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Report on the individual review of the annual submission of France submitted in 2014*

* In the symbol for this document, 2014 refers to the year in which the inventory was submitted, and not to the year of publication.

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I. Introduction and summary

1. This report covers the review of the 2014 annual submission of France, coordinated by the UNFCCC secretariat, in accordance with the "Guidelines for review under Article 8 of the Kyoto Protocol" (decision 22/CMP.1) (hereinafter referred to as the Article 8 review guidelines). The review took place from 22 to 27 September 2014 in Bonn, Germany, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: generalist – Mr. Domenico Gaudioso (Italy); energy – Ms. Kristien Aernouts (Belgium), Ms. Diana Barba (Colombia) and Mr. Sangay Dorji (Bhutan); industrial processes and solvent and other product use – Mr. Menouer Boughedaoui (Algeria) and Mr. David Kuntze (Germany); agriculture – Mr. Daniel Bretscher (Switzerland) and Mr. Jacques Kouazounde (Benin); land use, land-use change and forestry (LULUCF) – Ms. Rehab Ahmed Hassan (Sudan), Ms. Thelma Krug (Brazil), Mr. Eiichiro Nakama (Japan) and Ms. Sekai Ngarize (United Kingdom of Great Britain and Northern Ireland); and waste – Ms. Anke Herold (European Union) and Ms. Violeta Hristova (Bulgaria). Mr. Boughedaoui and Mr. Gaudioso were the lead reviewers. The review was coordinated by Ms. Sevdalina Todorova (UNFCCC secretariat).

2. In accordance with the Article 8 review guidelines, a draft version of this report was sent to the Government of France, which made no comment on it. All encouragements and recommendations in this report are for the next annual submission, unless otherwise specified. The expert review team (ERT) notes that the 2013 annual review report of France was published after 15 April 2014, which may have affected the Party's ability to implement recommendations and encouragements made in the previous review report.

3. All recommendations and encouragements included in this report are based on the ERT's assessment of the 2014 annual submission against the Article 8 review guidelines. The ERT has not taken into account the fact that Parties will prepare the submissions due by 15 April 2015 using the revised "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories" adopted through decision 24/CP.19. Therefore, when preparing the 2015 annual submissions, Parties should evaluate the implementation of the recommendations and encouragements in this report, in the context of those guidelines.

4. In 2012, the main greenhouse gas (GHG) emitted by France was carbon dioxide (CO_2), accounting for 74.1 per cent of total GHG emissions[1] expressed in CO_2 equivalent (CO_2 eq), followed by nitrous oxide (N_2O) (11.7 per cent) and methane (CH_4) (10.5 per cent). Hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6) collectively accounted for 3.7 per cent of the overall GHG emissions in the country. The energy sector accounted for 71.7 per cent of total GHG emissions, followed by the agriculture sector (18.2 per cent), the industrial processes sector (7.3 per cent), the waste sector (2.6 per cent) and the solvent and other product use sector (0.2 per cent). Total GHG emissions amounted to 490,299.38 Gg CO_2 eq and decreased by 12.0 per cent between the base year[2] and 2012. The ERT concluded that the description in the national inventory report (NIR) of the trends for the different gases and sectors is reasonable.

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

[2] "Base year" refers to the base year under the Kyoto Protocol, which is 1990 for all gases. The base year emissions include emissions from sources included in Annex A to the Kyoto Protocol only.

5. Tables 1 and 2 show GHG emissions from sources included in Annex A to the Kyoto Protocol (hereinafter referred to as Annex A sources), emissions and removals from the LULUCF sector under the Convention and emissions and removals from activities under Article 3, paragraph 3, and, if any, elected activities under Article 3, paragraph 4, of the Kyoto Protocol (KP-LULUCF), by gas and by sector and activity, respectively.

6. Information to be included in the compilation and accounting database can be found in annex I to this report.

Table 1

Greenhouse gas emissions from Annex A sources and emissions/removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol by gas, base year[a] to 2012

			Gg CO_2 eq								*Change (%)*
		Greenhouse gas	*Base year*	*1990*	*1995*	*2008*	*2009*	*2010*	*2011*	*2012*	*Base year–2012*
Annex A sources		CO_2	396 336.03	396 336.03	395 350.24	396 285.85	377 512.55	386 031.38	359 534.55	363 436.23	–8.3
		CH_4	59 432.98	59 432.98	60 674.75	54 367.66	53 115.69	53 080.22	51 771.36	51 371.76	–13.6
		N_2O	91 349.77	91 349.77	90 114.10	66 429.73	62 516.97	60 353.04	60 904.02	57 521.17	–37.0
		HFCs	3 657.23	3 657.23	1 756.08	14 104.91	14 807.00	15 745.80	16 704.28	16 899.62	362.1
		PFCs	4 293.45	4 293.45	2 562.13	569.05	370.16	386.98	432.09	399.83	–90.7
		SF_6	2 282.02	2 282.02	2 712.90	1 095.42	925.74	849.40	663.32	670.78	–70.6
KP-LULUCF	Article 3.3[b]	CO_2				9 752.53	6 309.21	4 000.72	3 800.08	3 403.84	
		CH_4				214.25	173.30	149.65	151.99	151.74	
		N_2O				100.69	101.66	100.37	102.00	103.31	
	Article 3.4[c]	CO_2	NA			–65 612.13	–57 528.77	–51 929.98	–55 364.66	–60 052.71	NA
		CH_4	NA			538.73	594.06	634.24	619.69	594.27	NA
		N_2O	NA			57.38	67.20	69.67	68.56	64.43	NA

Abbreviations: Annex A sources = source categories included in Annex A to the Kyoto Protocol, KP-LULUCF = land use, land-use change and forestry emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, NA = not applicable.

[a] The base year for Annex A sources refers to the base year under the Kyoto Protocol, which is 1990 for all gases. The base year for cropland management, grazing land management and revegetation under Article 3, paragraph 4, of the Kyoto Protocol is 1990. For activities under Article 3, paragraph 3, of the Kyoto Protocol and forest management under Article 3, paragraph 4, only the inventory years of the commitment period must be reported.

[b] Activities under Article 3, paragraph 3, of the Kyoto Protocol, namely afforestation and reforestation, and deforestation.

[c] Elected activities under Article 3, paragraph 4, of the Kyoto Protocol, including forest management, cropland management, grazing land management and revegetation.

Table 2
Greenhouse gas emissions by sector and activity, base year[a] to 2012

		Gg CO_2 eq								*Change (%)*
	Sector	*Base year*	*1990*	*1995*	*2008*	*2009*	*2010*	*2011*	*2012*	*Base year–2012*
Annex A sources	Energy	382 529.28	382 529.28	383 485.58	381 390.86	365 077.92	372 062.70	345 847.47	351 607.77	–8.1
	Industrial processes	59 142.68	59 142.68	56 562.79	40 578.64	37 390.92	38 304.77	37 215.50	35 654.43	–39.7
	Solvent and other product use	2 116.06	2 116.06	1 863.32	1 233.04	1 097.04	1 145.19	1 162.45	1 132.69	–46.5
	Agriculture	100 673.50	100 673.50	96 127.85	95 935.63	92 524.35	91 700.13	92 892.82	89 276.51	–11.3
	Waste	12 889.96	12 889.96	15 130.66	13 714.45	13 157.87	13 234.04	12 891.36	12 627.99	–2.0
	LULUCF	NA	–28 619.83	–30 184.03	–43 745.26	–40 202.66	–36 765.62	–39 701.89	–44 253.81	NA
	Total (with LULUCF)	**NA**	**528 731.65**	**522 986.16**	**489 107.36**	**469 045.44**	**479 681.20**	**450 307.71**	**446 045.57**	**NA**
	Total (without LULUCF)	**557 351.48**	**557 351.48**	**553 170.20**	**532 852.62**	**509 248.10**	**516 446.82**	**490 009.60**	**490 299.38**	**–12.0**
	Other[b]	NO	NO	NO	NO	NO	NO	NO	NO	NA
KP-LULUCF	Article 3.3[c] Afforestation and reforestation				–8 000.44	–8 516.16	–8 896.32	–9 318.67	–9 775.15	
	Article 3.3[c] Deforestation				18 067.91	15 100.33	13 147.07	13 372.74	13 434.04	
	Total (3.3)				**10 067.48**	**6 584.17**	**4 250.75**	**4 054.07**	**3 658.89**	
	Article 3.4[d] Forest management				–65 016.02	–56 867.51	–51 226.08	–54 676.41	–59 394.02	
	Article 3.4[d] Cropland management	NA			NA	NA	NA	NA	NA	NA
	Article 3.4[d] Grazing land management	NA			NA	NA	NA	NA	NA	NA
	Article 3.4[d] Revegetation	NA			NA	NA	NA	NA	NA	NA
	Total (3.4)	**NA**			**–65 016.02**	**–56 867.51**	**–51 226.08**	**–54 676.41**	**–59 394.02**	**NA**

Abbreviations: Annex A sources = source categories included in Annex A to the Kyoto Protocol, KP-LULUCF = LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, LULUCF = land use, land-use change and forestry, NA = not applicable, NO = not occurring.

[a] The base year for Annex A sources is the base year under the Kyoto Protocol, which is 1990 for all gases. The base year for cropland management, grazing land management and revegetation under Article 3, paragraph 4, of the Kyoto Protocol is 1990. For activities under Article 3, paragraph 3, of the Kyoto Protocol and forest management under Article 3, paragraph 4, only the inventory years of the commitment period must be reported.

[b] Emissions/removals reported in the sector other (sector 7) are not included in Annex A to the Kyoto Protocol and are therefore not included in national totals.

[c] Activities under Article 3, paragraph 3, of the Kyoto Protocol, namely afforestation and reforestation, and deforestation.

[d] Elected activities under Article 3, paragraph 4, of the Kyoto Protocol, including forest management, cropland management, grazing land management and revegetation.

II. Technical assessment of the annual submission

A. Overview

1. Annual submission and other sources of information

7. The 2014 annual submission was submitted on 15 April 2014; it contains a complete set of common reporting format (CRF) tables for the period 1990–2012 (one for the reporting under the Convention and the other for the reporting under the Kyoto Protocol (see para. 12 below)) and an NIR. France further submitted revised CRF tables on 27 May 2014. France also submitted the information required under Article 7, paragraph 1, of the Kyoto Protocol, including information on: activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, accounting of Kyoto Protocol units, changes in the national system and in the national registry and the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol. The standard electronic format (SEF) tables were submitted on 15 April 2014.

8. France submitted revised CRF tables and KP-LULUCF CRF tables on 26 September 2014 in order to correct an error in the CO_2 emission estimates for the energy sector (see para. 30 below) and to revise the emission estimates for the KP-LULUCF activities (see para. 134 below). The values used in this report are those submitted by France on 26 September 2014.

9. The list of other materials used during the review is provided in annex II to this report.

2. Questions of implementation raised in the 2013 annual review report

10. The ERT noted that no questions of implementation have been raised in the 2013 annual review report.

3. Overall assessment of the inventory

11. Table 3 contains the ERT's overall assessment of the annual submission of France. For recommendations for improvements for specific categories, please see the paragraphs cross-referenced in the table.

Table 3
The expert review team's overall assessment of the annual submission

Issue	*Expert review team assessment*	*General findings and recommendations*
The ERT's findings on completeness		
Annex A sources[a]	Complete	Mandatory: none (see paras. 12 and 123 below)
		Non-mandatory: CH_4 and N_2O emissions from multilateral operations
Land use, land-use change and forestry[a]	Not complete	Mandatory: none
		Incomplete geographical coverage under the Convention (see paras. 88, 99 and 107 below)
		Non-mandatory: none
KP-LULUCF	Complete	(see para. 133 below)

Issue	*Expert review team assessment*	*General findings and recommendations*
The ERT's findings on recalculations and time-series consistency		
Transparency of recalculations	Sufficiently transparent	Please see paragraphs 13 and 14 below for general issues identified by the ERT
		Please see paragraphs 30, 38, 51, 61, 67, 83, 101 and 109 below for category-specific findings
Time-series consistency	Sufficiently consistent	Please see paragraphs 39, 40, 54, 56, 58, 85, 92 and 101 below for category-specific findings
The ERT's findings on QA/QC procedures	Sufficient	Although France has elaborated a QA/QC plan and has implemented tier 1 QA/QC procedures in accordance with that plan, the ERT identified some inconsistencies in the reporting. The ERT recommends that the Party strengthen the QA/QC procedures
		Please see paragraphs 13, 31, 44, 55, 62, 67, 69, 72, 77, 81, 87, 96, 97 and 118 below for general and category-specific recommendations
The ERT's findings on transparency	Not sufficiently transparent	While noting the effort of the Party to improve the transparency of its inventory, and considering its national circumstances and the structure of the NIR, the ERT nevertheless concluded that there is still room for further improvement
		It is not always transparently presented in the NIR whether all overseas territories are appropriately included in the CRF tables submitted under the Convention and under the Kyoto Protocol (see paras. 12, 15, 123 and 133 below)
		Please see paragraphs 12, 15–18 and 23 below for general issues identified by the ERT
		Please see paragraphs 31, 36, 37, 43, 44, 52, 56, 57, 61, 68, 69, 70, 71, 72, 73, 76, 78, 80, 85, 86, 89, 91, 92, 95, 96, 100, 101, 103, 104, 106, 107, 111, 117, 129 and 137 below for category-specific recommendations

Abbreviations: Annex A sources = source categories included in Annex A to the Kyoto Protocol, CRF = common reporting format, ERT = expert review team, KP-LULUCF = land use, land-use change and forestry emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, NIR = national inventory report, QA/QC = quality assurance/quality control.

[a] The assessment of completeness by the ERT considers only the completeness of reporting of mandatory categories (i.e. categories for which methods and default emission factors are provided in the Intergovernmental Panel on Climate Change (IPCC) *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, the IPCC *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* or the IPCC *Good Practice Guidance for Land Use, Land-Use Change and Forestry*).

12. France includes in the NIR information about the geographical coverage of its reporting under the Kyoto Protocol, which consists of the 96 territories in mainland France and the overseas territories included in the European Union (EU) (Guadeloupe, Martinique, French Guiana and Réunion, as well as Saint Barthélemy and Saint Martin). The overseas territories (Pays et Territoires d'Outre-Mer (PTOM)) that are not included in the EU and therefore not included in France's annual submission reporting under the Kyoto Protocol represent approximately 3.5 per cent of the total territorial area of France and consist of French Polynesia, Wallis and Futuna, Mayotte, New Caledonia, Saint Pierre and Miquelon, the French Southern and Antarctic territories, and Clipperton. This particularity of the reporting poses specific challenges when reviewing the completeness of the inventory, given that the coverage of the estimates for each category is not always transparently presented in the NIR.

13. The previous review report recommended that France improve the transparency of the recalculations by including information on the nature of the recalculations (e.g. methods, data), the implications of the recalculations on the sectoral emission estimates and how the time-series consistency was preserved. The ERT commends France for providing this information both in the sectoral parts of the NIR and in annex 6 thereto. However, the ERT noted that the information presented in the different elements of the submission is not always consistent (see para. 30 below). The ERT recommends that France strengthen the quality assurance/quality control (QA/QC) procedures of the inventory submission, in order to avoid inconsistencies when reporting recalculations.

14. Following reiterated recommendations made in previous review reports, France has added an explanation of recalculations in CRF table 8(b), but the ERT notes that this information comprises a standard sentence which refers to the chapter of the NIR where the recalculations are treated (repeated for each recalculation). This is not in line with 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). The ERT therefore reiterates the recommendation made in previous review reports that France provide CRF table 8(b) with relevant information included for each recalculation in order to ensure the transparency, comparability and completeness of its reporting.

15. The submission by France consists of one NIR and two sets of CRF tables, one under the Convention and one under the Kyoto Protocol, which refer to different geographical perimeters (see para. 12 above). As already identified in previous review reports, the information in the NIR is often inconsistent, referring either to the inventory under the Convention or to the inventory under the Kyoto Protocol. In order to improve the transparency of the presentation of data, in the 2014 annual submission, France has added a number of references identifying the geographical coverage to which the data refer. The ERT noted that in most titles of graphs and tables, the geographical coverage was included. Despite that, the NIR continues to sometimes refer to the CRF tables submitted under the Convention, sometimes to the CRF tables submitted under the Kyoto Protocol, and sometimes no reference at all is provided. In order to improve the transparency of the annual submission, the ERT recommends that France report all the information in the NIR with respect to the geographical coverage under the Kyoto Protocol, and when not referring to the territory under the Kyoto Protocol clearly indicate this (e.g. in an annex) to enhance the transparency of the NIR.

16. In addition, the ERT noted that the calculations for the different parts of the French territory are often carried out using different approaches. Generally, the NIR does not explain which activities occur in the overseas territories and how the emissions have been estimated for these areas. The ERT recommends that the NIR clearly explain the methodologies and the sources of data used for each part of the French metropolitan and

overseas territories to facilitate replication and assessment of the inventory by users of the reported information, consistent with the UNFCCC reporting guidelines.

17. Previous review reports identified problems regarding the transparency of the information about methods, activity data (AD), parameters and sources of data in the NIR. The current ERT noted that a large amount of this information is not reported in the main document, but rather in the report titled *Organization and Methodologies for the National Inventory of Atmospheric Emissions* (hereinafter referred to as the OMINEA[3] report), which is annexed (annex 3) to the NIR. The ERT considers that, although it is a helpful tool for the inventory compilation, the OMINEA report often does not contain the information needed. In response to the recommendations made in previous review reports, France has increased the number of pages of the OMINEA report which are included in the sectoral chapters of the NIR. The ERT commends the Party for this effort. Nevertheless, the ERT noted that, in several cases, information reported in the main NIR, in the OMINEA report and in the CRF tables is not consistent or contains repetitions. Therefore, the ERT reiterates the recommendation made in the previous review report that France increase the transparency of its submission by fully revising the NIR, by providing in its main body better descriptions of the methods, sources of data, emission factors (EFs) and parameters used, as required by the method or approach selected.

18. The ERT further notes that, since the information provided by France in the NIR is not sufficiently transparent, the same types of additional information, in particular related to AD, have to be requested by each ERT each year. In addition, in response to a question raised by the ERT during the review, France explained that several parameters and equations presented in the NIR for the LULUCF and waste sectors are not used in the calculations and also are not consistent with the actual assumptions used in the calculations. The ERT considers that the lack of information on AD and the provision of methodological explanations that are inconsistent with the actual calculations is hampering the review. The ERT recommends that France remove such misleading parameters and equations from the NIR and include more accurate explanations of the national methods, as well as more detailed information on AD, as specified throughout this annual review report. The ERT notes that the size of the NIR is not associated with greater transparency and encourages France to strive to provide all the relevant information to allow all the estimates to be reproduced, consistent with the recommendations made in previous review reports. The ERT acknowledges that France provided the ERT with all the information requested during the review and that this was a valuable help to the review process.

4. Description of the institutional arrangements for inventory preparation, including the legal and procedural arrangements for inventory planning, preparation and management

Inventory planning

19. The NIR and additional information provided by the Party during the review described the national system for the preparation of the inventory. As indicated by the Party in its NIR, there were no changes to the inventory planning process. The description of the inventory planning process, as contained in the report of the individual review of the annual submission of France submitted in 2013,[4] remains relevant.

20. The ERT considered the strong recommendation[5] from the previous review report that France enhance its national system so that it is able to address the reiterated

[3] Report entitled "Organisation et méthodes des inventaires nationaux des émissions atmosphériques".
[4] FCCC/ARR/2013/FRA, paragraphs 14–17.
[5] FCCC/ARR/2013/FRA, paragraph 18.

recommendations made in that and previous review reports. The ERT assessed the changes introduced in the inventory preparation process and concluded that the Party has made efforts to implement the above-mentioned recommendation. However, as noted in paragraphs 13, 14, 15 and 17 above, many previously made recommendations remain to be implemented. Therefore, the ERT reiterates the recommendation made in previous review reports that France enhance its national system so that it is able to address the reiterated recommendations made in this and previous review reports.

Inventory preparation

21. Table 4 contains the ERT's assessment of France's inventory preparation process. For improvements related to specific categories, please see the paragraphs cross-referenced in the table.

Table 4
Assessment of inventory preparation by France

Issue	*ERT assessment*	*ERT findings and recommendations*
Key category analysis		
Was the key category analysis performed in accordance with the IPCC good practice guidance and the IPCC good practice guidance for LULUCF?	Yes	Level and trend analysis performed, including and excluding LULUCF
Approach followed?	Both tier 1 and tier 2	
Were additional key categories identified using a qualitative approach?	No	See paragraph 22 below
Has the Party identified key categories for activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol following the guidance on establishing the relationship between the activities under the Kyoto Protocol and the associated key categories in the UNFCCC inventory?	Yes	France has correctly used the key category analysis under the Convention to identify key categories for activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, but CRF table NIR-3 is incorrectly completed (see para. 23 below)
Does the Party use the key category analysis to prioritize inventory improvements?	Yes	
Assessment of uncertainty analysis		
Approach followed?	Tier 1 (partly tier 2)	See paragraph 24 below
Was the uncertainty analysis carried out in accordance with the IPCC good practice guidance and the IPCC good practice guidance for LULUCF?	No	As a consequence of the high level of aggregation of some categories, the ERT considers that the uncertainty may be overestimated. France did not report a detailed uncertainty analysis for the KP-LULUCF sector (see paras. 24, 89 and 130 below)

Issue	*ERT assessment*	*ERT findings and recommendations*
Quantitative uncertainty (including LULUCF)	Level = 19.2% Trend = 3.1%	
Quantitative uncertainty (excluding LULUCF)	Level = 16.7% Trend = 2.3%	

Abbreviations: CRF = common reporting format, ERT = expert review team, IPCC good practice guidance = Intergovernmental Panel on Climate Change (IPCC) *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*, IPCC good practice guidance for LULUCF = IPCC *Good Practice Guidance for Land Use, Land-Use Change and Forestry*, KP-LULUCF = LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, LULUCF = land use, land-use change and forestry, NIR = national inventory report.

22. France has performed a key category analysis, both level and trend, including and excluding LULUCF, using both tier 1 and tier 2 approaches. CRF table 7 reports that some key categories have been identified on the basis of qualitative criteria, by listing them in the column labelled "Q". In fact, according to the information provided by the Party in response to questions raised by the ERT during the review, these activities were identified using a tier 2 approach. The ERT recommends that France improve the transparency and consistency of the reported key category analysis.

23. France has correctly identified key categories for KP-LULUCF activities using the key category analysis under the Convention. However, CRF table NIR-3 incorrectly lists both key and non-key categories, and there is no other supporting information on key category identification in the NIR. The ERT therefore recommends that France only report key categories in table NIR-3 and further elaborate its reporting on the key category analysis for KP-LULUCF activities in the NIR.

24. France has carried out a tier 1 uncertainty analysis with a level of aggregation of categories that is higher than that recommended in 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). A tier 2 uncertainty analysis has been implemented for the category N_2O emissions from agricultural soils only. Owing to the high level of aggregation of some categories, which cannot be justified on the basis of the correlation of the uncertainty values for the AD and EFs, the ERT considers that the uncertainty may be overestimated. The ERT therefore reiterates the recommendation made in previous review reports that France use a higher disaggregation of categories for its uncertainty analysis in its annual submissions. Furthermore, the ERT noted that the Party did not report a detailed uncertainty analysis for the LULUCF categories and KP-LULUCF activities (see paras. 89 and 130 below). The ERT reiterates the recommendation made in previous review reports that France elaborate its uncertainty analysis for the LULUCF sector and KP-LULUCF activities.

Inventory management

25. There were no changes to the inventory management process carried out by the Party for the 2014 annual submission, as indicated by the Party in its NIR. The description of the inventory management process, as contained in the report of the individual review of the annual submission of France submitted in 2013,[6] remains relevant.

[6] FCCC/ARR/2013/FRA, paragraph 22.

5. Follow-up to previous reviews

26. In the 2014 annual submission, France has introduced a number of improvements compared to the 2013 annual submission, on the basis of recommendations made in previous review reports. In particular:

(a) Several references to the geographical perimeter to which the information in the CRF tables refers have been added in the NIR;

(b) The description of the methodologies used for the estimation of emissions has been improved for several categories (e.g. manufacturing industries and construction, cement production, lime production, consumption of halocarbons and SF_6, solvent and other product use and all categories in the waste sector);

(c) The AD have been improved for several categories (e.g. manufacturing industries and construction, other sectors (energy), and consumption of halocarbons and SF_6);

(d) Information concerning forest fires in overseas territories and deforestation in French Guiana (since 2008) has been added under the LULUCF sector.

27. According to France's NIR (section 1.6, "Contrôle et assurance qualité"), the national system includes certain criteria to ensure the follow-up of recommendations made by the ERTs and in others reviews. However, the ERT noted that some of the recommendations have not been implemented and that the NIR does not provide sufficient information on the progress of the Party's implementation of previous recommendations. The ERT recommends that France continue to address previous recommendations and include in the NIR information on implemented previous recommendations and those that are being or will be implemented, with a clear timetable for their implementation, in order to improve the transparency of the inventory improvement efforts.

28. Recommendations made in previous review reports that have not yet been implemented, as well as issues the ERT identified during the 2014 annual review, are discussed in the relevant sectoral chapters of the report and in table 9 below.

B. Energy

1. Sector overview

29. The energy sector is the main sector in the GHG inventory of France. In 2012, emissions from the energy sector amounted to 351,607.77 Gg CO_2 eq, or 71.7 per cent of total GHG emissions. Since 1990, emissions have decreased by 8.1 per cent. The key drivers for the fall in emissions are the decrease in emissions in the categories manufacturing industries and construction, energy industries and other sectors, caused by a decrease in fuel consumption (especially as a result of the economic crisis in 2008–2009) and a switch to natural gas and biomass at the expense of liquid and solid fuels (although in 2012 the share of solid fuels increased because of high demand for electricity). Within the sector, 37.7 per cent of the emissions were from transport, followed by 27.9 per cent from other sectors, 18.1 per cent from manufacturing industries and construction and 15.0 per cent from energy industries. The remaining 1.3 per cent were from fugitive emissions from fuels. Emissions from other (fuel combustion) were reported as not occurring ("NO").

30. France has made recalculations between the 2013 and 2014 annual submissions for this sector. The most significant recalculations made by France between the 2013 and 2014 annual submissions were in the following categories: manufacturing industries and construction; transport; other sectors; and energy industries. The recalculations were generally made following changes in AD and EFs, and in order to rectify identified errors.

Compared with the 2013 annual submission, the recalculations increased emissions in the energy sector for 2011 by 950.86 Gg CO_2 eq (0.3 per cent) and increased total national emissions by 0.2 per cent. The recalculations were not adequately explained. Although the recalculations were explained per category in the NIR, the data presented in the body of the NIR and in the overview provided in annex 6 thereto were inconsistent. In the NIR itself, the data were taken from the initial annual submission from 2013 and April 2014 (e.g. for the category public electricity and heat production). In annex 6 to the NIR, it is unclear from which annual submission the data were taken. The ERT recommends that France provide in the NIR the data on recalculations between the latest official previous annual submission and the most recent submission (clearly indicating the dates of submission), so that there is as much consistency as possible between the CRF tables and the NIR. During the review, in response to a question raised by the ERT, France submitted revised CRF tables with a correction for the CO_2 emission estimates for heat production from natural gas for 2012. The correction has increased the CO_2 emissions by 174.77 Gg CO_2 eq for 2012.

31. The ERT noted transparency issues in the description of the methodology, AD and units of EFs in the NIR and in the OMINEA report (where the methodologies are described and the data sources used are listed). The ERT recommends that France further implement QC activities before submitting its annual submission and ensure the consistency between the NIR, the OMINEA report and what is reported in the CRF tables, and improve transparency by using the same AD and units of EFs (see paras. 44 and 46 below) in all reports and CRF tables.

2. Reference and sectoral approaches

32. Table 5 provides a review of the information reported under the reference approach and the sectoral approach, as well as comparisons with other sources of international data. Issues identified in table 5 are more fully elaborated in paragraphs 33–36 below.

Table 5
Review of reference and sectoral approaches

Issue	*Expert review team assessment*	*Paragraph cross references*
Difference between the reference approach and the sectoral approach	Energy consumption: 50.68 PJ, 1.06% CO_2 emissions: 2 456.73 Gg CO_2, 0.72%	
Are differences between the reference approach and the sectoral approach adequately explained in the NIR and the CRF tables?	Yes	
Are differences with international statistics adequately explained?	No	See paragraph 33 below
Is reporting of bunker fuels in accordance with the UNFCCC reporting guidelines?	Yes	
Is reporting of feedstocks and non-energy use of fuels in accordance with the UNFCCC reporting guidelines?	Yes	

Abbreviations: CRF = common reporting format, NIR = national inventory report, UNFCCC reporting guidelines = "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories".

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

33. There are several differences between the International Energy Agency (IEA) data and the data used in the reference approach, specifically for: crude oil import, import of liquid fuels, refinery feedstocks and the use of bunker fuels (e.g. imports of refinery feedstocks for 2012 are 28 per cent higher in the CRF tables than in the IEA data). France explains in the NIR in general that the differences are caused by the use of preliminary data in the inventories, the different net calorific values (NCVs) used and the differences in geographical coverage. The ERT reiterates the recommendation made in the previous review report that France further improve the description of the differences between the international data and the data used in the inventory.

International bunker fuels

34. No problems were identified.

Feedstocks and non-energy use of fuels

35. The method used by France to split the consumption of certain fuels (e.g. natural gas) for energy and non-energy purposes is not clear. In response to questions raised by the ERT during the review, France explained that the split between energy use and non-energy use in the official French energy balances reported to Eurostat is adapted for the inventory by the Centre Interprofessionnel Technique d'Etudes de la Pollution Atmosphérique (CITEPA). For solid fuels used in the iron and steel sector, the NIR (figure 24) explains the allocation of AD and related emissions for the iron and steel sector. Concerning natural gas, CITEPA performed a study for the French statistical office in 2011/2012 as these non-energy use consumptions were based on a proxy (ammonia production) in the energy balance. The results from this study are based on a bottom-up approach considering all installations consuming natural gas as raw material (production of hydrogen, ammonia and other chemical products). France has applied the results of the study from 2011 in order to obtain a better split on the use of natural gas for energy and non-energy purposes. However, it has been found difficult to recalculate the split for the years prior to 2011, so for those years the split from the energy statistics was used. The methodology in general uses the total consumptions presented in the energy balance, from which non-energy use consumption is subtracted, to obtain a proper split. The ERT recommends that France improve the information in the NIR by including this explanation in its annual submission.

36. The information provided on the associated CO_2 emissions from non-energy fuel use in CRF table 1.A(d) has not been improved as had been recommended in the previous review report. Although France has included this information in the NIR, the ERT recommends that the Party also include in CRF table 1.A(d) information on where the associated emissions are reported, in order to improve the transparency and completeness of the reporting.

3. Key categories

Stationary combustion: all fuels – CO_2, CH_4 and N_2O[7]

37. In the NIR (chapter 3.1) the Party indicates that, every year, CITEPA and the Service of Observation and Statistics compile a national energy balance that is used for estimating emissions, based on the official energy statistics and other information sources. Questions were raised by the ERT during the review on what corrections or completions are made and what procedures are in place for approving the amended and completed data.

[7] CH_4 and N_2O emissions from this category are not key. However, since all issues related to this category are discussed as a whole, the individual gases are not assessed in separate sections.

France responded that CITEPA meets several times a year with the statistical office to ensure that energy data are properly considered in the inventory. The description of the national system in the NIR explains how the cooperation works and what procedures are in place. CITEPA also uses other data sources to complete the official energy balance when it is not sufficiently detailed or not "complete", for example for industrial waste. The ERT encourages France, in order to improve the transparency of its reporting, to include more specific information (e.g. a list of the changes or completions) in the NIR on the changes that are made to the official energy balances.

38. In the previous review report, the ERT recommended that France update the share of biogenic waste used for electricity and heat production (which had been constant since 2007). The ERT commends France for having updated the time series in the 2014 submission, as requested. However, these recalculations were only mentioned in chapter 8.4.5 of the NIR (page 244) concerning municipal solid waste (MSW) incineration without energy recovery (waste sector) and this information is missing in the chapter dedicated to incineration with energy recovery (energy sector). The ERT recommends that France report on recalculations in a consistent manner throughout the NIR.

39. In the NIR (chapter 1.4.2) there is general information on the consistency between the GHG inventory and the European Union Emissions Trading System (EU ETS). The NIR also mentions that specific information from the EU ETS is used, which is described in more detail in the description of the categories and in the OMINEA report (in the section on EFs). In response to a question raised by the ERT during the review, France explained that CITEPA has access to EU ETS reports with AD, EFs and emission data for about 1,000 plants. Specific CO_2 EFs or emission data are used for the inventory from the EU ETS reporting, ensuring consistency in the time series by applying an average EF for the years prior to the implementation of the EU ETS as recommended in previous review reports. France assured the ERT that the consistency between the inventory and the total emissions reported under the EU ETS is checked to ensure that no emissions are omitted. However, at the time of the current review, the detailed comparison between the CO_2 emissions under the EU ETS and the CO_2 emissions per CRF category had not yet been finalized and is expected for the beginning of 2015 (under the framework of the EU Monitoring Mechanism Regulation). The ERT encourages France to include such a detailed comparison in its annual submission, when available.

Civil aviation: liquid fuels – CO_2, CH_4 and N_2O[8]

40. In the previous review report, it was mentioned that France indicated that it was planning to use consumption data and emissions reported under the EU ETS from 2012 onwards. In the 2014 annual submission (NIR, section 3.2.8.6) it is clear that this planned improvement is still pending. The ERT commends France for this planned improvement and reiterates the recommendation made in the previous review report that France ensure the consistency of the time series when using the data from the EU ETS for civil aviation.

Road transportation: liquid fuels – CO_2

41. France uses the default equations from COPERT to calculate the CO_2 EFs for liquid fuels. In previous review reports, the ERT strongly recommended that France obtain country-specific values for the carbon content of diesel oil and gasoline sold, and update the EFs accordingly. In response to the question raised by the ERT during the review on the status of this recommendation, France replied that investigations are still under way to determine a country-specific CO_2 EF for each liquid fuel. The public research institution IFP Energies Nouvelles has been contacted by CITEPA and the French Ministry of

[8] CH_4 and N_2O emissions from this category are not key. However, since all issues related to this category are discussed as a whole, the individual gases are not assessed in separate sections.

Environment to assess the possibility of developing such EFs. Currently, the inventory team attempts to obtain such data from the refineries and also considers the option of using a EU-specific EF (this option is under discussion in the different EU working groups). The ERT commends France for its efforts to resolve the issue, and reiterates the recommendation made in previous review reports that the Party obtain country-specific CO_2 EFs for gasoline and diesel oil sold in France for the estimation of the CO_2 emissions.

42. In the OMINEA report, it is explained that the AD for biofuels come from the French customs service (douanes) and the data differ slightly from the data provided by the Direction Générale Energie Climat. In the CRF tables for 2012, a total of 99.57 PJ is reported for road transportation. In the Eurostat online energy balance[9] for 2012, a total of 112.77 PJ (17.31 PJ gasoline and 95.46 diesel oil) is provided. In response to a question raised by the ERT during the review, France explained that these differences were due to several factors: CITEPA calculates the biofuel as the actual 'bio' part of biofuels (e.g. for ethyl tertiary butyl ether (ETBE), CITEPA considers that 37 per cent up to 47 per cent (according to the year) is biogenic (ethanol part versus isobutene, which is not biogenic), when the French customs service considers all ETBE as biofuel); for biodiesel, which is a blend of different oil and synthetic biodiesel, the esterification of oils implies that there is still fossil carbon (about 3–4 per cent) in the biodiesel product; different NCVs are used; and part of the biodiesel is also used in the off-road machinery and other transport sector (railways, inland waterways, recreational craft) and included under biomass in the CRF tables for these categories. The ERT recommends that France improve the reporting of biofuels by including in the NIR information on the differences between the French customs data and the data used in the GHG inventory and on the allocation of biofuels between categories.

Oil and natural gas: CO_2, CH_4 and N_2O[10]

43. The ERT noted that France is reporting emissions from oil transportation and has included information on the recalculations for oil refining and storage as recommended in the previous review report. The ERT noted, however, that there is a general lack of transparency in the description of the methodology, AD and EFs in the NIR and in the OMINEA report for this category and the ERT detected inconsistencies between the NIR and the OMINEA report and the CRF tables, as specified in paragraphs 44–49 below.

44. In the OMINEA report (page "OMINEA 1B2a liquid fuel extraction COM/3") there are EFs for CO_2 and CH_4 given for "terminaux pétroliers" and "transport" in g CO_2 or CH_4/t transported (0.0686 g CO_2/t; 0.76 g CH_4/t), whereas in CRF table 1.B.2 the implied emission factors (IEFs) are given in kg/PJ (5.23 kg CO_2/PJ and 57.63 kg CH_4/PJ), which makes the information not easily comparable. In response to a question raised by the ERT during the review, France provided more information on the EF calculation, but also informed the ERT that although the reported emissions are correct, the reported AD in the CRF tables were wrong: the loading of "refined product except gasoline" instead of the loading of "crude oil" was reported. The ERT recommends that France improve the QA/QC procedures before submitting the inventory, ensure consistency between the CRF tables and the NIR, and improve the transparency of the reported method in the NIR by adding more information on the data (AD and EFs) used.

45. According to the NIR, for oil refining/storage, CO_2 and CH_4 emissions from the burning of coke are included with site-specific information from each refinery. Based on the information in the OMINEA report it was not possible for the ERT to check whether the

[9] Available at <http://epp.eurostat.ec.europa.eu/portal/page/portal/energy/other_documents>.

[10] N_2O emissions from this category are not key. However, since all issues related to this category are discussed as a whole, the individual gases are not assessed in separate sections.

information in the CRF tables is correct or consistent. In response to questions raised by the ERT during the review, France provided more information on the emission estimates for the subcategory. The Party clarified that CO_2 emissions from refinery sites are covered by the EU ETS and considered in the French inventory, either under combustion or fugitive emissions. The ERT accepts that there is no underestimate of emissions and welcomes the information that France intends to include this explanation in the OMINEA report in the next annual submission, but recommends that the Party clearly specify the allocation of coke-related emissions in the inventory in the NIR.

46. In the OMINEA report (page "OMINEA 1B2b natural gas transmission GES/1"), the average EFs are provided for CH_4 (e.g. 325 kg/km for transport and 208 kg/km for distribution in 2012) and CO_2 (e.g. 2.08 kg/km for transport and 1.33 kg/km for distribution in 2012) per length of the gas transmission and distribution lines (based on calculations). The ERT noted that the AD reported in the CRF tables are not the length of these lines, but total PJ of gas consumed (in 2012: 7,286.88 kg CH_4/PJ for transmission and 26,011.53 kg CH_4/PJ for distribution; 46.64 kg CO_2/PJ for transmission and 160.47 kg CO_2/PJ for distribution), although in the OMINEA report it is indicated that total gas consumption is not really representative as AD. In response to questions raised by the ERT during the review, France replied that to ensure harmonization with the other subcategories under fugitive emissions, the AD were reported in PJ, especially as, initially, the fugitive emissions were estimated on the basis of gas amount instead of on the length of the network. The ERT considers this as an inconsistency between the NIR and/or the OMINEA report and the CRF tables, and recommends that France use the same AD in the CRF tables and in the NIR and the OMINEA report.

47. In the general part of the NIR there is a reference to the OMINEA report on the data for venting that could not be found and CRF table 1.B.2 reports AD for oil venting without units. In response to a question raised by the ERT during the review, France replied that the unit of these AD in the CRF table is PJ of crude oil produced. The CO_2 EF comes from the IPCC good practice guidance (table 2.16). The CH_4 EF (348.98 kg/PJ) for venting is calculated on the basis of the CO_2 EF for venting and the fugitive emissions ratio CO_2/CH_4. The ERT recommends that France include this information in the NIR or the OMINEA report, and fill out the AD description and unit in the CRF tables.

48. In CRF table 1.B.2, the AD for flaring (oil) are given as 2,501.00 PJ oil consumed. This value is almost the same as the AD (2,500.06 PJ oil refined) reported under oil refining/storage. In response to a question raised by the ERT during the review, France replied that for flaring, the AD should effectively be PJ of oil refined and not PJ of oil consumed. The values for flaring and oil refining/storage are slightly different because the former considers flaring from oil refineries and flaring from oil extraction and the latter only considers PJ refined in oil refineries. However, for flaring, the ERT considers that accounting for the AD for both PJ refined and PJ extracted can be considered as double counting. In response to a question raised by the ERT during the review, the Party stated that in its next submission only PJ of oil refined will be reported as AD. The ERT recommends that France correct the AD and emissions and include information on the methodology used in the NIR.

49. In the OMINEA report (page "OMINEA 1B2c flaring COM/1"), it is mentioned that emissions from flaring (gas) come directly from the production site (Lacq) (with some extrapolation if needed). In the CRF table 1.B.2, the AD are reported as Gg gas consumed (27.45 Gg gas consumed in 2012). The ERT considers that it is not clear what is included in these AD and whether they are used for estimating emissions. In response to a question raised by the ERT during the review, France replied that the emissions reported under the subcategory (81.32 Gg CO_2 and 0.18 Gg CH_4 for 2012) cover emissions from flaring at Lacq and also flaring from CH_4 terminals and compressor stations. The ERT recommends

that France include clarifications regarding the AD for this subcategory in the NIR and/or the OMINEA report.

C. Industrial processes and solvent and other product use

1. Sector overview

50. In 2012, emissions from the industrial processes sector amounted to 35,654.43 Gg CO_2 eq, or 7.3 per cent of total GHG emissions, and emissions from the solvent and other product use sector amounted to 1,132.69 Gg CO_2 eq, or 0.2 per cent of total GHG emissions. Since 1990, emissions have decreased by 39.7 per cent in the industrial processes sector, and decreased by 46.5 per cent in the solvent and other product use sector. The key drivers for the fall in emissions in the industrial processes sector are the decrease in production of mineral products (the production of clinker, soda ash and lime), chemical industry (adipic and glyoxylic acids) and metal production (particularly aluminium production) and more efficient abatement technology in nitric acid plants. Within the industrial processes sector, 49.3 per cent of the emissions were from consumption of halocarbons and SF_6, followed by 32.7 per cent from mineral products, 9.3 per cent from metal production and 8.4 per cent from chemical industry. The remaining 0.3 per cent were from production of halocarbons and SF_6. Emissions from other production were reported as not applicable ("NA").

51. France has made recalculations between the 2013 and 2014 annual submissions for the industrial processes sector. The most significant recalculation made by France between the 2013 and 2014 annual submissions was in the following category: HFCs from consumption of halocarbons and SF_6. The recalculations were made because of updated AD provided by the plants and new data for some subcategories in refrigeration and air-conditioning equipment following an update to the inventory for fluorinated gases (F-gases) supplied by the École des Mines de Paris. Compared with the 2013 annual submission, the recalculations increased emissions in the industrial processes sector for 2011 by 959.76 Gg CO_2 eq (2.6 per cent) and increased total national emissions by 0.2 per cent. The recalculations were adequately explained in the NIR.

52. The ERT noted an improvement to the transparency of the NIR made by France, including more methodological information within the body of the report. However, the ERT noted that the additional information in the OMINEA report is not always needed for the estimation of the GHG emissions and there are many paragraphs appearing simultaneously in the OMINEA report and in the main body of the NIR. The ERT encourages France to remove all unnecessary literature from the annexes which is unrelated to the GHG inventory, and reduce the number of pages in the annex. The ERT reiterates the recommendation made in the previous review report that France improve its reporting and include all relevant information on methodologies, EFs and sources of AD in the NIR in line with the IPCC good practice guidance and the UNFCCC reporting guidelines.

53. France reported only a few planned improvements in its reporting of the industrial processes sector, namely regarding verification of the AD under metal production and the possibility of having more detailed data for consumption of halocarbons and SF_6 owing to the implementation of Government decree no. 2011-396 related to F-gases. However, there was no information in the NIR on how and when France will implement these improvements. In the report by the École des Mines de Paris, which is responsible for the estimation of the country's emissions of F-gases, a plan to improve the estimation of emissions from different F-gas sources by conducting a survey to obtain more information on the French market of F-gases is mentioned; however, this is not reported in the NIR as a planned improvement. Considering the number of recommendations made in previous review reports that the Party improve its inventory for this sector, the current ERT

recommends that France re-examine all previous recommendations and prioritize and include them as part of the improvement plan for the national inventory.

54. The previous review report noted that for some categories in the industrial processes sector different data sources and different methodologies/tiers are used for different periods of the time series. In some cases, information on the time-series consistency is missing, or is not always up to date or contradicts the information provided during the review. The recommendation made in the previous review report was for France to include, where applicable, information on how the consistency of the time series is ensured when different data sources or methodologies are used to estimate emissions for a category for different periods of time. The ERT noted that the information on time-series consistency is still too general (e.g. aluminium production) in order to assess the adherence to the IPCC good practice guidance. Therefore, the ERT reiterates the recommendation made in the previous review report that France provide, in its annual submission, detailed information on time-series consistency when different methods are applied across the time series or when updating data or adding new subcategories (see paras. 55, 56, 58 and 61 below).

2. Key categories

Cement production – CO_2

55. While recognizing the improvement in the description of the methodologies applied for the cement production estimates, the ERT notes that several recommendations made in the previous review report have not been addressed. In particular, the ERT noted that France still reports emissions from the category cement production without differentiating between types of cement and does not provide disaggregated EFs and AD by type of cement, as recommended in the previous review report.[11] Further, the ERT finds that the category-specific QC procedures are not clearly reported. The ERT recommends that France: clearly describe its QA/QC procedures; and ensure the follow-up and implementation of the recommendations made in previous review reports, particularly with regard to the reporting of the methodologies and data used over the time series.

Aluminium production – CO_2 and PFCs[12]

56. Following the recommendation made in the previous review report,[13] France disclosed the confidential information in the category aluminium production and reported on the AD and CO_2 EFs used. The ERT commends France for this improvement in transparency. However, France did not report clearly on the methodological tiers applied or EFs used for the estimates of PFCs, and did not include information on time-series consistency applied to estimate the PFC emissions, as recommended in the previous review report. The ERT reiterates the recommendation made in the previous review report that France improve the methodological information for the category.

57. In France, PFC emissions in 2012 (115.82 Gg CO_2 eq) have been increasing since 2009 (29.18 Gg CO_2 eq), despite an overall decline in PFC emissions between 1990 (3,037.77 Gg CO_2 eq) and 2012. In the OMINEA report (page "OMINEA 2C3 primary aluminum-GES/2") it is reported that since 1990, emissions have drastically decreased owing to the use of new technology and better control of the production and performance processes, and the closure of one polluting plant in 2009. The ERT questioned the reasons for such growth in emissions over the years that followed (2009–2012), considering that aluminium production decreased by 6.2 per cent in the period 2010–2011 and increased by

[11] FCCC/ARR/2013/FRA, paragraph 51.

[12] CO_2 emissions from this category are not key. However, since all issues related to this category are discussed as a whole, the individual gases are not assessed in separate sections.

[13] FCCC/ARR/2013/FRA, paragraph 54.

4.5 per cent in the period 2011–2012. In response to questions raised by the ERT during the review, France explained that the increases in the IEFs for carbon tetrafluoride (CF_4) for these recent years (a 101.5 per cent increase in 2010–2011 and a 28.3 per cent increase in 2011–2012) and for perfluoroethane (C_2F_6) (increases of 47.0 per cent for 2009–2010, 101.2 per cent for 2010–2011 and 36.2 per cent for 2011–2012) were the result of technical difficulties, an increased rate of breakdown and incidents related to the electrolysis process since 2009 in one of the aluminium production plants. In 2011 and 2012, anode effects were more frequent and more intense than in previous years (operator information). In addition, the ERT noted that the fluctuation in the CF_4/C_2F_6 ratio ranges from an average of 4.34 (1990–2008) to 14.87 (2009–2012), without explanation, inclusion of which had been recommended in the previous review report. The ERT noticed that since the closure of the most polluting plant in 2009 the ratio seems relatively stable, which could explain the low ratio during the first period (1990–2008). The ERT reiterates the recommendation made in the previous review report that France include the relevant trend information in the NIR to improve the transparency of its reporting.

Ammonia production – CO_2

58. The ERT commends France for the improvements made in the emission estimate for this subcategory, by using the tier 1b method based on the natural gas consumption instead of the tier 1a method based on the ammonia production. In response to questions raised by the previous ERT, France provided information on the methodology used and the previous review report recommended that the Party include the information in the 2014 annual submission. The ERT noted that France only partially reported the information in its 2014 NIR. The NIR states that data on ammonia production and natural gas consumption are directly provided by the different ammonia producers for most of the years of the time series and that for the missing years linear interpolation is applied to fill in the gaps. However, France did not specify the years for which the interpolation is applied so as to ensure time-series consistency. The ERT recommends that France report detailed information on how time-series consistency is ensured for the category.

Consumption of halocarbons and SF_6 – HFCs and SF_6

59. Following the previous review, France improved its emission estimates of SF_6 from airborne warning and control systems, accelerators, cables, medical application and research under the subcategory other (consumption of halocarbons and SF_6) and reported on the methodologies used. The ERT commends France for this improvement in the completeness of its inventory.

60. France generates electricity from nuclear power plants and thus needs nuclear fuel as feedstock for its 58 reactors for civil usage. In response to a question raised by the ERT during the review regarding whether France estimates SF_6 emissions from uranium enrichment, the Party responded that SF_6 emissions from the civil nuclear power sector were relevant up until 2006 and reported under the category "other (industrial processes)" in the CRF tables, the NIR (page 172) and the OMINEA report (sections "OMINEA 2E HFC PFC SF_6 production COM/2" and "OMINEA 2E HFC PFC SF_6 production GES/1"). Since 2007, a process of fluorine recycling has been in application, eliminating SF_6 emissions. The ERT assessed the information provided in the NIR (including the OMINEA report) and the response given to the ERT during the review and concluded that an efficient recycling system of SF_6 from enrichment of uranium used for nuclear power is in place in France. The ERT recommends, however, that France include, in its next NIR, all the information on the technology used in the recycling system, its efficiency rate and how France is assessing the control of SF_6 emissions.

61. The NIR reports on the recalculation for HFC emissions from refrigeration and air conditioning that was performed because of the update of the AD and the inclusion of new

subcategories in the estimates. The ERT welcomes these improvements. However, the information in the NIR (paragraph 4.7.6) does not specify all the years and subcategories for which the recalculation was made. The ERT recommends that France provide detailed information on any implemented recalculations to improve transparency.

62. France reports a disposal loss factor for HFC-32 of 581.4 per cent/year for mobile air-conditioning equipment. In response to a question raised by the ERT during the review, France confirmed that there was an error in the reported AD for the amount of HFC-32 remaining in products at decommissioning, which is 1.88 t (instead of 0.11 t). The correct disposal factor is equal to 33 per cent/year. Noting that this error does not affect the emission estimates, the ERT recommends that France correct the information and improve its QC procedures.

63. According to the NIR, very few trams are equipped with air-conditioning equipment and thus the associated emissions are considered negligible. During the review, the ERT noticed that there are more than 28 French cities that have installed trams, with at least 9 cities where trams have been installed after 2010, and are therefore likely to be equipped with air conditioning, and that old tramways are also moving to more air-conditioned trams (e.g. in Besançon, Grenoble, etc.). The ERT could not conclude whether there was a potential problem during the review week. Considering that an average of one third of trams are less than four years old and many others are about to be equipped with air conditioning, the ERT strongly recommends that France reconsider the trams in the model and estimate emissions of F-gases from this subcategory to improve the associated emission estimates.

3. Non-key categories

Adipic acid production – N_2O

64. The OMINEA report (page "OMINEA 2B3 adipic acid/COM/1") states that France uses a tier 2 method based on plant-specific EFs and AD for the category. The ERT notes that, although N_2O emissions from adipic acid production are reported in the CRF tables, the AD and IEFs are reported as "C" (confidential) in the CRF tables and the EFs are reported as a percentage of the base year in the NIR. There is only one plant in France, and it is the largest producer in Europe. During the review, the ERT asked the Party for the trend of adipic production as a percentage of the base year and for information about the abatement technology in place and the methodology used to estimate emissions from this category. In response to the question raised by the ERT during the review, France provided information on the trend of the AD, which is generally consistent with the trend in emissions, except for 2012.

65. In 2012, the Party reports that emissions decreased by 42.4 per cent (from 0.41 Gg in 2011 to 0.23 Gg in 2012) but with a production level in 2012 slightly higher than in 2011. Noting that the abatement technology efficiency of thermal destruction can reach a value of 98.5 per cent, the ERT asked France about the N_2O destruction factor and the abatement system utilization factor used for the years 2008–2012 and for an explanation of the decrease in emissions in the years 2010–2012 (a decrease of about 95 per cent compared to previous years). In response to the questions raised by the ERT during the review, France explained that it uses a tier 3 method (the AD and emission data are provided yearly by the production plant) where N_2O emissions are monitored continuously. The single production plant in France is equipped with a thermal destruction system of N_2O emissions and conversion into nitric acid. The decrease in N_2O emissions noticed since 2010 is linked to an improvement in the capture system (before 2010, part of the emissions were not canalized to the abatement system). The ERT recommends that France correct the information reported in the NIR on the tier used and include in the NIR trend information as provided to the ERT during the review.

D. Agriculture

1. Sector overview

66. In 2012, emissions from the agriculture sector amounted to 89,276.51 Gg CO_2 eq, or 18.2 per cent of total GHG emissions. Since 1990, emissions have decreased by 11.3 per cent. The key drivers for the fall in emissions are the decrease in N_2O emissions from agricultural soils resulting from the reduction in the quantity of synthetic fertilizer applied to agricultural soils and the decrease in CH_4 emissions from enteric fermentation due to the reduction in the populations of dairy cattle and sheep. Within the sector, 51.4 per cent of the emissions were from agricultural soils, followed by 31.6 per cent from enteric fermentation, 16.9 per cent from manure management and 0.1 per cent from rice cultivation. The remaining 0.04 per cent were from field burning of agricultural residues. France reports the emissions from prescribed burning of savannahs as "NO".

67. France has made recalculations between the 2013 and 2014 annual submissions for this sector. The two most significant recalculations made by France between the 2013 and 2014 annual submissions were in the following categories: enteric fermentation and manure management. The recalculations were made in response to the 2013 annual review report and following changes in AD and EFs. Compared with the 2013 annual submission, the recalculations increased emissions in the agriculture sector for 2011 by 738.71 Gg CO_2 eq (0.8 per cent) and increased total national emissions by 0.2 per cent. The recalculations were not adequately explained in the NIR: the ERT noted that there is inconsistency in the reporting on recalculations performed by France between CRF table 8(a) and the NIR. For the years 2011 and 1990, for example, the recalculation for N_2O emissions from agricultural soils resulted in the increase in N_2O emissions by 832 Gg CO_2 eq and 422 Gg CO_2 eq, respectively, according to the NIR (page 211), while CRF table 8 reported a decrease in N_2O emissions of –171.84 Gg CO_2 eq and –384.32 Gg CO_2 eq for the two years, respectively. According to the information on the impact of the recalculations per category reported in the NIR (mainly in table 91), the recalculations made by France might affect positively the emissions of the whole agriculture sector. In response to a question raised by the ERT during the review, France explained that the reporting of recalculations in CRF table 8(a) is correct and the NIR data are from an old version of its annual submission and refer to the geographical coverage under the Convention. The ERT recommends that France improve the QA/QC activities to report consistently the recalculations in its NIR and CRF table 8(a) on the basis of the geographical coverage under the Kyoto Protocol.

68. The ERT noted inconsistent reporting within the NIR and between the NIR and CRF table summary 3 regarding the tiers of methodologies used by the Party to estimate emissions of N_2O and CH_4 from the key categories: for enteric fermentation, tiers 2 and 3 are reported in the NIR (page 196) but tier 3 is reported in CRF table summary 3; for manure management, tiers 1 and 2 are reported in the NIR (page 201) but tier 2 is reported in CRF table summary 3; for agricultural soils, tier 1a is reported in the NIR (page 208) but tier 1b is reported for indirect emissions of N_2O in the OMINEA report (page "OMINEA 4D agriculture soils GES/2") and tiers 1 and 2 for the same category are reported in CRF table summary 3. The issues were raised in the previous review report[14] but the corrections were not implemented in the 2014 annual submission. Therefore, the ERT reiterates the recommendation made in the previous review report that France improve the transparency and consistency of the information reported, both within the NIR and between the NIR and the CRF tables.

[14] FCCC/ARR/2013/FRA, paragraph 65.

69. The ERT commends France for the effort made in reporting consistently livestock population by geographical coverage in the NIR, the OMINEA report and CRF table 4.A (with the exception of swine, see para. 77 below); in comparing the country-specific CH_4 EFs for enteric fermentation and the country-specific values for volatile solids (VS) for manure management (cattle) with the default values in the IPCC good practice guidance and reporting on this in the NIR; in reporting correctly the IPCC default methodology used to estimate CH_4 emissions from field burning of agricultural residues; and in improving the transparency of reporting on the default nitrogen excretion rates used for sheep from the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* (hereinafter referred to as the Revised 1996 IPCC Guidelines), all in response to recommendations made in the previous review report. However, the ERT notes that some issues related to QA/QC procedures remain, as reflected by some inconsistencies in the information within the NIR and between the NIR and the CRF tables (as specified in paras. 72, 77 and 81 below) and information is still missing on the comparisons and divergences between the country-specific CH_4 EFs for enteric fermentation for cattle and other animals and the default values from the IPCC good practice guidance. In addition, the Party did not report on the progress of the submission of the article on the country-specific methodology used to develop the CH_4 EF for enteric fermentation for cattle to a peer-reviewed journal.[15] The ERT reiterates the recommendation made in the previous review report that France improve the QA/QC activities by correcting and including the missing information in its NIR.

70. The ERT further noted that transparency is still an issue regarding the reporting of the methodology used to estimate N_2O emissions from manure management and reiterates the recommendation made in the previous review report that France improve the transparency of the reporting on the methodology used to estimate N_2O emissions from manure management by indicating that it used the IPCC tier 2 method, reporting accurately the IPCC equation used for the estimation of N_2O emissions and explaining any transformation made to it, and properly indicating that the equation on page 203 of the NIR was used to calculate the IEF.

71. The previous review report noted that France reported that the uncertainties of AD and EFs are based on expert judgement for enteric fermentation and manure management, but the background information underlying the uncertainty values is missing from the NIR. The previous review report recommended that France improve the transparency of the reporting of AD and EF uncertainties for enteric fermentation and manure management by providing at least the protocol used to obtain the expert judgement and the logical basis for the judgement, including any data taken into consideration. The current ERT notes that no additional information has been provided in the 2014 NIR. In response to a question raised by the ERT during the review, France explained that the uncertainty of the animal population was supposed to be very low (5 per cent) on the basis of the statistical evaluation undertaken each year and the corrections made to these data to ensure their accuracy. The uncertainty of 15 per cent was used for the CH_4 EF for enteric fermentation because the IPCC good practice guidance indicated that the EFs from the tier 2 method are likely to be in the order of 20 per cent and the French methodology includes more country-specific information than the IPCC default value. France used the default uncertainty values from the IPCC good practice guidance for the CH_4 and N_2O EFs for manure management. The ERT reiterates the recommendation made in the previous review report that France improve the transparency of its reporting of AD and EF uncertainties for enteric fermentation and manure management by providing this information in its NIR.

[15] FCCC/ARR/2013/FRA, paragraph 67.

2. Key categories

Enteric fermentation – CH_4

72. France has used country-specific CH_4 EFs for dairy (120.03 kg CH_4/head/year) and other cattle (50.66 kg CH_4/head/year) based on the equation of the study MONDFERENT[16] (NIR, page 197). The ERT commends the Party for its effort to improve the transparency of the reporting and for performing QA/QC activities regarding this country-specific method, by providing the typical mass for non-dairy cattle as additional information to CRF table 4.A and by comparing the country-specific methods to the methodologies from the IPCC good practice guidance. The ERT notes that France did not report on the applicability of the equation of the study MONDFERENT to the circumstances in France, despite its appropriate response to a question raised on this issue by the ERT during the previous review. In response to a question raised by the ERT during the review, the Party explained that divergences between the country-specific and IPCC default methods are due to the difference in the gross energy intake and average CH_4 conversion rate (Ym) considered in the methodology provided in the IPCC good practice guidance (Ym: 0.06 for other cattle and 0.059 for dairy cattle) and the MONDFERENT study (Ym: 0.068 for other cattle and 0.057 for dairy cattle), and also explained the relationship between CH_4 emissions and milk production. The ERT reiterates the recommendation made in the previous review report that France improve the transparency of its reporting of the country-specific methods used to estimate the EFs for cattle by including the information provided to the previous and current ERT in the NIR.

73. France has used country-specific CH_4 EFs developed by the Institut National de la Recherche Agronomique (INRA) for livestock other than cattle. The ERT notes that the transparency issues pointed out in the previous review report regarding this country-specific methodology were not taken into consideration by the Party in its 2014 annual submission (NIR, pages 197–201, and OMINEA report, pages "OMINEA 4A enteric fermentation GES/2-3"). In response to a question raised by the ERT during the review, France provided the outputs of the comparison of the country-specific CH_4 EFs for livestock other than cattle with those from the IPCC good practice guidance, which revealed differences ranging from –79 to 180 per cent, depending on the livestock type. The Party noted that the country-specific methodology and tier 1 methodology from the IPCC good practice guidance are based on quite different approaches: the country-specific methodology is representative of the French situation, while the IPCC default values are based on a worldwide literature review. The ERT accepts the approach undertaken and factors applied by the Party. However, the ERT reiterates the recommendation made in the previous review report that France improve the transparency of its reporting of the methods used to estimate emissions from enteric fermentation by including the results from the comparison of the EFs derived using the country-specific methodology and the methodology from the IPCC good practice guidance in its NIR as a verification activity.

74. During the previous review,[17] France explained that it planned to revise the country-specific CH_4 EFs for livestock other than cattle for the end of 2014 or the beginning of 2015. In response to a question raised by the ERT during the current review regarding the progress of the study, the Party explained that the study has not yet been launched owing to administrative issues from INRA and that the outputs of the study will not be available before September 2015. The ERT encourages France to include sufficient information on the progress of the study MONDFERENT II in its NIR.

[16] Matière Organique Non Digestible et FERmentation ENTerique.
[17] FCCC/ARR/2013/FRA, paragraph 70.

75. The typical animal mass (average) has been reported as "NA" for dairy cattle in the additional information box to CRF table 4.A. In response to a question raised by the ERT during the review, the Party explained that the typical mass of dairy cattle is associated with the types of dairy cows and was only indirectly used to determine enteric CH_4 emissions. The ERT recommends that France include this information in its NIR and in the additional information box to CRF table 4.A.

76. The ERT noted inconsistencies between the reporting on the production of milk by dairy cattle in table 61 of the NIR (page 197) and in table 53 of the NIR submitted in 2012 regarding the years 1990–2010, which were not explained in the NIR. This issue was raised in the previous review report,[18] and attributed to the use of different units for the data and a mistake in the unit reported in the table of the latest NIR that was not corrected in the 2014 annual submission. Therefore, the ERT reiterates the recommendation made in the previous review report that France improve the transparency of the reporting on milk production through the correct and consistent use of units.

77. The population of swine reported in the NIR for the geographical coverage under the Kyoto Protocol differs from that reported in CRF table 4.A (e.g. 13,827,063 heads according to the OMINEA report, page "OMINEA 4 agriculture COM/4" compared to 13,838,470 heads in CRF table 4.A for 2012). In response to a question raised by the ERT during the review, France explained that there was a mistake in the population of swine reported in the NIR for the geographical coverage under the Kyoto Protocol. The ERT recommends that France improve the QC activities to minimize the inconsistencies between the information reported in the NIR and the CRF tables.

Manure management – CH_4 and N_2O

78. France has used the tier 2 methodology from the IPCC good practice guidance to estimate CH_4 emissions from manure management with country-specific values for VS, consistent with the IPCC good practice guidance. The ERT commends France for the effort made to improve the transparency in reporting this tier 2 methodology by providing the typical animal mass for non-dairy cattle in CRF table 4.B(a). For livestock other than cattle the Party continues to use the IPCC default tier 1 method, thus including swine which is a significant category, which is not in line with the IPCC good practice guidance. In response to a question raised by the ERT during the previous review, the Party explained that it planned to develop country-specific VS values for livestock other than cattle. However, as explained in paragraph 74 above, the current ERT noted that the study MONDFERENT II is still in progress. The ERT recommends that France include sufficient information on the progress of the study MONDFERENT II, with emphasis on the country-specific values for VS for livestock other than cattle.

79. The previous review report noted that France reported using the IPCC default value for the methane conversion factor (MCF) for cold climate in its OMINEA report (page "OMINEA 4B manure management GES/2"), whereas the MCFs for both cold and warm climate are reported in CRF table 4.B(a). The current ERT notes that this inconsistency issue was not resolved in the 2014 NIR. In response to a question raised by the ERT during the review, France confirmed the explanation provided in the previous review report that the NIR provides the MCF values corresponding to the mainland (cold climate) only. The ERT reiterates the recommendation made in the previous review report that France report the MCFs for both cold and warm climate in its NIR with the relevant explanations.

[18] FCCC/ARR/2013/FRA, paragraph 71.

Agricultural soils – N_2O

80. The ERT commends France for its efforts to improve the completeness of its estimates of N_2O emissions from agricultural soils by reporting on direct and indirect N_2O emissions from imported manure spread on agricultural soils and updating the list of countries with which manure trade occurred in the period 2002–2011 (OMINEA report, pages "OMINEA 4D agricultural soils COM/4 and /5"), and by reporting N_2O emissions from cultivation of histosols (OMINEA report, page "OMINEA 4D agricultural soils GES/2" and CRF table 4.Ds1) in its current annual submission. However, the ERT noted that the transparency issue raised in paragraph 82 of the previous review report regarding the reporting on the fraction of livestock nitrogen excreted and deposited onto soils by grazing livestock ($Frac_{PRP}$) was not resolved by the Party and the ERT therefore reiterates the recommendation made in the previous review report that France improve the transparency of its reporting of $Frac_{PRP}$ by providing the reference and background information for this parameter.

81. The nitrogen input to soils from synthetic fertilizers and animal manure applied to soils, as presented in CRF table 4.D (e.g. 1,820,001,314.43 and 744,521,106.75 kg N/year in 2012) are different from the values provided in table 65 of the NIR (1,826,842,000 and 747,319,000 kg N/year). In response to a question raised by the ERT during the review, France explained that table 65 of the NIR refers to its reporting of the geographical coverage under the Convention and CRF table 4.D reports the geographical coverage under the Kyoto Protocol. France also indicated that there was a mistake in table 65 of the NIR (page 209) for the reporting of N deposited ("N épandu"). The ERT recommends that France improve the QC activities to ensure the accuracy of the information reported in the NIR.

E. Land use, land-use change and forestry

1. Sector overview

82. In 2012, net removals from the LULUCF sector amounted to 44,253.81 Gg CO_2 eq. Since 1990, net removals have increased by 54.6 per cent. The key drivers are associated with the increase in forest area and the fact that the annual carbon gains due to biomass growth are larger than the annual loss from harvesting. Within the sector, 69,492.23 Gg CO_2 eq of net removals were from forest land, followed by 11,752.39 Gg CO_2 eq from grassland, 2,182.25 Gg CO_2 eq from wetlands and 371.71 Gg CO_2 eq from other (the Petit-Saut reservoir and CH_4 removals from forest soil). Net emissions were reported for cropland (25,590.77 Gg CO_2 eq) and from settlements (13,953.84 Gg CO_2 eq). The remaining 0.16 Gg CO_2 eq were from other land.

83. France has made recalculations between the 2013 and 2014 annual submissions for this sector affecting all categories and gases. The two most significant recalculations made by France between the 2013 and 2014 annual submissions were for the categories grassland and cropland. The recalculations were mainly due to changes in AD and EFs. Compared with the 2013 annual submission, the recalculations decreased net removals in the LULUCF sector for 2011 by 4,805.05 Gg CO_2 eq (10.8 per cent). For cropland, there was a 49.7 per cent increase in emissions and for grassland, a 56.2 per cent increase in net removals. Under the subcategory other, France provided a recalculated figure that changed this subcategory from being a source of 399.77 Gg CO_2 eq to a sink of 349.38 Gg CO_2 eq. This recalculation was justified on the basis of the new research results that have been used to estimate emissions from the Petit-Saut reservoir in French Guiana, which were adequately explained. For other land, the emissions reported for 2011 in the previous submission of 129.00 Gg CO_2 eq dropped to 0.16 Gg CO_2 eq in the current submission,

mainly owing to the non-reporting of the loss of biomass from forest land converted to other land.

84. The ERT noted that France has included in the NIR (chapter 7.5, page 224), a description of the methodological improvements introduced for 2012, particularly for the overseas territories; the land-use change matrices; and the analysis of the forest land sample data. The most significant changes occurred as a result of updating the deforestation data for French Guiana and the emissions from the Petit-Saut reservoir in French Guiana. The emissions due to wildfires in the overseas territories have also been estimated. For France, the analysis of the new data collected from the survey on land use (known as TERUTI) carried out annually by the statistical branch of the Ministry of Agriculture, Agrifood, and Forestry (Ministère de L'Agriculture, de L'Agroalimentaire et de la Forêt), resulted in significant changes in the land-use change matrix with a significant impact on the emissions. Finally, an update of the reference carbon values from the Institut National de la Recherche Agronomique (InfoSol) also had an impact on the previous estimates of changes in carbon stock in soil. In response to a question raised by the ERT during the review, France explained that it is often difficult to present the effect on the net removals from each change introduced in the same year. However, the Party provided clarification for the following changes: forest fires in overseas territories; updated emissions from the Petit-Saut reservoir; corrections for years before 1990; the reclassification of land; the incorporation of unmanaged forest in the land-use transition matrices; the update of fuelwood harvest; and the update of carbon stocks in soils. The ERT recommends that France include this information in CRF table 8(b), and provide, as far as possible, the effect of any changes introduced in the net removals in the next NIR.

85. The comparison of the time-series data reported in the 2014 annual submission relative to that reported in the 2013 annual submission shows a 3.4 per cent increase in the area of forest land remaining forest land and a 12.3 per cent increase in the net CO_2 removals; and a 42.0 per cent decrease in the area of land converted to forest land, with a decrease in removals of 35.7 per cent. Relative to 2011, there is an increase of 0.5 per cent in the area under forest land remaining forest land, with a decrease in the net CO_2 removals of 2.8 per cent; and a decrease in the area of land converted to forest land of 0.7 per cent with an increase in removals of 16.4 per cent. The NIR is not explicit with regard to the explanations of the trends and the impact of the annual modifications thereon. The ERT recommends that France provide, in future submissions, at least a justification for the significant changes, to increase the transparency of the reporting.

86. France broadly introduces the methodological approach used to estimate the changes in carbon stock but is seldom transparent about the reasons for not applying directly the method from the IPCC *Good Practice Guidance for Land Use, Land-Use Change and Forestry* (hereinafter referred to as the IPCC good practice guidance for LULUCF) to estimate the changes in carbon stock and non-CO_2 emissions. In addition, the input data for the equations are not provided in most cases, and the sources of the country-specific data are not always referenced. The ERT notes that this makes the review process complicated and recommends that France revise the structure of its NIR to avoid including unnecessary information while not providing the relevant information.

87. The ERT noted several inconsistencies between the information provided within the NIR and between the NIR and the CRF tables (e.g. the distribution of the land categories provided in the OMINEA report (page "OMINEA 5 lulucf overview COM/7") presents the total area for metropolitan France as 54,919 kha whereas the total area for metropolitan France in table 3 of the NIR (page 52) is given as 54,396.5 kha). Inconsistencies in the land matrix provided in the OMINEA report (page "OMINEA 5 lulucf overview COM/6") for metropolitan France are found not only in the total area coverage but also in the estimates of the areas that transitioned from one category to another from 2011 to 2012 (e.g. for land

converted to other land, when there is no conversion reported in the transition matrix but there are changes reported in CRF table 5.F from 2011 to 2012). The ERT notes that, despite the difficulties faced by France regarding the harmonization of different sources of data that could lead to these different values, France should ensure consistency between the NIR and the CRF tables and, therefore, the ERT recommends that France strengthen the QA/QC procedures to ensure greater consistency in its reporting.

88. The ERT noted that France provided two sets of CRF tables: one for the Convention and the other for the Kyoto Protocol. These two sets of tables are essentially the same but neither covers the entire territorial area of France (65,569.5 kha, according to table 3 of the NIR). In table 2 of the NIR (part 1, page 51) France indicates that the geographical coverage of the reporting under the Convention comprises metropolitan France (54,396.5 kha, or 83.0 per cent of the total territorial area of France), overseas territories without PTOM (8,887.5 kha, or 13.6 per cent) and PTOM (2,285.5 kha, or 3.5 per cent). The total area reported in the CRF tables under the Convention and under the Kyoto Protocol totals 63,845.8 kha and, hence, represents a difference of 1,723.7 kha (or 2.62 per cent of the total territorial area of France). In response to a question raised by the ERT during the review regarding this difference, France explained that these differences are certainly due to the use of different sources of data and that this will be checked and harmonized in future reporting. France explained that the lands of PTOM are not yet included in the French LULUCF inventory because there is very little information available, but recognizes that, despite these being small territories with low carbon stocks, they should be included. The ERT notes that this reporting is not consistent with the IPCC good practice guidance for LULUCF and recommends that the Party include all of its territories so as to cover its entire geographical area in its annual submission and harmonize the different sources of data to ensure consistency, completeness and accuracy of reporting.

89. France provided uncertainty estimates for the entire LULUCF sector and reported a 30 per cent uncertainty for the AD and 50 per cent for the EFs, with a combined uncertainty of 58 per cent, which were exactly the same as those reported for 2011 despite the recalculations applied to the sector. France states in the NIR that the quantification of the uncertainties is an activity in progress and that these values will be revised as better knowledge and techniques become available. No category-specific uncertainty is provided, which makes it difficult for France to prioritize areas where more studies and research should be carried out. In response to a question raised by the ERT during the review, France explained that the uncertainties are still roughly estimated in the current French inventory and that the current values are based on expert judgement and are very approximate. A disaggregation for the LULUCF categories is planned for the next inventory. The ERT reiterates the recommendation made in previous review reports that France improve the transparency of the reported information on the uncertainty analysis and update the values once data and methodological improvements are implemented for the estimates.

90. The ERT noticed that France reports the area of unmanaged forests under CRF table 5.A but reports the changes in carbon stocks in all pools using the notation key "NO". The ERT recommends that, since the changes in carbon stocks on unmanaged land do not have to be reported unless the unmanaged forest land becomes managed, the appropriate notation key to be used is "NA" instead of "NO". Moreover, the ERT recommends that the Party include in the NIR information that justifies the assignment of a portion of its territory as unmanaged, on the basis of the definition of managed land provided in the IPCC good practice guidance for LULUCF.

91. France adopts approach 2 for land representation based on statistical sampling and data collected annually as part of the survey TERUTI (see para. 84 above) that covers the metropolitan territory of France and all the overseas territories without PTOM since 2005,

except French Guiana. The TERUTI survey is the source used to establish the land-use transition matrix which is the basis for estimating the anthropogenic emissions and removals. TERUTI has three separate statistical series (1982–1989, 1992–2004 and 2005–present) that present some differences in nomenclature but mostly in the way in which the samples are collected through time. Despite these changes, the ERT is of the view that TERUTI provides the relevant annual data for updating the land-use matrix and using the national forest inventory (NFI) data to estimate emissions and removals. However, the ERT recommends that France provide more transparent information regarding the integration between TERUTI and the NFI data, and also explain the reasons for the changes in the nomenclature of TERUTI and the per cent coverage of the sampled data for TERUTI and NFI purposes, to increase the transparency and consistency of the reporting.

92. For the timber volume harvested, France has used data generated by the NFI between two forest inventories (i.e. generated directly from the NFI samples (the "direct" method)). This method partially replaces the previous method used by France (the "model" method), which was based on sales statistics of lumber and fuelwood consumption. However, France notes in the NIR that both methods are still maintained to ensure the consistency of the time series since 1990, because data from the "direct" method are only available for the periods 2005–2009, 2006–2010 and 2007–2011. The ERT commends the Party for the methodological improvements introduced and recommends that France provide transparent information on how consistency is maintained in the timber volume harvested acquired from the "direct" and "model" methods for the years for which "direct" data are not available.

93. The previous review report indicated that France reports the area of organic soils as "NO" although international databases, including the database of the Food and Agriculture Organization of the United Nations, FAOSTAT, and the Harmonized World Soil Database,[19] showed organic soils in the French territory. The ERT commends France for revising the information on the occurrence of organic soils for each land-use category, as recommended in the previous review report, and also for the other improvements introduced in the 2014 annual submission, including addressing wildfires in overseas territories and the updating of AD, such as reference carbon stock in the soil organic carbon pool and deforestation for French Guiana after 2008.

94. France estimates that 13 per cent of the above-ground biomass is burned on-site, according to the OMINEA report (page "OMINEA 5A forestland GES/1, b.1"). In response to a question raised by the ERT during the review, France explained the difficulty of estimating this value and provided the rationale for the estimate provided in the NIR, which assumes 100 per cent of the stem and 30 per cent of the branches are harvested and 10 per cent of the above-ground biomass is left to decay, following the default value provided in the IPCC good practice guidance for LULUCF (page 3.178). The remaining is assumed to burn. France acknowledged the need to improve the method of estimation, and clarified that the assumption of the share of wood left to decay and burn seems adequate, but the partition between burning and decay remains a challenge. The ERT agrees that the method is a first-order approximation and recommends that France continue its efforts to improve the accuracy of the estimates. Among the improvements envisaged in future inventories, France mentions a collaboration between the Institut National de l'Information Géographique et Forestière and CITEPA to refine the calculation of the types of burned forests using data from the PROMETHEE database. The ERT encourages France to provide information on the progress of this work in the next NIR.

[19] Available at <http://eusoils.jrc.ec.europa.eu/ESDB_Archive/soil_data/global.htm>.

2. Key categories

Forest land remaining forest land – CO_2

95. As indicated above (see para. 91), France has two data collection systems in place, TERUTI and the NFI. The TERUTI data have been collected annually for the periods 1982–1989, 1992–2004 and from 2005 onwards, but the sampling grid and the methodology applied are not consistent throughout these periods. From 2004, the number of sample points dropped from 555,900 to 155,000 and since 2005, the data were geo-referenced and harmonized with the other EU countries. The TERUTI data are the basis for the construction of the annual land-use change matrices but are not collected in all territories. The TERUTI collection system has been implemented in metropolitan France and in the overseas territories since 2005. Data on biomass growth and mortality are acquired as part of the NFI, the methods of which have also changed since 1995 to produce annual data. NFI data are available for the periods 2005–2009, 2006–2010 and 2007–2011, but only for mainland France. The previous review report recommended that France assess whether the use of NFI data for estimating the carbon stock changes on the TERUTI forest area causes any systematic impact on the biomass carbon stock changes, but the current ERT notes that France has not provided this information in the NIR. The ERT reiterates the recommendation made in the previous review report that France assess the potential impact of the NFI data applied in the TERUTI database in order to increase the transparency and accuracy of the reporting.

96. In the NIR (part 2), France presented several equations from the IPCC good practice guidance for LULUCF that have been adjusted to be applicable to the data collected in France. However, the ERT noted that several of these equations (UTCF20, UTCF22, UTCF29, UTCF31) have not been presented correctly. In response to a question raised by the ERT during the review, France explained that the equations were introduced after the last inventory review and acknowledged that they were not introduced transparently and correctly presented in the NIR, and provided the correct versions and explanations as part of its response. The ERT found the explanations provided by the Party acceptable and recommends that France present the correct equations and the correct definitions in the NIR, to increase the transparency of the reporting. The ERT also points out that the check of the units should have been carried out as part of the QA/QC procedures and would have prevented the introduction of the incorrect and circular equations in the NIR.

97. Although France has indicated in the NIR that it applied a tier 1 method to estimate the changes in carbon stock in the dead organic matter pool in forest land remaining forest land, in fact it used a tier 2 approach and provided estimates for this pool in CRF table 5.A, except for poplar forests in the temperate climate zone and for broadleaf forests in the tropical climate zone, for which the notation key "NO" is used. The ERT noted that inconsistencies in the NIR is a demonstration that the QA/QC system needs improvement and recommends that France seek to ensure greater consistency in its annual submission.

98. France reports emissions from mineral soils using a tier 1 method (no changes in carbon stock) and applies the notation key "NO" in CRF table 5.A, instead of the notation key "NE" (not estimated), as recommended in the previous review report. The ERT reiterates the recommendation made in the previous review report that the Party correct the notation keys as well as use the documentation box to provide the explanation for the use of the notation key "NE". In addition, the ERT noted that for tropical broadleaf forests, France reports dead organic matter as "NO" and the value zero for the changes in carbon stock in mineral and organic soils. The gains and losses for living biomass are exactly the same, providing a net change of zero. The net CO_2 emissions and removals are reported as "NO". The ERT recommends that France explain in the NIR the reasons for reporting exactly the same value for carbon gains and losses in living biomass and, in case the changes in carbon

stock are reported using a tier 1 method, recommends that the Party use the notation key "NE".

99. France included in the OMINEA report (page "OMINEA 5 lulucf overview COM/14") the new median carbon soil reference data for the 22 regions that comprise the metropolitan area of France. Data have been provided by INRA at the regional level, using the national network of soil quality monitoring (Réseau de Mesure de la Qualité des Sols), a network of 2,200 soil sampling sites distributed over the 16 km by 16 km square grid covering the metropolitan area of France. France noted in the NIR (pages 224/225) that the update of the soil organic carbon stock had a larger impact on the estimates of carbon stock than previously anticipated, particularly for cropland and grassland. The ERT commends France for the improvement in soil data collection in metropolitan France and recommends that France include in the NIR the data for overseas territories, as provided to the ERT in response to a question raised by the ERT during the review. The ERT also recommends that the Party provide soil data for PTOM to ensure the completeness of the reporting under the Convention.

Land converted to forest land – CO_2

100. This subcategory corresponds to only 4.9 per cent of the forest land and 72.7 per cent of the conversions are from grassland. France reports changes in carbon stock for all carbon pools, including emissions from organic soils for wetlands converted to forest land. The ERT noted that for land conversions that do not occur on organic soils (e.g. cropland, grassland, settlements and other land), France uses the value zero to report the changes in carbon stock in organic soils. The ERT recommends that France use the notation key "NA" instead of the value zero and also provide evidence that the area of organic soils is as reported, citing the appropriate references, to improve the transparency of the reporting.

101. The ERT noted that data for land converted to forest land were recalculated and that, for most years, the impact on CO_2 emissions was minor (less than 1 per cent) except for the base year and the years 2002 and 2003, when the recalculation led to increases in removals of, respectively, 3.9 per cent and 2.3 per cent (same value for 2002 and 2003). In response to a question raised by the ERT during the review, France responded that the TERUTI time series is not fully consistent and that it benefited from a review of the data and corrections made for the current submission. The changes and corrections included: correcting an error identified in the years prior to 1990 that led to significant changes until 1992 (with the most significant effect for the change in the net removals in the base year); an improved method for defining unmanaged forest; and a clearer treatment of forest roads as forest and not forest conversion (with an impact on recalculations, particularly for 2002 and 2003). The ERT recommends that France provide more transparent information on any changes introduced in the NIR and their associated impact on the net removals, especially for forest land.

Land converted to cropland – CO_2

102. France only reports net emissions from living biomass for forest land converted to cropland and reports the gains in carbon stock from the conversion to perennial crops as "NO". This is not consistent with the IPCC good practice guidance for LULUCF (section 3.3.1.1 on page 3.70, or equation 3.3.8 on page 3.85). The ERT recommends that France apply at least a tier 1 method from the IPCC good practice guidance for LULUCF to estimate the net CO_2 emissions and removals, to increase the accuracy and comparability of the reporting. The ERT commends France for reporting the emissions associated with organic soils in the case of wetlands converted to cropland, following a recommendation made in the previous review report.

Land converted to grassland – CO_2

103. France reports emissions from living biomass for forest land converted to grassland associated with the loss of living biomass from the conversion. It does not report the losses of living biomass from cropland converted to grassland, but the ERT notes that France also does not report the annual gains from perennial crops in CRF table 5.B. The ERT recommends that France provide estimates of the gains in living biomass of perennial crops (see para. 102 above) and include the corresponding losses from conversion of perennial crops to other land uses (including cropland converted to wetlands, settlements and other land) to increase the transparency, accuracy and comparability of the reporting.

Land converted to wetlands – CO_2

104. The ERT noted that France reports the CO_2 and CH_4 emissions from the Petit-Saut reservoir in CRF table 5 (5.G.2) and has implemented the recommendation made in the previous review report to include the Petit-Saut reservoir area in the subcategory forest land converted to wetlands. The area reported in the 2014 annual submission for 1994 increased by 35.02 kha (from 14.29 kha to 49.31 kha), which includes the forest area inundated in 1994, of 30.00 kha. France noted that the results from a new study have been used in its 2014 annual submission to estimate the GHG emissions from the Petit-Saut reservoir and, in response to a question raised by the ERT during the review, provided a graphical representation of the changes in emissions from the 2013 and 2014 annual submissions. The ERT recommends that France include this information in the NIR to increase the transparency of the reporting.

3. Non-key categories

Cropland remaining cropland – CO_2

105. The ERT noted that France has not implemented the recommendation made in the previous review report to provide estimates of the net emissions and removals from living biomass in cropland remaining cropland of perennial crops, and continues to report emissions equal to removals. France explains in the OMINEA report (page "OMINEA 5B cropland COM/2") that the NFI does not cover cropland and there are no accurate data regarding the annual biomass growth in the cultivated lands. Hence, France considers that the growth balances the harvest, and that this leads to an underestimation of removals since this subcategory should be a net sink. The ERT reiterates the recommendation made in the previous review report that France provide estimates of the net emissions and removals for living biomass or perennial crops by applying at least a tier 1 method from the IPCC good practice guidance for LULUCF (sections 3.3.1.1 and 3.3.2.1).

CO_2 emissions from agricultural lime application – CO_2

106. France has not implemented the recommendation made in the previous review report that the Party report separately emissions from limestone, dolomite and other carbonated amendments, and use the CO_2 EF for dolomite from the stoichiometric reaction (0.14 t C/t dolomite) instead of the default value provided in the IPCC good practice guidance for LULUCF (pages 3.80 and 3.115), (0.12 t C/t dolomite). The ERT reiterates the above recommendation, which will increase the comparability and transparency of the inventory reporting.

Biomass burning – CH_4 and N_2O

107. France reports non-CO_2 emissions from controlled fires and wildfires in CRF table 5(V) applying the methodological approach provided in the IPCC good practice guidance for LULUCF (equation 3.2.20, page 3.49). However, France does not include in the NIR the estimated input values used (e.g. combustion efficiency, mass of available fuel). In response to a question raised by the ERT during the review, France provided the values of

the biomass present in the areas burned and the fraction of the biomass effectively burned used to estimate the EFs for several non-CO_2 emissions. The ERT notes that no information is provided for wildfires or controlled burning in PTOM and recommends that France provide estimates for PTOM, as appropriate, to increase the completeness and transparency of the reporting. Moreover, the ERT recommends that France include, in the next inventory, transparent information regarding all the input data necessary to apply the IPCC methodology to estimate CO_2 and non-CO_2 emissions from biomass burning.

F. Waste

1. Sector overview

108. In 2012, emissions from the waste sector amounted to 12,627.99 Gg CO_2 eq, or 2.6 per cent of total GHG emissions. Since 1990, emissions have decreased by 2.0 per cent. Within the sector, 68.3 per cent of the emissions were from solid waste disposal on land, followed by 16.1 per cent from wastewater handling and 10.4 per cent from waste incineration. The remaining 5.2 per cent were from other (waste). While the emissions from solid waste disposal are at almost the same level as in 1990, the emissions from waste incineration without recovery decreased by 30.0 per cent between 1990 and 2012 owing to an increase in recovery at waste incineration sites. Emissions from other sources (compost and biogas production) increased considerably owing to the increasing use of these waste management practices.

109. France has made recalculations between the 2013 and 2014 annual submissions for this sector. The two most significant recalculations made by France between the 2013 and 2014 annual submissions were in the following categories: wastewater handling and waste incineration. The recalculations for wastewater handling were made because the AD had been updated, in particular for industrial wastewater. The recalculations for waste incineration were partly made in response to the 2013 annual review report to update the fraction of fossil carbon. Compared with the 2013 annual submission, the recalculations increased emissions in the waste sector for 2011 by 106.18 Gg CO_2 eq (0.8 per cent) and increased total national emissions by 0.02 per cent. The recalculations were adequately explained.

110. France marked as “confidential information” the AD of waste amounts landfilled (provided to the ERT during the review) and these data are not included in the NIR, despite reiterated recommendations made in previous review reports. The ERT notes that such information is usually available in the official statistics in other countries, as it concerns aggregate national data and not data from individual sites. If France considers the detailed data of the national waste amounts landfilled as confidential information, the ERT recommends that France provide a clear legal basis in the NIR that justifies the treatment of such AD as confidential information.

111. Regarding the rest of the categories, the NIR does not explain which activities in the waste sector occur in the overseas territories and how the emissions have been estimated for these areas. As the parameters and waste management practices will be different in the waste sector for these territories (e.g. for landfills, different reaction rates as well as different waste composition will apply; and for wastewater, different shares of the population will be connected to wastewater treatment plants), it is important to clarify in the NIR how the emissions for the overseas territories were calculated. The ERT reiterates the recommendation made in previous review reports that France clearly specify when data and figures refer to the geographical coverage under the Convention or under the Kyoto Protocol, and increase the transparency of the reporting of estimated activities for the overseas territories, including the parameters and methodologies used.

2. Key categories

Solid waste disposal on land – CH_4

112. France uses a country-specific first-order decay (FOD) method in which the methane generation potential, $L_0(x)$, is not estimated in line with equation 5.1 of the IPCC good practice guidance. In the NIR, France provides an equation for $L_0(x)$, but in response to a question raised by the ERT during the review, the Party explained that this equation is not used for the estimation of CH_4 generation, since the CH_4 generation is derived from measurements. France explained that its country-specific method is the official national methodology developed in 2002 and has been calibrated with on-site measurements on about 50 landfills. The aggregated methodology with country-specific parameters is the result of a working group consensus for the reporting of individual landfills under the European Pollutant Release and Transfer Register (E-PRTR) legislation. France informed the ERT that no documents related to this working group are available and no complementary documents are available to explain what type of on-site measurements were conducted, based on which measurement methodologies, on how many landfills, in which years, during which periods and how they were and are still representative for CH_4 generation from all types of landfills in France and the overseas territories. The ERT notes that if selecting a method other than those described in the Revised 1996 IPCC Guidelines, inventory agencies should justify their selection based on comparable or increased accuracy of the emission estimates. During the review, no information was provided in response to the questions raised by the ERT that justified that the national method is accurate. The ERT performed an approximated calculation of CH_4 emissions based on the FOD equation provided in the IPCC good practice guidance and using the French data on waste amounts landfilled, half-lives, degradable organic carbon (DOC) and MCF (methane correction factor). Based on this approximated estimation, the ERT concluded that the national method has not been determined to lead to an underestimation of emissions for 2012. Nevertheless, the ERT strongly recommends that France further explore the sources from which the national method has been derived and clearly document in the NIR what type of measurements were conducted, the years and frequency of the measurements, the sample size and how the measurements were aggregated into a national method. In its response to questions raised by the ERT during the review, France stated that the national method was confirmed by more recent measurements, without providing such results to the ERT. The ERT strongly recommends that France justify the use of its country-specific methodology by more recent measurements and also document such measurements in the way described above. If such justification and documentation of the national methods cannot be provided, the ERT strongly recommends that France develop an alternative estimation method consistent with the appropriate IPCC equations and parameters.

113. Although the Party provides a comparison of the amount of waste landfilled, as provided in the CRF tables, and the waste amounts landfilled, as reported for France in the Eurostat database, the ERT noted that for 2004, the total amount of waste landfilled according to the Eurostat database is 68 per cent of the amount reported in the CRF tables for 2004, for 2006 it is 45 per cent of the amount reported in the CRF tables, for 2008 it is 57 per cent and for 2010 the Eurostat amount is 5 times higher than the amount reported in the CRF tables. The latter seems to be an error in the Eurostat data. The ERT recommends that France provide the additional information to the NIR related to the comparability of the data reported in the CRF tables with the data published for France in the Eurostat waste database.

114. The previous review report[20] recommended that France include documentation of country-specific parameters (methane generation rates and DOC values) and waste composition in the NIR. The current ERT noted that some information was included in the NIR, but was not sufficient to completely explain the methodology applied. France uses a methane generation rate constant, k, which is disaggregated into three categories of degradability: 15 per cent of the waste disposed is assumed to be rapidly degradable; 55 per cent is assumed to be moderately degradable; and 30 per cent slowly degradable. For the DOC values, France also assumes three fractions of degradability; however, they are defined in different ways: 34 per cent of the waste is considered to be rapidly degradable; 61 per cent moderately degradable; and 5 per cent non-degradable. This is not consistent with the Revised 1996 IPCC Guidelines which states that Parties should determine the k and DOC values based on the composition of the waste disposed. If Parties choose to categorize the waste landfilled into different fractions, consistent fractions and consistent definitions of these fractions should be used for all estimation parameters. Then ERT also notes that it is inconsistent to assume that 5 per cent of the waste has no degradable organic carbon at all, but that this fraction at the same time degrades with a half-life of about 17.3 years. The ERT recommends that France apply consistent fractions for all parameters that depend on waste composition.

115. In the course of the review, France explained that it uses a bulk approach to calculate k, in which k values are not attributed to the waste fractions relating to the decay rates that they represent. The IPCC good practice guidance recommends that, if no data on types of waste are available, a k value of 0.05 should be used as a default value, while the weighted average used by France is 0.142. In response to a request from the ERT during the review, the Party provided a calibration graph to justify the selection of the k value; however, the ERT considers that the graph does not justify the selection of values presented in the NIR, and the Party neither explained what data were used to derive this graph, nor proved that the measurements are representative for all landfills including overseas territories. The ERT recommends that France either provide sufficient evidence for the selection of country-specific values or choose the appropriate IPCC default parameters. The decay rates do not impact the total emissions, but the years in which the emissions occur. Given the fact that the French amounts of waste landfilled are relatively constant since the 1980s, the ERT assumed that the choice of k values in France does not lead to an underestimation of emissions in the first commitment period of the Kyoto Protocol. If France decides to keep a bulk approach for k, the ERT recommends that the Party present the method as a bulk approach in the NIR, with one average k value, instead of a separation of three different values that are not linked to waste composition.

116. France determines the DOC values for three categories of waste degradability (rapidly, moderately and slowly) based on data from the Agency for the Environment and Energy Management and the French non-governmental agency SOLAGRO for domestic waste, sludge, and green waste which originate from experiments on four landfill sites. Despite a request from the ERT during the review, no detailed results of these experiments were provided. Therefore, it remained unclear whether the underlying experiments are valid for the determination of the DOC values for all waste fractions, including industrial waste or waste landfilled in overseas territories and whether the DOC values developed in the late 1990s or early 2000s are still valid. The ERT notes that the IPCC good practice guidance encourages Parties to use country-specific DOC values and specifies that these values can be derived from sampling of solid waste disposal sites within a country. However, if this is the case, the IPCC good practice guidance requires that survey data and sampling results be reported, which has not been done by France. As data on waste composition are available

[20] FCCC/ARR/2013/FRA, paragraph 105.

for mixed household waste for at least 1993 and 2007 in France, and considering that a detailed breakdown of landfilled waste categories was provided upon the request of the ERT, the ERT calculated the average DOC value based on the IPCC default DOC values and the French waste composition, on the basis of equation 5.4 of the IPCC good practice guidance. The results of this estimation indicate that the country-specific DOC values, even if not properly justified and documented, do not lead to an underestimation of CH_4 emissions for 2012. However, the ERT recommends that France improve the documentation of its country-specific DOC values by providing evidence that the country-specific default values for the rapid and moderate degradability waste fractions are applicable for the waste categories and for all types of landfills on all territories where they are used and over the entire time series. If this is not possible, the ERT recommends that France use the IPCC default DOC values based on the waste composition data available from the detailed ITOM (Installations de Traitement des Ordures Ménagères) biennial surveys combined with waste composition data from MODECOM surveys.

117. In the NIR (figure 58), France reports an aggregate quantity of waste landfilled without any further breakdown of this quantity related to different waste fractions (e.g. sludge, industrial waste, MSW, waste from other types of treatments). The explanations provided in the NIR are not sufficiently clear for the ERT to determine whether all quantities landfilled are included in the estimation or whether certain waste fractions are excluded. In response to a question raised by the ERT during the review, the Party clarified that it includes almost all waste categories disposed in its calculations, including inert fractions, and that consequently it is correct that a DOC of 0 is attributed to the inert fraction. The ERT notes that the NIR is not transparent regarding the allocation of waste categories included in the ITOM database to the degradation categories rapidly degradable, moderately degradable and slowly degradable, as used for the inventory calculations. The ERT recommends that France add a table to the NIR that explains how the ITOM categories are matched to the degradation categories used for the estimation and provide another table that shows the share of these degradation categories in relation to the total waste landfilled for all years of the time series.

118. The allocation of ITOM categories to the categories used for the DOC calculation shows that, for 2012, there are two categories from the complete ITOM list of waste amounts landfilled that were not included in the French calculation, namely "03 - Résidus d'opérations chimiques et physiques-refus pulpeur" and a category of "NP - Non précisé" ("non-specified waste"), which could potentially both have fractions that include degradable carbon. The ERT identified a difference of 47.5 kt waste between the waste amounts included in the reported calculations and the total amounts landfilled in 2012 as provided by the ITOM data (0.02 per cent of the total amount). This small difference is unlikely to result in a difference in the total emissions for 2012. The ERT recommends that France improve its QA/QC checks to ensure that the amount of waste landfilled included in the calculation is complete.

119. The moderately degradable waste category, to which France attributes a rather low DOC value, includes a fraction of waste rejected from composting plants (282 kt in 2012). The ERT considers that if this material were originally categorized as waste for composting plants, it is likely that this fraction should be grouped to the easily degradable waste category with a higher DOC value. The ERT recommends that France allocate this fraction to the easily degradable waste category or justify, by providing additional data, that this waste category is correctly allocated to the moderately degradable category, with a DOC value of 7.5 per cent.

120. The ITOM data show that about 9 per cent of the waste in 2012 was bulky waste ("encombrants ménagers divers"). In response to a question raised by the ERT during the review, France explained that this category includes unwanted furniture and mattresses and

that there is no information on the composition of this fraction and, therefore, it was allocated to the moderately degradable category. The ERT notes that, in other countries this category of bulky waste includes up to 50 per cent wood and 5 per cent textiles, as well as other organic fractions; thus, the DOC content may be underestimated. The ERT could not conclude whether there was a potential problem during the review week The ERT strongly recommends that France gather additional data on the composition of this fraction of waste and replace its current assumptions with actual data. If this is not possible for the subsequent submission, the category should be allocated to the rapidly degradable fraction, as the low DOC assumption has not been justified.

121. In response to a question raised by the ERT during the review regarding the use of the 0.14 value for fraction of degradable organic carbon (DOCf), France explained that there is a mistake in the NIR and in the CRF table: the DOCf value should be 0.5 (as given in the IPCC good practice guidance) instead of the value resulting from the expression "0.014 x T +0.28". With the corrected value for DOCf (i.e. 0.5) the resulting DOC would be approximately 214 kg/Mg for the rapidly degradable category. This mistake in DOC does not impact the emission calculation as these values are presented in the NIR and the CRF tables but are not used in the emission calculation. During the review, in response to a question raised by the ERT, France stated that it intends to correct this value in the next annual submission. The ERT recommends that France clarify in the NIR which parameters are actually used in the estimation and which are calculated parameters for presentation purposes only and therefore do not impact the calculations.

Wastewater handling – N_2O

122. France applied the default method and EFs from the Revised 1996 IPCC Guidelines and FAOSTAT data on protein consumption to estimate N_2O emissions from human sewage. The previous review report encouraged France to investigate the possibility of using the national statistical data on protein consumption instead of FAOSTAT data. In response to a question raised by the ERT during the review, the Party explained that in France two surveys (called INCA1 and INCA2) have been performed by the French Agency for Food, Environmental and Occupational Health and Safety (ANSES) and a third survey is currently being conducted. However, at the time of inventory compilation the publicly available results were not usable, because no national mean result is provided in the public report. The ERT assessed the information provided by ANSES, which includes protein consumption for the total population as well as for the female and male populations for 2007. Therefore, the ERT reiterates its encouragement that the Party use country-specific data on protein consumption. In addition, the ERT noted that FAOSTAT has updated the protein consumption data for France since the submission deadline for the 2014 inventory and the ERT recommends that France use the updated FAOSTAT data in the next submission if France continues to use FAOSTAT data.

123. The Party reported a higher population figure for the geographical coverage under the Convention, but reported the same emissions as in the geographical coverage under the Kyoto Protocol, which refers to a smaller population. In response to a question raised by the ERT during the review, France explained that N_2O emissions from human sewage were not calculated for the population in overseas territories covered under the Convention. The ERT notes that this is a lack of completeness of the Convention inventory. The ERT recommends that France calculate these emissions in the subsequent inventory submission for the whole geographical coverage under the Convention.

Waste incineration – CO_2

124. France reports CO_2 emissions from the incineration of waste without energy recovery under the waste sector. Although the NIR provides the fraction of fossil carbon assumed in the estimation, France does not provide data on the carbon content of this waste

and the oxidation factor used. In response to a question raised by the ERT during the review, this information was provided. The ERT recommends that France add this information to the NIR.

125. The same value for the IEF (810.14 kg/t waste for 2012) is reported in the CRF tables and in the NIR for CO_2 emissions from the incineration of waste without energy recovery; however, in the CRF tables 6.AC the unit is indicated as "kg CO_2/t waste" and in the NIR as "kg CO_2/t organic matter". The ERT recommends that France report consistent units in the CRF tables and the NIR.

126. France recalculated the emissions from the incineration of municipal solid waste without energy recovery based on recommendations made in the previous review report. The recalculation performed is consistent in the energy and in the waste sectors. The ERT commends the Party for this improvement. Further, the ERT commends France for the addition of emissions from car fires to its most recent annual submission, which increases the completeness of the emission estimation.

G. Supplementary information required under Article 7, paragraph 1, of the Kyoto Protocol

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

Overview

127. Table 6 provides an overview of the information reported and parameters selected by France under Article 3, paragraphs 3 and 4, of the Kyoto Protocol.

Table 6
Supplementary information reported under Article 3, paragraphs 3 and 4, of the Kyoto Protocol

Issue	*Expert review team assessment, if applicable*	*Findings and recommendations*
Assessment of France's reporting in accordance with the requirements in paragraphs 5–9 of the annex to decision 15/CMP.1	Sufficient	
Activities elected under Article 3, paragraph 4, of the Kyoto Protocol	Activities elected: forest management Years reported: 2008, 2009, 2010, 2011, 2012	
Period of accounting		Annual accounting
France's ability to identify areas of land and areas of land-use change in accordance with paragraph 20 of the annex to decision 16/CMP.1	Sufficient	

128. Chapter G.I includes the ERT's assessment of the 2014 annual submission against the Article 8 review guidelines and decisions 15/CMP.1 and 16/CMP.1. In accordance with decision 6/CMP.9, Parties will begin reporting of KP-LULUCF activities in the submissions due by 15 April 2015 using revised CRF tables, as contained in the annex to decision 6/CMP.9. Owing to this change in the CRF tables for KP-LULUCF activities, and

the change from the first commitment period to the second commitment period, paragraphs 129–142 below contain the ERT's assessment of the Party's adherence to the current reporting guidelines and do not provide specific recommendations for reporting of these activities in the 2015 annual submission.

129. The ERT notes that France reported in the NIR information as requested by decision 15/CMP.1, noting in particular the information that was not provided by France in the NIR of its 2013 annual submission.[21] The 2014 NIR includes: information on the onset of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol if these activities started after 2008 (provided in table 83 in section 11.3.1.7 of the NIR, page 269); demonstration that activities under Article 3, paragraph 4, of the Kyoto Protocol are taking place since 1 January 1990 and that they are human-induced (provided in section 11.5.1 of the NIR, page 271); and the uncertainty value associated with emissions and removals (provided in section 11.3.1.5 of the NIR, page 269). The ERT also notes the improvements to the transparency of the reporting. The ERT agrees that sufficient information has been provided by France, as indicated in table 6 above, following the recommendations made in the previous review report, and commends the Party for these improvements.

130. The ERT noted that France has provided information related to the uncertainty of the estimates as mentioned in paragraph 89 above, which is the same as the overall uncertainty calculated for the LULUCF sector under the Convention and presented in annex 7 to the NIR. Hence, France has not been able to implement the recommendation made in the previous review report that the Party present an uncertainty analysis in the 2012 inventory, but has indicated in the 2014 NIR and in response to a question raised by the ERT during the review the ongoing efforts to improve the uncertainty assessment in future inventory reporting.

Activities under Article 3, paragraph 3, of the Kyoto Protocol

131. Under the general information reported for activities under Article 3, paragraph 3, of the Kyoto Protocol, France did not include the geographical location of the boundaries of the units of land subject to activities under Article 3, paragraph 3, which would otherwise be included in land subject to elected activities under Article 3, paragraph 4, of the Kyoto Protocol, as required by paragraph 6(a)(ii) of decision 15/CMP.1 (or paragraph 2(b) of annex II to decision 2/CMP.8). In accordance with the IPCC good practice guidance for LULUCF (section 4.1.2, page 4.16), these units of land must be reported separately as lands that are subject to activities under both Article 3, paragraphs 3 and 4. In response to a question raised by the ERT during the review, France explained that the boundaries of units of land subject to activities under Article 3, paragraph 3, and forest management under Article 3, paragraph 4, correspond to the French administrative "region" units for which a map with boundaries is provided in the NIR. Since France only elected forest management under Article 3, paragraph 4, of the Kyoto Protocol, the ERT agrees that there are no units of land that would be reported under Article 3, paragraph 3, that would otherwise be reported under Article 3, paragraph 4.

132. France has introduced a new methodology to estimate the timber volume harvested between inventories using data from the NFI, as mentioned in paragraph 92 above. Although the NIR provides sufficient information about the methods (previous and actual), it does not elaborate sufficiently on how France dealt with the years for which NFI data are not available, particularly the base year. However, since the accounting method for the activities directly affected by the change in methodology is not impacted by the base-year estimation, the ERT agrees that this issue is not relevant for the purposes of reporting and accounting under the Kyoto Protocol.

[21] FCCC/ARR/2013/FRA, paragraphs 112–115.

133. France has demonstrated in the NIR the use of different sources of data for the inventory of different parts of its geographical coverage, particularly those overseas territories included in the EU (Martinique, Guadeloupe, Réunion and French Guiana). The ERT recognized the efforts by France to provide estimates for all territories and ensure the completeness of its reporting, and confirmed from other sources[22] the non-significant conversion of forest to other land uses (deforestation). For the period 1990–2008, deforestation in Réunion, Guadeloupe, Martinique and French Guiana was below 1 per cent in all cases. The ERT recommends that France ensure that the coverage of all territories is as comprehensive as possible to further increase the completeness of the reporting.

134. In response to a question raised by the ERT during the review, France identified a mistake in the allocation of some small areas which were not reported correctly under Article 3, paragraphs 3 and 4, of the Kyoto Protocol in the original submission. France provided the revised figures in the submission of 26 September 2014. A total of 84.89 kha of land was reallocated from forest management to afforestation and reforestation, resulting in an increase in net removals of 0.9 per cent for afforestation and reforestation (from –9,775.15 CO_2 eq to –9,860.04 CO_2 eq) and a decrease in net removals of 0.1 per cent for forest management (from –59,394.02 CO_2 eq to –59,309.13 CO_2 eq). The ERT agrees with the explanation provided by France on the land reallocation.

Afforestation and reforestation – CO_2

135. As part of the reporting for afforestation and reforestation, France includes net removals from natural regeneration on abandoned agricultural land, to the extent that these become managed forests. In response to a request from the ERT during the review to provide relevant documentation demonstrating that a decision has been taken aimed at replanting or promoting or allowing forest regeneration, France made reference to the relevant legislation, including: the National Forest Fund (formerly Articles R531-1 and R532-4 of the Rural Code); the Common Agricultural Policy of the EU transposed in 1992 (2080/92); and compensatory measures (such as Circular No. 96-19, dated 12 December 1995). France has not included under afforestation and reforestation forests on former wetlands and other land that may not qualify as directly human-induced. The ERT agrees that the Party has provided adequate information to justify that the lands reported as afforestation and reforestation meet the definition provided in decision 16/CMP.1 (directly human-induced) and agrees with the approach to not include natural regeneration occurring on previous wetlands and other lands.

136. In KP-LULUCF CRF table 5(KP-I)A.1.1 France reports gains of carbon in above- and below-ground biomass. However, the Party only reports losses in the above-ground biomass and reports "NO" for the below-ground pool. In response to a question raised by the ERT during the review, France explained that the correct notation key should be "IE" (included elsewhere) and not "NO", as the losses from mortality are reported together with the losses from above-ground biomass. France noted that improvements will be implemented to allow the estimation of losses from above- and below-ground biomass separately. The ERT agrees with the explanation provided by France and welcomes the Party's efforts to increase the transparency and comparability of the reporting by providing separate estimates for mortality and above-ground biomass.

137. In KP-LULUCF CRF table 5(KP-II)5 France reports the CO_2 and non-CO_2 emissions from wildfires that, for deforestation and forest management, are provided by region, including those in the overseas territories, as recommended by the previous review report. However, for afforestation and reforestation, the emissions are aggregated and

[22] See *Changements d'Occupation et d'Utilisation des Terres dans les Départements d'Outre-Mer*, available at <http://inventaire-forestier.ign.fr/spip/IMG/pdf/IF23_DOM_web-2.pdf>.

reported for all regions, thus reducing the transparency of the reporting. The NIR does not provide information on the specific values adopted for the parameters (e.g. combustion efficiency, mass of available fuel, EFs) (see para. 107 above). France provided these values in response to a question raised by the ERT during the review and explained that CO_2 and non-CO_2 emissions from wildfires are estimated for the temperate and Mediterranean forests separately and that the CO_2 and CH_4 EFs are derived from a publication titled *Inventorying Emissions from Nature in Europe*[23] and the N_2O EFs are derived from the *European Monitoring and Evaluation Programme*. The ERT noted that the publication is from 1999 and that an internal consultation was carried out by France regarding the appropriateness of the use of the EFs as reported in the 2012 NIR. The ERT recommends that France provide the reference for each of the EFs used and the underlying assumptions, if applicable, in the next inventory report. The ERT also encourages France to search for more up-to-date information regarding the EFs.

Deforestation – CO_2

138. Information on deforestation in the French mainland is provided by the annual TERUTI survey. For the overseas territories under the Kyoto Protocol, the assessment is made using satellite imagery for which data are available for the years 1990, 2006 and 2008. France explains in the NIR that all forests that have lost their tree cover are classified as deforested, because it is difficult to classify whether the change is temporary (temporarily unstocked), given the poor data available. The ERT agrees that this approach is conservative and avoids the underestimation of emissions from deforestation, but notes that it does not follow the definition for accuracy of not underestimating or overestimating emissions as far as can be judged.

139. France reports the changes in carbon stock from deforestation for all carbon pools. Although France has reported the changes in carbon stock from conversion of wetlands to forest land, cropland or grassland in CRF tables 5.A, 5.B and 5.C, these changes have been reported only for 1990 and have not changed for any year during the entire time series, justifying the use of the notation key "NO".

Activities under Article 3, paragraph 4, of the Kyoto Protocol

Forest management – CO_2

140. France reports net emissions from forest management for the 22 metropolitan regions that constitute the boundaries where forest management activities occur. Information is also provided for the overseas territories. For Guadeloupe, Martinique and Réunion, France indicates in the OMINEA report (page "OMINEA 5 lulucf overview COM/28") that carbon fluxes associated with forest management are negligible, according to experts from the National Forestry Office and the NFI. The ERT also consulted other sources of data (e.g. FAOSTAT) that indicate non-significant changes in carbon stocks in these islands. France indicates that for French Guiana, which accounts for approximately 35 per cent of forests in France, clearing is more relevant than for the other overseas territories owing to slash-and-burn practices and gold panning. However, harvesting activities are still very low, essentially due to the low population density, the non-competitive price of the wood compared with wood from Asia and Africa, and the difficulty of transporting the wood out of the forest. The ERT notes that France should have included in the documentation box of the CRF tables an explanation regarding the approach adopted by France in the absence of an NFI or territory-specific data. The ERT also notes that the use

[23] Simpson D, Winiwarter W, Börjesson G, Cinderby S, Ferreiro A, Guenther A, Hewitt N, Janson R, Khalil MAK, Owen S, Pierce TE, Puxbaum H, Shearer M, Skiba U, Steinbrecher R, Tarrasón L and Öquist MG. 1999. Inventorying emissions from nature in Europe. *Journal of Geophysical Research*. 104(D7): pp.8113–8152.

of the IPCC default value for the annual biomass increment in the forests indicates that biomass growth in all overseas territories considered under the Kyoto Protocol is larger than the biomass loss. France adopted a conservative approach where it is assumed that the carbon gains due to annual biomass growth offset the carbon losses from harvesting. The previous ERT had also indicated that unofficial estimates for the carbon stock changes in forests under forest management in the Party's overseas territories demonstrated that these forests under management are a net sink of CO_2.

141. The ERT noted that France reports the changes in carbon stock in the dead organic pool and soils (mineral and organic) pool for the overseas territories considered under the Kyoto Protocol as "NO". The ERT notes that the assumption of no carbon change (or insignificant change) in these pools is justifiable on the basis of the low changes in forest cover, as reported by France in the NIR and upon consultation with other sources consulted by the ERT (e.g. FAOSTAT). Considering the insignificant changes in the annual area under forest management in French Guiana in the period from 2008 to 2012 (an average area decrease of 0.05 per cent), the ERT considers that these changes in fact do not occur.

142. France has shown that the litter and the soil organic carbon pools are not sources for those forest lands without changes, based on the results of a study based on measurements taken in the forest.[24] The results show that, on average, the plots of land in the RENECOFOR network act as carbon sinks and confirm the estimates produced previously in other studies based on modelling, which show that the forest soils in France are generally a carbon sink. In response to a question raised by the ERT during the review, France made the study available to the ERT. The ERT agrees with the justification provided by France, and with the conservative approach to report no changes in carbon stock for these pools.

2. Information on Kyoto Protocol units

Standard electronic format and reports from the national registry

143. France has reported information on its accounting of Kyoto Protocol units in the required SEF tables, as required by decisions 15/CMP.1 and 14/CMP.1. The ERT took note of the findings included in the standard independent assessment report (SIAR) on the SEF tables and the SEF comparison report.[25] The SIAR was forwarded to the ERT prior to the review, pursuant to decision 16/CP.10. The ERT reiterated the main findings contained in the SIAR.

144. Information on the accounting of Kyoto Protocol units has been prepared and reported in accordance with decision 15/CMP.1, annex, chapter I.E, and reported in accordance with decision 14/CMP.1 using the SEF tables. This information is consistent with that contained in the national registry and with the records of the international transaction log (ITL) and the clean development mechanism registry and meets the requirements referred to in decision 22/CMP.1, annex, paragraph 88(a–j). The transactions of Kyoto Protocol units initiated by the national registry are in accordance with the requirements of the annex to decision 5/CMP.1 and the annex to decision 13/CMP.1. No discrepancy has been identified by the ITL and no non-replacement has occurred. The national registry has adequate procedures in place to minimize discrepancies.

[24] RENECOFOR. 2013. *Evolution of Carbon in Forest Soils in Metropolitan France – Detection and Quantification from Data Measured by the Network RENECOFOR* (*Évolution du Carbone des Sols Forestiers de France Métropolitaine – Détection et Quantification à Partir des Données Mesurées sur le Réseau RENECOFOR*).

[25] The SEF comparison report is prepared by the international transaction log (ITL) administrator and provides information on the outcome of the comparison of data contained in the Party's SEF tables with corresponding records contained in the ITL.

Accounting of activities under Article 3, paragraph 3, of the Kyoto Protocol and any elected activities under Article 3, paragraph 4, of the Kyoto Protocol

145. France has reported information on its accounting of KP-LULUCF in the accounting table, as included in the annex to decision 6/CMP.3. Information on the accounting of KP-LULUCF has been prepared and reported in accordance with decisions 16/CMP.1 and 6/CMP.3.

146. Table 7 shows the accounting quantities for KP-LULUCF as reported by the Party and the final values after the review.

Table 7
Accounting quantities for activities under Article 3, paragraph 3, and, if any, activities under Article 3, paragraph 4, of the Kyoto Protocol, in t CO_2 eq

	2014 annual submission[a]			*2010, 2011, 2012 and 2013 annual submissions*[b]	*Net accounting quantity*[c]
	As reported	*Revised estimates*	*Final*	*Final*	
Afforestation and reforestation					
Non-harvested land	–44 669 097	–44 506 738	–44 506 738	–31 251 102	–13 255 636
Harvested land	NA, NO		NA, NO	NA, NO	NA, NO
Deforestation	73 122 094		73 122 094	51 113 195	22 008 899
Forest management	–44 586 330	–44 748 690	–44 748 690	–35 995 426	–8 753 264
Article 3.3 offset[d]	–28 453 997	–28 615 356	–28 615 356	–19 862 093	–8 753 264
Forest management cap[e]	–16 133 333		–16 133 333	–16 133 333	0
Cropland management	NA	NA	NA	NA	NA
Grazing land management	NA	NA	NA	NA	NA
Revegetation	NA	NA	NA	NA	NA

Abbreviations: CRF = common reporting format, KP-LULUCF = land use, land-use change and forestry emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, NA = not applicable, NO = not occurring.

[a] The values included under the 2014 annual submission are the cumulative accounting values for 2008, 2009, 2010, 2011 and 2012, as reported in the accounting table of the KP-LULUCF CRF tables for the inventory year 2012.

[b] The values included under the 2010, 2011, 2012 and 2013 annual submissions are the final accounting values as a result of the 2013 review and are included in table 7 of the 2013 annual review report (FCCC/ARR/2013/FRA, page 39) in the column "2013 annual submission", "Final". This column is applicable only for Parties that elected annual accounting.

[c] The "net accounting quantity" is the quantity of Kyoto Protocol units that the Party shall issue or cancel under each activity under Article 3, paragraph 3, and paragraph 4, if relevant, based on the final accounting quantity in the 2014 annual submission and where the quantities issued or cancelled based on the 2013 annual review report have been subtracted ("net accounting quantity" = final 2014 – final 2013 annual review report).

[d] "Article 3.3 offset": for the first commitment period, a Party included in Annex I to the Convention that incurs a net source of emissions under the provisions of Article 3, paragraph 3, of the Kyoto Protocol may account for anthropogenic greenhouse gas emissions by sources and removals by sinks in areas under forest management under Article 3, paragraph 4, up to a level that is equal to the net source of emissions under the provisions of Article 3, paragraph 3, but not greater than 9.0 megatonnes of carbon times five, if the total anthropogenic greenhouse gas emissions by sources and removals by sinks in the managed forest since 1990 is equal to, or larger than, the net source of emissions incurred under Article 3, paragraph 3.

[e] In accordance with decision 16/CMP.1, annex, paragraph 11, for the first commitment period only, additions to and subtractions from the assigned amount of a Party resulting from forest management under Article 3, paragraph 4, of the Kyoto Protocol after the application of decision 16/CMP.1, annex, paragraph 10, and resulting from forest management project activities undertaken under Article 6, shall not exceed the value inscribed in the appendix of the annex to decision 16/CMP.1, times five.

147. Based on the information provided in table 7 for the activity afforestation and reforestation, France shall: for non-harvested land, issue 13,255,636 removal units (RMUs) in its national registry; for harvested land, not issue or cancel any units.

148. Based on the information provided in table 7 for the activity deforestation, France shall cancel 22,008,899 assigned amount units, emission reduction units, certified emission reduction units and/or RMUs in its national registry.

149. Based on the information provided in table 7 for the activity forest management, France shall issue 8,753,264 RMUs in its national registry.

Calculation of the commitment period reserve

150. France has reported its commitment period reserve in its 2014 annual submission. The Party reported its commitment period reserve to be 2,450,623,053 t CO_2 eq based on the national emissions in its most recently reviewed inventory (490,124.61 Gg CO_2 eq). The ERT notes that based on the submission of revised emission estimates by France during the review of the 2014 annual submission, the commitment period reserve changed, and the new commitment period reserve is 2,451,496,921 t CO_2 eq based on the most recently reviewed inventory (490,299.38 Gg CO_2 eq.). The ERT agrees with this figure.

3. Changes to the national system

151. France reported that there are no changes in its national system since the previous annual submission. The ERT concluded that the Party's national system continues to be in accordance with the requirements of national systems outlined in decision 19/CMP.1.

4. Changes to the national registry

152. France reported that a change has been made to its national registry since the previous annual submission. The Party described the change, which is a result of the decision of EU member States that are also Parties to the Kyoto Protocol and of Iceland, Liechtenstein and Norway to operate their registries in a consolidated manner. However, the same information was provided by France in the previous inventory submission, since the process concluded in June 2012. The ERT noted that France has addressed in the NIR the recommendations identified in the previous SIAR. The ERT concluded that, on the basis of the information provided, France's national registry continues to perform the functions set out in the annex to decision 13/CMP.1 and the annex to decision 5/CMP.1. The ERT recommends that the Party report in its annual submission any change in its national registry in accordance with decision 15/CMP.1, annex, chapter I.G, and/or further relevant decisions of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP).

5. Minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol

153. Consistent with paragraph 23 of the annex to decision 15/CMP.1, France provided information relating to how it is striving, under Article 3, paragraph 14, of the Kyoto Protocol, to implement its commitments in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties, particularly those identified in Article 4, paragraphs 8 and 9, of the Convention.

154. The submission by France includes:

(a) A description of the potential impacts of French policies and measures, referring in particular to the criteria used for selecting biofuel sources and clean development mechanism (CDM) project activities;

(b) A description of the financial support in the area of climate change as part of public aid (bilateral and multilateral) and outside of public aid.

155. France did not provide information on changes in its reporting of the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol in its annual submission. However, through the information provided by France in response to questions raised by the ERT during the review, the ERT identified that France has updated its reported information, particularly by adding a reference to a new impact study carried out by the European Commission, describing international activities on environmental labelling and updating the information on CDM projects.

156. The ERT concluded that, taking into account the confirmed changes in the reporting, the information provided is complete and transparent. The ERT recommends that the Party, in its annual submission, report any changes in its information provided under Article 3, paragraph 14, in accordance with decision 15/CMP.1, annex, chapter I.H, and/or further relevant decisions of the CMP.

III. Conclusions and recommendations

A. Conclusions

157. Table 8 summarizes the ERT's conclusions on the 2014 annual submission of France, in accordance with the Article 8 review guidelines.

Table 8
Expert review team's conclusions on the 2014 annual submission of France

Issue	*Expert review team assessment*	*Paragraph cross references for identified problems*
The ERT concludes that the inventory submission of France is complete with regard to categories, gases, years and geographical boundaries and contains both an NIR and CRF tables for 1990–2012		
Annex A sources[a]	Complete	
LULUCF[a]	Not complete	table 3, 88, 99 and 107
KP-LULUCF	Complete	
The ERT concludes that the inventory submission of France has been prepared and reported in accordance with the UNFCCC reporting guidelines	Generally	14, 16, table 3 (transparency)
France's inventory is in accordance with the Revised 1996 IPCC Guidelines, the IPCC good practice guidance and the IPCC good practice guidance for LULUCF	Generally	24, 78, 88, 102, 105, 112, 114
The submission of information required under Article 7, paragraph 1, of the Kyoto Protocol has been prepared and reported in accordance with decision 15/CMP.1	Yes	
France has reported information on its accounting of Kyoto Protocol units in accordance with decision 15/CMP.1, annex, chapter I.E, and used the required reporting format tables as specified by decision 14/CMP.1	Yes	

Issue	*Expert review team assessment*	*Paragraph cross references for identified problems*
The national system continues to perform its required functions as set out in the annex to decision 19/CMP.1	Yes	
The national registry continues to perform the functions set out in the annex to decision 13/CMP.1 and the annex to decision 5/CMP.1 and continues to adhere to the technical standards for data exchange between registry systems in accordance with relevant CMP decisions	Yes	
Did France provide information in the NIR on changes in its reporting of the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol?	No	156

Abbreviations: Annex A sources = source categories included in Annex A to the Kyoto Protocol, CMP = Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol, CRF = common reporting format, ERT = expert review team, IPCC = Intergovernmental Panel on Climate Change, IPCC good practice guidance = IPCC *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*, IPCC good practice guidance for LULUCF = IPCC *Good Practice Guidance for Land Use, Land-Use Change and Forestry*, KP-LULUCF = LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, LULUCF = land use, land-use change and forestry, NIR = national inventory report, Revised 1996 IPCC Guidelines = *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, UNFCCC reporting guidelines = "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories".

[a] The assessment of completeness by the ERT considers only the completeness of reporting of mandatory categories (i.e. categories for which methods and default emission factors are provided in the Revised 1996 IPCC Guidelines, the IPCC good practice guidance or the IPCC good practice guidance for LULUCF).

B. Recommendations

158. The ERT identified the issues for improvement listed in table 9. All recommendations are for the next annual submission, unless otherwise specified.

Table 9
Recommendations identified by the expert review team

Sector	*Category/cross-cutting issue*	*Recommendation*	*Reiteration of previous recommendation?*	*Paragraph cross references*
Cross-cutting	Recalculations	Strengthen the QA/QC procedures of the inventory submission, in order to avoid inconsistencies when reporting recalculations	Yes	13
		Provide CRF table 8(b) with relevant information included for each recalculation	Yes	14
	Consistency	Report all the information in the NIR with respect to the geographical coverage under the Kyoto Protocol, and when this is not the case clearly indicate this	Yes	15
	Transparency	Increase the transparency of the submission by fully revising the NIR, by providing in its main body better descriptions of the methods, sources of data, EFs and parameters used, as required by the method or approach selected, for each part of the French	Yes	16, 17, 18

Sector	*Category/cross-cutting issue*	*Recommendation*	*Reiteration of previous recommendation?*	*Paragraph cross references*
		metropolitan and overseas territories; remove any misleading parameters and equations from the NIR; and include more accurate explanations of the country-specific methods		
		Include in the NIR information on implemented previous recommendations and those that are being or will be implemented with a clear timetable for their implementation	No	27
	Key category analysis	Improve the transparency and consistency of the reported key category analysis	No	22
		Correct the information in CRF table NIR-3 and improve the description and provide the relevant information	Yes	23
	Uncertainty analysis	Use a higher level of disaggregation of categories for the uncertainty analysis	Yes	24
		Elaborate the uncertainty analysis for the LULUCF sector and KP-LULUCF activities	Yes	24
Energy	Recalculations	Provide in the NIR the data on recalculations between the latest official previous annual submission and the most recent submission (clearly indicating the dates of submission), so that there is as much consistency as possible between the CRF tables and the NIR; and report on recalculations in a consistent manner throughout the NIR	No	30, 38
	QA/QC	Further implement QC activities and ensure consistency between the NIR, the OMINEA report and the CRF tables		31, 44
	Transparency	Improve transparency by using the same AD and units of EFs in all reports and CRF tables, and by adding more information on the data (AD and EFs) used		31, 44, 46, 47, 48, 49
	International statistics	Further improve the description of the differences between the international data and the data used in the inventory	Yes	33
	Feedstocks and non-energy use of fuels	Improve the explanation of the split on the use of natural gas for energy and non-energy purposes		35
		Include in CRF table 1.A(d) information on where the associated emissions are reported	Yes	36
	Civil aviation: liquid fuels – CO_2, CH_4 and N_2O	Ensure the consistency of the time series when using the data from the EU ETS for civil aviation	Yes	40
	Road	Obtain country-specific EFs for gasoline and diesel oil	Yes	41

Sector	*Category/cross-cutting issue*	*Recommendation*	*Reiteration of previous recommendation?*	*Paragraph cross references*
	transportation: liquid fuels – CO_2	sold in France for the estimation of the CO_2 emissions		
		Improve the reporting of biofuels by including in the NIR information on the differences between the French customs data and the data used in the GHG inventory and on the allocation of biofuels between categories	No	42
	Oil and natural gas – CO_2	Clearly specify the allocation of coke-related emissions in the inventory	No	45
Industrial processes and solvent and other product use	Transparency	Include all relevant information on methodologies, EFs and sources of AD in the NIR	Yes	52
		Re-examine all previous recommendations and prioritize and include them as part of the improvement plan for the national inventory	No	53
		Provide detailed information on time-series consistency when different methods are applied across the time series or when updating data or adding new subcategories	Yes	54
	Cement production – CO_2	Clearly describe the QA/QC procedures applied to the category and ensure the follow-up and implementation of previous recommendations, particularly with regard to the reporting of the methodologies and data used over the time series	No	55
	Aluminium production – PFCs	Improve the methodological and trend information for the PFC emission estimates	Yes	56–57
	Ammonia production – CO_2	Report detailed information on the time-series consistency	No	58
	Consumption of halocarbons and SF_6 – HFCs and SF_6	Include all the information on the technology used in the system for recycling SF_6 from enrichment of uranium used for nuclear power, its efficiency rate and how France is assessing the control of SF_6 emissions	No	60
		Provide detailed information on any implemented recalculations	No	61
		Correct the disposal factor for HFC-32 for mobile air-conditioning equipment	No	62
		Reconsider the trams in the model for mobile air conditioning and estimate emissions of F-gases from	No	63

Sector	*Category/cross-cutting issue*	*Recommendation*	*Reiteration of previous recommendation?*	*Paragraph cross references*
		this subcategory		
	Adipic acid production – N_2O	Correct the information reported in the NIR on the methodological tier used	No	65
		Include trend information as provided to the ERT during the review	No	65
Agriculture	QA/QC	Improve the QA/QC activities by: reporting consistently the recalculations in the NIR and CRF table 8(a) on the basis of the geographical coverage under the Kyoto Protocol; correcting and including the missing information in the NIR; and improving the transparency and the consistency of the information reported, both within the NIR and between the NIR and the CRF tables	No	67, 68, 69, 77, 81
	Transparency	Improve the transparency of the reporting of AD and EF uncertainties for enteric fermentation and manure management	Yes	71
	Enteric fermentation – CH_4	Improve the transparency of the reporting of the country-specific methods used to estimate the EFs for cattle by including the information provided to the previous and current ERT, including the results from the comparison of the EFs derived using the country-specific methodology and the methodology from the IPCC good practice guidance in the NIR; and report on the progress of the submission of the article on the country-specific methodology to develop the CH_4 EF for enteric fermentation for cattle to a peer-reviewed journal	Yes	69, 72
		Include information on the typical animal mass (average) for dairy cattle in the NIR and in CRF table 4.A	No	75
		Report on milk production in the NIR using the appropriate unit	Yes	76
	Manure management – CH_4 and N_2O	Improve the transparency of the reporting on the methodology used to estimate N_2O emissions (e.g. by reporting accurately the IPCC equation used for the estimation of N_2O emissions and explaining any transformation made to it)	Yes	70
		Include sufficient information on the progress of the study MONDFERENT II, with emphasis on the country-specific values for VS for livestock other than cattle	No	78
		Report the MCFs for both cold and warm climate in the NIR with the relevant explanations	Yes	79

Sector	*Category/cross-cutting issue*	*Recommendation*	*Reiteration of previous recommendation?*	*Paragraph cross references*
	Agricultural soils – N_2O	Improve the transparency of the reporting of the fraction of livestock nitrogen excreted and deposited onto soils by grazing livestock by providing the reference and background information for this parameter	Yes	80
LULUCF	Recalculations	Include information in CRF table 8(b), and provide in the NIR, as far as possible, the effect of any changes introduced in the net removals; and provide the graphical information on the 2013 and 2014 changes for land converted to wetlands	No	84, 104
	Transparency	Provide a justification for the significant changes in the trend of areas and net emissions/removals	No	85
		Revise the structure of the NIR to avoid including unnecessary information while not providing the relevant information	No	86
	QA/QC	Strengthen the QA/QC procedures to ensure greater consistency in the reporting (e.g. correct mistaken references to the tier applied to estimate the changes in carbon stock in the dead organic matter pool in forest land remaining forest land)	No	87, 97
	Completeness	Increase the completeness of the reporting under the Convention by including all overseas territories and harmonize the different sources of data for different areas	Yes	88, 101, 107
	Uncertainty	Improve the transparency of the reported information on the uncertainty analysis and update the values once data and methodological improvements are implemented for the estimates	Yes	89
	Forest land – CO_2	Correct the use of notation keys for changes in carbon stocks on unmanaged land and include information that justifies the assignment of a portion of the territory as unmanaged, on the basis of the definition of managed land provided in the IPCC good practice guidance for LULUCF	No	90
		Provide more transparent information regarding the integration between TERUTI and the NFI data, and also explain the reasons for the changes in the nomenclature of TERUTI and the per cent coverage of the sampled data for TERUTI and NFI purposes	Yes	91
		Provide transparent information on how consistency is maintained in the timber volume harvested acquired from the “direct” and “model” methods for the years for which “direct” data are not available	No	92
	Forest land remaining	Assess and report on the potential impact of the NFI	Yes	95

Sector	*Category/cross-cutting issue*	*Recommendation*	*Reiteration of previous recommendation?*	*Paragraph cross references*
	forest land – CO_2	data applied in the TERUTI database		
		Present the correct equations (UTCF20, UTCF22, UTCF29, UTCF31) and the correct definitions in the NIR	No	96
		Correct the notation key used for emissions from mineral soils to "NE" and provide a relevant explanation	Yes	98
		Explain in the NIR the reasons for reporting exactly the same value for the carbon gains and losses in living biomass for tropical broadleaf forest and, in case the changes in carbon stock are reported using a tier 1 method, use the notation key "NE"	No	98
		Include in the NIR information on soil data collection for overseas territories	No	99
	Land converted to forest land – CO_2	Use the notation key "NA" instead of the value zero and justify the reported area of organic soils	No	100
	Land converted to cropland – CO_2	Apply at least a tier 1 method from the IPCC good practice guidance for LULUCF to estimate the net CO_2 emissions and removals	Yes	102
	Land converted to grassland – CO_2	Provide estimates of the gains in living biomass of perennial crops and include the corresponding losses from conversion of perennial crops to other land uses (including cropland converted to wetlands, settlements and other land)	No	103
	Cropland remaining cropland – CO_2	Provide estimates of the net emissions and removals for living biomass or perennial crops by applying at least a tier 1 method from the IPCC good practice guidance for LULUCF	Yes	105
	CO_2 emissions from agricultural lime application – CO_2	Report separately emissions from limestone, dolomite and other carbonated amendments, and use the CO_2 EF for dolomite from the stoichiometric reaction instead of the default value provided in the IPCC good practice guidance for LULUCF	Yes	106
	Biomass burning – CO_2, CH_4 and N_2O	Continue the efforts to improve the accuracy of the estimates for biomass burning	No	94
		Include transparent information on all the input data necessary to apply the IPCC methodology to estimate CO_2 and non-CO_2 emissions from biomass burning		
		Include transparent information on all the input data necessary to apply the IPCC methodology to estimate CO_2 and non-CO_2 emissions from biomass burning	No	107

Sector	*Category/cross-cutting issue*	*Recommendation*	*Reiteration of previous recommendation?*	*Paragraph cross references*
Waste	Confidentiality	Provide a clear legal basis justifying the treatment of waste amounts landfilled as confidential information	No	110
	Transparency	Clearly specify when data and figures refer to the geographical coverage under the Convention or under the Kyoto Protocol, and increase the transparency of the reporting of estimated activities for the overseas territories, including the parameters and methodologies used	Yes	111
	Solid waste disposal on land – CH_4	Improve the transparency of the information on country-specific method and measurements (type, years, frequency, sample size and aggregating the measurements into a national method)	No	112
		Justify the use of the country-specific methodology by more recent and well-documented measurements and also document such measurements or develop an alternative estimation method consistent with the appropriate IPCC equations and parameters	No	112
		Provide additional information on the comparability of the data on waste landfilled reported in the CRF tables with the data in the Eurostat waste database	No	113
		Apply consistent fractions for all parameters that depend on waste composition	No	114
		Justify the selection of country-specific values for the methane generation rate constant (k) or choose the appropriate IPCC default parameters	No	115
		Justify that country-specific DOC values for the rapid and moderate degradability waste fractions are applicable for the waste categories and for all types of landfills on all territories where they are used and over the entire time series or use the IPCC default DOC values based on the national waste composition data	No	116
		Provide more information on the waste composition allocation to the degradation categories used for the estimation for all years of the time series		117
		Improve the QA/QC checks to ensure that the amount of waste landfilled included in the calculation is complete	No	118
		Allocate the fraction of waste rejected from composting plants to the easily degradable waste category or justify that this waste category is correctly allocated to the moderately degradable category	No	119
		Gather additional data on the composition of the bulky waste fraction or allocate the category to the rapidly degradable fraction, if the low DOC assumption has	No	120

Sector	*Category/cross-cutting issue*	*Recommendation*	*Reiteration of previous recommendation?*	*Paragraph cross references*
		not been justified		
		Clarify in the NIR which parameters are actually used in the estimation and which are calculated for presentation purposes only	No	121
	Wastewater handling – N_2O	Use the updated FAOSTAT data in the next submission, if France continues to use FAOSTAT data	No	122
		Calculate the emissions for the whole geographical coverage under the Convention	No	123
	Waste incineration – CO_2	Provide data on the carbon content of the waste (without energy recovery) and the oxidation factor used	No	124
		Report consistent units for the CO_2 IEF in the CRF tables and the NIR	No	125
National system		Enhance the national system so that it is able to address the reiterated recommendations made in this and previous review reports	Yes	20
Article 3, paragraph 14, of the Kyoto Protocol		Report any changes in the information provided under Article 3, paragraph 14, in accordance with decision 15/CMP.1, annex, chapter I.H.	Yes	156

Abbreviations: AD = activity data, CRF = common reporting format, DOC = degradable organic carbon, EF = emission factor, ERT = expert review team, EU ETS = European Union Emissions Trading System, FAOSTAT = database of the Food and Agriculture Organization of the United Nations, F-gas = fluorinated gas, GHG = greenhouse gas, IEF = implied emission factor, IPCC = Intergovernmental Panel on Climate Change, IPCC good practice guidance = IPCC *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*, IPCC good practice guidance for LULUCF = IPCC *Good Practice Guidance for Land Use, Land-Use Change and Forestry*, KP-LULUCF = LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, LULUCF = land use, land-use change and forestry, MCF = methane conversion factor, NA = not applicable, NFI = national forest inventory, NE = not estimated, NIR = national inventory report, OMINEA = *Organization and Methodologies for the National Inventory of Atmospheric Emissions*, TERUTI = survey on land use carried out annually by the statistical branch of the Ministry of Agriculture, Agrifood, and Forestry, QA/QC = quality assurance/quality control, VS = volatile solids.

IV. Questions of implementation

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

Annex I

Information to be included in the compilation and accounting database

Table 10
Information to be included in the compilation and accounting database in t CO_2 eq for 2012, including the commitment period reserve

	As reported	*Revised estimates*	*Adjustment*[a]	*Final*[b]
Commitment period reserve	2 450 623 053	2 451 496 921		2 451 496 921
Annex A emissions for 2012				
CO_2	363 261 457	363 436 230		363 436 230
CH_4	51 371 758			51 371 758
N_2O	57 521 166			57 521 166
HFCs	16 899 619			16 899 619
PFCs	399 827			399 827
SF_6	670 784			670 784
Total Annex A sources[c]	**490 124 611**	**490 299 384**		**490 299 384**
Activities under Article 3, paragraph 3, for 2012				
3.3 Afforestation and reforestation on non-harvested land for 2012	–9 860 037	–9 775 150		–9 775 150
3.3 Afforestation and reforestation on harvested land for 2012	NA, NO			NA, NO
3.3 Deforestation for 2012	13 434 036			13 434 036
Activities under Article 3, paragraph 4, for 2012[d]				
3.4 Forest management for 2012	–59 309 126	–59 394 016		–59 394 016
3.4 Cropland management for 2012				
3.4 Cropland management for the base year				
3.4 Grazing land management for 2012				
3.4 Grazing land management for the base year				
3.4 Revegetation for 2012				
3.4 Revegetation for the base year				

Abbreviations: Annex A sources = source categories included in Annex A to the Kyoto Protocol, NA = not applicable, NO = not occurring.

[a] "Adjustment" is relevant only for Parties for which the expert review team has calculated one or more adjustment(s).

[b] "Final" includes revised estimates, if any, and/or adjustments, if any.

[c] The values for "Total Annex A sources" in the columns "As reported", "Revised estimates" and "Final" may not equal the sum of the values for the gases in those columns owing to rounding.

[d] Activities under Article 3, paragraph 4, are relevant only for Parties that elected one or more such activities.

Table 11
Information to be included in the compilation and accounting database in t CO_2 eq for 2011

	As reported	*Revised estimates*	*Adjustment*[a]	*Final*[b]
Annex A emissions for 2011				
CO_2	359 534 547			359 534 547
CH_4	51 771 358			51 771 358
N_2O	60 904 016			60 904 016
HFCs	16 704 280			16 704 280
PFCs	432 085			432 085
SF_6	663 319			663 319
Total Annex A sources[c]	**490 009 604**			**490 009 604**
Activities under Article 3, paragraph 3, for 2011				
3.3 Afforestation and reforestation on non-harvested land for 2011	–9 371 555	–9 318 673		–9 318 673
3.3 Afforestation and reforestation on harvested land for 2011	NA, NO			NA, NO
3.3 Deforestation for 2011	13 372 743			13 372 743
Activities under Article 3, paragraph 4, for 2011[d]				
3.4 Forest management for 2011	–54 623 531	–54 676 413		–54 676 413
3.4 Cropland management for 2011				
3.4 Cropland management for the base year				
3.4 Grazing land management for 2011				
3.4 Grazing land management for the base year				
3.4 Revegetation for 2011				
3.4 Revegetation for the base year				

Abbreviations: Annex A sources = source categories included in Annex A to the Kyoto Protocol, NA = not applicable, NO = not occurring.

[a] "Adjustment" is relevant only for Parties for which the expert review team has calculated one or more adjustment(s).

[b] "Final" includes revised estimates, if any, and/or adjustments, if any.

[c] The values for "Total Annex A sources" in the columns "As reported", "Revised estimates" and "Final" may not equal the sum of the values for the gases in those columns owing to rounding.

[d] Activities under Article 3, paragraph 4, are relevant only for Parties that elected one or more such activities.

Table 12
Information to be included in the compilation and accounting database in t CO_2 eq for 2010

	As reported	*Revised estimates*	*Adjustment*[a]	*Final*[b]
Annex A emissions for 2010				
CO_2	386 031 375			386 031 375
CH_4	53 080 221			53 080 221
N_2O	60 353 045			60 353 045
HFCs	15 745 798			15 745 798
PFCs	386 981			386 981
SF_6	849 400			849 400
Total Annex A sources[c]	**516 446 820**			**516 446 820**
Activities under Article 3, paragraph 3, for 2010				
3.3 Afforestation and reforestation on non-harvested land for 2010	–8 920 913	–8 896 323		–8 896 323
3.3 Afforestation and reforestation on harvested land for 2010	NA, NO			NA, NO
3.3 Deforestation for 2010	13 147 071			13 147 071
Activities under Article 3, paragraph 4, for 2010[d]				
3.4 Forest management for 2010	–51 201 489	–51 226 079		–51 226 079
3.4 Cropland management for 2010				
3.4 Cropland management for the base year				
3.4 Grazing land management for 2010				
3.4 Grazing land management for the base year				
3.4 Revegetation for 2010				
3.4 Revegetation for the base year				

Abbreviations: Annex A sources = source categories included in Annex A to the Kyoto Protocol, NA = not applicable, NO = not occurring.

[a] "Adjustment" is relevant only for Parties for which the expert review team has calculated one or more adjustment(s).

[b] "Final" includes revised estimates, if any, and/or adjustments, if any.

[c] The values for "Total Annex A sources" in the columns "As reported", "Revised estimates" and "Final" may not equal the sum of the values for the gases in those columns owing to rounding.

[d] Activities under Article 3, paragraph 4, are relevant only for Parties that elected one or more such activities.

Table 13
Information to be included in the compilation and accounting database in t CO_2 eq for 2009

	As reported	*Revised estimates*	*Adjustment*[a]	*Final*[b]
Annex A emissions for 2009				
CO_2	377 512 547			377 512 547
CH_4	53 115 693			53 115 693
N_2O	62 516 968			62 516 968
HFCs	14 806 997			14 806 997
PFCs	370 161			370 161
SF_6	925 737			925 737
Total Annex A sources[c]	**509 248 102**			**509 248 102**
Activities under Article 3, paragraph 3, for 2009				
3.3 Afforestation and reforestation on non-harvested land for 2009	–8 516 157			–8 516 157
3.3 Afforestation and reforestation on harvested land for 2009	NA, NO			NA, NO
3.3 Deforestation for 2009	15 100 330			15 100 330
Activities under Article 3, paragraph 4, for 2009[d]				
3.4 Forest management for 2009	–56 867 514			–56 867 514
3.4 Cropland management for 2009				
3.4 Cropland management for the base year				
3.4 Grazing land management for 2009				
3.4 Grazing land management for the base year				
3.4 Revegetation for 2009				
3.4 Revegetation for the base year				

Abbreviations: Annex A sources = source categories included in Annex A to the Kyoto Protocol, NA = not applicable, NO = not occurring.

[a] "Adjustment" is relevant only for Parties for which the expert review team has calculated one or more adjustment(s).

[b] "Final" includes revised estimates, if any, and/or adjustments, if any.

[c] The values for "Total Annex A sources" in the columns "As reported", "Revised estimates" and "Final" may not equal the sum of the values for the gases in those columns owing to rounding.

[d] Activities under Article 3, paragraph 4, are relevant only for Parties that elected one or more such activities.

Table 14
Information to be included in the compilation and accounting database in t CO_2 eq for 2008

	As reported	*Revised estimates*	*Adjustment*[a]	*Final*[b]
Annex A emissions for 2008				
CO_2	396 285 845			396 285 845
CH_4	54 367 665			54 367 665
N_2O	66 429 727			66 429 727
HFCs	14 104 914			14 104 914
PFCs	569 053			569 053
SF_6	1 095 417			1 095 417
Total Annex A sources[c]	**532 852 621**			**532 852 621**
Activities under Article 3, paragraph 3, for 2008				
3.3 Afforestation and reforestation on non-harvested land for 2008	–8 000 435			–8 000 435
3.3 Afforestation and reforestation on harvested land for 2008	NA, NO			NA, NO
3.3 Deforestation for 2008	18 067 915			18 067 915
Activities under Article 3, paragraph 4, for 2008[d]				
3.4 Forest management for 2008	–65 016 025			–65 016 025
3.4 Cropland management for 2008				
3.4 Cropland management for the base year				
3.4 Grazing land management for 2008				
3.4 Grazing land management for the base year				
3.4 Revegetation for 2008				
3.4 Revegetation for the base year				

Abbreviations: Annex A sources = source categories included in Annex A to the Kyoto Protocol, NA = not applicable, NO = not occurring.

[a] "Adjustment" is relevant only for Parties for which the expert review team has calculated one or more adjustment(s).

[b] "Final" includes revised estimates, if any, and/or adjustments, if any.

[c] The values for "Total Annex A sources" in the columns "As reported", "Revised estimates" and "Final" may not equal the sum of the values for the gases in those columns owing to rounding.

[d] Activities under Article 3, paragraph 4, are relevant only for Parties that elected one or more such activities.

Annex II

Documents and information used during the review

A. Reference documents

Intergovernmental Panel on Climate Change. *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. Available at <http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html>.

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

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

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

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

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

"Guidelines for national systems for the estimation of anthropogenic greenhouse gas emissions by sources and removals by sinks under Article 5, paragraph 1, of the Kyoto Protocol". Decision 19/CMP.1. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf#page=14>.

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

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

Status report for France 2014. Available at <http://unfccc.int/resource/docs/2014/asr/fra.pdf>.

Synthesis and assessment report on the greenhouse gas inventories submitted in 2014. Available at <http://unfccc.int/resource/webdocs/sai/2014.pdf>.

FCCC/ARR/2013/FRA. Report of the individual review of the annual submission of France submitted in 2013. Available at <http://unfccc.int/resource/docs/2014/arr/fra.pdf>.

Standard independent assessment report template, parts 1 and 2. Available at <http://unfccc.int/kyoto_protocol/registry_systems/independent_assessment_reports/items/4061.php>.

B. Additional information provided by the Party

Responses to questions during the review were received from Ms. Frédérique Millard (General Directorate for Energy and Climate, Ministry of Ecology, Sustainable Development and Energy), including additional material on the methodology and assumptions used.

Annex III

Acronyms and abbreviations

AD	activity data
ANSES	French Agency for Food, Environmental and Occupational Health and Safety
C	carbon
C	confidential
CDM	clean development mechanism
CF_4	carbon tetrafluoride
C_2F_6	perfluoroethane
CH_4	methane
CITEPA	Centre Interprofessionnel Technique d'Etudes de la Pollution Atmosphérique
CMP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
CRF	common reporting format
DOC	degradable organic carbon
DOCf	fraction of degradable organic carbon
EF	emission factor
ERT	expert review team
ETBE	ethyl tertiary butyl ether
EU	European Union
EU ETS	European Union Emissions Trading System
FAOSTAT	database of the Food and Agriculture Organization of the United Nations
F-gas	fluorinated gas
FOD	first-order decay method
$Frac_{PRP}$	fraction of livestock nitrogen excreted and deposited onto soils by grazing livestock
g	gram
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
IE	included elsewhere
IEA	International Energy Agency
IEF	implied emission factor
INRA	Institut National de la Recherche Agronomique
IPCC	Intergovernmental Panel on Climate Change
ITL	international transaction log
ITOM	Installations de traitement des Ordures Ménagères
k	methane generation rate constant
kg	kilogram (1 kg = 1,000 grams)
kha	kilohectare
KP-LULUCF	land use, land-use change and forestry emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol
$L_0(x)$	methane generation potential
LULUCF	land use, land-use change and forestry
MCF	methane correction factor
MCF	methane conversion factor
Mg	megagram (1 Mg = 1 tonne)
MSW	municipal solid waste
N_2O	nitrous oxide

NA	not applicable
NCV	net calorific values
NE	not estimated
NFI	national forest inventory
NIR	national inventory report
NO	not occurring
OMINEA	Organization and methodologies for the national inventory of atmospheric emissions
PFCs	perfluorocarbons
PJ	petajoule (1 PJ = 10^{15} joule)
PTOM	overseas territories, not included in the EU territory
QA/QC	quality assurance/quality control
RMU	removal unit
SEF	standard electronic format
SF_6	sulphur hexafluoride
t	tonne (1 tonne = 1,000 kg)
SIAR	standard independent assessment report
UNFCCC	United Nations Framework Convention on Climate Change
VS	volatile solids
Ym	CH_4 conversion rate