	NA	143 173.2	150 879.1	145 860.7	144 042.5	142 751.0	146 016.6	145 293.2	NA
Total (without LULUCF)	145 728.8	144 604.3	152 265.0	147 411.0	146 840.2	145 088.3	147 733.4	146 466.6	0.5

Note: BY = Base year; LULUCF = Land use, land-use change and forestry; NA = Not applicable.
[a] Belgium submitted revised emission estimates for 1990 and 2004 after the initial review on 23 July 2007. These estimates differ from Belgium's GHG inventory submitted in 2006.

II. Technical assessment of the elements reviewed

A. National system for the estimation of anthropogenic GHG emissions by sources and sinks

10. The Belgium national system is generally in accordance with the guidelines for national systems under Article 5, paragraph 1, of the Kyoto Protocol (decision 19/CMP.1). The ERT identified two areas for improvement: greater transparency in the GHG inventory and the development and implementation of a QA/QC plan in accordance with decision 19/CMP.1.

11. Table 4 shows the specific functions of the national system described in the initial report.

Table 4. Summary of reporting on the specific functions of the national system

Reporting element	Provided	Comments
Inventory planning		
Designated single national entity*	Yes	See section II.A.1
Defined/allocated specific responsibilities for inventory development process*	Yes	See section II.A.1
Established process for approving the inventory*	Yes	See section II.A.1
Quality assurance/quality control plan*	No	See section II.A.2
Ways to improve inventory quality	Yes	See section II.B.3
Inventory preparation		
Key category analysis*	Yes	See section II.B.1
Estimates prepared in line with IPCC guidelines and IPCC good practice guidance*	Yes	See section II.B.2
Sufficient activity data and emission factor collected to support methodology*	Yes	See section II.B
Quantitative uncertainty analysis*	Yes	See section II.B.2
Recalculations*	Yes	See section II.B.2
General QC (tier 1) procedures implemented*	Yes	See section II.A.2
Source/sink category-specific QC (tier 2) procedures implemented	No	See section II.A.2
Basic review by experts not involved in inventory	No	See section II.A.2
Extensive review for key categories	No	See section II.A.2
Periodic internal review of inventory preparation	No	See section II.A.2
Inventory management		
Archive inventory information*	Yes	See section II.A.3
Archive at single location	No	See section II.A.3
Provide ERT with access to archived information*	Yes	See section II.A.3
Respond to requests for clarifying inventory information during review process*	Yes	See section II.A.1

* Mandatory elements of the national system.

1. Institutional, legal and procedural arrangements

12. During the in-country visit, Belgium explained the institutional arrangements, as part of the national system, for preparation of the inventory. The Interregional Cell for the Environment (IRCEL-CELINE) is the designated single national entity. The roles and responsibilities of IRCEL-CELINE are defined by a decision of the Inter-ministerial Conference for the Environment (ICE).

13. A decision of the ICE (7 October 1999) stated that Belgium's national inventory should be based on data delivered by the regions (the Flemish region, the Walloon region and the Brussels-Capital region) with use of complementary information, where applicable. IRCEL-CELINE is responsible for compiling the national inventory from the regional inventories. Responsibility for compiling the NIR is circulated annually between the regions. The Working Group on Emissions was established under the Coordination Committee for International Environmental Policy (CCIEP) and is the main forum for improving Belgium's national inventory.

14. A cooperation agreement dated 14 November 2002 established the National Climate Commission (NCC). The NCC comprises representatives from each of the regions and from the federal government;+ it is assisted by a permanent secretariat and by thematic working groups such as the Working Group on Energy Balances.

15. The main institutions and organizations involved in the preparation of Belgium's GHG inventory are: the Department of Monitoring and Research of the Flemish Environment Agency (VMM) in the Flemish region; the Directorate-General for Natural Resources and the Environment (DGRNE) in the Walloon region; the Brussels Institute for the Management of the Environment (BIM-IBGE) in the Brussels-Capital region; and the federal public services for the environment. Other agencies and organizations are involved in the preparation of the inventory at both the national and the regional level. The federal public services for Economy are responsible for the top-down reference approach fuel consumption. The consultancy office Econotec in collaboration with the Flemish Institute for Technological Research (VITO) compile the fluorinated gases (F-gas) inventory in the industrial processes sector and the Faculté des Sciences Agronomiques at the Gembloux Agricultural University (FSAGX) developed the methodology for the LULUCF sector.

16. A number of the general functions required by decision 19/CMP.1 have not been implemented by Belgium. These include: developing and implementing a QA/QC plan; establishing a centralized archiving system; and planning to systematically develop the national inventory. Although improvement plans exist at the regional level and information is shared between regions, there is no consistent national inventory improvement planning process or documented inventory improvement plan. The ERT recommends that Belgium: implement and manage a QA/QC programme for the national and regional inventories; archive all inventory materials at the single national entity for the national system (IRCEL-CELINE) and develop a national inventory improvement planning process that integrates and coordinates national and regional inventory improvements.

17. Belgium has an established process under the NCC for the official consideration and approval of the inventory prior to its submission.

2. Quality assurance/quality control

18. Belgium has neither elaborated nor implemented a QA/QC plan at the national level. The ERT recommends that Belgium develop a national QA/QC plan in accordance with the Intergovernmental Panel on Climate Change (IPCC) *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* (hereinafter referred to as the IPCC good practice guidance). The ERT commends efforts by the Flemish region to develop an International Organization for Standardization (ISO) 9001 quality management system and considers that the Flemish system will provide a good model for the national plan.

19. The annex to the initial report provides general QA/QC information at the national and the regional levels. During the in-country visit, the ERT was informed that IRCEL-CELINE applies QC procedures when compiling the national inventory. However, the ERT considers that much improvement is required regarding implementing and documenting tier 1 and tier 2 QC procedures. The ERT notes that the results of the procedures should directly feed into the national and regional inventory improvement plans.

20. The ERT commends Belgium on using emissions data from the EU emissions trading scheme (EU ETS) for verification of emissions.

3. Inventory management

21. Belgium does not have a centralized archiving system where all information used in the compilation of the inventory is stored at a single location. The ERT noted that the regions archive all

information relevant to a regional inventory; however, only the regional and national common reporting format (CRF) tables are archived at IRCEL-CELINE. The ERT recommends that Belgium develop a centralized archive for all information, with restricted access for confidential data, used to compile regional and national inventories. The archive should include sufficient detail to regenerate the national inventory and associated supporting documentation.

B. Greenhouse gas inventory

22. In conjunction with its initial report, Belgium has submitted a complete set of CRF tables for the years 1990–2004 and an NIR. Prior to the in-country visit, Belgium submitted a revised GHG inventory on 14 March 2007 which was used as the basis for the review by the ERT. The Party submitted a corrigendum to the initial report and officially resubmitted its GHG inventory (for 1990 and 2004) on 23 July 2007 in response to questions raised by the ERT during the course of the in-country visit.

1. Key categories

23. Belgium reported a tier 1 level and trend key category analysis for 2004 as part of its initial report submission. Belgium did not include the LULUCF sector in the key category analysis. The ERT recommends that Belgium include the LULUCF sector in future key category analyses, and include the key category analysis in the inventory improvement plan at both regional and national levels.

24. The key category analysis performed by Belgium and the secretariat[2] produced different results for 2004. Belgium identified 34 key categories, whereas the secretariat identified 23. The main reasons for the differences are Belgium's exclusion of the LULUCF sector from the analysis, and use of a finer level of category disaggregation in the key category analysis. The secretariat identified 20 key categories for 1990, while the Party did not supply a key category analysis for this year. Belgium uses a key category analysis to prioritize improvements in the inventory.

2. Cross-cutting topics

25. The inventory is in line with the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* (hereinafter referred to as the Revised 1996 IPCC Guidelines), the IPCC good practice guidance and the IPCC *Good Practice Guidance for Land Use, Land-Use Change and Forestry* (hereinafter referred to as the IPCC good practice guidance for LULUCF).

26. The inventory is compiled in accordance with Article 7, paragraph 1, of the Kyoto Protocol and decision 15/CMP.1.

Completeness

27. The inventory submitted in conjunction with the initial report covers all years from 1990 to 2004, all sectors and gases, and includes actual emissions of HFCs, PFCs and SF_6 and potential emissions of HFCs and SF_6. However, the ERT identified incomplete CRF tables for individual sectors such as industrial processes and LULUCF, and noted that some CRF tables contain neither data nor notation keys. Belgium did not report the following CRF tables: LULUCF CRF tables 5.D, 5.E and 5(II); and cross-cutting tables 7 (key category analysis), table 8(b) (recalculation explanations) and table 9 (completeness). The ERT encourages Belgium to provide estimates in its next inventory submission for all categories where emissions occur in the country, even if they are minor, by using simple but

[2] The secretariat identified, for each Party, those source categories that are key categories in terms of their absolute level of emissions, applying the tier 1 level assessment as described in the IPCC *Good Practice Guidance for Land Use, Land-use Change and Forestry* for the base year or base year period as well as the latest inventory year. Key categories according to the tier 1 trend assessment were also identified. Where the Party performed a key category analysis, the key categories presented in this report follow the Party's analysis. However, they are presented at the level of aggregation corresponding to a tier 1 key category assessment conducted by the secretariat.

reasonable approaches, utilizing expert judgement as necessary. If this is not possible, then the Party must use the appropriate notation key and explain the use of the notation key in CRF table 9(a).

Transparency

28. Belgium's inventory is generally transparent; however, the transparency and comparability of the inventory is compromised when regional inventories are aggregated into the national inventory, as not all supporting regional information is included in the NIR. The ERT has identified areas of improvement in the NIR and recommends that Belgium structure all sectors according to the "Guidelines for the preparation of national communications by Parties included in annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories" (hereinafter referred to as the UNFCCC reporting guidelines), and include regional CRF tables as an annex to the NIR.

29. Transparency of the inventory is limited by a general lack of detailed information in the NIR on the regional and the national inventories. The ERT was provided with considerable additional information for all sectors during the in-country visit and the ERT recommends that Belgium include this information in the NIR. The ERT recommends that Belgium focus on describing and documenting country- and region-specific methodologies, emission factors (EFs) and activity data (AD) and provide additional background documentation of models and associated model parameters. Including the time series of the AD, EFs and production data in the annex of the NIR would also increase transparency.

30. Belgium did not submit CRF table 9(a) on the use of notation keys. The ERT made the observation that notation keys are not always used correctly or consistently, and recommends that Belgium provide explanations on the use of notation keys in its next inventory submission.

Consistency

31. The ERT concluded that Belgium's national inventory generally provides a consistent time series in accordance with the IPCC good practice guidance, although consistency is hampered by inventory improvements and recalculations in some cases being applied independently in each region (paragraph 38) because of the regional responsibility to compile greenhouse gas inventories in Belgium. The ERT recommends that the implementation of an inventory improvement plan be coordinated across all relevant stakeholders, including the regions, with the aim of ensuring consistent and harmonized inventory improvements and subsequent recalculations.

Comparability

32. Belgium's inventory is comparable with those of other Annex I Parties. In the revised emission estimates submitted on 23 July 2007 for 1990 and 2004, the Party allocates its sink/source categories in accordance with the Revised 1996 IPCC Guidelines. Comparability of the inventory, particularly the methods and EFs used, could be enhanced through improving documentation of these in the NIR (paragraph 29) at both regional and national levels.

Accuracy

33. During the in-country visit, the ERT identified that the calculation of emissions in the base year was not consistent with the Revised 1996 IPCC Guidelines and the IPCC good practice guidance in that the inventory overestimated emissions for the following categories: emissions originating from coniferous, deciduous and market gardening – N_2O (4.G other) (paragraph 100); enamel production – CO_2 (paragraph 80); and non-energy use of fuels – CO_2 (2.G other) (paragraph 84). During the in-country visit the ERT encouraged Belgium to reconsider the calculation of emissions from these categories. The ERT appreciated that Belgium submitted revised emission estimates for all categories identified above on 23 July 2007 for 1990 and 2004, and that these revised estimates followed the recommendations from the ERT. This review report is based on the revised emission estimates. The

ERT concludes that the emissions estimates as reflected in this review report are consistent with the Revised 1996 IPCC Guidelines and the IPCC good practice guidance.

34. During the in-country visit, the ERT also noted that the inventory might underestimate emissions in the base year for the following categories: manufacture of solid fuels and other energy industries – CH_4 and N_2O (paragraph 64); road transportation – CH_4 and N_2O (paragraph 62); coal mining and handling – CH_4 (paragraph 50); ceramic production – CO_2 (paragraph 82); ammonia production – CO_2 (paragraph 83); manure management – CH_4 (paragraph 92); and wastewater handling – CH_4 (paragraph 122). The ERT recommended that the Party consider submitting revised emission estimates for these categories. This report is based on the revised emission estimates. The ERT recommends that Belgium improve the accuracy of the inventory by incorporating all the improvements identified as necessary by the ERT into its next inventory submission.

35. Belgium did not provide a revised emission estimate for ammonia production – CO_2 (paragraph 83). Belgium is recommended to include information and emissions data (by region) on the allocation of process and energy emissions for the next ERT to consider. The Party is encouraged to allocate process emissions to the industry sector and energy emissions to the energy sector.

36. The ERT recommends Belgium to implement higher tier methods for key categories where a tier 1 approach is currently used (e.g. enteric fermentation (cattle) – CH_4).

37. Regional inventories for the Flemish, Walloon and Brussels-Capital regions can use different EFs and/or methodologies for a given category. The methodologies may reflect actual circumstances in each region; however, in some cases there appears to be no scientific, technical or physical justification for the use of different EFs and/or methodologies (paragraphs 52, 89 and 120). The ERT recommends that the regions ensure that all differences in EFs and/or methodologies reflect documented technical differences and Belgium continue its efforts in harmonizing EFs and methodologies.

Recalculations

38. The national system generally ensures that recalculations of previously submitted estimates of GHG emissions by sources and removals by sinks are prepared in accordance with the IPCC good practice guidance. Recalculations in regional inventories are performed generally in accordance with the IPCC good practice guidance; however, the ERT noted that regional inventories are not always recalculated simultaneously, and the time series are not always consistent with each other, for example, industrial processes – ceramics (paragraph 82) and parameters for solid waste disposal (paragraph 120). The ERT encourages Belgium to ensure recalculations are performed simultaneously and consistently across the regions.

39. Belgium submitted revised emission estimates to the ERT for 1990 and 2004 in response to questions raised during the in-country visit. The Party is recommended to recalculate intermediate years in its next inventory submission to ensure time series consistency.

40. Belgium included several recalculations in the latest submission. The recalculations are reviewed under each sector. The rationale for recalculations is provided in the NIR and includes methodological improvements, revisions in EFs and AD, and the inclusion of emissions from source categories that were not reported previously. The effect of recalculations is to decrease the estimates of total emissions for the base year (excluding CO_2 emissions and removals from LULUCF) by 0.8 per cent

41. The ERT recommends that Belgium include a formal process to consider, implement and report recalculations in the NIR in its national inventory planning. The results of these processes should be documented in the NIR.

Uncertainty analysis

42. Belgium has provided a tier 1 uncertainty analysis for both the entire inventory and each category (excluding LULUCF). The analysis generally follows IPCC good practice guidance; however, the ERT recommends that the uncertainty analysis be improved by including the LULUCF sector in the uncertainty analysis, increasing use of uncertainty estimates developed directly from the analysis of data and reducing use of expert judgement, and using appropriate analytical techniques for combining regional uncertainty data. The uncertainty analysis should be well documented and the results incorporated in the inventory improvement process.

43. Belgium has reported level uncertainties for 2003 and the trend uncertainty for 1990–2003. In earlier submissions Belgium reported an uncertainty analysis for 2001; however, the F-gases were excluded from this analysis. The overall uncertainty has reduced between the analyses from 8.1 to 7.5 per cent and the trend uncertainty from 3.8 to 2.7 per cent, respectively. The uncertainty for CO_2 has reduced from 3.6 to 1.9 per cent, while the uncertainty for CH_4 is the same (24 per cent) and the uncertainty for N_2O has increased from 91 to 100 per cent. The increase in N_2O uncertainty was dominated by agricultural soils. The uncertainty of F-gases was estimated in 2003 at 27 per cent. The ERT recommends that Belgium include additional documentation in the NIR elaborating on the change in uncertainties.

3. Areas for further improvement identified by the Party

44. The NIR identifies areas for improvement separately for each region, including the addition of estimates from some industrial processes and the improvement of methodology and time series consistency in the LULUCF sector. In its response to the issues raised during the review, Belgium indicated that it is working to improve its estimates according to the resources available.

4. Areas for further improvement identified by the ERT

45. The ERT identified the following mandatory cross-cutting issue for improvement. The Party shall:

(a) Develop a national QA/QC plan in accordance with decision 19/CMP.1 and implement this at both the regional level and the national level of inventory planning, preparation and management.

46. The ERT identified the following cross-cutting issues for improvement. Belgium should:

(a) Make all archived inventory information accessible by collecting and gathering it at a single location.

(b) Submit estimates in its next inventory submission for all categories where emissions occur in the country;

(c) Improve the transparency of the inventory by including in the NIR sufficient information to allow review of methodologies, region- and country-specific EFs and parameters, and models;

(d) Structure the NIR according to the UNFCCC reporting guidelines;

(e) Implement a formal process for improvements to the national inventory and create a national inventory improvement plan;

(f) Harmonize methodologies, EFs and recalculation procedures between regions if there are no scientific or technological reasons for the differences.

47. Recommended improvements relating to specific source categories are presented in the sector sections of this report.

5. Energy

Sector overview

48. In the base year, the energy sector accounted for 77.0 per cent of the total national GHG emissions. Emissions from this sector have increased by 5.8 per cent between the base year and 2004. 99.2 per cent of sector emissions arise from fuel combustion. Manufacturing industries and construction was the most important category in the base year, contributing 29.4 per cent to total sector emissions, while energy industries, other sectors and transport contributed 26.8, 24.5 and 18.2 per cent, respectively. CO_2 is the dominant GHG, contributing 98.1 per cent to total sector emissions, and 75.6 per cent of total national GHG emissions. CH_4 and N_2O contributed 1.2 and 0.7 per cent to total sector emissions, respectively.

49. Energy emissions are estimated for each region from "regional energy balances". These balances are compiled from bottom-up information on the consumption of fuels from mandatory returns from individual large plants, as well as from annual reports of electricity and gas consumption by the net managers and suppliers. For certain industrial sectors and the service sector, consumption of petroleum products is estimated by extrapolation of individual company data by using the known total electricity consumption of the sector. National CO_2-emissions are a sum of the three regions. To verify completeness and accuracy of the data, the regional fuel consumption datasets are compared with national statistics. For solid fuels and petroleum products this is based on data from suppliers while for electricity and natural gas it is based on supplier and net manager data. Work is continuing to fine-tune both the national and regional energy balances to make them more complete and comparable. The discussion on the differences between reference and sectoral approach is described in chapter 3.3 (discussing the reference approach) in the NIR 2006. However, the ERT considers that a single section discussing the energy data, its compilation, comparisons and validation would increase transparency. The ERT noted that the energy balance for the Flemish region between 1991 and 1993 was not estimated and fuel consumption is based on the difference between national data and the two other regions. An exception to this regional approach is that CO_2 emissions of CO_2 from road transport are estimated from national fuel sales data.

50. The CRF tables are complete except for a few source categories, such as emissions from coal mining and handling (reported as "not estimated" ("NE")), and abandoned coal mines. Mining operations ceased after 1991 and therefore CH_4 emissions should be estimated for 1990. As a result of the in-country visit, Belgium submitted a revised emission estimate including emissions from coal mines. The revision added 14.2 Gg CH_4 to emissions in the base year. The ERT commends Belgium for its efforts to increase completeness of the inventory, as recommended in earlier review reports.

51. The energy sector is generally transparent, but transparency is reduced by the limited information contained in the CRF tables and the NIR. Significant amounts of fuel, such as coke oven gas and blast furnace gas, are used but no explanatory information is provided. The ERT recommends that the instructions in the CRF on the reporting of coke oven gas and blast furnace gas are adhered to, and that sufficient explanatory information is reported in the NIR. The ERT recommends that Belgium: include tables of individual regional energy consumption as well as a table of national fuel consumption; report fuels and sectors at the level used in the calculations; and include a comparison of regional and national fuel consumption data.

52. The ERT was concerned that despite encouragement in the 2005 review report to harmonize EFs, for many source categories the fuel-specific EFs for CH_4 and N_2O differ according to the region, in many cases by a factor of over 30. The ERT commends Belgium for its efforts to make emissions of CO_2 consistent across the country, and again encourages Belgium to extend this work to CH_4 and N_2O.

Following the in-country visit, Belgium submitted a revised emission estimate using consistent EFs in all three regions (para 61).

53. The recalculations reported by Belgium in its 2006 submission, especially for 1990, were achieved through a significant improvement in harmonizing CO_2 EFs across all regions; using improved fuel data for the iron and steel sector in the Walloon region; using a consistent EF over time to estimate N_2O emissions from manufacturing industries and construction in the Walloon region; using a new model to estimate Flemish region shipping emissions; using improved information on coke production in the Flemish region and the transmission and distribution of natural gas; and other small improvements and corrections of errors. The ERT commends Belgium on these improvements.

Reference and sectoral approaches

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

54. The reference approach and the sectoral approach differ by 0.8 per cent in 1990. There is a difference of up to 6.9 per cent in 2000 without systematic bias. The main reasons provided by Belgium for this difference are the non-energy use of fuels and the use of default EFs in the reference approach. The sectoral estimates are based on regional energy datasets while the reference approach is based on the national information, which adds to the discrepancy. The ERT encourages the use of country-specific EFs in the reference approach.

55. The total apparent consumption in the CRF corresponds to that of the International Energy Agency (within 0.1 per cent in 1990). No systematic bias is evident.

International bunker fuels

56. Belgium has made improvements in reporting emissions from international and domestic aviation since the 2003 in-country review. However, aviation bunker fuels are treated differently in the regions. In the Flemish region, all kerosene used in air transport is assigned to bunker fuels, while all gasoline for air transport is allocated to domestic air transport. A default IPCC EF for CO_2 is used to calculate the emissions. CH_4 and N_2O emissions from air transport are calculated for the landing and take-off (LTO) cycle. In the Walloon region, data from the airports is used to distinguish between national and international flights: 88 per cent of the LTO is assumed to be domestic flights. There is no airport in the Brussels-Capital region. The Flemish region is increasing its efforts to collect data from each airport in the region to facilitate a better allocation of emissions. The ERT encourages Belgium to complete this work for its next inventory submission.

57. International shipping is relevant only for the Flemish region; emissions are based on fuel delivery data from the federal energy balance.

Feedstocks and non-energy use of fuels

58. Belgium has reported the allocation of feedstocks and non-energy use of fuels in accordance with the Revised 1996 IPCC guidelines and the IPCC good practice guidance. The energy sector emissions are based on fuel consumed. The ERT encourages Belgium to report the correct use of notation keys in the CRF.

Key categories

Stationary combustion: all fuels – CO_2

59. Emissions are estimated separately by each region and are based on a combination of reports from large plants and category fuel use. Large plants are obliged to submit information, including on fuel consumption and emissions, to the regional authorities. CO_2 emissions are estimated based on the carbon content of each fuel as specified by the plant operators. Where not all plants in a category are

covered, the total fuel consumption from reporting plants is subtracted from the total fuel consumption for that category. Regional and default EFs are used for the remaining fuel consumption. This approach will lead to good emission estimates – but without a good, well-documented QA/QC plan this cannot be demonstrated. The ERT recommends the development and implementation of a QA/QC plan that covers QC on the AD and the carbon contents as supplied by plants, and includes the number of plants reporting in each sector, the proportion of the sector they account for and the range of reported fuel carbon contents in the NIR.

Road transportation – CO_2

60. Road transport CO_2 emissions are based on national fuel sales and IPCC default EFs. Emissions are checked against statistics of the vehicle kilometres driven in each region. This is in line with recommendations in the 2003 in-country review. Belgium is encouraged to review the EF.

Stationary combustion: liquid fuels – N_2O

61. Estimates are based on sectoral fuel and plant data (paragraph 59). However, different EFs have been chosen in the regions and Belgium is encouraged to review and harmonize these. The same is true for coal and gas for both N_2O and CH_4 emissions. As a result of the in-country visit, Belgium submitted a revised emission estimate using consistent EFs in all three regions for 1.A.2.f and 1.A.4 for both N_2O and CH_4. The revised emission estimate increased emissions of CH_4 by 0.1543 Gg and decreased emissions of N_2O by 0.23 Gg, a net decrease of 67.74 Gg CO_2 eq.

Road transportation – N_2O

62. N_2O from road transport amounts to 0.1 per cent of the national total CO_2 eq. emissions; however, it is a key category owing to its increasing trend from 1990 to 2004. N_2O and CH_4 emissions are estimated from data on vehicle kilometres driven. Different models are used in the different regions, COPERT in the Walloon and Brussels-Capital regions and MIMOSA in the Flemish region. The two models are based on the same EFs and match the vehicle kilometre data in the regions. The ERT was informed that the COPERT model used for Wallonia in 1990 was version I, whereas version III was used for later years of the time series. As a result of the in-country visit, Belgium submitted a revised emission estimate using the COPERT III model in the Wallonia region. The revised emission estimate increased CH_4 emissions by 16.6 per cent in the base year from 1.0 to 1.1 Gg (increase of 16.9 Gg CO_2 eq.), and increased N_2O emissions in the base year by 12.5 per cent from 4.8 to 5.6 Gg (increase of 37.5 Gg CO_2 eq.).

Non-key categories

Natural gas – CH_4

63. As noted in the 2005 review, emissions from the distribution of natural gas are now calculated with an improved methodology based on the lengths of different types of pipes. Emission rates for the different pipes are based on their measurements and the composition of the gas. The estimates of transmission have been updated with additional data from the gas supply company Fluxys. As noted in the 2005 review report, Belgium had misallocated combustion emissions to this sector; these combustion emissions are now reported in the correct category. Documenting the specific EFs and parameters used for CH_4 and CO_2 would improve transparency.

Manufacture of solid fuels and other energy industries – CH_4, N_2O

64. The NIR reported that there were differences between the approaches used by the regions to estimate emissions from coke ovens. For CH_4 the NIR states that the Walloon region uses EFs from the EMEP/CORINAIR emission inventory guidebook. In the Flemish region, emissions are based on measurements made in 2001, 2002 and 2004. Estimates for earlier years are derived from these

measurements. However, these emissions are all reported in the solid fuel transformation category as they are thought to arise mainly from leakage from the coke ovens. For N_2O in the Walloon region, EFs from the EMEP/CORINAIR guidebook are again used while in the Flemish region the NIR states that "contacts with the relevant industry in Flanders indicates that no emissions of N_2O occurs in this sector." It is very unlikely that N_2O emissions would occur in the Walloon region but not in the Flemish region. No justification for the different approaches used between the regions was provided beyond "differing methodological choice in the regions."

6. Industrial processes and solvent and other product use

Sector overview

65. In accordance with Article 3, paragraph 8, of the Kyoto Protocol, Belgium has chosen to use 1995 as its base year for HFCs, PFCs and SF_6. In the base year, total GHG emissions from the industrial processes sector amounted to 17,125.9 Gg CO_2 eq., and 11.8 per cent of total national GHG emissions. Emissions have decreased by 13.9 per cent between the base year and 2004, partly driven by a reduction of 93.1 per cent in F-gas emissions from the production of halocarbons and SF_6, and by a decrease of 14.7 per cent in emissions from metal production. CO_2 was the dominant gas emitted in the base year, contributing 48.0 per cent to total sector emissions, while N_2O, PFCs and SF_6 contributed 23.0, 13.6, and 12.9 per cent, respectively. Mineral products was the largest emitting category in the base year, contributing 31.3 per cent to the sectoral total, followed by the chemical industry, production of halocarbons and SF_6, and metal production. Solvents and other product use, a relatively minor source, accounted for just 0.2 per cent of total national GHG emissions.

66. The inventory for the industrial processes and the solvent and other product use sectors is complete for all years of the time series, all source categories and gases. However, the ERT noted that the NIR and CRF tables are not consistent in reporting the AD for glass production, ceramic production, caprolactam and other non-specified chemicals. The CRF reported limestone and dolomite use as "not occurring" (NO") and soda ash production as "NE", but the NIR indicated that both are used for glass production.

67. The ERT noted that there were no significant improvements in completeness since the 2005 submission. The ERT encourages Belgium to report both the potential emissions and ratio of potential to actual emissions for F-gases.

68. The transparency of the industrial processes sector is limited by a lack of relevant information in the NIR. In particular, the NIR does not contain sufficient detail to compare regional-specific circumstances concerning, for example, such as methodologies used for ammonia production and iron and steel production.

69. Recalculations reported by Belgium are due to additional sources such as reporting ceramic production in the Walloon region, corrections to AD and EFs, and methodological improvements. The recalculation on the base year resulted in decreased reported industrial processes emissions by 1.8 per cent, and decreased emissions from solvents and other product use by 2.8 per cent. Specifically, the recalculations increased reported HFC emissions by 70.1 per cent and decreased reported CO_2 emissions by 2.8 per cent in the base year. Reported N_2O emissions from solvents and other product use decreased by 2.8 per cent in the base year.

Key categories

Cement production – CO_2

70. In the base year, CO_2 emissions from cement production amounted to 2,823.8 Gg and accounted for 16.5 per cent of total sector emissions. CO_2 emissions from cement production are a key category on

the 1990 level assessment. Belgium reported that emissions are estimated using a tier 2 methodology; however, the information provided in the NIR is not sufficient for expert review. Belgium is recommended to report the cement kiln dust factors and the amount of non-carbonate sources in a way consistent with the tier 2 method. As there is a lack of plant-specific data, the cement operators in Belgium recommended the use of 2002 plant-specific EFs to estimate CO_2 emissions from 1990 to 2001, but the reason for this was not given in the NIR. Belgium is recommended to check the consistency of the selected EFs for 1990 to 2001 with all other years of the time series. Source-specific verification is regularly conducted for EU ETS but there are no other QC activities conducted.

Lime production – CO_2

71. In the base year, CO_2 emissions from lime production amounted to 2,097.0 Gg, and accounted for 12.2 per cent of total sector emissions. CO_2 emissions from lime production were identified as a key category on the level assessment for 1990. Lime and dolomite lime producers have provided plant-specific production and EFs for different types of lime produced. The methodology used is in accordance with the IPCC good practice guidance. Category-specific verification is regularly undertaken using data from EU ETS, but there are no source-specific QC activities conducted.

Nitric acid production – N_2O

72. Nitric acid production was identified as a key category in 1990 on the level assessment. N_2O emissions from nitric acid production contributed 90.5 per cent (3,561.8 Gg CO_2 eq.) to sectoral N_2O emissions in the base year.

73. During the in-country visit, Belgium provided plant-specific AD and EFs for all years of the time series. The EF of 8 kg N_2O per tonne nitric acid used from 1990 to 1995 in the Walloon region and from 1990 to 2002 in the Flemish region is within the range of default EFs reported in table 3.8 of the IPCC good practice guidance. Even so, Belgium is recommended to report in the NIR the nitric acid plant technology to support Belgium's reported EF to allow comparison with IPCC good practice guidance EFs. The ERT also recommends that Belgium document variations in AD, the N_2O EF and production data across the regions; discuss the assumption that selective catalytic reactors reduce N_2O emissions; and document the N_2O destruction factor of the catalyst used in the Flemish region.

Iron and steel production – CO_2

74. CO_2 emissions from iron and steel production were identified as a key category on both level assessment and trend assessment in 1990. In the base year, CO_2 emissions amounted to 1,946.0 Gg CO_2 eq., with 52.4, 28.1 and 19.6 per cent of these emissions attributed to steel, pig iron and sinter, respectively. Iron and steel production is the sole source of CO_2 emissions from metal production in Belgium.

75. It is not clear from the NIR how the tier 2 method was applied, how process emissions were derived for each plant, and how these emissions were separated from emissions arising from energy use. The ERT recommends that Belgium provide a clear description of the tier 2 method in the NIR, and include information on each parameter used to estimate emissions; the number of plants producing iron and steel and a description of their processes; the mass of reducing agent in pig iron production and mass of carbon in the ore, pig iron and steel; and the EFs for reducing agents and electric arc furnaces.

76. The ERT encourages Belgium to include in the NIR the results of an appraisal of QA/QC checks applied to data from in-situ monitoring by iron and steel production operators, and to make certain that QA/QC checks are used to ensure the tier 2 method is in accordance with the IPCC good practice guidance.

77. The NIR indicated that one sinter plant reported CO_2 emissions in 2003. The emissions were not reported in the 2006 NIR because of a lack of data for other years. The ERT recommends that Belgium report a complete time series of emissions from all sinter operations.

Production of halocarbons and SF_6 – other F-gases

78. In the base year, emissions from the other F-gases amounted to 4,437.3 Gg of CO_2 and accounted for 89.2 per cent of the total F-gases emissions, and 25.9 per cent of total industrial processes emissions. These emissions were mainly fugitive and non-fugitive emissions from an electro-fluorination plant. Emissions were calculated by using mass balance in combination with actual measurements. EFs are calculated for each source of emissions, namely batch processes, reactors and process steps. The use of annual plant-specific AD and EFs is in accordance with the IPCC good practice guidance.

79. Belgium reported that an external audit of the emission inventory was conducted in July 2005 and improvements in emission measurements and mass balance models were subsequently implemented. The ERT recommends that Belgium report the outcomes of the audit in the NIR, particularly in the context of applied or planned improvements and recalculations and impacts on time series consistency.

Non-key sources

Other: mineral products (glass production) – CO_2

80. In the base year, CO_2 emissions from glass production amounted to 285.6 Gg. The NIR stated that a part of this emission is attributed to enamel production. A CO_2 EF for enamel production of 650 kg CO_2 per tonne of enamel produced is used for all years of the time series. This EF was obtained from an enamel company in the Flemish region, and based on EU Best Available Techniques Reference Documents. However, during the in-country visit the Party informed the ERT that the enamel company reported an EF of 71.12 kg CO_2 per tonne enamel produced for the years 2001 to 2005. This average EF is based on plant measurements. As a result of the in-country visit, Belgium submitted a revised emission estimate for 1990 to 2000 using the plant-specific EF of 71.12 kg CO_2 per tonne of enamel. This change decreased CO_2 emissions from glass production by 4.3 per cent in the base year from 278.1 to 266.1 Gg.

81. Belgium revised and resubmitted to the ERT the 1990 to 2002 emission estimate of one glass plant in the Flemish region due to a revision of the average EF from 125 kg CO_2 per ton of glass to 300 kg CO_2 per tons of glass in 1990 to 2002 based on measurements carried out for years 2001 to 2005. The Party indicated that the new EF is applicable for the entire time series because no changes in the process occurred since 1990. This change increased CO_2 emissions by 7.0 per cent in the base year from 278.1 to 297.6 Gg. Belgium is recommended to explain the method used to estimate EF in the next NIR.

Other: mineral products (ceramics production) – CO_2

82. The CRF submission included emissions only from the Flemish region for this category. During the in-country visit Belgium provided the ERT with additional information on CO_2 emissions from ceramic production operations for both the Walloon region and the Flemish region. The Party submitted revised emission estimates for this category in response to questions raised by the ERT during the course of the review. This change increased CO_2 emissions by 9.3 per cent in the base year from 124.2 to 135.7 Gg.

Ammonia production – CO_2

83. The ERT recommends that Belgium correct an error in the combined reporting of process and energy emissions between 1990 and 2004 in the Flemish region, and process emissions only between 2002 and 2004 in the Walloon region. The ERT also recommends that the Walloon and Flemish regions

use a consistent method for CO_2 emissions from ammonia production. In response to questions raised by the ERT during the course of the review, the Flemish region stated that CO_2 emissions reported between 1990 and 2004 include only process emissions. The Walloon region reported process emissions only from 2002 to 2004 and the emissions from energy use are reported in the category chemicals (1A2c). Belgium did not submit a revised emission estimate for this category in response to the ERT's questions. Belgium is recommended to include information and emissions data (by region) on the allocation of process and energy emissions in its next inventory submission. The Party is encouraged to allocate process emissions to the industrial processes sector and energy emissions to the energy sector.

Other: industrial processes – CO_2

84. CO_2 emissions from non-energy use of fuel are reported under category 2G; however, CO_2 is emitted only when the products or their by-products are used in other industrial processes (e.g. chemical industries (other) (2B5)) and/or when they are burned or destroyed to meet regulatory requirements (e.g. non-methane volatile organic compounds from solvents and other product use). Belgium removed CO_2 estimates for this category in its submission of revised emission estimates on 23 July 2007 for 1990 and 2004, in response to questions raised by the ERT.

7. Agriculture

Sector overview

85. In the base year, GHG emissions from the agriculture sector amounted to 12,639.8 Gg CO_2 eq., and accounted for 8.7 per cent of Belgium's total GHG emissions. Emissions have decreased 13.0 per cent from the base year to 2004 (10,999.3 Gg CO_2 eq.), owing to decreases in CH_4 emissions from enteric fermentation, and CH_4 and N_2O emissions from manure management and agricultural soils. The drivers for the decrease were the occurrence of bovine spongiform encephalitis; concern over dioxin contamination and the subsidized reduction of numbers of cattle in the Flemish region.

86. The reporting of emissions from agriculture is generally complete. Rice cultivation, prescribed burning of savannahs and field burning of agricultural residues do not occur in Belgium and the appropriate notation key "NO" is used. Uncertainties have been quantified from expert judgment and the use of IPCC defaults.

87. The ERT considers that the transparency of the agriculture inventory is generally inhibited by the lack of relevant documentation in the NIR. The ERT encourages Belgium to include in annex 3 of the NIR summaries of the supporting scientific studies used in the Walloon region and summaries of the inputs, outputs and calculations used in the models used by the Flemish region. Information on these studies and models are critical to understanding the Belgian agricultural inventory and subsequent expert review.

88. Belgium recalculated several agricultural sources in the 2006 submission. The recalculations reported for 1990 include: removing CH_4 emissions from categories wetlands and unmanaged surface waters and CH_4 removals from forest, grassland and agricultural soils; correction of livestock population data; revision of default EF for histosol areas; correction to N_2O total recorded in the CRF table; and other improvements based on corrections of the 1990 inventory. The recalculations are in response to the 2005 centralized review report and other improvements identified by Belgium. The result of the recalculation on 1990 emissions was an increase of 264.2 Gg CO_2 eq. or 2.0 per cent of agriculture emissions.

Key categories

Enteric Fermentation – CH_4

89. In the base year, CH_4 emissions from enteric fermentation accounted for 36.0 per cent of total sector emissions, and contributed 3.1 per cent to total national GHG emissions. Cattle were the largest single source of enteric CH_4 emissions, accounting for 94.4 per cent. Emissions from cattle in the Flemish region are calculated using the IPCC default EF for all years of the time series, whereas the Walloon region uses the IPCC default EF for 1990 for cattle, and increases the EF to reflect increases in milk production. To be consistent with the IPCC good practice guidance, the ERT recommends that Belgium implement a tier 2 methodology for enteric CH_4 emissions from cattle.

90. The reported implied emission factor (IEF) for sheep is 8.3 kg CH_4/hd/yr; the IPCC default value is 8 kg CH_4/hd/yr. During the in-country visit, Belgium informed the ERT that the higher EF was driven by sheep in the Walloon region, where three categories of sheep are defined for estimation of emissions. The ERT recommends that Belgium include the additional supporting material in the NIR.

Manure Management – CH_4

91. Emissions from swine manure accounted for 53.3 per cent of manure management emissions and cattle manure contributed 42.2 per cent. Allocation of animals to the different animal waste management systems (AWMS) is critical to the calculation of CH_4 emissions from manure management. The ERT recommends that Belgium regularly review the appropriateness of allocation of animals to AWMS as a tier 2 QA/QC procedure. CRF table 4.B(a) should also be completed for all livestock species.

92. The IEF for sheep is the highest of all reporting Parties and seven times the IPCC default for a cool climate. During the in-country visit, the ERT identified that the high IEF was from the tier 2 model used in the Flemish region and attributed to 20 per cent of sheep being on a liquid manure management system with a CH_4 conversion factor (MCF) of 39 per cent. The ERT verified the model and confirmed that, with the liquid AWMS, the high IEF is appropriate. The ERT appreciated that as a result of discussions during the in-country visit, the Flemish region revised the MCF for cattle on pasture from 10 per cent to the IPCC good practice guidance value of 1 per cent. The recalculation decreased CH_4 emissions in the base year by 6.2 per cent from 127.9 to 120.0 Gg (a decrease of 166.0 Gg CO_2 eq.).

Manure Management – N_2O

93. Emissions from manure processed in solid storage and drylot comprise 92.9 per cent of N_2O emissions from manure management. The ERT noted that N_2O from manure management is discussed under agricultural soils in the NIR and recommend Belgium correct this in future submissions.

94. N_2O emissions are calculated using an IPCC tier 1 methodology and annual country-specific nitrogen excretion (Nex) values for dairy and non-dairy cattle, sheep and swine. The information in the NIR is not sufficient for expert review of the estimated emissions. During the in-country visit, the ERT was provided with additional documentation. The ERT recommends that a summary of the additional documentation be included in the NIR.

Direct emissions from agricultural soils – N_2O

95. Direct emissions of N_2O from agricultural soils are dominated by emissions from nitrogenous fertilizer at 50.0 per cent and animal manure applied to soil at 38.2 per cent. In estimating direct N_2O emissions from synthetic fertilizers, animal waste applied to soil and crop residues, the NIR states that the IPCC default EF of 0.0125 kg N-N_2O/kg N has been used. However, the CRF reports an IEF from crop residues of 0.0002 kg N_2O/kg N and an IEF of 0.001 kg N-N_2O/kg N for N-fixing crops. This issue was highlighted in the 2005 centralized review. During the in-country visit, the ERT confirmed use of IPCC default EF of 0.0125 kg N-N_2O/kg N for emissions and was informed that the discrepancy in the

IEF was from reporting the unit kg N_2O-N/kg dry biomass in the CRF. This error has no impact on the N_2O emissions. Belgium also informed the ERT that the error has been corrected in the 2007 submission.

96. In response to the 2005 centralized review, Belgium has updated the EF for emissions from histosol cultivation to 8 kg N_2O-N/ha.

Indirect emissions from agricultural soils – N_2O

97. Indirect emissions of N_2O from agricultural soils are comprised of emissions from leaching and runoff (68.5 per cent) and volatization (31.6 per cent). The CRF for all years reports constant values of FracGASF (0.03), FracGASM (0.16) and FracLEACH (0.13). There is an error in latter years where the reported values are offset by one row in the CRF. During the in-country visit, the ERT queried each parameter and was provided additional supporting material and models to support each value.

98. The values reported for FracGASF and FracGASM are different from the IPCC default values of 10 per cent and 20 per cent respectively. In the Walloon region, an average FracGASF of 2.3 per cent is used, based on the default value recommended by IIASA, and in the Flemish region the weighted average for NH_3 and NO volatilization is 4.4 per cent. For FracGASM, the Flemish region uses the IPCC default value of 20 per cent and the Walloon region uses a weighted average value based on different AWMS for liquid and solid manure and grazing. The ERT recommends that the regional values be harmonized where there is no scientific justification supporting different fractional parameters.

Emissions from pasture, range and paddock – N_2O

99. FracGRAZ is different for each region at 0.22 per cent for the Flemish region and 0.45 per cent for the Walloon region. The difference reflects the more extensive agricultural system in the Walloon region. The IPCC default EF of 0.02 kg N-N_2O/kg N is used to estimate the emissions.

Non-key categories

Other non-specified – N_2O

100. The CRF reports 0.8 Gg of N_2O emissions from coniferous and deciduous trees and market gardening in CRF table 4. During the in-country visit, the ERT confirmed that the emissions reported under coniferous and deciduous were from forests and should be removed from the agriculture sector, and that the emissions from market gardening were based on an indicative EF. The ERT appreciated that Belgium had submitted revised emission estimates for the agriculture sector on 23 July 2007 and had removed the N_2O emissions from this category for 1990 and 2004. The revised emission estimate decreased N_2O emissions in the base year by 0.8 Gg N_2O (237.2 Gg CO_2 eq.). The Party is recommended to revise the estimate for the intermediate years of the time series in its next inventory submission.

8. Land use, land-use change and forestry

Sector overview

101. In the base year, the LULUCF sector in Belgium amounted to a net sink of 1431.1 Gg CO_2 eq., offsetting 1.0 per cent of Belgium's GHG emissions.

102. Belgium reported CO_2 emissions by sources and removals by sinks for the land-use categories forest land, cropland and grassland. Emissions of CH_4 and N_2O were reported as "NO". Belgium did not estimate emissions or removals from land-use change.

103. A land use and land-use change matrix was not submitted by Belgium. The ERT identified that the representation of land areas is not consistent across the inventory time series, and that a system to support the identification of land areas does not exist. This prevents the detection of land-use change and

quantification of associated emissions and/or removals. The ERT recommends that Belgium establish a system to identify, on a consistent basis, land use and land-use change, and report in its next inventory submission under the Kyoto Protocol how the national system will identify these areas of land use and use change required for Article 3, paragraph 3 of the Kyoto Protocol.

104. Belgium defined forest using the parameters in accordance with decision 16/CMP.1. These parameters are identical with those that Belgium used for the 2005 forest resource assessment for the Food and Agriculture Organization of the United Nations (FAO).

105. Belgium did not elect any additional activities under Article 3, paragraph 4, of the Kyoto Protocol.

106. Tier 2 and tier 3 methods from the IPCC good practice guidance for LULUCF and country-specific EFs are largely used. Belgium uses biomass and soil data obtained from national and/or regional sampling programmes. The applied methods are strongly supported by research with a series of analytical country-specific studies published in peer-reviewed journals.

107. The ERT identified that QA/QC procedures for inventory preparation in the LULUCF sector are yet to be developed. The ERT recommends that Belgium develop and implement appropriate QA/QC procedures, and reports in the NIR area data for all land-use categories.

108. The ERT encourages Belgium to consider using terminology consistent with the IPCC good practice guidance for LULUCF in its reporting of this sector in the NIR.

109. In contrast to other sectors, Belgium did not report uncertainty estimates for the emission categories of the LULUCF sector. The ERT encourages Belgium to report uncertainty information for LULUCF as a whole, as well as for its categories, in its next inventory submission.

110. The ERT commends Belgium on its efforts to improve reporting of this sector since the 2005 submission. The ERT noted the improvements made by using an advanced assessment of soil carbon stock changes, and by including cropland and grassland.

Key categories

Forest land remaining forest land – CO_2

111. This category is the most important category of the LULUCF sector, identified as a key category in the secretariat's analysis for the level (1990 and 2004) and trend assessments. The estimated sink is dominated by the changes of biomass carbon stock. Use of the tier 3 methodology results in inconsistencies in the time series because two methodologies are applied, namely the carbon stock change method based on NFI data (for the period 1990–2000), and the EFOBEL model application (for the period 2001–2004). The Party informed the ERT that a recalculation of the entire time series will be undertaken upon receipt of the new NFI data due in 2008.

112. The ERT noted that the areas reported in the CRF for this category included only managed forests. Belgium informed the ERT that forest not used for productive purposes is classified as unmanaged. This distinction is also reflected by the national forest inventory with different methodologies applied for managed and unmanaged forest areas. However, the consistent area representation requires land areas to be reported for both managed and unmanaged forest land. This information from the Party also explains the difference in forest land areas as reported to FAO and under the Convention.

113. The ERT concludes that approaches used for the assessment of biomass and soil carbon pools changes are in line with the IPCC good practice guidance for LULUCF. The EFs and parameters used

are largely country-specific, and substantiated by local research and analysis. Nevertheless, the ERT encourages Belgium to provide the key model parameters in the next inventory submission.

Grassland remaining grassland – CO_2

114. A tier 2 method has been used by the Party to estimate carbon stock changes from this category. The ERT noted that the method does not differentiate between mineral and organic soils, and concludes that only mineral soils have been used in the derivation of carbon stock change. The ERT recommends that areas of mineral and organic soils are characterized and used to estimate emissions from this category in line with the IPCC good practice guidance for LULUCF.

Non-key categories

Cropland remaining cropland – CO_2

115. A tier 2 method has been used by the Party to estimate carbon stock changes from this category. The ERT recommends that areas of mineral and organic soils are characterized and used to estimate emissions from this category in line with the IPCC good practice guidance for LULUCF.

9. Waste

Sector overview

116. In the base year, emissions from the waste sector amounted to 3,486.3 Gg CO_2 eq., or 2.4 per cent of total national GHG emissions. Emissions from this sector declined by 50.8 per cent between 1990 and 2004. The decrease is from reduced CH_4 emissions from solid waste disposal sites (SWDS), partly driven by increased CH_4 recovery in latter years of the time series. SWDSs were the largest emitting category in the base year, contributing 78.5 per cent to total sector emissions, while emissions from waste incineration and wastewater handling contributed 10.7 and 10.6 per cent, respectively. CH_4 contributed 81.2 per cent to total sectoral emissions in the base year, while CO_2 and N_2O contributed 10.1 and 8.7 per cent, respectively.

117. The CRF tables are generally complete. The ERT noted that notation keys are not reported for unmanaged SWDS and domestic wastewater handling, and Belgium is encouraged to improve reporting of notation keys in the NIR and CRF tables (particularly table 9(a)) in its next inventory submission. Belgium is also recommended to improve the transparency of the inventory by including in its next inventory submission a summary of the additional information that it provided to the ERT during the in-country visit. This information would include the historical waste composition data to support the fraction of degradable organic carbon (DOCf) used in solid waste disposal; information on the recovery of CH_4 emissions from industrial treatment for in-situ use; and the characteristics of the compost production and the amount of waste composted by each region.

118. Recalculations reported in the 2006 submission include reducing the EF from compost from 20 to 2.4 kg CH_4/tonne of compost. This revision is based on the introduction of monitoring results obtained from the Netherlands.

Key categories

Solid waste disposal site – CH_4

119. In the base year, emissions from SWDS amounted to 2,630.0 Gg CO_2 eq., or 78.4 per cent of total sector emissions.

120. Two first-order decay (FOD) models are used, with each modified according to region-specific circumstances. The parameter basis of the model is not consistent between the regions. The Flemish region uses a multiphase model for a permitted landfill with three different biodegradable rates (k) and a FOD model with single k value of 0.1/year for the landfill where waste disposal no longer occurs. The

Walloon region uses a common FOD model for all landfills. During the in-country visit, the ERT was informed that the DOCf used in the Flemish and Walloon regions was 0.77 based on historical waste composition data for which lignin is included. The ERT encourages Belgium to harmonize parameters between regions where there is no scientific or technical justification supporting different parameters.

Non-key categories

Wastewater handling – CH_4

121. The NIR stated that CH_4 emissions from industrial wastewater treatment were not reported because of a lack of data, but during the in-country visit, the ERT was informed that CH_4 emissions from industrial treatment were recovered for in-situ use. The ERT recommends that Belgium explain this in its next inventory submission.

122. In response to questions raised by the ERT during the in-country visit, Belgium submitted revised emission estimates for municipal wastewater treatment plants. This revision was recommended by the ERT to harmonize regional EFs for septic tanks. The revised emission estimate increased CH_4 emissions by 159.4 per cent from 4.0 to 10.5 Gg (increase of 134.9 Gg CO_2 eq.).

Incineration – CO_2

123. The ERT identified an inconsistency between the Flemish and Walloon regions in the reporting of CO_2 emissions from flaring activity associated with the chemical industry. The Walloon region has reported CO_2 emission from flaring under waste incineration, while the Flemish region has reported this emission under other non-specified emissions from the chemical industry in the industrial processes sector. The ERT recommends that Belgium report this emission source under waste incineration in accordance with IPCC good practice guidance.

Other: composting – CH_4

124. Belgium is encouraged to improve the transparency of this sector by including information on the characteristics of the compost production and the amount of waste composted by each region.

C. Calculation of the assigned amount

125. The assigned amount pursuant to Article 3, paragraphs 7 and 8, is calculated in accordance with the annex to decision 13/CMP.1.

126. Belgium's base year is 1990 and the Party has chosen 1995 as its base year for HFCs, PFCs and SF_6. Belgium's quantified emission limitation is 92 per cent as included in Annex B to the Kyoto Protocol. As Belgium is part of the European Community, whose member States will meet their reduction commitment jointly in accordance with Article 4 of the Kyoto Protocol, Belgium's quantified emission limitation is 92.5 per cent. Belgium's assigned amount is calculated based on the Party's Article 4 commitment.

127. Based on Belgium's base year emissions submitted with the initial report of 146,890,526 tonnes CO_2 eq., and its Kyoto Protocol target (92.5 per cent), the Party calculated its assigned amount to be 679,368,682 tonnes CO_2 eq.

128. In response to inventory issues identified during the review, Belgium submitted a revised estimate of its base year inventory, which resulted in a recalculation of the assigned amount. Based on the revised estimates, Belgium calculates its assigned amount to be 673,995,528 tonnes CO_2 eq. The ERT agrees with this figure.

D. Calculation of the commitment period reserve

129. The calculation of the required level of the commitment period reserve is in accordance with paragraph 6 of the annex to decision 11/CMP.1.

130. Based on its calculated assigned amount – 679,368,682 tonnes CO_2 eq. – Belgium calculates its commitment period reserve to be 611,431,813 tonnes CO_2 eq.

131. In response to inventory issues identified during the review, Belgium submitted a revised estimate of its base year inventory, which resulted in a recalculation of the commitment period reserve. Based on the revised estimates, the Party calculates its commitment period reserve to be 606,595,975 tonnes CO_2 eq. The ERT agrees with this figure.

E. National registry

132. Table 5 summarizes the information provided by Belgium on the mandatory reporting elements on the national registry system (as stipulated by decision 15/CMP.1), which describes how its national registry performs the functions defined in the annex to decision 13/CMP.1 and the annex to decision 5/CMP.1. The information is transparent and in accordance with these reporting guidelines requirements.

133. During the in-country visit, the ERT was provided with additional and updated information on the national registry, including advice that Belgium intends to switch registry software from Seringas™ to the Community Registry software (CRS), and a revised project schedule to ensure that the national registry is fully operational with the international transaction log (ITL) by the due date.

134. The ERT was also informed of the procedures and security measures put in place by the Party to minimize discrepancies, terminate transactions, correct problems and minimize operator error. They include automatic verification of transactions, cross-checks with destination registry and use of firewalls.

135. The ERT acknowledged the effort made by Belgium to put in place these procedures and security measures. The ERT recognized that Belgium attaches sufficient importance to the registry, and has allocated adequate resources, including human resources, to its development, operation and maintenance. However, Belgium informed the ERT during the in-country visit that it intends to shift from the Seringas™ to the CRS software. The contract for maintaining and developing the CRS for the Belgian registry was awarded in August 2007.

Table 5. Summary of information on the national registry system

Reporting element	Provided / referenced	Comments
Registry administrator		
Name and contact information	Yes	
Cooperation with other Parties in a consolidated system		
Names of other Parties with which Belgium cooperates, or clarification that no such cooperation exists.	Yes	Belgium cooperates with Luxembourg
Database structure and capacity of the national registry		
Description of the database structure	Yes	Covered in the Independent Assessment Report (IAR)[a]
Description of the capacity of the national registry	Yes	
Conformity with data exchange standards (DES)		
Description of how the national registry conforms to the technical DES between registry systems	Yes	Covered in the IAR
Procedures for minimizing and handling of discrepancies		
Description of the procedures employed in the national registry to minimize discrepancies in the transaction of Kyoto Protocol units	Yes	
Description of the steps taken to terminate transactions where a discrepancy is notified and to correct problems in the event of a failure to terminate the transaction	Yes	
Prevention of unauthorized manipulations and operator error		
An overview of security measures employed in the national registry to prevent unauthorized manipulations and to prevent operator error	Yes	Covered in the IAR
An overview of how these measures are kept up to date	Yes	
User interface of the national registry		
A list of the information publicly accessible by means of the user interface to the national registry	Yes	Covered in the IAR
The Internet address of the interface to Belgium's national registry	Yes	<https://www.climateregistry.be>
Integrity of data storage and recovery		
A description of measures taken to safeguard, maintain and recover data in order to ensure the integrity of data storage and the recovery of registry services in the event of a disaster	Yes	Covered in the IAR
Test results		
The results of any test procedures that might be available or developed with the aim of testing the performance, procedures and security measures of the national registry undertaken pursuant to the provisions of decision 19/CP.7 relating to the technical standards for data exchange between registry systems.	Yes	Covered in the IAR

[a] Pursuant to decision 16/CP.10, once registry systems become operational, the administrator of the international transaction log (ITL) is requested to facilitate an interactive exercise, including with experts from Parties to the Kyoto Protocol not included in Annex I to the Convention, demonstrating the functioning of the ITL with other registry systems. The results of this exercise will be included in an independent assessment report (IAR). They will be also included in its annual report to the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol.

136. During the review, the ERT was informed that the internal operational test of the registry for network connection was completed on 11 October 2007, and that the interoperability tests were performed on 16 October 2007. The initialization process was completed by 7 December 2007 and the registry is expected to be fully operational by 15 December 2007.

137. The ERT took note of the results of the technical assessment of the national registry, including the results of standardized testing, as reported in the independent assessment report that was forwarded to the ERT by the administrator of the ITL, pursuant to decision 16/CP.10, on 7 December, 2007.

138. The ERT reiterated the main findings of this report, including that the registry has fulfilled all of its obligations regarding conformity with the Data Exchange Standards. These obligations include having adequate transaction procedures; adequate security measures to prevent and resolve unauthorized manipulations; and adequate measures for data storage and registry recovery. The registry is therefore

deemed fully compliant with the registry requirements defined in decisions 13/CMP.1 and 5/CMP.1, noting that registries do not have obligations regarding Operational Performance or Public Availability of Information prior to the operational phase.

139. Based on the results of the technical assessment, as reported in the independent assessment report, the ERT concluded that Belgium's national registry is fully compliant with the registry requirements as defined by decisions 13/CMP.1 and 5/CMP.1, noting that registries do not have obligations regarding operational performance or public availability of information prior to the operational phase.

F. Land use, land-use change and forestry parameters and election of activities

140. Table 7 shows the Party's choice of parameters for forest definition as well as elections for Article 3, paragraphs 3 and 4, activities in accordance with decision 16/CMP.1.

Table 6. Selection of LULUCF parameters

Parameters for forest definition		
Minimum tree cover	20%	
Minimum land area	0.5 ha	
Minimum tree height	5 m	
Elections for Article 3, paragraphs 3 and 4, activities		
Article 3, paragraph 3, activities	**Election**	**Accounting period**
Afforestation and reforestation	Mandatory	Commitment Period
Deforestation	Mandatory	Commitment Period
Article 3, paragraph 4, activities		
Forest land management	not elected	Not applicable
Cropland management	not elected	Not applicable
Grazing land management	not elected	Not applicable
Revegetation	not elected	Not applicable

III. Conclusions and recommendations

A. Conclusions

141. The ERT concluded that the information provided by Belgium in its initial report is largely complete and has been submitted in accordance with the relevant provisions of paragraphs 5, 6, 7 and 8 of the annex to decision 13/CMP.1, section I of the annex to decision 15/CMP.1, and relevant decisions of the CMP; that the assigned amount pursuant to Article 3, paragraphs 7 and 8, of the Kyoto Protocol is calculated in accordance with the annex to decision 13/CMP.1, and is consistent with the Party's reviewed and submitted revised inventory estimates; and that the calculated commitment period reserve is in accordance with paragraph 6 of the annex to decision 11/CMP.1.

142. Belgium has made significant improvements since last year's submission, in response to recommendations made by the 2005 centralized review and other improvements identified by the Party. The improvements include: significant efforts to harmonize EFs in the energy sector; improvements to AD across all sectors; and reallocation of emissions between agriculture and LULUCF sectors. The ERT commends Belgium on its efforts to improve the estimates in the inventory.

143. Belgium's national system is generally prepared in accordance with the guidelines for national systems under Article 5, paragraph 1, of the Kyoto Protocol (decision 19/CMP.1) and can perform the general and specific functions required by these guidelines. The ERT concluded that a mandatory element of decision 19/CMP.1 concerning the elaboration of a QA/QC plan was not presented in the initial report. However, Belgium submitted to the ERT an action plan for the development and implementation of a QA/QC plan. The ERT concluded that subsequent reviews of Belgium's inventory submissions under the Kyoto Protocol will need to confirm compliance with decision 19/CMP.1 with regard to the elaboration of a QA/QC plan, and the existence of a centralized archive system.

144. In conjunction with the initial report, Belgium has submitted a generally complete set of CRF tables for the years 1990–2004 that includes most of the tables required, with data on all relevant gases and categories. During the course of the review Belgium submitted revised emission estimates for 1990 and 2004 in response to overestimation and underestimation of GHG emissions identified by the ERT. The ERT concludes that Belgium's GHG inventory is in general accurate, as defined in the UNFCCC reporting guidelines, and is largely consistent with the Revised 1996 IPCC guidelines and the IPCC good practice guidance. The inventory is complete in terms of geographical coverage.

145. Based on Belgium's base year emissions – 145,728,763 tonnes CO_2 eq., including the revised emission estimates provided in the energy, industrial processes, agriculture and waste sectors – and its Kyoto Protocol target of 92.5 per cent, Belgium calculates its assigned amount to be 673,995,528 tonnes CO_2 eq. and its commitment period reserve to be 606,595,975 tonnes CO_2 eq. The ERT agrees with these figures.

146. Belgium has elected to account for Article 3, paragraph 3, activities (afforestation, reforestation, deforestation) over the entire commitment period, and has not elected any Article 3, paragraph 4, activities for the first commitment period.

147. Belgium's choice of the parameters to define forest is in accordance with decision 16/CMP.1. This includes minimum tree cover of 20 per cent, minimum land area of 0.5 ha, and minimum height of 5 metres. These parameters are identical with those used for the 2005 Global Forest Resources Assessment for the FAO.

148. Based on the results of the technical assessment, as reported in the independent assessment report, the ERT concluded that Belgium's national registry is fully compliant with the registry requirements as defined by decisions 13/CMP.1 and 5/CMP.1.

B. Recommendations

149. In the course of the review, the ERT formulated a number of recommendations relating to the completeness and transparency of Belgium's initial report and inventory submission, including recommendations relating to the accuracy of base year emissions estimate. Many of the recommendations were implemented during the review process and all potential problems that could have led to an overestimation of the base year emissions were resolved with a submission of revised emission estimates. The key recommendations[3] are that Belgium:

- Shall develop and implement before the next inventory submission under the Kyoto Protocol a QA/QC plan and procedures in accordance with the requirements stipulated by decision 19/CMP.1;
- Should make all archived inventory information accessible by collecting and gathering it at a single location;

[3] For a complete list of recommendations, the relevant sections of this report should be consulted.

- Develop an inventory improvement plan in accordance with paragraph 13 of the annex to decision 19/CMP.1 that can be applied at both the regional level and the national level, and considers output from QA/QC activities, uncertainty analysis and key category analysis;

- Coordinate recalculations across the regions and improve reporting of recalculations by reporting any changes in emissions and removals in relation to previous inventories, regardless of their magnitude, and clearly indicate the reasons for the changes using CRF table 8(b). Recalculations should also be clearly explained in the NIR and be linked to the inventory improvement plan;

- Improve the transparency of the inventory by:

    (a) Structuring the presentation of all sectors in the NIR according to the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories";

    (b) Providing improved documentation on the methodologies, EFs and AD used in all sectors;

    (c) Including in future NIRs elements of the extensive documentation that is already available;

    (d) Considering the inclusion of regional CRF tables in the annex to the NIR;

    (e) Improving the completeness of the CRF tables;

- Improve the uncertainty analysis by routinely reassessing uncertainty, obtaining more estimates based on real data, using analytical techniques to combine regional uncertainties into the national uncertainty, and where expert judgement is the only source of information, documenting the use of expert judgement following the IPCC good practice guidance;

- Increase efforts in harmonizing EFs and methodologies between regions where there is no scientific, technical or physical basis for the use of different EFs or methodologies;

- Allocate sufficient resources to QA/QC activities and in general toward inventory planning, preparation and management at both the national and regional level.

C. Questions of implementation

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

Annex I

Documents and information used during the review

A. Reference documents

IPCC. Good practice guidance and uncertainty management in national greenhouse gas inventories, 2000. Available at: <http://www.ipcc-nggip.iges.or.jp/public/gp/english/>.

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UNFCCC secretariat. Belgium: Independent assessment report of the national registry of Belgium. Reg_IAR_BE_2007_1. Will be available at: <http://unfccc.int>.

B. Additional information provided by the Party

Responses to questions during the review were received from Mr. Etienne Hannon (Federal Public Service Health, Food Chain Safety and Environment), Mr. André Guns (DGRNE), Ms. Miet D'heer (VMM), Ms. Isabelle Higuet (DGRNE), Ms. Marianne Squilbin (IBGE-BIM), Ms. Inge Van Vynckt (VMM), Bas van Wesemael and Dr Dominique Perrin (FSAGX), including additional material on the methodology and assumptions used.

References used in the general sector

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Commission decision of 10 February 2005 laying down rules implementing Decision No 280/2004/EC of the European Parliament and of the Council concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol. Official Journal of the European Union 1.3.2005.

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Annex II

Acronyms and abbreviations

AD	activity data
CH_4	methane
CO_2	carbon dioxide
CRF	common reporting format
EF	emission factor
ERT	expert review team
EU	European Union
F-gas	fluorinated gas
GHG	greenhouse gas; unless indicated otherwise, GHG emissions are the sum of CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 without GHG emissions and removals from LULUCF
HFCs	hydrofluorocarbons
IPCC	Intergovernmental Panel on Climate Change
kg	kilogram (1 kg = 1 thousand grams)
LULUCF	land use, land-use change and forestry
NA	not applicable
N_2O	nitrous oxide
NIR	national inventory report
PFCs	perfluorocarbons
QA/QC	quality assurance/quality control
SF_6	sulphur hexafluoride
UNFCCC	United Nations Framework Convention on Climate Change

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